Internal Ex-Post Project Evaluation 2021

Evaluation Report

June 2023

Japan International Cooperation Agency

（JICA）

EV
JR
23-31

Type of Assistance	Project Start Year	Type of Evaluation	Country	Sector/Theme	Project Name	Project Number
Technical Cooperation	2014	Ex-post evaluation	Mongolia	Development Planning/General	Project for Improvement for Planning and Implementation Skills of Ulaanbaatar Master Plan	201400610
Technical Cooperation	2010	Ex-post evaluation	Mongolia	Urban Planning/Land Development	The Project on Capacity Development in Urban Development Sector in Mongolia	200900494
Technical Cooperation	2017	Ex-post evaluation	Sri Lanka	Urban Planning/Land Development	The Project for Formulation of Greater Kandy Urban Plan	201601602
Technical Cooperation	2014	Ex-post evaluation	Sri Lanka	Rivers/Erosion Control	Technical Cooperation for Landslide Mitigation Project	201300583
Grant Aid	2012	Ex-post evaluation	Sri Lanka	Water Supply	the Project for Rehabilitation of Kilinochchi Water Supply Scheme	1161310
Grant Aid	2017	Ex-post evaluation	Kyrgyz Republic	Transportation/Traffic/General	the Project for Improvement of Workshops for Road Maintenance Equipment	1560730
Technical Cooperation	2014	Ex-post evaluation	El salvador	Agriculture/General	Horticultural Farmers' Profitability Improvement Project in the Eastern Region of the Republic of El Salvador	201300203
Technical Cooperation	2013	Ex-post evaluation	Nicaragua	Agriculture/General	Vocational Training Improvement Project in Agricultural and Livestock Sector	201200158
Technical Cooperation	2015	Ex-post evaluation	Colombia	Rivers/Erosion Control	Project for Strengthening Flood Risk Management Capacity	201300441
Technical Cooperation	2011	Ex-post evaluation	Iraq	Agriculture/General	The Project on Horticulture Technology Improvement and Extension	201003676
Technical Cooperation	2012	Ex-post evaluation	Iraq	Agriculture/General	Project for Spreading Water Users Associations for the Efficient Use of Irrigation Water	201100423
Grant Aid	2014	Ex-post evaluation	Jordan	Tourist Facilities	the Project for the Construction of the Petra Museum	1360900
Technical Cooperation	2012	Ex-post evaluation	Kenya	Agriculture/General	Rice-based and Market-oriented Agriculture Promotion Project	201100503
Technical Cooperation	2015	Ex-post evaluation	Zimbabwe	Measurement/Map	The Development of a Geospatial Information Database Project	201400536
Technical Cooperation	2013	Ex-post evaluation	Burundi	Health/Health Care	Project for Capacity Building of Provincial Health Staff for Maternal and Child Health	201200522
Technical Cooperation	2012	Ex-post evaluation	Philippines	Health/Health Care	The Project for Cordillera-wide Strengthening of the Local Health System for Effective and Efficient Delivery of Maternal and Child Health Services	201000176
Technical Cooperation	2012	Ex-post evaluation	Namibia	Agriculture/General	Flood- and drought-adaptive cropping systems to conserve water environments in semi-arid regions	201100521
Technical Cooperation	2012	Ex-post evaluation	Mozambique	New/Renewable Energy	Sustainable Jatropha Biofuel Production in Mozambique	201000715
Technical Cooperation	2012	Ex-post evaluation	Senegal	Agriculture/General	Project on Promotion of rural development in harmonization with Ecology and Economy: Promotion of Ecovillages	201102522
Technical Cooperation	2010	Ex-post evaluation	Gabon	Forestry/Forest Preservation	Conservation of Biodiversity in Tropical Forest through Sustainable Coexistance between Human and Wild Animals	200802827
Technical Cooperation	2007	Ex-post evaluation	Bangladesh	Health/Health Care	Safe Motherhood Promotion Project	200602298
Technical Cooperation	2011	Ex-post evaluation	Bangladesh	Health/Health Care	Safe Motherhood Promotion Project(Phase 2)	201000327
Technical Cooperation	2011	Ex-post evaluation	India	Agriculture/General	Project for Maximisation of Soybean Production in Madhya Pradesh	200800342
Technical Cooperation	2011	Ex-post evaluation	Mexico	Environment Issue	Joint Research Project on Formation Mechanism of Ozone, VOCs, and PM2.5 and Proposal of Countermeasure Scenario	201000421
Grant Aid	2015	Ex-post evaluation	Antigua and Barbuda	Fisheries	the Project for Improvement of Fishery Equipment and Machinery in Antigua and Barbuda	1460780
Grant Aid	2014	Ex-post evaluation	Saint Vincent and the Grenadines	Fisheries	the Project for Improvement of Fishery Equipment and Machinery in Saint Vincent and the Grenadines	1460370
Technical Cooperation	2011	Ex-post evaluation	Cambodia	Forestry/Forest Preservation	Project for Facilitating the Implementation of REDD+ Strategy and Policy	201003580
Technical Cooperation	2015	Ex-post evaluation	Cambodia	Roads	The Project for Strengthening Capacity for Maintenance of Roads and Bridges	201300179
Technical Cooperation	2014	Ex-post evaluation	Laos	Environment Issue	Project for Urban Water Environment Improvement in Vientiane Capital	201200232
Technical Cooperation	2014	Ex-post evaluation	Viet Nam	Environment Issue	Project for Capacity Development on Integrated Management of Municipal Solid Waste	200900438
Grant Aid	2013	Ex-post evaluation	Bangladesh	Water Resources Development	the Project for Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas	1260500
Technical Cooperation	2012	Ex-post evaluation	Bangladesh	Government/General	Project for Improving Public Services through Total Quality Management	201100270
Technical Cooperation	2013	Ex-post evaluation	India	Water Supply	Capacity Development Project for Non Revenue Water Reduction in Jaipur	201100281
Technical Cooperation	2014	Ex-post evaluation	Nepal	Urban Planning/Land Development	The Project on Urban Transport Improvement for Kathmandu Valley	201300230
Technical Cooperation	2013	Ex-post evaluation	Nepal	Government/General	The Project for Strengthening the Capacity of Court for Expeditious and Reliable Dispute Settlement	201300235
Technical Cooperation	2008	Ex-post evaluation	Nepal	Primary Education	The Support for Improvement of Primary School Management	200701297
Technical Cooperation	2013	Ex-post evaluation	Nepal	Primary Education	Support for Improvement of Primary School Management (SISM) Phase- 2	201100278
Technical Cooperation	2014	Ex-post evaluation	Sri Lanka	Weather/Earthquakes	Project for Improving of Meteorological Observation, Weather Forecasting and Dissemination	201300665
Technical Cooperation	2012	Ex-post evaluation	Sri Lanka	Agriculture/General	The Project for Enhancement of Production System of Certified Vegetable Seed in Sri Lanka	201100294
Technical Cooperation	2012	Ex-post evaluation	Indonesia	Health/Health Care	Project for Enhancement of Nursing Competency through In-Service Training	201100681
Grant Aid	2015	Ex-post evaluation	Fiji	Telecommunication	The Project for the Rehabilitation of the Medium Wave Radio Transmission	1560300
Technical Cooperation	2013	Ex-post evaluation	Malaysia	Environment Issue	Project on Sustainable Development for Biodiversity and Ecosystems Conservation in Sabah	201200178
Grant Aid	2014	Ex-post evaluation	Grenada	Fisheries	the Project for Improvement of Fishery Equipment and Machinery in Grenada	1460360
Grant Aid	2010	Ex-post evaluation	Bolivia	New/Renewable Energy	Project for Introduction of Clean Energy by Solar Electricity Generation System	0961330
Technical Cooperation	2016	Ex-post evaluation	Bolivia	Urban Transport	Urban Transport Improvement Master Plan Project for Santa Cruz de la Sierra Metropolitan Area	201500355
Technical Cooperation	2013	Ex-post evaluation	Bolivia	Health/Health Care	Maternal and Child Health Network Improvement Project in Potosi	201200507
Technical Cooperation	2014	Ex-post evaluation	Brazil	Environment Issue	Project for E-waste Reverse Logistics Improvement	201300308
Technical Cooperation	2014	Ex-post evaluation	Philippines	Weather/Earthquakes	Project for Enhancing Capacity on Weather Observation, Forecasting and Warning	201200346

Type of Assistance	Project Start Year	Type of Evaluation	Country	Sector/Theme	Project Name	Project Number
Technical Cooperation	2014	Ex-post evaluation	Ethiopia	Primary Education	Project for Capacity Development for Improving Learning Achievement in Mathematics and Science Education in Ethiopia	201300507
Technical Cooperation	2011	Ex-post evaluation	Kenya	New/Renewable Energy	Project for Capacity Development for Promoting Rural Electrification Using Renewable Energy	201002616
Technical Cooperation	2014	Ex-post evaluation	Kenya	Agriculture/General	Project on Enhancing Gender Responsive Extension Services in Kenya	201300645
Technical Cooperation	2010	Ex-post evaluation	Kenya	Water Resources Development	Water Supply and Hygiene Improvement Project in Host Communities of Dadaab Refugee Camps	201001141
Technical Cooperation	2014	Ex-post evaluation	Philippines	Higher Education	Project for Supporting Senior High School (SHS) Program in Technical Vocational High Schools	201301862
Technical Cooperation	2013	Ex-post evaluation	Uganda	Secondary Education	Secondary Science and Mathematics Teachers' Project Phase III	201200065
Technical Cooperation	2012	Ex-post evaluation	Madagascar	Environment Issue	Project of Integrated Approach Development in order to Promote Environment Restoration and Rural Development in Morarano Chrome	200800978
Technical Cooperation	2013	Ex-post evaluation	Mozambique	Environment Issue	The Project for Promotion of Sustainable 3R Activities in Maputo	201100603
Technical Cooperation	2011	Ex-post evaluation	Mozambique	Health/Health Care	The project for strengthening pedagogical and technical skills of teachers of health training institute	201100612
Grant Aid	2015	Ex-post evaluation	Senegal	Water Resources Development	Project for Drinking Water Supply and Improvement of Hygiene Conditions in Rural Areas	1460990
Technical Cooperation	2012	Ex-post evaluation	Senegal	Health/Health Care	Project for Renforcement for Maternal and New Born Health Care Phase 2	201200388
Technical Cooperation	2010	Ex-post evaluation	Sudan	Government/General	Capacity Building Project for the Implementation of the Executive Programme for the Agricultural Revival	200904132
Grant Aid	2010	Ex-post evaluation	Gabon	New/Renewable Energy	The Project for Introduction of Clean Energy by Solar Electricity Generation System	0962140
Technical Cooperation	2010	Ex-post evaluation	Rwanda	Agriculture/General	Project for Increasing Crop Production with Quality Extension Services in the Eastern Province	200801026
Technical Cooperation	2010	Ex-post evaluation	Democratic Republic of The Congo	Health/Health Care	Support to Human Resource Development in health sector of Democratic Republic of the Congo	201000704
Technical Cooperation	2014	Ex-post evaluation	Democratic Republic of The Congo	Health/Health Care	Support to Human Resource Development in health sector of Democratic Republic of the Congo Phase 2 (PADRHS Phase 2)	201300256
Technical Cooperation	2015	Ex-post evaluation	Bangladesh	Roads	Bridge Management Capacity Development Project	201400806
Grant Aid	2014	Ex-post evaluation	Cambodia	Secondary Education	the Project for Expansion of Lower Secondary Schools in Phnom Penh	1460250
Grant Aid	2012	Ex-post evaluation	Fiji	Weather/Earthquakes	the Project for Improvement of Equipment for Disaster Risk Management	1161610

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Mongolia Office: February, 2023

Country Name	Project for Improvement for Planning and Implementation Skills of Ulaanbaatar Master Plan
Mongolia	

I. Project Outline

Background	In Ulaanbaatar city, the capital city of Mongolia, the city population had increased from 0.65 million in 1998 to 1.2 million in 2012 due to population inflow from rural areas. Housing supply could not catch up with the rapid population increase and urbanization and it was estimated that 60% of the population lived in "ger areas"[1] without sufficient urban infrastructures. With that background, the Government of Mongolia with the assistance of JICA implemented a project the "Study on City Master Plan and Urban Development Program of Ulaanbaatar City" (2007-2009) to present an ideal city vision of Ulaanbaatar and promote its urban development. Based on the results of the study, the Governor's Office of the Capital City (the Municipal Government) formulated the "Ulaanbaatar 2020 Master Plan and Development Approaches for 2030" (MP2020) which was approved by the State Great Khural (the parliament of Mongolia) in February 2013. Following the approval, the Municipal Government was expected to develop an action plan for prompt implementation of MP2020. However, the action plan was not developed due to the lack of human resources who had sufficient knowledge and experience of planning. Besides, a technical cooperation project the "Project on Capacity Development in Urban Development Sector in Mongolia" (2010-2013) was implemented with the assistance of JICA to promote the redevelopment of ger areas, and the project prepared the draft law of urban redevelopment. The Municipal Government developed rules and regulations for the draft law and started urban redevelopment projects consigning them to private companies. However, the Municipal Government faced with various issues relating projects' implementation caused by the inadequate legislation systems and insufficient management capacities of the city staff.		
Objectives of the Project	Through the assistance for formulation of MP2020 Action Plan and promotion of implementation of urban redevelopment projects in Ulaanbaatar city, the project aims at development of the city staff's capacity of planning and implementation of urban development, thereby contributing to the improvement of urban functions and residential environment of Ulaanbaatar city. 1. Overall Goal: Urban functions and residential environment of Ulaanbaatar city are improved through planned urban development based on MP2020 approved by the 23rd Parliament Resolution in 2013. 2. Project Purpose: Capacity of urban planning and urban development project implementation contributing to upgrading residential environment is enhanced.		
Activities of the Project	1. Project Site: Ulaanbaatar city 2. Main Activities: 1) Formulation of the MP2020 Action Plan 2) Establishment of the monitoring method for the MP2020 Action Plan 3) Formulation of the urban redevelopment policy and the 5-year implementation plan for urban redevelopment 4) Promotion of the land readjustment projects through model projects 5) Establishment of the projectization promotion strategies for urban redevelopment projects 6) Promotion of public participation and information sharing with citizens 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 13 persons 2) Trainees Received: 16 persons Mongolian Side 1) Staff Allocated: 27 persons 2) Land and Facilities: project office 3) Local cost: cost for utility of offices (electricity, water and telephone)		
Project Period	(ex-ante) September 2014 – December 2018 (actual) September 2014 – December 2018	Project Cost	(ex-ante) 340 million yen (actual) 441 million yen
Implementing Agency	Ministry of Construction and Urban Development (MCUD), Governor's Office of the Capital City (Municipal Government)		
Cooperation Agency in Japan	_		

II. Result of the Evaluation

1 Relevance/Coherence
[Relevance] <Consistency with the Development Policy of Mongolia at the Time of Ex-Ante Evaluation> The project was consistent with the development policy of Mongolia at the time of ex-ante evaluation. In the section of "Economic Growth and Development Policies" in the "Comprehensive National Development Strategy of Mongolia 2007-2021," four strategic objectives were defined as: 1) urban construction and legal system development for urban planning to create appropriate population distribution and favorable living conditions for citizens in urban and other areas, 2) construction of buildings which meet the today's quality standard, 3) acceleration of housing supply, and 4) improvement of land use including promotion of land privatization. MP2020 formulated along the line with those strategic objectives was approved by the parliament in February 2013 and recognized as the Ulaanbaatar city's development policy to attain those strategic objectives.

[1] Residencial areas formed by the inflow of nomad into Ulaanbaatar city consist of gers (traditional portable houses) and simple detached houses.

<Consistency with the Development Needs of Mongolia at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Mongolia at the time of ex-ante evaluation. Following the approval of MP2020, the Municipal Government was expected to develop an action plan for prompt implementation of MP2020. However, the action plan was not developed due to the lack of human resources who had sufficient knowledge and experience of planning. On the other hand, the "Project on Capacity Development in Urban Development Sector in Mongolia" (2010-2013) assisted by JICA prepared the draft law of urban redevelopment, and it was submitted to the parliament. The municipal government developed rules and regulations related to the draft law and started urban redevelopment projects consigning them to private companies. However, due to inadequate legislation systems and insufficient management capacities of the city staff, the municipal government faced with various issues relating projects' implementation.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. One of the outputs of the project was implementation of housing supply policy for the lower and medium income population in Ulaanbaatar city including residents in ger areas. Since the average annual income of the residents in ger areas was lower than 30% of the national average, it indicated that the project made consideration for socially vulnerable people. Besides, the Urban Development Law (2008) stipulated provisions to ensure the balance of human security, natural environment, ecology, economy, and social development as well as to secure the equal interests of all concerned actors including the residents involved in urban development activities. MP2020 was formulated based on the concept of those provisions. Therefore, aiming at the promotion of implementation of MP2020, the project was designed to secure equal interests of all stakeholders involved in and affected by urban development. No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low * To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy to Mongolia at the time of ex-ante evaluation. In the "Country Assistance Policy for Mongolia" (April 2012), strengthening of urban functions of Ulaanbaatar city was placed as one of the priority areas (intermediary goals). The policy declared to assist infrastructure development applying Japanese knowledge and technologies along with capacity development of Mongolian agencies' urban planning management in order to sustain and strengthen urban functions through the realization of MP2020.

<Collaboration/Coordination with other JICA's interventions>

Any collaboration/coordination between the project and other JICA's intervention was not clearly planned at the time of ex-ante evaluation.

<Cooperation with other institutions/ Coordination with international framework>

Any cooperation with other institutions/ coordination with international framework was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project Purpose was mostly achieved as planned. The staff of MCUD and the Municipal Government has improved their knowledge and implementing capacity for urban development through various training and on-the-job (OJT) training provided by the project (Indicator 1), which contributed to the drafting of MP2040 after-mentioned. The MP2020 Action Plan was developed by the project and approved by the parliament in 2016 (Indicator 2). Handbooks prepared by the project were utilized for the formulation of urban development rules and regulations, training, pilot projects, and other activities (Indicator 3). The project proposed an organizational restructuring of the Municipal Government for smooth implementation of MP2020 (Indicator 4), and the restructuring was conducted after the completion of the project (Indicator 5).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

By the time of the ex-post evaluation, the project effects have been continued. After the completion of the project, MCUD and the Municipal Government in collaboration conducted monitoring and evaluation of the implementation situation of MP2020. And, based on the results of monitoring and evaluation, at the time of ex-post evaluation, they are drafting MP2040 which is the updated version of MP2020. MCUD and the Municipal Government also prepared the revision of the Urban Redevelopment Law, and it was approved by the parliament in 2021. Handbooks prepared by the project have been utilized for policy making, training, and other activities related to urban development. The Urban Planning and Development Department of the Municipal Government has developed videos and handouts based on the handbooks and utilized them in public meetings for citizens on urban redevelopment. Organizational restructuring of the Municipal Government proposed by the project was carried out after the completion of the project. The new section of Development Policy and Planning was set up and the number of staff for urban development has increased. The new section is responsible for the comprehensive works of policy formulation, planning, and implementation of urban development of the city including MP2020 and urban redevelopment projects.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of ex-post evaluation, the Overall Goal has been partially achieved. The number of citizens living in houses with utility services (heating, sewerage, water supply) is on the increasing trend. However, according to the Municipal Government, the implementation rate[2] of MP2020 in 2020 was 29.6%. If the rate had been higher, the larger development effects might be expected.

<Other Impacts at the Time of Ex-Post Evaluation>

[2] The rate of the number of projects commenced and completed against the number of projects planned in MP2020 to be commenced and completed.

According to MCUD and the Municipal Government, land acquisition and resettlement caused by the project and the projects of MP2020 have not taken place. In the redevelopment of ger areas implemented according to MP2020, apartment houses reconstruction projects remove old houses and newly build apartment houses. Residents in the project sites are granted to exchange their lands for apartments, and the land of 2,427 units[3] have been exchanged for apartments. Exchanges of lands are negotiated between residents and developers, and MCUD and the Municipal Government do not participate in the negotiations. Along with the progress of redevelopment projects, the number of residents in ger areas has increased and asset value of land in the areas has risen. As for the citywide development, improvement of environment and soil was expected through installation of sewage lines, improvement and construction of lavatories including public lavatories, and renovations of waste dumping areas. However, specific effects on environment and soil have not been confirmed at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
Project Purpose: Capacity for urban planning and urban development project implementation contributing to upgrading residential environment is enhanced.	Indicator 1: Formulation and publication of the MP2020 Action Plan, and improvement of knowledge and capacity for the implementation of urban redevelopment projects.	Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued) (Project Completion) Through various training (training in Mongolia, training in Japan, workshops, and seminars), OJT in pilot projects, discussion in taskforce meetings, and other activities provided by the project, the staff of MCUD and the Municipal Government has improved their knowledge and implementing capacity for urban development including legal systems development, institutions development, legal documentations, implementation of surveys, and others. (Ex-Post Evaluation) After the completion of the project, MCUD and the Municipal Government in collaboration conducted monitoring and evaluation of the implementation situation of MP2020. And, based on the results of monitoring and evaluation, they are drafting MP2040 which is the updated version of MP2020 at the time of ex-post evaluation. To draft MP2040, MCUD and the Municipal Government conducted interviews with experts, public hearings inviting citizens and private sectors, and various surveys including population survey, economic survey, environmental survey. The revision of the Urban Redevelopment Law was also prepared in the same manner, and the revision was approved by the parliament in 2021.	Source: MCUD, Municipal Government
	Indicator 2: Approval of the MP2020 Action Plan.	Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued) (Project Completion) The MP2020 Action Plan was approved in 2016 by the Mongolian government ordinance No.174. (Ex-Post Evaluation) As stated above in Indicator 1, MCUD and the Ulaanbaatar Municipal Government are drafting MP2040 which is the updated version of MP2020 at the time of ex-post evaluation.	Source: MCUD, Municipal Government
	Indicator 3: Utilization of handbooks in daily work of the implementation of urban redevelopment projects. Utilization of handbooks for the training related to urban redevelopment.	Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued) (Project Completion) The handbook of "Urban Redevelopment Law and organizations for urban redevelopment" prepared by the project was utilized to formulate urban development rules and regulations including the "regulation on urban and downtown redevelopment site selection model" and the "regulation on rebuilding old apartment houses projects." The handbook was also utilized in training (training in Mongolia, training in Japan, workshops, and seminars) and the pilot projects. (Ex-Post Evaluation)	Source: MCUD, Municipal Government

[3] A legal unit used in Mongolia for land registration. It does not denote land area or the number of households.

<table>
<tr><td></td><td></td><td>After the completion of the project, policy makers in MCUD and the Municipal Government have kept using the handbooks prepared by the project in their daily work of policy making, document preparation, meetings, etc. The handbooks are also utilized in training on urban planning and regulation formulation conducted for the staff of local governments including the Municipal Government. The Urban Planning and Development Department of the Municipal Government has developed videos and handouts based on the handbooks and utilized them in public meetings for citizens on urban redevelopment.</td><td></td></tr>
<tr><td></td><td>Indicator 4:
Re-organization of Ulaanbaatar Municipal Government functions effectively to conduct the MP2020 Action Plan.</td><td>Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued)
(Project Completion)
The project proposed an organizational restructuring of the Municipal Government aiming at the smooth implementation of MP2020.
(Ex-Post Evaluation)
The organizational restructuring proposed by the project was carried out after the completion of the project and approved in 2021 by the government resolution No.360. By the restructuring, the new section of Development Policy and Planning was set up, and the number of staff for urban development increased from 8 to 15. The new section is responsible for the monitoring and support of implementation of MP2020, preparation of MP2040, along with policy formulation, planning, and facilitation for urban development.</td><td>Source: Municipal Government</td></tr>
<tr><td></td><td>Indicator 5:
Proposal of the re-organization of Ulaanbaatar Municipal Government functions effectively to conduct urban redevelopment.</td><td>Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued)
(Project Completion)
The project proposed an organizational restructuring of the Municipal Government aiming at the smooth implementation of urban redevelopment projects.
(Ex-Post Evaluation)
As stated above in Indicator 4, the new section of Development Policy and Planning was created which was responsible for the comprehensive works of policy formulation, planning, and implementation of urban development of the city including MP2020 and urban redevelopment projects.</td><td>Source: Municipal Government</td></tr>
<tr><td>Overall Goal:
Urban functions and residential environment of Ulaanbaatar city are improved through planned urban development based on the MP2020 approved by the 23rd parliament resolution in 2013.</td><td>Indicator:
The number of citizens living in houses with utility services (heating, sewerage, water supply).</td><td>(Ex-Post Evaluation) partially achieved
Table 1: The number of citizens living in houses with utility services in Ulaanbaatar city
Unit: thousand households
<table>
<tr><th>Year</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th></tr>
<tr><td>Heating</td><td>-</td><td>-</td><td>-</td><td>163</td><td>-</td></tr>
<tr><td>Sewerage</td><td>133</td><td>131</td><td>137</td><td>138</td><td>160</td></tr>
<tr><td>Water supply</td><td>122</td><td>145</td><td>161</td><td>177</td><td>175</td></tr>
<tr><td>Total household</td><td>334</td><td>353</td><td>376</td><td>381</td><td>386</td></tr>
</table>
<table>
<tr><th>Year</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th></tr>
<tr><td>Heating</td><td>178</td><td>211</td><td>211</td><td>-</td><td>-</td></tr>
<tr><td>Sewerage</td><td>172</td><td>182</td><td>204</td><td>-</td><td>-</td></tr>
<tr><td>Water supply</td><td>173</td><td>190</td><td>197</td><td>214</td><td>-</td></tr>
<tr><td>Total household</td><td>387</td><td>411</td><td>414</td><td>413</td><td></td></tr>
</table>
Note: “-” in the table indicates no data available due to no survey was conducted and some other reasons.
As shown in the table, the number of households with utility services in Ulaanbaatar city is on the increasing trend in terms of every service of heating, sewerage, and water supply. However, the rate of the number of completed projects planned in MP2020 in 2020 was as low as 29.6%.</td><td>Source: Municipal Government</td></tr>
</table>

3 Efficiency

Because the implementation methods of some tasks were changed to produce outputs, the project cost exceeded the plan (the ratio against the plan: 130%), while the project period was as planned (the ratio against the plan: 100%). Outputs were produced as planned. In the light above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

The "Mongolia's Long-Term Development Policy Vision 2050" (2020) is a long-term national development policy for 2020 to 2050. The chapter 9 of it is the "Development of Ulaanbaatar city and its satellite cities." To actualize the vision, at the time of ex-post evaluation, MCUD and the Municipal Government in collaboration with other related agencies are preparing the "Human Settlement Plan" (HSP) and the "Regional Development Plan" (RDP). MP2040, the updated version of MP2020, will be one of the main pillars of HSP. Though RDP is not a development policy specific for Ulaanbaatar city, the development of Ulaanbaatar city is explicitly stated as a significant part of the comprehensive urban development.

<Institutional/Organizational Aspect>

As for the institutional aspect, due to the rules and regulations' development leveraged by the outputs of the project (see achievement of Indicator 3 for the Project Purpose), public participation to development activities, crack down on illegal projects by the government, and landowners' rights protection have been legally strengthened. Because of this, especially in ger areas, positive effects have been observed including prevention of delay or suspension of projects through the public participation in developer's selection process, intensification and speedup of detections of unauthorized development activities, rationalization of real-estate registration to protect landowners. As for the organizational aspect, along with the proposal made by the project, MCUD added "urban redevelopment" to the list of duty outline of the Urban Development and Land Affairs Policy Coordination and Implementation Department in 2019, thus urban development was identified as a duty-in-charge of the department. The Municipal Government also restructured its organization following the proposal made by the project (see achievement of Indicator 4 for the Project Purpose) and increased the number of staff in charge of urban development. However, the number of staff of the Urban Development and Land Affairs Policy Coordination and Implementation Department is 9 and the staff of Municipal Government in charge of urban development is 15, which are not sufficient for the volume of their works according to MCUD and the Municipal Government. Since staffing is done by the central government, it is hard to expect further increase of the staff.

<Technical Aspect>

After the completion of the project, the staff of MCUD and the Municipal Government involved in the project have drafted policies and plans for urban development including MP2040, the revision of Urban Development Law, HSP, and RDP applying the knowledge and experience gained in the project. On the other hand, technical training for the staff has not been sufficient due to financial constraints on human resource improvement. Hence, the Municipal Government finds it difficult to sustain the knowledge, experience, and skills for urban development. The "Manual on Urban Redevelopment Implementation" prepared by the project was distributed to the staff in charge of urban development and policy making of all of 21 prefectures through prefectural governor's offices. It was also introduced and explained in the study meetings on policy making and planning held nationwide in 2020. The manuals and guidelines prepared by the project including the "Urban Redevelopment Implementation Manual" have been continuously utilized in daily work of policy making, annual action planning, and other works of urban development in MCUD and the Municipal Government.

<Financial Aspect>

Both of MCUD and the Municipal Government do not have sufficient budget for urban development thus the implementation rate of MP2020 was as low as 29.6%. MCUD has a difficulty to secure budget for large-scale development projects including ger areas redevelopment. To cope with the situation, MCUD takes measures such as the dispersion of development budget to some years and some areas to keep conducting urban development activities. The Municipal Government has been undertaking coordination efforts in the city council to resolute an adjustment of annual urban development budget. As an assistance from a development partner, at the time of ex-post evaluation, a grant aid project by the Chinese government for apartment houses' constructions is ongoing.

<Environmental and Social Aspect>

To draft MP2040, various environmental surveys including environmental impact assessment surveys have been conducted referring to opinions and advice from specialized agencies, researchers and experts. The draft revision of Urban Development Law submitted to the parliament in 2020 included a clause which stipulated that prefectural governments and the Urban Development and Planning Department Bureau of the Municipal Government in collaboration with related governmental agencies monitor social and environmental impacts caused by urban development activities including the impacts on air, water, soil, dust, noise, vibration, electromagnetic wave, etc. and take actions if necessary.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ②.

5 Summary of the Evaluation

The project mostly achieved the Project Purpose and partially achieved the Overall Goal. As for sustainability, while some problems are observed in terms of the institutional/organizational, technical, and financial aspects, some positive factors can be observed in the institutional/organizational improvement of MCUD and the Ulaanbaatar Municipal Government, production of draft laws applying the knowledge and experience gained in the project, and continuous assistance from development partners. As for efficiency, the project cost exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- The implementation rate of MP2020 was 29.6% mainly due to financial constraints. Therefore, it is recommended that MCUD and the Municipal Government secure the budget for accelerating the implementation of MP2020. Measures to secure the budget could be working on the state government or the city council to increase urban development budget, introduction and promotion of public and private collaboration such as Public Private Partnership (PPP), requesting development partners for financial assistance, and others. It is

expected that MCUD and the Municipal Government take feasible and practical measures for them as soon as possible.

- The MP2020 Action Plan formulated by the project included budgetary plans and financial schemes for the implementation of the projects. However, the implementation rate of MP2020 has not been high due to financial constraints. It inferred that budgetary and financial plans made by the Action Plan have not functioned effectively, or the budgetary and financial plans have not been fully executed even if they were effective. Therefore, it is recommended that MCUD and the Municipal Government who are drafting MP2040, the updated version of MP2020, identify the issues of the budgetary and financial plans of MP2020 and their executions, and formulate realistic and implementable budgetary and financial plans in MP2040.

Lessons Learned for JICA:

- Implementation of the action plan prepared by the project has been delayed mainly due to financial constraints. Financing can be a critical factor in project implementations for most developing countries. Not a little portion of the action plan was devoted to financial plans for projects implementations. However, financing has not been secured because either the financial plans were not appropriate, or the executing agency did not have enough capacity to implement the financial plans even if they were appropriately planned. Hence, it is suggested that, adding to technical and social analysis and planning, feasibility analysis, strategy formulation, scheduling, and execution capability analysis of the implementing agency for financing would be indispensable to formulate a specific and implementable master plan and to implement it. By incorporating a specific financing strategy in a master plan based on those surveys and analysis and starts its initial activities with the initiative of implementing agency, it might increase the feasibility of implementation of the projects planned in the master plan. Though financing strategies vary from organization to organization, they could be, for example, aforementioned working on the finance ministry, public and private collaboration, requesting development partners for assistance, and others.

A ger area planned to be redeveloped

A result of a ger area redevelopment project

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Mongolia Office: February, 2023

Country Name	The Project on Capacity Development in Urban Development Sector in Mongolia
Mongolia	

I. Project Outline

Background	In Ulaanbaatar city, the capital city of Mongolia, the city population increased from 0.65 million in 1998 to 1 million in 2007 due to population inflow from rural areas. Housing supply could not catch up with the rapid population increase and urbanization, and it was estimated that 60% of the population lived in "ger areas"[1] without sufficient urban infrastructures. In addition, environmental problems including air pollution caused by coal for heating and water pollution caused by household wastewater were new urban issues. With that background, the government of Mongolia implemented a project "Study on City Master Plan and Urban Development Program of Ulaanbaatar City" (2007-2009) with the assistance of JICA and formulated the "Ulaanbaatar 2020 Master Plan and Development Approaches for 2030" (MP2020). MP2020, which was approved by the State Great Khural (the parliament of Mongolia) in February 2013, envisioned urban development models and socio-economic framework of Ulaanbaatar city, and presented administrative systems and development projects necessary for them. At the same time, finding that the legal system and enforcement regulations and guidelines were underdeveloped, the study pointed out that it was urgently needed to tackle the issues to implement urban development projects planned in MP2020.		
Objectives of the Project	Through formulation of the drafts of institutional framework, laws and regulations, organizations, and others for the urban development of Ulaanbaatar city, and improvement of the capacity of staff concerned, the project aims at establishment of the systems for urban redevelopment based on MP2020 and improvement of the implementation ability for MP2020, thereby contributing to the improvement of urban development, land use, and living environment of Ulaanbaatar city. 1. Overall Goal: To implement urban development projects in Ulaanbaatar City through the promotion and realization of land use and the improvement of living environment and condition according to the Ulaanbaatar urban master plan. 2. Project Purpose: To enhance the capacity of development projects on planned areas to realize urban redevelopment according to the Ulaanbaatar urban master plan.		
Activities of the Project	1. Project Site: Ulaanbaatar city 2. Main Activities: 1) Drafting of the institutional framework for urban development. 2) Drafting of amendments of laws and regulations and development of technical manuals for urban development. 3) Defining of roles and responsibilities of agencies involved in urban development. 4) Improvement of the capacity of staff in charge of the operation of the systems. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 9 persons 2) Trainees Received: 35 persons 3) Equipment: PCs, copy machines, printers, etc. Mongolian Side 1) Staff Allocated: 105 persons 2) Land and Facilities: project office 3) Local cost: cost for utility of offices (electricity, water and telephone)		
Project Period	(ex-ante) April 2010 - March 2013 (actual) June 2010 - May 2013	Project Cost	(ex-ante) 320 million yen (actual) 367 million yen
Implementing Agency	Ministry of Construction and Urban Development (MCUD), Ulaanbaatar City Government		
Cooperation Agency in Japan	Ministry of Land, Infrastructure, Transport and Tourism, Hokkaido Prefectural Government, Asahikawa City Government, ALMEC Corporation, Oriental Consultants Co., Ltd.		

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Targets of the indicator of the Overall Goal (X%, Y%, Z%) have not been fixed though they were supposed to be figured during the project period. The evaluation judgements in this ex-post evaluation were made by the trend of rise and fall of the number of houses supplied, the total area of development, and the number of development sites.
- Sustainability of the project was evaluated by the project effects including the effects made by the subsequent project of the "Project for Improvement for Planning and Implementation Skills of Ulaanbaatar Master Plan" (2014-2018)[2].

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Mongolia at the Time of Ex-Ante Evaluation>

The project was consistent with the development policy of Mongolia at the time of ex-ante evaluation. In the section of "Economic Growth and Development Policies" in the "Comprehensive National Development Strategy of Mongolia 2007-2021," four strategic objectives were defined to promote development of institutional framework for urban development. They were: 1) urban construction and

[1] Residencial areas formed by the inflow of nomad into Ulaanbaatar city consist of gers (traditional portable houses) and simple detached houses.

[2] The precedent project of the "Study on City Master Plan and Urban Development Program of Ulaanbaatar City" (2007-2009) formulated MP2020, the project aimed to improve the administrative systems and implementation ability, and the subsequent project aimed to formulate the action plan and promote implementation of MP2020.

legal system development for urban planning to create appropriate population distribution and favorable living conditions for citizens in urban and other areas, 2) construction of buildings which meet the today's quality standard, 3) acceleration of housing supply, and 4) improvement of land use including promotion of land privatization. To execute the Strategy, the government formulated the "Action Plan of the Government of Mongolia 2008-2012" and announced the infrastructure development plan aiming at economic growth and sustainable development through industrialization. The plan targeted infrastructure development in ger areas, construction of 100 thousand houses, and building of the capital city of international level.

<Consistency with the Development Needs of Mongolia at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Mongolia at the time of ex-ante evaluation. As stated above, because of the rapid urbanization due to population concentration and expansion of ger areas, living conditions including air and water had been deteriorated. The redevelopment in the city thus was an urgent issue. Besides, although land privatization was legally permitted in 2003 and land reform started, the considerable number of public and private projects were delayed or suspended due to underdeveloped legal and institutional framework of urban development.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. The project aimed to formulate legal and institutional framework of urban development and redevelopment. The main issues of urban redevelopment in Mongolia especially in Ulaanbaatar city were redevelopment of ger areas and rehabilitation of old apartment houses. The average annual income of the residents in ger areas was lower than 30% of the national average, and most of the residents in old apartment houses were lower income or poverty populations. Thus, aiming at the improvement of living conditions of socially vulnerable people, the project was designed to realize social equality.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low * To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy to Mongolia at the time of ex-ante evaluation. The "Country Assistance Program for Mongolia" (November 2004) prioritized "the assistance for infrastructure development to vitalize economic activities" as one of the priority areas of assistance. The infrastructure development was intended to directly contribute to industrial growth in the capital city and regional core cities and improvement of the livelihood of the people.

<Collaboration/Coordination with other JICA's interventions>

The collaboration/coordination between the project and other JICA's projects was planned at the time of ex-ante evaluation and was implemented, the positive effects were confirmed at the time of ex-post evaluation. The project planned at the time of ex-ante evaluation to collaboration/coordination with the aforementioned subsequent project (Project 1) and the dispatch of individual experts for technical and legislative development on urban development (2013-2014) (Project 2). Project 1 formulated MP2020, and the project was implemented to develop legal and administrative systems to implement MP2020. Project 2 dispatched two individual experts to promote implementation of MP2020. The experts conducted study sessions and workshops for the implementing agency of the project and other officials concerned on the topics of land readjustment, legal systems improvement, and others. Applying the knowledge and experience gained in those collaboration/coordination, staff members of MCUD and the Ulaanbaatar City Government were engaged in the drafting of administrative systems, laws and regulations, institutional and organizational systems, and so forth.

<Cooperation with other institutions/ Coordination with international framework>

The cooperation/coordination with a project of the World Bank was planned at the time of ex-ante evaluation and implemented as planned, and the positive effect was confirmed at the time of ex-post evaluation. At the time of ex-ante evaluation, it was planned to cooperate and coordinate with the World Bank's "Ulaanbaatar Services Improvement Project (2)" (2004-2012) expecting to create synergetic effects on legal systems improvement and capacity development of the staff of Ulaanbaatar City Government for urban development. The World Bank's project has improved water supply system in Ulaanbaatar city including ger areas. Based on the improved water supply system, the staff of MCUD and Ulaanbaatar City Government involved in the project formulated the drafts for institutional, legal, and organizational improvement applying their knowledge and experience gained through the World Bank's project. The positive effects were particularly notable in the drafting of institutional and managerial improvement plans for urban water supply systems.

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project Purpose was partially achieved. Planning and scheduling of legal system development fallen behind due to the delay of project team formulation affected by the general election in 2012. However, they were completed by the end of the project (Indicator 1). Due to the delay of project team formulation, administrative officials could not start operation and management of urban development activities using technical manuals prepared by the project at the time of project completion (Indicator 2).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

By the time of ex-post evaluation, the project effects have been continued. After the completion of the project, MCUD and the Ulaanbaatar City Government prepared the draft law of Urban Area Redevelopment and related regulations. The draft law was approved by the parliament. The draft law and related regulations were prepared by the staff of MCUD and the Ulaanbaatar City Government using the technical manuals and guidelines prepared by the project. Besides, MCUD has utilized the manuals and guidelines for drafting legal and policy documents and in public meetings, and the Ulaanbaatar City Government has utilized them in their daily activities of the implementation of MP2020.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of ex-post evaluation, the Overall Goal has been partially achieved. The number of houses supplied and the total area of

development have steadily increased every year in all designated development sites in Ulaanbaatar city. However, according to the Ulaanbaatar City Government, the target of the number of development projects defined by the City Government has not been achieved. That was due to unstable investment in urban development because urban redevelopment projects have been implemented by the private investment.

<Other Impacts at the Time of Ex-Post Evaluation>

According to MCUD and the Ulaanbaatar City Government, land acquisition and resettlement caused by the project and the projects of MP2020 have not taken place. In the ger areas redeveloped according to MP2020, the projects removed old apartment houses and built new ones. Residents in the project sites were granted to exchange their lands for apartments, and the land of 2,427 units[3] have been exchanged for apartments. Though the redevelopment projects were expected to create job opportunities and to improve environmental issues of air and soil pollutions, specific effects have not been confirmed at the time of ex-post evaluation. No negative impact has been confirmed at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
Project Purpose: To enhance the capacity of development projects on planned areas to realize urban redevelopment according to the Ulaanbaatar urban master plan.	Indicator 1: The agenda for approval of draft laws formulated by the project is clearly defined by the end of the project.	Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued) (Project Completion) A considerable number of the staff of the implementing agency left their jobs due to the results of the general election in 2012. The project team was reorganized in 2013 just before the completion of the project. Planning and scheduling of legal system development fallen behind due to the delay of project team reformulation. However, they were completed by the end of the project. (Ex-Post Evaluation) After the completion of the project, based on the plan and schedule of legal system development, MCUD and the Ulaanbaatar City Government in collaboration prepared the draft law of urban redevelopment and related regulations. The draft law was approved by the parliament in June 2015.	Source: MCUD, Ulaanbaatar City Government
	Indicator 2: Administrative officials operate and manage urban development activities using technical manuals prepared by the project.	Status of the Achievement (Status of the Continuation): not achieved (achieved) (Project Completion) The project team was reformulated just before the completion of the project as stated above. Therefore, at the time of project completion, administrative officials did not start operation and management of urban development activities using technical manuals prepared by the project. (Ex-Post Evaluation) After the completion of the project, the staff of MCUD and the Ulaanbaatar City Government operate and manage urban development activities including preparation of the draft law of urban redevelopment and related regulations using technical manuals and guidelines prepared by the project. Besides, MCUD has utilized the manuals and guidelines for drafting legal and policy documents and in public meetings for citizens and private companies, and the Ulaanbaatar City Government has utilized them in their daily activities of the implementation of MP2020.	Source: Project Completion Report, MCUD, Ulaanbaatar City Government
Overall Goal: To implement urban development projects in Ulaanbaatar City through the promotion and realization of land use and the improvement of living	Indicator: Compared to the situation at the time of beginning of the project, urban development is driven forward, and the number of houses supplied, the total area of development, the number of development sites increased.	(Ex-Post Evaluation) partially achieved Table 1: Situation of urban development in Ulaanbaatar city	Source: MCUD, Ulaanbaatar City Government

Year	2014	2015	2016	2017
Houses supplied	1,037	1,656	2,181	540
Area of development (km^2)	-	1,051	871	-
Development sites	6	6	6	6

[3] A legal unit used in Mongolia for land registration. It does not denote land area or the number of households.

environment and condition according to the Ulaanbaatar urban master plan.		<table><tr><td>Year</td><td>2018</td><td>2019</td><td>2020</td><td>2021</td></tr><tr><td>Houses supplied</td><td>2,165</td><td>1,650</td><td>1,050</td><td>695</td></tr><tr><td>Area of development (km^2)</td><td>709</td><td>645</td><td>668</td><td>1,067</td></tr><tr><td>Development sites</td><td>6</td><td>6</td><td>6</td><td>6</td></tr></table>The number of houses supplied and the total area of development have been fluctuating but steadily increasing every year. Development works were also done in 2014 and 2017 but the area data were not available. The number of development sites were stable at six. This indicates that the total number of designated urban development sites in Ulaanbaatar city was six, and urban development projects have been implemented in all of those six sites every year. However, according to the Ulaanbaatar City Government, the target of the number of development projects defined by the City Government has not been achieved. That was due to unstable investment in urban development because the projects for urban redevelopment and rehabilitation of old apartment houses have been implemented by the private investments.	

3 Efficiency

Because the input of Japanese expert was increased to make up for the delay of activities, the project cost slightly exceeded the plan (the ratio against the plan: 115%), while the project period was as planned (the ratio against the plan: 100%). Outputs were produced as planned. In the light above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

The "Mongolia's Long-Term Development Policy Vision 2050" (Vision 2050) (2020) is a long-term national development policy for 2020 to 2050. The chapter 9 of it is the "Development of Ulaanbaatar city and its satellite cities." The "Action Plan of the Government of Mongolia for 2020-2024" prepared for implementing Vision 2050 and the four-year plan and one-year plan of the Ulaanbaatar City Government were formulated based on the draft law of Urban Area Redevelopment and related regulations drafted referring to the technical manuals and guidelines prepared by the project.

<Institutional/Organizational Aspect>

Although MCUD and the Ulaanbaatar City Government played different roles in urban development, platforms such as a taskforce for drafting bills were created in the project, on which both parties worked in collaboration. This system has been maintained after the completion of the project. A taskforce consists of the staff of MCUD and the Ulaanbaatar City Government formulated MP2040, an updated version of MP2020, and the draft of Urban Area Development Law. As for the organizational aspect, following the proposal made by the project, MCUD explicitly defined urban redevelopment as a task-in-charge of the Ministry, and the Ulaanbaatar City Government restructured its organization and increased the number of staff. However, the number of staff in charge of urban development is nine in MCUD and 15 in the Ulaanbaatar City Government, which are not sufficient for the volume of their works. Since staffing is done by the central government, it is hard to expect further increase in the staff.

<Technical Aspect>

The staff of MCUD and the Ulaanbaatar City Government involved in the project and the subsequent project have drafted policies and plans for urban development including the revision of Urban Development Law and MP2040 applying the knowledge and experience gained in those projects. On the other hand, turnover of the staff caused by the general election in the project period and staff rotation after the completion of the project has been the challenging issue for the technical sustainability. In the Ulaanbaatar City Government, the number of the staff involved in the project has decreased to four. Those four members are in charge of the training for newcomers to transfer their knowledge and experiences. The manuals, guidelines, and brochures prepared by the project were extensively used for the preparation of the draft of Urban Areas Development Law and related regulations. They also have been utilized in daily works including the occasions of study sessions on policy making and planning, public meetings for citizens and private companies, and others.

<Financial Aspect>

According to the ex-post evaluation report of the subsequent project (2022), the implementation rate of MP2020 is as low as 29.6% due to constraints of the budget for urban development. To cope with the situation, MCUD takes measures such as the dispersion of development budget to some years and some areas to keep conducting urban development activities. The Ulaanbaatar City Government has been undertaking coordination efforts in the city council to resolute an adjustment of annual urban development budget. As an assistance from a development partner, at the time of ex-post evaluation, a grant aid project by the Chinese government for apartment houses construction is ongoing.

<Environmental and Social Aspect>

To draft MP2040, various environmental surveys including environmental impact assessment surveys have been conducted referring to opinions and advice from specialized agencies, researchers and experts. The draft revision of Urban Development Law submitted to the parliament in 2020 included a clause stipulated that provincial governments and the Capital Urban Development Bureau of the Ulaanbaatar City Government in collaboration with related governmental agencies monitor social and environmental impacts caused by urban development activities including the impacts on air, water, soil, dust, noise, vibration, electromagnetic wave, and so on, and take countermeasures if necessary.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ②.

5 Summary of the Evaluation

While operation and management of urban development activities applying the manuals prepared by the project were not started, the draft of administrative and legal systems development was formulated by the end of the project. Therefore, the Project Purpose was partially achieved. The Overall Goal was partially achieved because urban development projects have been steady implemented in Ulaanbaatar city although the City Government's target has not been achieved. As for sustainability, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects. But some positive movements are observed in the organizational reforms with additional staff and financial support from a development partner. Considering all of the above points, this project is evaluated to be satisfactory.

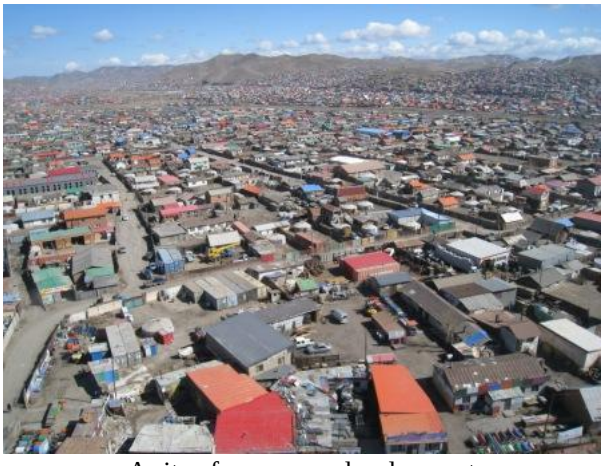
III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- The project aimed at capacity development of the staff of MCUD and the Ulaanbaatar City Government to implement urban development project through drafting administrative and legal systems and bills, and that objective was attained to a certain extent. However, due to the general election and staff rotation, they are facing a difficulty to take root the knowledge and experience gained in the project. Therefore, it is recommended that MCUD and the Ulaanbaatar City Government systematize training system including training for newcomers, on-the-job training (OJT), and coaching to transfer and sustain the knowledge and experience.
- According to the aforementioned ex-post evaluation report of the subsequent project (2022), the implementation rate of MP2020 is 29.6% due to insufficient budget for urban development. Therefore, it is recommended that MCUD and the Ulaanbaatar City Government secure the budget for accelerating the implementation of MP2020. Measures to secure the budget could be working on the state government or the city council to increase urban development budget, introduction and promotion of public and private collaboration such as Public Private Partnership (PPP), requesting development partners for financial assistance, and others.

Lessons Learned for JICA:

- The project aimed to improve practical abilities of the officials concerned through institutional, legal, organizational system development, and achieved its objectives to a certain extent. However, due to turnover caused by the general election and staff rotation, the technical sustainability of knowledge and experience is facing a difficulty. Staff rotation is a usual management event certainly takes place in some years, and a human resource outflow inevitably takes place by that. Therefore, it is recommended that a technical cooperation project aiming at institutional and organizational system development includes training, OJT, coaching, and other means[4] to transfer and sustain knowledge and experience on the premise of turnover expected by staff rotation as a part of institutional system development.
- In a line of the projects, the precedent project formulated MP2020, the project improved the legal and administrative system, and the subsequent project formulated the action plan for MP2020. Although it was expected to consistently implement MP2020 by that project formation, the implementation of MP2020 significantly delayed at the time of ex-post evaluation mainly due to financial constraints. While institutional, legal, and organizational system development was included in the task of the project, a financial system development was not but only some proposals were made such as an establishment of urban redevelopment fund. However, any means for securing funds including the national budget, municipal budget, private investment, international loans require particular institutional systems to mobilize them. Therefore, it is suggested that a technical cooperation project for formulating or implementing a master plan clearly defines means for securing funds as early as possible and starts an institutional/organizational system development for that purpose in the project with the initiative of implementing agency.



A site of ger area redevelopment

Results of an old apartment houses reconstruction project

[4] Tools for transferring and sustaining the knowledge and experience includes job-sharing; the practice of dividing the duties between two people, pair work; the practice of working together by two people, peer review; the practice of evaluating and checking the results of someone's duties by his/her colleague in the workplace, and others.

Internal Ex-Post Evaluation for Development Planning Project

conducted by Sri Lanka Office: August, 2022

Country Name	The Project for Formulation of Greater Kandy Urban Plan
Democratic Socialist Republic of Sri Lanka	

I. Project Outline

Background	Kandy is the capital of the Central Province and is the second-largest city in Sri Lanka. The city was also the last capital of the ancient kings' era of Sri Lanka and recognized as a sacred place of worship in the Buddhist world because of The Temple of Tooth Relic. However, recent not-well-planned development caused overcrowded conditions in the historical heritage area, such as heavy traffic congestion, and urbanization encroaching into land-disaster vulnerable areas. In addition, the townscape of the historical heritage area was not conserved or restored in a proper manner, and this deteriorated its value and attractiveness, which prevented the area from realizing its full economic potential. There existed several development plans for the Greater Kandy area, including the Greater Kandy Master Plan formulated by the Urban Development Authority (UDA) in 2015, but they were not sufficient to address the above issues. A review of the urban development vision of the existing plans was needed to control development in the central part of Kandy and guide development to the suburban areas, and a detailed plan in the heritage areas of the city center was needed.		
Objectives of the Project	The project aims to (i) revise the urban development vision of the Kandy Metropolitan Area, (ii) formulate the detail plan for the heritage area of Kandy, and (iii) recommend the implementation including a strategic investment proposal, thereby contributing to the appropriate management of urban growth and the enhancement of the value of Kandy as a historical and tourist city. 1. Expected Goals through the proposed plan[1]: Urban growth is appropriately managed (regulated and guided) based on the proposed plan, which is used as a development plan (master plan), and the value of Kandy as a historical and tourist city is enhanced through the utilization of the historical townscape.		
Activities of the Project	1. Project Site: Kandy Metropolitan Area including ten Divisionary Secretariat Districts (DSDs)[2] 2. Main Activities: Identification of current conditions and analysis of development issues in the study area; Revision of the urban development vision of the Kandy Metropolitan Area; Formulation of the detail plan for the heritage area (activities included public consultation pilot projects such as exhibition guided tours); and Recommendation for the implementation of the plan. 3. Inputs (to carry out above activities) Japanese Side 1) Mission members: 23 persons 2) Trainees Received: 16 persons Sri Lankan Side 1) Staff Allocated: 18 persons		
Project Period	(ex-ante) February 2017 – July 2018 (actual) February 2017 – September 2018	Project Cost	(ex-ante) 247 million yen, (actual) 268 million yen
Implementing Agency	Urban Development Authority (UDA)		
Cooperation Agency in Japan	Oriental Consultants Global Co., Ltd.; NIKKEN SEKKEI Research Institute; ALMEC Corporation		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- The indicator to measure the utilization status of the proposed plan after project completion is set at "The proposed urban development vision and detailed plan will be formalized as a Sri Lankan government plan through the required approval process in Sri Lanka" in the Ex-ante Evaluation Sheet. In addition to this indicator, i.e., whether the proposed plan has been formalized, we examined whether the proposed plan was utilized as Supplementary Information to evaluate the Effectiveness/Impact.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Sri Lanka at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Sri Lanka at the time of ex-ante evaluation. The National Physical Plan (NPP) 2030, authorized and gazetted as per the Town and Country Planning (Amendment) Act (No. 49 of 2000), provides a broad framework to secure Sri Lanka's place in the global economy by promoting economic growth. The NPP 2030 clearly states environmental aspects in the Central Region where Greater Kandy Area is located.

There are three existing plans for the Greater Kandy Area, which are (1) Greater Kandy Development Plan 2020 formulated by the UDA Central Provincial Office (2008); (2) Kandy City Region Strategic Development Plan 2030 by the Strategic Cities Development

[1] The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

[2] DSDs of Thumpane, Poojapitiya, Akurana, Pathadumbara, Kundasale, Gagawatta Korale, Harispaththuwa, Yatinuwara, Udunuwara, and Pathahewaheta. These DSDs are under the jurisdiction of 13 Local Authorities (LAs), namely, Kandy Municipal Council (KMC), Wattegama UC, Kadugannawa UC, Thumpane PS, Poojapitiya PS, Akurana PS, Pathadumbara PS, Kundasale PS, Gangawatta Korale (Kandy Four Gravets & Gangawata Korale) PS, Harispaththuwa PS, Yatinuwara PS, Udunuwara PS, and Pathahewaheta PS.

Project (SCDP) under the Ministry of Megapolis and Western Development (2015) which was supported by the World Bank; and (3) Greater Kandy Master Plan by the UDA (2015). These plans were formulated by taking into account the urban problems of Kandy City, such as traffic congestion, which can be solved only by formulating the plan at the regional level such as Greater Kandy to include the surrounding areas and not just a plan for Kandy City.

<Consistency with the Development Needs of Sri Lanka at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Sri Lanka at the time of ex-ante evaluation. As mentioned in "Background" above, there was a need to control the development of Kandy to conserve the historical heritage area.

<Appropriateness of Project Design/Approach>

The project design/approach was partially appropriate regarding the equality of benefits from the interventions. Kandy is a multi-cultural city with a diverse cross section of communities. Several ethnic riots resulting in loss of life and property also took place in Kandy in recent history. However, at project formulation and implementation, further consideration should have been made on these aspects to ensure all community groups were represented and heard, especially the various beneficiary groups, in public consultation. The method of selecting representatives itself does not seem to be sufficiently inclusive.

It was also not considered that different methodologies are needed to consult some of the groups (e.g., Low-income underserved community members may not be comfortable to come and/or speak at a large meeting with others; The community consultation meetings were all held at work time, which made it difficult for working people to participate, etc.). Also, there was a lack of clarity and coherence on the main purpose of "community mobilization." The community groups set up and the activities they were requested to do at the community meetings focused on voluntary one-off activities rather than establishing a sustainable mechanism for community consultation for urban planning. As mentioned in <Other Impacts at the Time of Ex-post Evaluation> and <Environmental and Social Aspect> below, these issues affected the impact and sustainability of the project.

Nevertheless, the "detailed guide plan approach," an approach to prepare guidelines through public consultation itself was evaluated by the UDA as appropriate, given that some of the existing guidelines were obsolete or unclear and there was a need to involve different perspectives and ideas from stakeholders and for stakeholders' understanding.

<Evaluation Result>

In light of the above, the relevance of the project is ②[3].

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy to Sri Lanka at the time of ex-ante evaluation. In the Country Assistance Policy for Sri Lanka (June 2012), the basic policy is to "promote economic growth with due consideration for the least developed regions," and three priority areas have been established, one of which is "promotion of economic growth."

<Interlinkage with other JICA's interventions>

Any synergy effect by the interlinkage between the project and other JICA's intervention was not clearly planned.

<Cooperation with other institutions/ Coordination with international framework>

The coordination with the World Bank was planned at the time of ex-ante evaluation, but the expected positive effect(s) was/were not confirmed at the time of ex-post evaluation as the implementation of the synergy projects had not commenced by then. The proposed plan under this JICA project (called the Greater Kandy Urban Plan: GKUP) and the World Bank's Strategic City Development Project (SCDP) (2014)[4] were complementary to each other, and as per planned, work was divided in a way that the transport sector under the transport-related ministries/entities were handled under the SCDP with those entities as key counterparts, and the zoning/regulation activities under the purview of the UDA were handled through the GKUP. Then, the Urban Development Programmes proposed under the GKUP clarified the positioning of SCDP projects.

<Evaluation Result>

In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ②.

2 Effectiveness/Impact

<Status of Achievement for the Objectives at the Time of Project Completion>

The objectives of the project were mostly achieved as planned at the time of project completion. The project developed the planned outputs (the proposed plan) consisting of (i) the revised urban development vision/scenario of the Kandy Metropolitan Area (GKUP), (ii) the Detail Plan of the Heritage Area, and (iii) Institutional Arrangement for Urban Development and Heritage Preservation. Also, besides item (iii), the project organized existing and new urban development projects as (iv) the Urban Development Programmes to realize the development scenario of the GKUP.

<Utilization Status of the Proposed Plan at the Time of Ex-post Evaluation>

The proposed plan has been almost utilized as expected by the time of ex-post evaluation. Among the components of the proposed plan, the Detail Plan of the Heritage Area was approved as the ten-year Kandy Municipal Council Area Development Plan by the Government of Sri Lanka (GoSL) and the UDA on July 13, 2021. The formal approval of the urban development vision (the GKUP) was included in the approval of the Kandy Municipal Council Area Development Plan, with a small difference from the proposed plan under this project as the vision in the project was for entire Greater Kandy area, it has been adapted to fit the smaller boundary of the Kandy Municipal Council area.

Accordingly, the proposed plan, mainly the Detail Plan of the Heritage Area, has been utilized for the most part in a way that the UDA initiated the process of detailed development planning for local authorities in Kandy District. During this process, the UDA is adhering to the urban vision, proposed structure, concept, and proposed projects by the GKUP.

Regarding the strategic development projects listed in the Urban Development Programmes, they have not been implemented as yet,

[3] ④：very high, ③：high, ②：moderately low, ①：low

[4] A credit facility for two cities in Sri Lanka, including the Kandy metropolitan area. The components included (1) traffic management, (2) wastewater, (3) water supply, (4) urban space improvement, and (5) capacity building of the city council.

mainly due to funding issues. It should be noted that most of the projects are outside the purview of the UDA and as such would be up to those relevant agencies to take up according to their sector programmes and priorities. The UDA's plan only acts as a guide in such cases.

<Status of Achievement for Expected Goals through the Proposed Plan at the Time of Ex-post Evaluation>

The expected goal through the proposed plan has been partially achieved at the time of ex-post evaluation. As mentioned above, urban growth is appropriately managed (regulated and guided) based on the proposed plan, and the proposed plan potentially increases the value of Kandy as a historical and tourist city. However, in order to realize the potential, additional measures are needed. According to the UDA, even though the detailed guide plan has been gazetted by the UDA, renovating and refurbishment of existing buildings has to be done by the building owners by spending their money. In that case, the building owners are not willing to do so because they are not willing (or do not have the capacity) to spend such costs to renovate those heritage buildings. The UDA can only enforce the guidelines on any new buildings to be constructed – but these are very less, especially in the heritage area. In order to get the expected value increase, financial support and incentive scheme has to be introduced for the property owners. However, the UDA does not have funds to do so, and the GoSL is currently not in a position to allocate capital to the UDA either.

<Other Impacts at the Time of Ex-post Evaluation>

Some risks of environmental and social impacts can be pointed out. There is no direct environmental impact by this Technical Cooperation Project, but there would be impacts in implementing the strategic development projects. The project conducted a strategic environmental assessment for the GKUP, but it is not clear from the Final Report how this project evaluated the environmental category of the strategic development projects of the proposed plan.[5] In addition, it is not clear whether the environmental impacts of the building guidelines, etc., have been considered, and also the impacts on the environment on strategic development projects. Cutting of very large and old trees was observed for road widening work subsequently, resulting in some public protests. Afforestation is not mandatory under Sri Lanka's country systems, and it is not known whether sufficient afforestation measures were carried out.

In the same way, land acquisition and resettlement would be needed to implement some of the zoning activities as well as for the strategic development projects of the proposed plan. Some acquisition is already in progress. As the acquisition is conducted by UDA, it is done under UDA law, which allows UDA to acquire private property without public consultation, mutual agreement with the public, and also without paying compensation in advance. The acquisition laws in Sri Lanka do not require UDA to follow JICA guidelines or similar standards and do not even require the following of the Land Acquisition Act, which has some provisions to protect affected people. As such, adverse impacts are inevitable.

Regarding other social impacts, the consideration of intangible social/human aspects seem low. While the physical impact of land acquisition and involuntary resettlement is mentioned, no consideration or measures are evident to mitigate impacts such as how such change would affect goodwill, community connections, host community impacts, social and support systems, etc. Similarly, on the aspect of resettlement of underserved communities, the focus is only on the construction of alternate housing and resettling people, but hardly any consideration of aspects such as community links, social inclusion, gender, etc.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ②.

Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

Aim	Indicators	Results	Source
(Utilization Status of the Proposed Plan) The proposed urban development vision and detailed plan will be formalized as a Sri Lankan government plan through the required approval process in Sri Lanka.	Indicator 1 The proposed urban development vision and detailed plan will be formalized as a Sri Lankan government plan through the required approval process in Sri Lanka.	Status of Utilization: Almost utilized as expected (Ex-post Evaluation) (i) The urban development vision of the Kandy Metropolitan Area (GKUP): approved as part of (ii) below. (ii) The Detail Plan of the Heritage Area: approved as the ten-year Kandy Municipal Council Area Development Plan by the Government of Sri Lanka and UDA on July 13, 2021. (iii) The Urban Development Programmes: agreed in principle, but the approval process of individual strategic development projects listed will only be done after a more detailed study and securing necessary funding and other measures.	UDA responses to Questionnaire and interview

3 Efficiency

The project cost and the project period slightly exceeded the plan (the ratio against the plan: 109% and 111%, respectively). The project period exceeded the plan because the Final Report submitted by the consultants was not satisfactory to the counterpart, and the report was not accepted until the experts improved the report accordingly. Even so, the outputs of this project were produced as planned.

In the light above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

The Kandy Municipal Council Area Development Plan for the ten-year period from 2021, the development plan in Kandy at the time of ex-post evaluation, was made based on the overall vision and framework of the GKUP developed under this project.

The Guide Plans and Development Guidelines have been established. However, as most of the buildings are privately owned, UDA is not able to enforce the Guidelines on existing buildings as renovation to fit with the new Guidelines require capital which most of the house owners cannot or unwilling to spend. UDA is searching for options to secure the funds to support the house owners to renovate.

<Institutional/Organizational Aspect>

The organizational structure and staff capacity are reasonable, considering that the UDA's role in implementation is largely a regulatory function. There is a sufficient number of staff members with capacity at the UDA Central Province office. There is a shortage of technical officers at the KMC for delegated tasks, but at such times, the UDA will support the KMC as necessary. A coordination and networking

[5] The guideline for environmental and social considerations applied to this project is "JICA guidelines for environmental and social considerations" (2010), and the environmental category of this Technical Cooperation Project per se is C.

mechanism with stakeholders including civil society organizations exists by law for the implementation of the zoning and guidelines. However, this could be further enhanced, especially in relation to public consultations. UDA hopes to do this through the newly established Urban Research Center.

<Technical Aspect>

Almost all professional staff at the UDA Central Province Office were involved in the project. UDA considers that there is no problem with the technical skills of the staff.

<Financial Aspect>

There is no issue with fiscal conditions for the UDA's key role as the regulator of the proposed plan. The implementation of zoning and guidelines are the standard regulatory functions of the UDA. As a self-sustaining organization in principle, the UDA finances its own recurrent costs. When there is a shortfall, it is funded by the GoSL. However, as mentioned above, funding is a key constraint in implementing infrastructure projects included in the plan. UDA expects to mobilize private sector funding when the macro-economic situation improves, to implement these projects.

<Environmental and Social Aspect>

As mentioned in <Other Impacts at the Time of Ex-post Evaluation> above, there are environmental and social risks in implementing the proposed plan, preventive measures have not yet been taken. However, it is expected that a new technical cooperation project (The Project on Capacity Development for Urban Planning 2022-2025) that JICA is currently supporting at UDA includes social and environmental considerations as one of the topics for capacity development.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the policy, institutional/organizational, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project produced the outputs (proposed plan), such as the revised urban development vision/scenario of the Kandy Metropolitan Area (GKUP) and the Detail Plan of the Heritage Area. After the project completion, the proposed plan has been almost utilized as expected considering the UDA's role in implementation is largely a regulatory function. The UDA initiated the process of detailed development planning for local authorities in Kandy District. However, insufficient consideration of the equality of benefits and environmental and social impacts might undermine the future implementation of the proposed plan. Accordingly, the sustainability of project effects has environmental and social risks. Also, there are slight problems such as difficulties to enforce the policies on zoning and the guidelines and the limitation of funding for the implementation of projects listed under the proposed plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

IV. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

Some of the groups may have been under-represented or not represented at the public consultation sessions. Aspects such as gender, social inclusivity, etc., are key factors that need to be considered if even an infrastructure project is to be successful. Some country systems in Sri Lanka (e.g., Land acquisition) are not up to internationally accepted practices. Therefore, the UDA Central Provincial Office is recommended to consider the under-represented groups' points of view to ensure plans are implemented equitably. Also, it is recommended to follow internationally accepted guidelines (such as JICA guidelines on environmental and social considerations) in activities such as a land acquisition. Consider loss and restoration of both intangible assets as well as tangible assets towards achieving a better living standard for affected people.

Lessons Learned for JICA:

In introducing the community consultation approach, sufficient consideration had not been made on appropriateness, social inclusion and representation of the various beneficiary groups (in selecting methodology), mutual advance discussion and agreement with counterpart, and sustainability of the approach under Kandy context.[6] If an approach not discussed in detail at the project formulation stage is to be implemented, prior consultation and detailed consideration of the appropriateness of the approach for the specific socio-cultural context should be made before applying such an approach.

[6] Although the Ex-ante Evaluation Report states that the project would give consideration to ensuring the participation of various stakeholders, including women, in stakeholder meetings (public consultations), design of specific approaches to have the vulnerable represented and heard (selection of participants, setting of time, etc.) seems to have been left on the implementers.

Internal Ex-Post Evaluation for Technical Assistance under Finance and Investment Account

conducted by Sri Lanka Office: March, 2023

Country Name	**Technical Cooperation for Landslide Mitigation Project**
Democratic Socialist Republic of Sri Lanka	

I. Project Outline

Background	Sediment disaster (landslide) was one of the major natural disasters in Sri Lanka. The National Building Research Organization (NBRO) is responsible for implementing landslide disaster countermeasures and issuing early warnings. The NBRO had been mainly engaged in non-structural measures, such as the development of relatively inexpensive hazard maps but began to take on structural measures in response to social demands. On the other hand, the achievements of the NBRO were still insufficient, and it was necessary to improve the ability of NBRO staff to conduct surveys, design, and supervise the construction of countermeasures for landslides. In March 2014, the Japanese ODA Loan Agreement for the Landslide Disaster Protection Project of the National Road Network (hereinafter referred to as "the ODA loan project") was signed. This ODA loan project, covering seven districts, including the target districts of this technical cooperation project, was to carry out countermeasure construction on slopes on major national roads with a high risk of landslides. Under such circumstances, the Government of Sri Lanka requested the Government of Japan to implement this technical cooperation project as a complementary project to the mentioned ODA loan project.		
Objectives of the Project	Through the application of appropriate sediment disaster (landslide) mitigation measures with Japanese and other technology in the pilot project sites, the project aims at improving the sediment disaster (landslide) management capacity of NBRO, thereby having sediment disaster (landslide) measures implemented directly by NBRO or with the assistance of NBRO with acquired technology and experience from the project. 1. Overall Goal: Sediment disaster (landslide) countermeasures are implemented directly by NBRO or with the assistance of NBRO with acquired technology and experience from the Project. 2. Project Purpose: Sediment disaster (landslide) management capacity of NBRO is improved through application of appropriate mitigation measure with Japanese and other technology in the pilot project sites.		
Activities of the Project	1. Project Site: Kandy, Matale, Nuwara Eliya and Badulla Districts[1] 2. Main Activities: (For sediment disaster (landslide) and rock fall mitigation measures) investigations, monitoring and evaluation of disaster, and design, tender, construction supervision of mitigation measures in the pilot area; (For slope failure mitigation measures) monitoring and evaluation of slope failure and design of mitigation measures in the pilot area; (For gaining knowledge and know-how) review and updating of existing guideline and technical manual on structural measures, training/technical seminars/workshops, stakeholder consultation on land use regulation for mitigation and early warning, preparing materials on land use regulation for mitigation. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 15 persons (1 long-term and 14 short-term) 2) Trainees received: 10 persons in Japan 3) Equipment: Office equipment, equipment for monitoring (extensometer, inclinometer, groundwater level gauge, and pipe strain gauge with piezometer), a drilling machine, and an air compressor 4) Local cost: Fees for construction of countermeasures, travel expenses, stationaries, communication, workshop venues, etc. Sri Lanka Side 1) Staff allocated: Counterpart personnel (C/P) from NBRO Headquarters and NBRO District Offices of Badulla, Nuwara Eliya, Matale, and Kandy 2) Land, building, and facilities: Office space for the Consultant Team 3) Local cost: Costs for transportation and taxes		
Project Period	(ex-ante) July 2014–June 2017 (actual) July 2014–September 2018	Project Cost	(ex-ante) 509 million yen, (actual) 363 million yen
Implementing Agency	National Building Research Organization (NBRO)		
Cooperation Agency in Japan	Earth System Science Co., Ltd. Nippon Koei Co., Ltd.		

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Available project reports do not explicitly show the target number required for the Project Purpose Indicator, "Number of completed sediment disaster mitigation works designed, supervised and monitored by NBRO in the pilot areas in enhanced manners." For this evaluation, the target number can be considered as three (3) since the implementation of a set of sediment disaster (landslide) and rock fall mitigation works were planned at three pilot sites. (The implementation of the pilot slope failure mitigation works for the Kandy Nurse Training School site was originally planned but later excluded from the project plan as the project decided to cover the process up to design.)

1 Relevance/Coherence
[Relevance] <Consistency with the Development Policy of Sri Lanka at the Time of Ex-Ante Evaluation >

[1] The pilot area included the sites of (i) Kandy Nurse's Training College Slope Failure, (ii) Matale Alagumale Rockfall, (iii) Nuwara Eliya Udamadura Landlide, and (iv) Badulla Badulusirigama Landslide.

The project was consistent with the development policy of Sri Lanka at the time of ex-ante evaluation. The project is aligned well with the Sri Lanka Disaster Management Plan (NDMP) 2013–2017 and the Sri Lanka Comprehensive Disaster Management Programme 2014–2018. In the NDMP, Activity 3-2 is "Landslide Hazard Zonation Mapping by NBRO." The Management Programme sets "Disaster Mitigation and Mainstreaming Disaster Risk Reduction (DRR) into Development" as one of the priority strategies, and one of the major outputs under the strategy is "slopes stabilized in identified high-risk landslides and rock falls sites."

<Consistency with the Development Needs of (country name) at the Time of Ex-Ante Evaluation >

As mentioned in the "Background" above, the project was consistent with the development needs of Sri Lanka (improving the ability of NBRO staff to conduct surveys, design, and supervise the construction of countermeasures for sediment disasters (landslides)) at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③ (④ : very high, ③ : high, ② : moderately low, ① : low * To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy to Sri Lanka at the time of ex-post evaluation. One of the priority areas of the Country Assistance Policy for Sri Lanka (June 2012) is "mitigation of vulnerabilities," and the Policy highlights the need to assist disaster management.

<Collaboration/Coordination with other JICA's interventions>

Any collaboration/coordination between the project and other JICA's intervention was not clearly planned at the time of ex-ante evaluation.

<Cooperation with other institutions/ Coordination with international framework>

Any cooperation/coordination with other development partners was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project Purpose was achieved as planned. The project completed the investigation of all four pilot sites and completed the planning and evaluation, design, construction, supervision, and monitoring of landslide and rockfall measures at the three pilot sites as planned. As confirmed in the terminal evaluation, NBRO enhanced its capacity in terms of investigation, analysis, monitoring, and construction supervision by joint undertakings of these activities through the application of appropriate mitigation measures with Japanese and other technology in the pilot project sites. With the experience and lessons learned from its activities, the project prepared the "Manual for Design and Supervision of Countermeasure Works against Landslide (Sediment Disaster)."

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

By the time of the ex-post evaluation, the project effects have been partially continued. The facilities constructed under the project are maintained by NBRO and related organizations such as the divisional secretariat and community (Matale Alagumale Rockfall site and Nuwara Eliya Udamadura Landslide site) and Uva Wellasa University (Badulla Badulusirigama Landslide site), while there are minor repairs to be done. The monitoring equipment provided under this project was utilized until 2020, when operation and maintenance became difficult as sufficient budget was not allocated and the lockdown was imposed due to the COVID-19 pandemic. As of January 2023, however, NBRO resumed the maintenance (repair) of the equipment using its common organizational budget for 2023. The manual developed under this project is utilized for NBRO's operation at the time of the ex-post evaluation, but it has not been published as an official document due to its limited coverage. At the time of the ex-post evaluation, NBRO is working on upgrading the manual to an overall landslide management/mitigation guideline for the entire country and collecting additional information through the ongoing AIIB project.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of ex-post evaluation, the Overall Goal has been mostly achieved as planned. NBRO still utilizes the technologies transferred through this project. These technologies were known and partially used before this project but were taken from concept to practical level and further improved by this project. Especially, the staff capacity on these technologies were improved. After 2019, 200 or more high-risk landslide and rockfall sites throughout the country were recorded, and most of them were identified for mitigations. The government funds and the external funding from AIIB and the World Bank[2] were mainly used for these mitigation works using different types of countermeasures. The types of mitigation measures have become more diversified and improved. During this JICA project, NBRO mainly used mitigation works involving subsurface and surface drain system developments and rock fall protection walls. Up to the time of the ex-post evaluation, other projects introduced techniques that this project did not handle, such as soil nailing, drainage wells, different type of retaining structures, grid beams, etc. though NBRO commented that when applying those techniques, they could easily follow up the systematic approaches of work control and regular monitoring learned from this JICA project. On the other hand, it is questionable whether the contribution of this project to these improvements well reached the expected level. The project focused on technology transfer related to structural countermeasures through the pilot projects, and the techniques/experience gained through the pilot projects includes (i) approaches in survey, planning, and monitoring and (ii) individual countermeasure works. In the former aspect, it can be said that the project's technology and experience are being used mainly as an extension of the technology and knowledge originally possessed by

[2] Government funded projects: Continuing mitigations in small locations. Climate Resilience Improvement Project (CRIP; supported by the World Bank): 18 Schools and 23 sites along roadside have been completed. AIIB project: 147 sites: 20 landslide sites have been completed, 6 sites are in progress, and 32 sites already selected civil contractors.

NBRO, while, in the latter aspect, the project's contribution to the countermeasure works at the time of the post-evaluation is considered to be partial.

<Other Impacts at the Time of Ex-Post Evaluation>

No negative impacts on the natural environment have been observed. There was no land acquisition for this project. When implementing the pilot mitigation works, NBRO held an awareness meeting at each project site for residents. To ensure smooth construction work, NBRO asked residents to understand and cooperate with the project. In addition, it can be said that the project had a positive impact regarding social inclusion: if the mitigation works were not implemented, the community could have been divided into groups due to evacuation. As another positive impact, the improved capacity of NBRO through this project contributed to the implementation of the ODA loan project as the techniques from this project were used together with NBRO's techniques and know-how.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td>(Project Purpose)
Sediment disaster (landslide) management capacity of NBRO is improved through application of appropriate mitigation measure with Japanese and other technology in the pilot project sites.</td><td>Number of completed sediment disaster mitigation works designed, supervised and monitored by NBRO in the pilot areas in enhanced manners.</td><td>Status of the Achievement (Status of the Continuation): achieved as planned (partially continued)
(Project Completion)
Three mitigation works were completed: Matale Alagumale Rockfall, Nuwara Eliya Udamadura Landslide, and Badulla Badulusirigama Landslide.
(Ex-Post Evaluation)
<table>
<tr><th>Site</th><th>Maintenance of the site was handed over to:</th><th>Conditions of the site at the time of ex-post evaluation</th><th>Monitoring visits by NBRO</th></tr>
<tr><td>Matale Alagumale Rockfall</td><td>Divisional secretariat and community</td><td>Good. Although there is no regular monitoring, the community generally informs NBRO of major rock falls.</td><td>Yes, when possible.</td></tr>
<tr><td>Nuwara Eliya Udamadura Landslide</td><td>Community, but it seemed that they were not clear about the handover process.</td><td>Site clearing and maintenance are not up to the standard, and damages were not rectified as there is no separate budget for operation and maintenance.</td><td>Yes, when possible.</td></tr>
<tr><td>Badulla Badulusirigama Landslide</td><td>Uva Wellassa University</td><td>The University clears the site but not regularly. Some minor damages were observed in the constructions but have not been rectified yet. NBRO collected data after the project up to 2020. But currently, NBRO does not collect any data from the site.</td><td>Yes, when possible.</td></tr>
</table></td><td>Source: Terminal Evaluation Report; NBRO</td></tr>
<tr><td>(Overall Goal)
Sediment disaster (landslide) countermeasures are implemented directly by NBRO or with the assistance of NBRO with acquired technology and experience from the Project.</td><td>All sediment disaster (landslide) countermeasures are implemented (including the commencement of a preliminary survey) or assisted by NBRO with acquired technology and experience from the Project.*

* All sediment disaster (landslide) countermeasures exclude countermeasures that do not require "acquired technology and experience from the Project." "Acquired technology and experience from the Project" are defined as either of the following technologies and its experiences: 1) Use of drone technology for landslide mitigation survey, 2) Design of countermeasures using back analysis, 3) Long horizontal drilling with a casing (longer than 20 meters) and/or 4) Systematic construction supervision with a measurement sheet.</td><td>(Ex-Post Evaluation) mostly achieved as planned
The techniques/experience specified for this indicator is related to approaches in survey, planning, and monitoring, and they are used mainly as an extension of the technology and knowledge originally possessed by NBRO.
<table>
<tr><th>Technology subject to this indicator</th><th>Status of the utilization of the technology</th></tr>
<tr><td>1) Use of drone technology for landslide mitigation survey</td><td rowspan="2">These are used for all countermeasures. Before the project, the technology remained conceptual. As a result of the project, the technology became common and popular in NBRO as the concept was practically realized.</td></tr>
<tr><td>2) Design of countermeasures using back analysis</td></tr>
<tr><td>3) Long horizontal drilling with a casing (longer than 20 meters)</td><td>NBRO already utilized this technology even before the project, but they only had insufficient experience and very limited staff who were trained. As a result of the project, the technology was improved, and many staff members improved their capacity. Currently, NBRO improved to drill more than 70m. In addition, the capacity to provide practical solutions for problems faced during the drilling was improved.</td></tr>
<tr><td>4) Systematic construction supervision with a measurement sheet</td><td>NBRO still uses the measurement sheet. Supervision is a compulsory process for NBRO's landslide mitigation works. Government-funded projects are directly supervised by the Project Management Division of NBRO; for mega-scale projects such as AIIB programs, a separate Supervision Consultancy is used jointly.</td></tr>
</table></td><td>Source: NBRO</td></tr>
</table>

3 Efficiency

The project cost was within the plan (the ratio against the plan: 71%), and the project period exceeded the plan (the ratio against the plan: 142%). The project period exceeded the plan because, during the construction stage of the pilot mitigation works, there were some additional requirements that had to be addressed with the community requirements. Also, some works took additional time due to the

contractor's capacity. The Outputs were produced as planned.

In the light above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

The existing policies, such as NDMP and Sri Lanka Comprehensive Disaster Management Programme, are still in practice and support the outcome of the project. Although there is a minor issue that specific policies for landslides have not been developed yet in Sri Lanka, the development of landslide mitigation-related policies (guidelines) has been initiated and is in process, to which this project has contributed.

<Institutional/Organizational Aspect>

There have not been major changes in the organizational structure for landslide management of NBRO, but further improvements have been made, such as the stabilization of Designing team, Project Supervision and construction management team, and Project Management units. Works are shared among the existing staff (nearly 400–450 staff members, including temporary staff). Although there is a minor issue that some staff members involved in this project at the district office level were transferred after the project, it has not undermined the works. When there are additional requirements to fulfill, it is a practice for NBRO to hire experts.

<Technical Aspect>

The majority of the trained staff by the project are still at NBRO, and necessary knowledge-sharing systems are also in place. NBRO uses the manual developed by this project as a guidebook, a base document for NBRO's operation at the time of the ex-post evaluation. As already mentioned, this document will be updated and legalized in the future. The equipment provided under the pilot mitigation works of this project has generally been maintained except for the suspension period due to the COVID-19 pandemic, as mentioned above.

<Financial Aspect>

The amount of the budget for NBRO's landslide management varies every year depending on the government's budget and allocation. NBRO allocates a separate budget for the maintenance of landslide mitigation facilities based on priority considering various factors such as risk level, emergency, safety of people, etc. The pilot site facilities constructed by this project have not been allocated a separate maintenance budget as these facilities have not yet been identified as those subject to rectification. Besides, NBRO uses its common organizational budget to disseminate and promote the outcomes of this project. Some of the completed mitigated landslide locations are handed over to relevant authorities such as the Road Development Authority, local authorities, and schools. On such occasions, NBRO conducts necessary trainings for the relevant officials of such organizations by using NBRO's budget, although NBRO does not have a separate budget for promotional (awareness-raising) events.

<Environmental and Social Aspect>

No issues with the environmental and social aspects caused by this project have been observed, and it has not been necessary to take any countermeasures.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the policy, institutional/organizational, technical, and financial aspects of the implementing agency, while those in the policy, institutional/organizational, and technical aspects are minor. Therefore, the sustainability of the project effects is ②.

5 Summary of the Evaluation

The project achieved the Project Purpose of improving NBRO's landslide management capacity and mostly achieved the Overall Goal of having landslide measures implemented with acquired technology and experience from the project. After the project completion, the project effects have partially continued as the facilities constructed under the pilot mitigation works have been effective but have maintenance issues. In the financial aspect of sustainability, whether to implement mitigation measures and give maintenance to completed mitigation works depends on budget availability. However, sustainability in terms of policy, institutional/organizational, and technical aspects is generally ensured with only some minor issues. As for efficiency, the project period exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Non-score Items

Adaption and Contribution:

- JICA (head office and country office) fulfilled its duties, such as administrative support and dispatch of the relevant consultant on time. It conducted appropriate supervision, such as progress reviews and site visits on a regular basis. Also, necessary counterpart trainings were arranged and supported by JICA. Effective communication between JICA and the counterpart organization and collaboration among stakeholders were made to implement the project.
- The consultant closely worked with the staff of the counterpart organization and shared the necessary technical knowledge with them.

Additionality and Creative Values:

- "The Manual for Design and Supervision of Countermeasure Works Against Landslide (Sediment Disaster)" was initiated as a novel idea from Japan. At the time of the ex-post evaluation, NBRO utilizes the manual practically as the guidelines for their current operations and has initiated the legalization of this document in Sri Lanka.

IV. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- NBRO is recommended to conduct systematic post-monitoring of the landslide mitigation facilities constructed by this project. At the same time, NBRO is recommended to allocate the necessary budget for the operation and maintenance of these facilities to ensure sustainability.

Lessons Learned for JICA:

- System and necessary approaches need to be included in the project proposal to ensure the counterpart budget for post-monitoring and operation & maintenance of the facility construction.

(Drainage in Badulusirigama, Badulla)
No damages and function well.

(Horizontal Drain)
Functioning well

(Extensometer, Udamadura, Nuwara Eliya)
Damaged and need to be repaired.

(Drainage, Udamadura, Nuwara Eliya)
Damaged and need to be repaired.

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Sri Lanka Office: Dec 2022

Country Name	**the Project for Rehabilitation of Kilinochchi Water Supply Scheme**
Democratic Socialist Republic of Sri Lanka	

I. Project Outline

Background	Kilinochchi District is in the Northern Province and has an urban center of approximately 20,000 populations. The only water supply system in Kilinochchi District, constructed in 1982, had been destroyed during the conflict and abandoned. The people in Kilinochchi then depended on the water tankers for their water needs. Restoring the water supply system was one of the most urgent issues for the people in Kilinochchi.						
Objectives of the Project	This project aimed to improve access to safe water by rehabilitating the existing water supply scheme (WSS) in the conflict-affected Kilinochchi District, thereby contributing to the stabilization of people's livelihood, the return of internally displaced persons (IDPs), and the improvement of public health through the reduction of waterborne diseases.[1]						
Contents of the Project	1. Project Site: Kilinochchi Water Treatment Plant (WTP) (planned water treatment capacity: 3,800m3/day), Kilinochchi (Central College) Elevated Water Tank (1,000m3), Paranthan Elevated Water Tank (450m3), Kilinochchi & Paranthan, Kilinochchi District, Northern Province 2. Japanese side 1) Civil engineering work and equipment procurement[2] New construction/installation: water intake, roughing filters, washed sand storage yard, roughing filters washing wastewater storage pond, elevated water tanks, transmission pipes (PE and DIP), distribution pipes (PVC, etc.), administration buildings. Rehabilitation: intake tank, intake pump house, receiving wells and aerators, slow sand filters, administration building (frame). The Japanese contractor left the site after the completion of 85% of the works due to security reasons caused by unexploded ordnance (UXO) found many times during construction. The remaining works at the WTP site were handed over to the Japanese consultant, and the remaining pipe laying works were taken by the National Water Supply and Drainage Board (NWSDB). Accordingly, the works for the WTP were carried out by the local contractor, mobilized by the consultant, with the remaining material provided by the Japanese contractor. Equipment: electric generator, etc. (newly installed), materials of house connection (approx. 1,500 sets), laboratory equipment, operation and maintenance (O&M) equipment 2) Consulting services/soft component Providing technical assistance for (a) O&M of water treatment plants, (b) maintenance of water distribution systems, (c) water pipe connection, (d) maintenance of mechanical and electrical equipment, (e) water quality monitoring and management, Civil works at WTP (as noted above 2.1) 3. Sri Lanka side: Miscellaneous works at the WTP and elevated water tanks sites, house connection works, wastewater treatment, laying of distribution pipes that were handed over from the Japanese contractor with the remaining materials (as noted above 2.1)						
Project Period	E/N Date	(Original) March 6, 2012 (Extension) August 14, 2015	Completion Date (ex-ante)	March 2014	Completion Date (actual)	September 30, 2016 (Completion of the civil works[3])	
	G/A Date	(Original) March 6, 2012 (Extension) August 14, 2015					
Project Cost	E/N Grant Limit / G/A Grant Limit: (original) 677 million yen (amendment) 925 million yen Actual Grant Amount: 826 million yen						
Executing Agency	National Water Supply and Drainage Board (NWSDB)						
Contracted Agencies	Main Contractor(s): Daiho Corporation Main Consultant(s): NJS Co., Ltd.						

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- The Ex-ante Evaluation Sheet indicated that the target year for the manifestation of the quantitative effects was 2016, two years after the completion of the project. However, since the project was completed in 2016, the comparison between the planned and actual values for the target year was made for 2018, two years after the actual project completion. In addition, we considered the performance up to the time of ex-post evaluation.
- The qualitative effects assumed in the Ex-ante Evaluation Sheet, namely, "stabilize people's livelihoods," "facilitate the return of IDPs," and "improve public health," can be regarded as consequences of the project's direct outcome, namely, "improve access to safe water." Therefore, we verified them as the qualitative effects at the level of "impact," not "effectiveness." For the direct qualitative effects of the project, we assessed the effects of the technical assistance (soft component).

[1] The text before "thereby" is the translation of the Project Objective in the Ex-ante Evaluation Sheet. In accordance with the template of project objectives, we added "thereby contributing…" as the expected impact of this project. It was taken from the qualitative effects assumed in the Ex-ante Evaluation Sheet, which reads, "A stable supply of safe water is expected to stabilize people's livelihoods, facilitate the return of IDPs, and improve the health of the population by reducing waterborne diseases."

[2] The main items described here were implemented as planned. However, the quantity of pipe laying, additional waterproofing, and concrete bedding at slow sand filters were needed due to changes in circumstances after the project's start.

[3] Completion date for the portion constructed by the local contractor undertaken after the Japanese contractor completed 85% of the work on June 30, 2015.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Sri Lanka at the Time of Ex-Ante Evaluation >

The project was highly consistent with the development policy of the Government of Sri Lanka (GOSL) at the time of ex-ante evaluation. The Sri Lankan government formulated the Northern Reconstruction Plan (July 2009) to ensure a socially and economically stable life for the people affected by the conflict and was working quickly to improve the standard of living in Northern Province through the rehabilitation of water supply, roads, electricity, and irrigation facilities. The plan was also to improve the water supply rate from 0% (2008) to 30% (2011) in Kilinochchi District. Practically, this grant aid project itself constituted part of the Northern Reconstruction Plan, and the level of such direct conformity between the project and the development policy has implications for other projects.

<Consistency with the Development Needs of Sri Lanka at the Time of Ex-Ante Evaluation >

The project was highly consistent with the development needs of Sri Lanka at the time of ex-ante evaluation. As mentioned in "Background" above, there was an urgent need to restore the water supply system in Kilinochchi. Moreover, the water was one of main requirements for resettlement of IDPs and assurance for them to come and resettle, start their business. JICA was he first donor who pledged and went for supplying water to people under this project. The fact that JICA took the lead in supporting urgent issues in the context of development and reconstruction shows a very high level of responsiveness to development needs, which has implications for other projects.

<Appropriateness of Project Design/Approach>

The project design/approach was partially appropriate. Kilinochchi WTP could not operate fully until 2021. One of the reasons was the high algae and turbidity of raw water during a certain period of each year. The pre-treatment process by the roughing filter (newly constructed) and the slow sand filters (rehabilitated), and the intake structure with filtration arrangement (newly constructed) could not treat algae and turbidity to the accepted level until the WTP found a solution by adding Poly Aluminum Chloride (PAC) at the intake starting from 2021[4]. At the time of the preparatory survey (outline design), turbidity records showed relatively high values. Although no algae were observed in raw water, phosphate concentration (that would cause algae breeding) was high, and the past record and interviews with the community showed the existence of the algae issue. The outline design was to cope with these issues but based on the prediction that the turbidity and algae level would not significantly increase. Some construction works were being carried out by Irrigation Department at the upstream of the water intake of Kilinochchi WTP, and that may have created some drastic increase of turbidity to the WTP only during those constructions. However, even after completion of Irrigation works, turbidity and algae were present, which has been able to manage only with the PAC solution introduced by the O&M staff. It should be noted that the PAC solution has not yet been proven for adverse turbidity and algae condition which may come in the future. The project plan could have given more considerations to the turbidity and algae issue and certain prediction could have done, so that it could be reflected in design and bidding documents.

<Evaluation Result>

In light of the above, the relevance of the project is ③ (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy to Sri Lanka at the time of ex-ante evaluation. In Japan's Country Assistance Program for Sri Lanka (2004), one of the priority areas of assistance is "assistance to support the consolidation of peace."

<Collaboration/Coordination with other JICA's interventions>

Any collaboration/coordination between the project and other JICA interventions was not clearly planned at the time of ex-ante evaluation.

<Cooperation with other institutions/ Coordination with international framework>

Any cooperation/coordination with other development partners was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Effectiveness>

The project objectives were not achieved in the target year but partially achieved in the ex-post evaluation year. All the facilities are working to supply safe drinking water. However, in a period of high turbidity and algae, the WTP could not treat water in accordance with water quality standards. Also, the water distribution network has not been expanded as expected due to the above-mentioned WTP problem during the initial period and the lack of fund allocation from the GOSL.

The WTP operation in the initial period faced problems such as a high load of algae and turbidity of raw water. One of the reasons for high turbidity was a rehabilitation project upstream of Dry Aru Tank, which hindered the achievement of 50% of the quantitative targets in the target year (2018). However, since 2021, the WTP operation has significantly improved with the introduction of PAC at the intake. The water supply population and coverage have also been gradually increasing. Consequently, the achievement rates of the targets increased to 53% on average in 2021 and 57% in 2022 (as of October). Of the indicators, water supply flow and water supplied population, which are less sensitive to external factors, were achieved at 75% and 57%, respectively. In the present scenario, the WSS has prospects with the expansion of the distribution network and achieving more coverage. (At the moment only 7,328 populated connected to WSS and the population will be increased up to 40,000 in 2030.)

The expected effects of the soft component have been realized. The O&M of the WSS and related equipment have been carried out without big challenges.

<Impact>

[4] WTP staff have tried to control the PAC injection not to harm biofilm formed on the surface of slow sand filter. They have monitored that PAC can be removed at roughing filter every hour as an emergency operation.

The project has produced the expected impacts, i.e., it has stabilized people's livelihood, contributed to the return of IDPs, and improved public health.

- Regarding people's livelihood, people in the target areas spend less cost to purchase drinking water and less time fetching safe water. Normally, private bowsers sell drinking water for LKR 0.50 per liter in other districts. Beneficiaries under Kilinochchi WSS enjoy safe drinking water at a lower price at their doorstep.
- The IDPs resettled, and their own business has benefited from NWSDB pipe-borne WSS. There are many widows and women-headed families in the project areas. After the project, a group of women runs an open food store by getting water from the WSS. According to NWSDB, this place is very famous for healthy food in Kilinochchi now with safe drinking water from the project.
- As for the health status, compared to the other districts in Northern Province, Kilinochchi has fewer cases of chronic kidney disease of unknown etiology (CKDu) patients. NWSDB commented that the 24 hours water supply supported to improve the health condition and ensure the reliability of the water supply.

No adverse impact on the natural environment was observed.[5] There was neither land acquisition nor resettlement. Positive impacts were observed on the vulnerable population. Consideration is given to the poor in terms of pricing: NWSDB has a low pricing system for poor (Samurdhi) beneficiaries. At the same time, NWSDB provided free service connections to poor people with the support of the Government Agent (Kilinochchi), as the District Secretariat pays the connection fee. The poor and women-headed families (generally high in percentage in the project areas, as mentioned above) who lacked financial capacity were positively affected by the project coupled with this measure. Also, they could save time in finding water from wells. In addition, other parties benefited from this project. For instance, the Faculty of Agriculture, the University of Jaffna receives 350 m3/day of treated water from Kilinochchi WTP through a booster pump arranged under another project as temporary measure until its WTP is constructed. In addition, Poonakary WSS constructed with ADB funding receives treated water from Kilinochchi Elevated Water Tower by gravity. Moreover, there is now industrial demand: a factory and an industrial estate are seeking pipe-borne water to commence projects, which was not expected before the project.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ②.

Quantitative Effects

Indicators	Baseline 2011 Baseline Year	Target (1) 2018 2 Years after Completion	Actual 2018 2 Years after Completion	Actual 2021 5 Years after Completion	Actual 2022 6 Years after Completion	
Indicator 1: Water Supply Flow (m3/day)	130	2,300	235 (10% of the target)	1,525 (66% of the target)	1,725 (daily average up to the end of October) (75% of the target)	source: NWSDB
Indicator 2: Water Supplied Population	2,600	12,900 (3,100 service connections)	3,488 (872 service connections) (27% of the target)	7,216 (1,804 service connections) (56% of the target)	7,328 (up to the end of March: 1,832 service connections) (2) (57% of the target)	source: NWSDB
Indicator 3: Water Supply Coverage Ratio (%) (Percentage of the population in the target 14 Grama Niladhari Divisions (GNDs) that receive water supply from this project)	14.2 (Drinking water from wells supplied by bowsers)	65.0	1.91 (3% of the target)	25 (38% of the target)	25.58 (39% of the target)	source: NWSDB

Source: Ex-ante Evaluation Report; NWSDB

Note: (1) The Ex-ante Evaluation Sheet and the Preparatory Survey Report differ in some of the target values, but the values mentioned in the former, which was published later, were used to judge the level of achievement.

(2) Kilinochchi WTP supplies water to total 3,311 houses. Because 1,479 houses, out of 3,311, are located outside the target 14 GNDs, whose pipeline network was constructed under the projects funded by World Bank, ADB and GOSL, the 1,479 service connections were excluded from the evaluation of Quantitative Effects.

3 Efficiency

The project cost slightly exceeded the plan (the ratio against the plan: 122%), and the project period considerably exceeded the plan (the ratio against the plan: 220%).

The project period was prolonged due to (i) the additional scope and design changes (unexpected conditions met at the slow sand filters and the rehabilitation of them; the change in the route arrangement for yard pipes) and (ii) the discovery of UXOs and the following foreign entry restrictions.[6] The outputs were produced as planned.

In the light above, the efficiency of the project is ②.

4 Sustainability

<Institutional/Organizational Aspect>

The Kilinochchi WSS is operated and maintained by NWSDB under the control of the Jaffna Regional Manager. Required staff are

[5] The preparation of an Environmental Impact Assessment (EIA) report for this project was not required by the national law of the country. Also, no chemical dosage is involved in the treatment process.

[6] A survey based on international mine countermeasure standards was conducted prior to the start of construction (2011), and the results indicated that UXOs had already been disposed of. However, after the start of construction, UXOs were found repeatedly, and due to restrictions on foreign entry to the northern area, waiting costs were incurred.

assigned at the time of ex-post evaluation (District Engineer, Officer-in-charge and Engineering Assistant for Water Treatment Plant, Plant operators, Fitter, Drivers, and Labours except non-technical staff are available), and they are even committed to finding a solution to the high algae and turbidity issues. Non-technical staff will be assigned in the future, as its requirement is not urgent at the time of this evaluation.

<Technical Aspect>

According to NWSDB, the O&M staff have enough technical skills. NWSDB has a well-established training system for its staff: a regular annual training program for each staff category to upgrade their knowledge under NWSDB training Division. The manual provided by the project has been utilized, but it does not address high turbidity and algae situations. The O&M staff has found a solution by adding PAC, while also referring to the results of the JICA follow-up survey conducted in 2020.[7] However, this method is yet to be verified for extreme conditions, and the manual need to be updated considering present operating conditions. Although these issues may affect the operation of the facilities in the medium to long term, the current solution will be sufficient to continue the project effects for the foreseeable future.

<Financial Aspect>

According to NWSDB, the necessary budget for O&M has been committed under its Regional Support Center Northern Province. The O&M staff was also able to do a model testing for adding the PAC and find a solution for the algae and turbidity problem. It was noted that the O&M cost of Kilinochchi WTP is very low compared to other conventional WTPs of NWSDB: other WTPs in Sri Lanka basically a rapid sand filtration system, while Kilinochchi WTP selects slow sand filters as an ecological purification system, which incurs lower cost.

<Environmental and Social Aspect>

The risks in the environmental and social aspects have been monitored. The Water Safety Plan (WSP) has already been implemented, and many risks were identified and addressed one by one. Both the internal and external audits for the WSP have been completed, and countermeasures are already taken according to it. In this way, actions are being taken.

<Current Status of Operation and Maintenance>

As already mentioned, the facilities and equipment developed under this project are in a working condition. While there is room for improvement,[8] necessary O&M works are conducted as planned. It was noted that existing staff are committed to the works and improving efficiency.

<Evaluation Result>

In light of the above, only slight problems have been observed in the technical aspect. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project partially achieved the project objectives. The operation of Kilinochchi WTP was affected by high turbidity and algae in raw water until a solution was found and implemented in 2021 and yet to be verified for adverse conditions in the future. Nevertheless, the operation has significantly improved since then, and water supply volume and coverage started to increase, contributing to the stabilization of people's livelihood, the return of IDPs, and the improvement of public health. The sustainability of project effects is secured with the solution provided by O&M staff based on the learning from the follow up support of JICA to cope with turbidity and algae. Regarding efficiency, the project cost significantly exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- JICA noted commendable efforts made by O&M staff in charge of Kilinochchi WSS to find a solution for high algae and turbidity by making a prototype model and then actual application. This is a good example of handling problems by themselves after learning and getting insight out of JICA follow up support. NWSDB shall encourage further development of the solution and this kind of working culture within the organization.
- It is necessary to expand the distribution system in secondary and tertiary roads where NWSDB can give more service connections.
- It is recommended to update the O&M Manual with the change of the present operating procedures of the WTP.

Lessons Learned for JICA:

- JICA initiated a rehabilitation approach to revive the scheme and supply safe water to the public promptly and efficiently. Currently, NWSDB, with other donors, is working on expanding the water supply coverage by extending the distribution pipeline network. Such a timely approach can provide a positive impact, but sufficient water quantity/quality data, even though it takes time to collect it, were expected to be gathered before selecting the treatment process.

  Pre-condition, agreed arrangement, etc., had not been properly established, documented, and monitored for proper dissemination among stakeholders. It is better to have a template for the progress report in English, which could include all the important aspects/information required for monitoring and carrying forward under grant aid projects. The project had formulated as a rehabilitation project in emergency and matched the design according to the previously existing arrangement with the limited information and financial resources. However, later, new staff who were not involved in the formulation did not understand the principles/assumption of formulation based on the urgent requirement. Such a situation can be eliminated by disseminating proper details in a progress report.

  It was evident that sufficient time had not been given for proper investigation (e.g., scope change for the slow sand filters was needed due to lack of investigation), and the design was matched according to the available budget (e.g., some pipelines had been dropped

[7] The follow-up survey team proposed and tested some options using PAC with a flocculation sedimentation unit. As no funds were available to invest in a flocculation sedimentation unit, NWSDB counterpart staff derived a different method by designing a prototype model and testing it. In that way, the follow-up survey planted the idea in the counterparts' minds that they could find a solution to the problem.

[8] NWSDB pointed out that suppliers consume more time to supply required spare parts. Also, O&M staff highlighted that the gate valve installed at the roughing filters should be changed to butterfly valve. It was also noted that the cleaning of the slow sand filters takes time and is labor intensive. The O&M staff is making effort to find more efficient methods.

due to lack of funding). Therefore, a commitment from the GOSL was demanded to maximize the project impact, which could have been established and monitored, as explained above.

- There was a long delay in reimbursement of Taxes to the contractor due to the ambiguity of the tax clause in the contract between the contractor and the employer. It is better to specify and agree on duties and taxes etc., in clear terms either in the E/N and G/A.
- It is better to prepare a Project Completion Report (PCR) in English and share it with the executing agency.[9] Some important aspects, such as O&M organization and future commitment needed from the GOSL (e.g., expansion of distribution system, conservation of catchment at intake, etc.), can be included in the PCR.

Kilinochchi Elevated Water Tower

Paranthan Elevated Water Tower

Intake and Pump house

Water Treatment Plant

[9] When this project was being implemented, PCRs were prepared in Japanese only.

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Kyrgyz Office: January 2023

Country Name	**the Project for Improvement of Workshops for Road Maintenance Equipment**
Kyrgyz Republic	

I. Project Outline

Background	Kyrgyz has relied on road transportation for most of logistics and travel. The national road network in the country has played a role as a means of transportation for the people and as a means of intra-regional transportation between Central Asia and Southwest Asia. Due to the shortage of maintenance equipment for the road maintenance machineries and equipment, the Ministry of Transport and Communications (MOTC) carried out only small-scale maintenance, and outsourced medium-scale and large-scale maintenance requiring disassembly of the entire equipment to private maintenance companies. However, since private maintenance companies had many tasks other than MOTC's equipment maintenance, it sometimes took long time for them to handle the maintenance of MOTC's road maintenance equipment. As a result, 22.1% of MOTC's equipment was still under maintenance, which hindered the country's road maintenance management.
Objectives of the Project	To improve the maintenance of road maintenance equipment of MOTC through procurement of equipment for maintenance of road maintenance machinery, thereby contributing to the efficient operation and maintenance of the roads under MOTC.
Contents of the Project	1. Project Site: Six workshops of the Local Level Roads Management Units (DEUs) (renamed from DEPs) in the Regions of Chuy, Naryn, Issyk-Kul, Talas, Jalal-Abad, Osh 2. Japanese side: Procurement: Chassis repair equipment and tools, engine repair equipment and tools, electric & battery repair equipment and tools, tire & brake repair equipment and tools, welding & fabrication equipment and tools, cleaning equipment, machining equipment and tools, and lubrication equipment. 3. Kyrgyz side: Renovation of target workshops, transportation of equipment for lubrication trucks, purchase materials necessary for operation, etc.

Project Period						
	E/N Date	March 30, 2017	Completion Date (ex-ante)	September 2017	Completion Date (actual)	November 1, 2018 (Commencement of operation)
	G/A Date	March 31, 2017				
Project Cost	E/N Grant Limit / G/A Grant Limit: 441 million yen		Actual: 438 million yen,			
Executing Agency	Ministry of Transport and Communications					
Contracted Agencies	Main Contractor: TEC International Inc. Main Consultant: Katahira Engineers International					

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- In the ex-ante evaluation, the target year was set as 2020 (three years after the project completion) for verification of the quantitative effects of the project. However, as the project was completed in 2018, the target year was changed to 2021 in the ex-post evaluation, and the achievement in the same year was referred to for verification of the effects.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Kyrgyz at the Time of Ex-Ante Evaluation >

As the "Medium-term Development Plan" (2013-2017) identified the road sector as one of the priority areas and set the development strategy to ensure access to the surrounding regions and domestic markets, the project was consistent with the development policy of Kyrgyz at the time of ex-ante evaluation.

<Consistency with the Development Needs of Kyrgyz at the Time of Ex-Ante Evaluation >

67 percent of the road maintenance equipment of MOTC was procured in the former Soviet era. When they were broken down, some could not be repaired easily and MOTC needed outsource repair works to private companies. Thus, the project was consistent with the development needs of Kyrgyz at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③ (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

One of the priority areas was the transport infrastructure maintenance and regional disparity reduction in the "Country Assistance Policy for Kyrgyz Republic" (2012). The project was consistent with the Japan's ODA policy to Kyrgyz at the time of ex-post evaluation.

<Collaboration/Coordination with other JICA's interventions>

The collaboration/coordination between the proceeding projects of JICA which aimed to improve the equipment for road maintenance[1] was planned at the time of ex-ante evaluation and was implemented, the positive effect was confirmed at the time of ex-post evaluation. The

[1] "Project for the Improvement of the Equipment for Road Maintenance in Naryn" (2006-2007), "Project for Improvement of the Equipment for Road Maintenance in Issyk-Kul and Chui Oblasts" (2010-2011), and "Project for Improvement of the Equipment for Road Maintenance in Osh, Jalal-Abad and Talas Oblasts" (2014-2015).

equipment procured by the project were to be used for the maintenance and repair of the equipment which had been procured by these preceding projects, and as mentioned later, the road maintenance has become more efficient.

<Cooperation with other institutions/Coordination with international framework>

Any the cooperation/coordination with other institutions or donors was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Effectiveness>

The project objectives were achieved beyond the plan. All sets of the procured workshop equipment for the workshops of the target six DEUs have functioned well without any breakdown in all the six regions, and the non-working ratio of the road maintenance equipment has decreased to 13.1% by 2021. Specifically, only 163 out of 1,246 equipment were not functioning in 2021.

As qualitative effects, first, the procured workshop equipment have made maintenance of the road maintenance equipment timely and appropriate and therefore contributed to longer utilization of these road maintenance equipment. For example, the engines of the road maintenance vehicles have been able to be washed in the washing machines at the workshop in due course, which has resulted in longer utilization of the vehicles. Second, the medium-scale maintenance[2] of the road maintenance equipment has been conducted three times more than before with the procured equipment, according to the division for mechanics and material and technical supply of the State Enterprise "KyrgyzAvtoJoldoru." For instance, DEU in Jalal-Abad used to have only the welding equipment but it has been able to conduct the medium-scale maintenance more than before by utilizing the equipment procured by the project. Third, the equipment maintenance time has been shortened. Before the project, DEUs had to wait for one to several weeks until their equipment was repaired by the private repair companies, but with the own equipment, on average, only several days are needed for repair. For example, it used to take the whole day to wash an engine, but now it takes only 1.5 hours with the special equipment for the engine removal and the washing machine. And, it used to take three to four days to repair graders, loaders, etc., but now it takes only several hours because they can be repaired in the field with the welding machine and the air compressor installed in the mobile workshop machine.

<Impact>

As an expected impact, the road maintenance work has become more efficient. For example, before the project, it took two to three months to complete the pavement of 1 km of road, but the time has been shortened to about one month, because the road pavement equipment has been better maintained and repaired quickly as necessary. Also, the time of the pothole repair has been reduced, because the necessary equipment has been installed at each workshop for the maintenance and repair of the relevant road maintenance equipment. The equipment has been properly utilized thus there has been no need to outsource the maintenance to private companies. This led to more efficient utilization of the relevant road maintenance equipment.

As unexpected impacts, synergy effects with the other partners' support have been created. Many international financial institutions (Asian Development Bank, World Bank, Export Import Bank of China, Islamic Development Bank, East African Development Bank) have been financing the reconstruction of the main public roads in Kyrgyzstan. The repair equipment procured by the project has been used in these reconstruction works of these main roads.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ④.

Quantitative Effects

Indicators	Baseline 2014	Target 2020 3 years after Completion	Actual 2019 1 year after Completion	Actual 2020 2 years after Completion	Actual 2021 3 years after Completion	Source
Non-working ratio of MOTC's road maintenance equipment (%)	20.2	13.5	13.1	13.1	13.1	MOTC

Calculation method for the baseline data and the target figure:

- Baseline (2014): 20.2% = (367-85)/(1,658-263) = 282/1,395. At the time of the preparatory survey, the non-working ratio of road maintenance equipment was 22.1% (367 units under maintenance / 1,658 units owned by MOTC). In the baseline year (2014), it was estimated that 263 units would be disposed of by the target year (2019), of which 85 units were under maintenance. Therefore, taking into account the equipment to be discarded by the target year, the non-working ratio in 2014 was calculated to be 20.2% [(367-85 units)/(1,658-263 units)].
- Target (2020): 13.5% = 188 not functioning equipment /1,395 equipment expected to be existing.
- Actual (2021): 13.1%= 163 not functioning equipment / 1,246 actually exiting equipment.

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 99%), the project period slightly exceeded the plan (ratio against the plan: 106%). The excess was due to slight delays in the tender and equipment installation. Outputs were produced as planned. In the light above, the efficiency of the project is ③.

4 Sustainability

< Institutional/Organizational Aspect>

MOTC has been reorganized since 2021. The State Enterprise "KyrgyzAvtoJoldoru" has been established, and all of the Regional Offices (ROs), Main Roads Management Units (UADs) and DEUs have been transferred to this enterprise, as well as their equipment and workshops. It has functioned as the contractor for road works, and the Road Management Department (RMD) of MOTC has been a client for road works. The enterprise has been a self-financing organization, recognizing the necessity of proper maintenance of the equipment to get the contract for road works. It has recently installed GPS (global positioning system) sensors on 300 pieces of the road maintenance equipment to

[2] The medium-scale maintenance includes replacement of brake linings, electrical repairs, replacement of engine oil and greases, etc. Replacement of parts can be performed only by disassembling a piece of equipment.

thoroughly control them and make them utilized equally for all DEUs. Almost all of the target DEUs has assigned the staff to handle the procured equipment as planned, in charge of chassis repair equipment and tools, engine repair equipment and tools, electric & battery repair equipment and tools, welding & fabrication equipment and tools, machining equipment and tools, and lubrication equipment (10 staff at DEU958, 10 at DEU8, 10 at DEU35, 5 at DEU9, 10 at DEU52 and 10 at DEU21.). The road works with the equipment including those provided by the preceding JICA grant aid projects have been supervised by GPS and the field visits of the enterprise staff.

<Technical Aspect>

The staff of the target DEUs have sustained sufficient technical skills, as they were trained by the project. The trained workshop staff have transferred their knowledge to newly recruited staff when their needs arose, as well as to the operators of the road maintenance machines. The State Enterprise has planned to establish the training system in future.

<Financial Aspect>

Financial data was not available in the ex-post evaluation. According to the State Enterprise, the target DEUs have annually secured and allocated the budget for oil, fuel and repair of the equipment from the relevant ROs. However, it was confirmed in the ex-post evaluation that no budget has been utilized so far because not much time has passed and thus there has been no necessity of equipment repair.

<Environmental and Social Aspect>

No issue on environmental and social aspects related to the repair of the road maintenance equipment has been observed and it has not been necessary to take any countermeasures.

<Current Status of Operation and Maintenance>

As mentioned above, all sets of the procured workshop equipment have functioned well without any breakdown in all the six regions. It was confirmed through the site visit that the workshop equipment in all the target DEUs have been stored properly and managed by the assigned the staff in charge of the equipment. Spare parts have not been in need so far. When the need arises, the necessary budget would be allocated by State Enterprise.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project achieved the project objectives beyond the plan. The procured workshop equipment has functioned well, and the non-working ratio of the road maintenance equipment has decreased more than planned. Also, the road maintenance equipment has been used longer than before, and the equipment maintenance time has been shortened. As a result, the road maintenance work has become more efficient. With regard to efficiency, the project period slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- The procured workshop equipment has been utilized by the target DEUs but they have not been necessarily accessible to all other DEUs in the same region. It is recommended to the State Enterprise to map DEUs in the region to objectively understand the accessibility of the equipment and to let ROs regularly collect information on the equipment repair needs from DEUs and then coordinate the usage of the workshop for repair.
- It is recommended to the State Enterprise to develop the internal regulatory framework on the system for annual training sessions on maintenances of the workshops equipment for the workshop staff and related staff.
- It is recommended to the State Enterprise, through ROs, to develop mid-term and short-term plans for workshop equipment maintenance and repair/replacement with relevant cost estimation.

Procured equipment (Tire repair machine) at workshop in Talas

Procured equipment (Crane) at workshop in Issyk-Kul

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by El Salvador Office: September 2022

Country Name	Horticultural Farmers' Profitability Improvement Project in the Eastern Region of the Republic of El Salvador
Republic of El Salvador	

I. Project Outline

Background	In El Salvador, the agriculture sector accounted for about 6.5% of gross domestic products (GDP) and about 22% of the working population was engaged in the sector (2012). 80% of the farmers were small scale farmers (agricultural land area of 3ha or less, and the farmers were mainly engaged in subsistence agricultural production). In particular, the Eastern Region (Usulután, San Miguel, Morazán, La Unión) was the poorest region with a high proportion of small scale farmers. The National Agriculture, Livestock and Forestry Technology Center (CENTA) ,which is responsible for technological research and development and dissemination, has provided support to these small scale farmers. On the other hand, in the Eastern Region, the access to markets and technology by small scale farmers was limited. As a result, many small scale farmers and agricultural cooperatives sold their products to middlemen but did not have sales channels to supermarkets through sales to major distributors. In order to improve that situation, one of the challenges was to organize groups of small scale farmers and strengthen their ability to negotiate prices by producing good quality and quantity of agricultural products that meet the needs of the market, as well as to develop and strengthen sales channels from upstream to downstream (wholesale, retail, etc.) in the value chain of the agricultural products.		
Objectives of the Project	Through development of the market-oriented agricultural extension package, training of farmers on the response to the market and business management, and training of extension officers of CENTA on the appropriate production methods, the project aims at increasing the agricultural profitability of the target horticultural farmers groups, thereby contributing to the continuous support of the Ministry of Agriculture and Livestock (MAG) and CENTA to farmers utilizing the knowledge of Horti Oriente[1]. 1. Overall Goal: Strengthened MAG/CENTA continuously support farmers utilizing the knowledge of Horti Oriente. 2. Project Purpose: The agricultural profitability of the target horticultural farmers groups is increased.		
Activities of the project	1. Project site: 4 departments in the Eastern Region (Usulután, San Miguel, Morazán, and La Unión) 2. Main activities: development of the market-oriented agricultural extension package, training of farmers on the response to the market and business management, development of the guidelines, training of extension officers of CENTA on the appropriate production methods, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 6 persons 2) Trainees received: 25 persons 3) Equipment: Copy machines, projector, air-conditioner, etc. 4) Local cost: Hiring local consultants, car rental, communication, equipment, etc. El Salvador Side 1) Staff allocated: 34 persons 2) Facility: Office space. 3) Local cost: Electricity fee, internet connection, etc.		
Project Period	(ex-ante) April 2014 to March 2018 (actual) May 2014 to May 2018	Project Cost	(ex-ante) 486 million yen, (actual) 400 million yen
Implementing Agency	Ministry of Agriculture and Livestock		
Cooperation Agency in Japan	Kaihatsu Management Consulting, Inc., CDC International Corporation.		

II. Result of the Evaluation

1 Relevance/Coherence
[Relevance] <Consistency with the Development Policy of El Salvador the time of Ex-ante Evaluation> The “Family Farming Program” (2011-2014) as the national policy for the agricultural sector had four programs, and one of them was the "Family Farming Program for Production Chain Construction.” The project was consistent with the development policy of El Salvador at the time of ex-ante evaluation. <Consistency with the Development Needs of El Salvador at the time of Ex-ante Evaluation> In the Eastern Region in El Salvador, small farmers did not have access to markets or sales channels to supermarkets. There were needs for organizing small farmers and strengthening their capacity to negotiate prices and strengthening sales channels from upstream to downstream. Thus, the project was consistent with such development needs of El Salvador at the time of ex-ante evaluation. <Appropriateness of Project Design/Approach> During the project period, it was found that some farmers were vulnerable in terms of production and marketing capacity and access to formal markets, intermediary wholesale buyers and restaurants, and so on. The eligibility criteria for joining target farmer groups were revised to encourage such farmers’ participation in the project activities. No problem attributed to the project design/approach was confirmed.

[1] The nickname for the project combining “horticultura” and “oriente.”

<Evaluation Result>
In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.)
[Coherence]
<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>
In the "Country Assistance Policy for the Republic of El Salvador" (2012) which set "economic revitalization and employment expansion" as a priority area, agricultural development was placed in the development issue "development of industrial infrastructure and productivity improvement for regional development. Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.
<Interlinkage with other JICA's Interventions>
Any synergy effect by the interlinkage between the project and other JICA's intervention was not clearly planned at the time of ex-ante evaluation.
< Cooperation with Other Institutions/Coordination with International Frameworks>
Any cooperation/coordination with donors or international frameworks was not clearly planned at the time of ex-ante evaluation.
<Evaluation Result>
In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]
In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>
At the time of project completion, the Project Purpose was almost achieved as planned. 58% of the farmers' groups increased the horticulture profits (Indicator 1). Considering that 49% of the surveyed individual farmers increased the profits, it can be said that group production was effective. 30 officers of MAG and CENTA learned the methodology for diffusing the model developed by the project (Indicator 2). The Agribusiness Division of MAG developed the guidebook "Methodology for the Delivery of Technical Assistance Services and Performance Evaluation of Rural Businesses" based on the project experience incorporating the SHEP approach. Two workshops on the orientation to the methodology were conducted in 2017, where not only CENTA del Oriente technicians but also 36 technicians collaborating in the Agribusiness Division's pilot activities at the national level participated.
<Continuation Status of Project Effects at the time of Ex-post Evaluation>
By the time of ex-post evaluation, the project effects have been partially continued. The profitability of the horticulture sales of the target farmers' groups could not be confirmed in the ex-post evaluation (Indicator 1). Since the time of project completion, the data has not been monitored because of the personnel turnover caused by the administrative change in 2019 and quarantine mobilization restrictions during the pandemic of COVID-19 since 2020. Another reason is that the personnel of MAG and CENTA has not had sufficient knowledge on monitoring activities for this indicator. Regarding the knowledge for diffusing the Horti Oriente model developed by the project, 15 personnel of MAG and CENTA learned the methodology in 2021. Based on the experience of the project, MAG has conducted diagnosis of the farmers' groups, developed the support plan and provided them with technical advises on agribusiness development. As well, CENTA has provided support to farmers in vegetable growing and agribusiness. Besides, MAG and CENTA has implemented the program "Rural Adelante" (2019-2024) in the same target municipalities. In particular, the project experiences in capacity building of organizations for improving business planning skills and access to market in a competitive and sustainable way have been sustained and same extension workers have been working in the program. In addition, the National Commission of Small and Medium Enterprise (CONAMYPE) has been collaborating with MAG to promote entrepreneurship of farmers by financing small business and processes.
<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>
At the time of ex-post evaluation, the Overall Goal has been partially achieved. 24 farmers' groups were supported with the knowledge of Horti Oriente since by 2021 (Indicator 1). In 2019 and 2021, 12 groups were supported as planned, but not in 2020 when there were frequent mobilization restrictions. In addition, 21 horticulture farmers' groups were supported by MAG's project "Rural Adelante." Regarding the profitability from sales of agricultural products (Indicator 2), no data was available from the same reasons explained above. According to some interviewed small farmers, they have still struggled to sell products in the formal markets, as there are only two supermarkets in the oriental zone and they have required hard conditions to buy products from farmers. Also, there have been limited transportation means to these markets.
<Other Impacts at the time of Ex-post Evaluation>
During the ex-post evaluation, the following cases were confirmed at some sites, First, social inclusion has been enforced in the productive activities. Before the working environment had not been very favorable for women and youth, but the project promoted their participation, by providing them with the market information and training opportunities, encouraging them to participate in agribusiness meetings and market surveys. MAG, in collaboration with CONAMYPE has sustained these efforts, and the female and young farmers have got motivated and worked in a good relationship with other farmers, according to MAG. Second, female active participation has improved the productivity. As an example, in the cooperative "Los Manunes" (ACPALMA, de R.L) in Usulután, female participation has brought a new business for processing and selling *platano* (green banana) chips. Third, the synergy effect of the project and the preceding project, "Project for Supporting the Small Scale Farmers in the Easter Region (PROPA)" (2008-2012) was confirmed. In the cooperative "Arbol de Cortez" in San Miguel, the mesh house built during the period of PROPA has been continuously utilized and the learned techniques have been applied for the horticulture production. On the other hand, no negative impact has been reported in the ex-post evaluation.
<Evaluation Result>
In light of the above, the effectiveness/impact of the project is ②.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source

<table>
<tr><td>(Project Purpose)
The agricultural profitability of the target horticultural farmers groups is increased.</td><td>1. The profitability (sales-cost*) of the horticulture sales of at least 60% of the target farmers' groups is increased.</td><td><u>Status of the achievement (Status of the continuation): Almost achieved as planned (Not verifiable).</u>
(Project Completion)
● 15 of the 26 surveyed farmers' groups (58%) increased the profits from the baseline year to end-line year:
(Ex-post Evaluation)
● No data was available, because the monitoring has not been carried out due to the quarantine mobilization restrictions under the pandemic of COVID-19. Lack of staff members with the knowledge for monitoring due to change of administration and rotation of the staff. has been the other reason.</td><td>Project Completion Report.

MAG.</td></tr>
<tr><td></td><td>2. The number of the officers of MAG and CENTA who learned the methodology for diffusing Horti Oriente reach at least 26.</td><td><u>Status of the achievement (Status of the continuation): Achieved beyond the plan (Partially continued).</u>
(Project Completion)
● MAG and CENTA staff members who learned the methodology for diffusing the Horti Oriente were 9 and 21 (30 in total), respectively.
(Ex-post Evaluation)
● In 2021, 4 members of MAG and 11 members of CENTA learned the methodology for diffusing the Horti Oriente.</td><td>Project Completion Report.

MAG, CENTA.</td></tr>
<tr><td>(Overall goal)
Strengthened MAG/CENTA continuously support farmers utilizing the knowledge of Horti Oriente.</td><td>1. The number of the farmers' groups which were supported with the knowledge of Horti Oriente is increased to at least 36, after the project completion.</td><td><u>Status of the achievement: Partially achieved.</u>
(Ex-post Evaluation)
● The total number of farmers' groups with the knowledge of Horti Oriente increased to 24.
Table: No of farmers' groups which were supported with the knowledge of Horti Oriente.
<table><tr><td></td><td>2019</td><td>2020</td><td>2021</td><td>Total</td></tr><tr><td>Plan</td><td>12</td><td>12</td><td>12</td><td>36</td></tr><tr><td>Actual</td><td>12</td><td>0</td><td>12</td><td>24</td></tr></table>● In addition, 63 farmers' groups in 49 municipalities of the four target departments have been supported by MAG's project "Rural Adelante" since 2020, among whom 21 groups were horticulture farmers.</td><td>MAG.</td></tr>
<tr><td></td><td>2. At least 60% of the farmers' groups which receive the support increase their profitability from sales of agricultural products.</td><td><u>Status of the achievement: Not verifiable.</u>
(Ex-post Evaluation)
● No data was available, because the monitoring has not been carried out due to the quarantine mobilization restrictions under the pandemic of COVID-19. Lack of staff members with the knowledge for monitoring has been the other reason.</td><td>MAG</td></tr>
</table>

Note: "Cost" in the Indicator 1 of the Project Purpose includes that for the purchase of seeds, fertilizers and pesticides, and cost for production, sales and management cost such as the transportation of products. It also includes labor cost.

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 82% and 100%, respectively). Outputs were produced as planned. Therefore, the efficiency of the project is ④.

4 Sustainability

<Policy Aspect>

MAG has established the "Agricultural Rescue Master Plan" (2019-2024) for promoting comprehensive agricultural transformation with an agro-industrial approach and, as mentioned earlier, implemented the program "Rural Adelante" (2019-2024) based on the project experience.

<Institutional/Organizational Aspect>

The organizations setting for supporting small farmers been sustained by MAG which is responsible for improvement of agricultural business management methods and market matching and CENTA which is responsible for extension of the cultivation methods. The Horti Oriente model developed by the project been utilized in MAG's program, "Amanecer Rural" (2013-2018) and "Rural Adelante" (2019-2024). The Agribusiness Division of MAG has not sustained the sufficient number of staff to cover all necessary activities due to the budget shortage, but it has expected to increase the number of staff with donors' support and a strong commitment of the central government for the development in the eastern zone. As well, the number of extension workers in the oriental zone (39 in 2020, 39 in 2021, and 34 in 2022) has not been sufficient to timely respond to all farmers' needs, either. However, CENTA secured external human resources (25 consultants for 2019-2021) for extension activities in the zone with funds from donors including the European Union.

<Technical Aspect>

MAG answered that the Agribusiness Division has sustained necessary skills and knowledge to improve agri-business management methods and market matching, as they have supported farmers through participatory diagnoses and defined the support plan. Also CENTA has sustained necessary skills and knowledge to extend cultivation methods to farmers, according to their self-evaluation, as the extension workers have conducted training at the national level in vegetable cultivation (tomato, chili and cucumber) and the indoor modality cultivation (greenhouses, mesh house, and macro tunnels). Also, they have provided technical assistance in business and financial training and organizational management, post-harvest management of vegetables and others. The materials developed by the project have been used by MAG and CENTA. For example, the document "Methodology for the Provision of Technical Advisory Services and Performance Evaluation of Rural Businesses" has been used by the Agribusiness Division for capacity assessment, intervention planning, market survey, etc. Also CENTA has used manuals and flipcharts for training purposes, as they have been helpful for extension workers to make a clearer and more understandable presentation, according to CENTA.

<Financial Aspect>

At both MAG and CENTA, the budget for supporting small farmers' business management and market matching has been on a decreasing trend, because the government has put much priority on the health (under the pandemic of COVID-19) and public safety sectors (as the new administration's policy since the elections of 2019) .x.

Budget of MAG for development of business management methods and market matching (US$)

	2019	2020	2021	2022 (plan)
Revenue	74,128	44,578	50,756	47,050
Expenditure	74,128	44,578	50,756	--

Source: MAG

Budget of CENTA for support of small farmers (US$)

	2019	2020	2021	2022 (plan)
Revenue	10,155,947	9,855,947	9,806,588	9,322,297
Expenditure	4,249,440	4,281,385	4,156,580	--

Note: Revenues are allocation to CENTA. Expenditures are those for technology transfer.
Source: CENTA

<Environmental and Social Aspect>

In recent years, droughts and insecurity have been identified as environmental and social risks, respectively. Countermeasures have been taken, as the budget for risk mitigation has been assigned by MAG and CENTA, and also, the project "Upscaling Climate Resilience Measures in the Dry Corridor Agroecosystems of El Salvador" (RECLIMA) has been implemented with support of FAO.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project almost achieved the Project Purpose which as to increase the agricultural profitability of the farmers' groups. They have continued the horticulture production based on the model developed by the project, but since the profitability could not be confirmed with data, it was judged that the Overall Goal was partially achieved. MAG has sustained the model in its own programs since the project completion. Regarding sustainability, although human and financial resources have not been sufficient to cover all farmers' needs on time, MAG and CENTA have sustained relevant policies and necessary skills for supporting small farmers.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- It is recommended to MAG to seek for support from donors or non-profit organizations for further diffusion of the model, by explaining its advantages and applicability in their projects.
- It is recommended to MAG to strengthen the value chain platform of agriculture products by involving other institutions including CONAMYPE and the Development Bank of El Salvador and supermarkets that have experience in conducting market research and promoting food value chain, so that farmers' groups could have more access to the formal markets.
- It is recommended to MAG and CENTA to analyze good practices and factors of some cooperatives such as ACPLAMA de R.L which have successfully expanded the business and got profits and share the lessons with their staff and other farmers' groups.

Lessons Learned for JICA:

- In the ex-post evaluation, the horticulture production data were not available, but in the interview with some farmers it was found that they have struggled to grow some varieties such as tomatoes, cucumbers and green peppers in the dry and windy environments to gain profits even though they have applied the techniques introduced by the past project and supported by CENTA. In projects which support farmer groups' agricultural business management, the appropriate selection of target varieties is a pre-condition. It is necessary to carefully conduct the market research and the environmental conditions at the formulation stage.
- In the ex-post evaluation, data of the two indicators (Project Purpose and Overall Goal) of the profitability from sales of the products could not be available, and one of the reason was the lack of the personnel who had sufficient knowledge for monitoring. When an indicator is used which is not familiar for the counterpart agency, it is necessary to include activities to establish the monitoring system by clarifying the person-in-charge and the data collection method and frequency and conduct training for the person-in-charge. Data monitoring during the project period should not be done by only JICA experts, but the person-in-charge of the counterpart agency should be involved.
- The materials developed by the project have been continuously used by the extension workers as a handbook and also training materials as they have been helpful for them to make a clearer and more understandable presentation. In projects in which training is an important part of the project activities, it is essential that the materials be developed with sufficient but clear and easy contents and in a simple language so that they could be adopted to various situations and users. Also, it is important to develop together with the users to reflect their needs and opinions and then update them to further improve their usability.

Female members in the cooperative “Los Manunes” (ACPALMA, de R.L) in Usulután working on the new business for processing and selling *platano* (green banana) chips.

Tomato cultivation of the cooperative AEPAN in Morazán, using the techniques learned by the project, for wholesales in large supermarkets.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Nicaragua Office: February 2023

Country Name	Vocational Training Improvement Project in Agricultural and Livestock Sector
Republic of Nicaragua	

I. Project Outline

Background	Vocational education in the agriculture and livestock sector has been provided by the Training Centers of Agricultural Technology (CETA) of the National Institute of Technology (INATEC). Classes at CETAs have been conducted by their instructors according to textbooks delivered from the INATEC headquarters. The textbook for the agriculture and livestock courses used by CETA had been already prepared for almost all courses, but it was not always easy for students to understand because it was full of text and lacked some content. For those reasons, the instructors themselves provided supplementary explanations for the missing parts of the textbooks in their classes. In addition, due to the wide variety of subject areas, the instructors were teaching a subject outside of his or her area of expertise and did not always fully understand the contents of the textbooks for all subjects.		
Objectives of the Project	Through elaboration and revision of didactic materials and capacity development of instructors, the project aims at strengthening teaching techniques of INATEC's instructors, thereby contributing to improvement of technical education of INATEC. 1. Overall Goal: Appropriate technical instructions in agriculture and livestock sector have been continuously taught at CETAs in order to contribute to improve technical education of INATEC. 2. Project Purpose: INATEC instructors can teach the appropriate agriculture and livestock technologies at their class.		
Activities of the project	1. Project site: INATEC and 15 CETAs in the country. 2. Main activities: Elaboration of textbooks and guidebooks, needs assessment of training programs, training of INATEC instructors, monitoring of CETA classes, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 6 persons 2) Trainees received in Japan: 13 persons 3) Trainees received in the third country: 6 persons (Bolivia) 4) Equipment: Vehicles, PC, etc. 5) Local cost: travel expenses, honorarium, etc. Nicaragua Side 1) Staff allocated: 60 persons 2) Facility: Office space, storehouse, etc. 3) Local cost: operational cost, etc.		
Project Period	(ex-ante) July 2013 to June 2018 (60 months) (actual) September 2013 to September 2018 (60 months)	Project Cost	(ex-ante) 430 million yen (actual) 311 million yen
Implementing Agency	National Institute of Technology (INATEC)		
Cooperation Agency in Japan	None.		

II. Result of the Evaluation

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Nicaragua the time of Ex-ante Evaluation>

The agricultural sector policy, the "Program for Inclusive Rural Development" (PRORURAL Incluyente) (2010-2014), stated that education for young people was essential for sustainable regional development, especially in the agricultural sector. It also indicated that vocational education schools should be effectively used to strengthen the productive capacity of small and medium scale farmers. The project was consistent with the development policy of Nicaragua at the time of ex-ante evaluation.

<Consistency with the Development Needs of Nicaragua at the time of Ex-ante Evaluation>

Textbooks for the agriculture courses of CETA were not always easy for students to understand because they were full of text and lacked some content. Therefore, instructors had to provide supplementary explanations for the missing parts of the textbooks in their classes. In addition, to cover wide varieties of subjects, instructors had to teach a subject outside of his or her area of expertise. Thus, the project was consistent with development needs of Nicaragua for revising the textbooks and training the instructors at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.)

[Coherence]

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

In the "Country Assistance Policy for the Republic of Nicaragua" (2013), one of the priority areas was set as "the infrastructure development for the economic activation," and related to this it was mentioned that the promotion of agriculture, livestock and fisheries and the support for rural development would strengthen the economic base. Also, it was described that the development of industrial human resources through the technical cooperation would be continuously supported. The project was consistent with the Japan's ODA policy to

Nicaragua at the time of ex-ante evaluation.

<Interlinkage with other JICA's Interventions>

Appropriate technologies developed by the preceding projects were reflected in the textbooks and in the training instructors as planned. The collaboration/coordination between the project and the preceding projects[1] of JICA was planned at the time of ex-ante evaluation and was implemented, the positive effects were confirmed at the time of ex-post evaluation.

<Cooperation with Other Institutions/Coordination with International Frameworks>

Any cooperation/coordination with donors or international frameworks was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

At the time of project completion, the Project Purpose was mostly achieved as planned. Most instructors in charge of the vocational education courses of the agriculture and livestock sector were using the curricular documents developed by the project (Training Modules, Teaching Plans, and Didactic Materials) in their classes (Indicator 1). The following guidelines developed by the project were officially approved by INATEC before the time of project completion: i) "Writing Know-How" for Developing Students' Textbook, ii) "Video Materials Production Process and Methods," iii) "Guidebook on the implementation of cascade training for INATEC instructors," iv) "Graph Line Methodological Guide," and v) "Integrated Agricultural Technical Training Program and Technical Verification Criteria."

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

By the time of ex-post evaluation, the project effects have been continued. In 2022, all of the 221 instructors of the Bachelor's Degree in Agricultural Technology, General Agricultural Technology, General Agronomy Technology and General Animal Husbandry Technology courses used the curricular documents in their classes. They attend 194 groups of 4 technical careers, teaching a total of 4,890 technical students of all shifts in 16 Technological Centers. Normatively, all instructors have used the curricular documents, as it was evidenced in the instructor's notebook of each module in the ex-post evaluation survey.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

At the time of ex-post evaluation, the Overall Goal has been achieved beyond the plan). INATEC has continued reviewing and revising didactic materials according to the methodology developed by the project (Indicator 1). Periodic updates depending on the course duration (by one year and a half or two years) have been carried out through technical roundtables with the private productive sector to make appropriate technological adjustments. Technical training for instructors has continued (Indicator 2). Training courses have been always monitored. Also, webinars were conducted in 2020 and 2021 when the COVID-19 infections were spread. Training topics have varied, such as apiary management, assembly of secondary piping and irrigation emitters and livestock farm management in 2021. Training has been conducted based on the annual training plan for INATEC as part of the annual operating plan of the National Center for the Training of Instructors and Teachers. More than 80% of the students of the General Agriculture and Livestock Engineer Courses passed the evaluation at the end in 2019, 2020 and 2021 (Indicator 3).

<Other Impacts at the time of Ex-post Evaluation>

The following positive impacts have been confirmed in the ex-post evaluation. First, INATEC has invited groups which have specific interests including gender promotion groups to the sectoral technical roundtables. It has also organized technical round tables involving students, women's groups and ethnic groups. These efforts of INATEC have contributed to the reflection of situations of all productive social sectors in the national technological curriculum. For example, taking up situations of the indigenous communities, the curriculum has been adjusted to their natural and agro-ecological conditions. Second, based on the shared project experience such as methodologies for manual development and cascade training with other courses, the students' performance of the General Technician in Agronomy, the General Technician of Zootechnique and the Agricultural and Livestock Technical Baccalaureate has been improved. The percentage of the students who passed the evaluation at the end increased from 2019 to 2021.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ④.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) INATEC instructors can teach the appropriate agriculture and livestock technologies at their class.	1. Instructors in charge of the vocational education courses of the agriculture and livestock sector use the curriculum documents elaborated and revised by the Project (Modules, didactic Planning, Didactic Materials) in their classes.	Status of the achievement (Status of the continuation): Almost achieved as planned (continued). (Project Completion) ● Monitoring results of April-May 2018 showed: 1. 87.1 % of instructors had the modules of 2018. 2. 96.8% of instructors had the didactic planning of 2018 and conducted the class based on the planning. 3. 98.4% of instructors used some didactic materials in the class. (Ex-post Evaluation) ● In 2022, among 221 instructors: 1. 100% of instructors had the modules. 2. 100% of instructors conducted the didactic planning. 3. 100% of instructors used the didactic materials in the class.	Project Completion Report. INATEC.
(Overall goal) Appropriate technical	1. INATEC continues the elaboration and revision of	Status of the achievement: Achieved. (Ex-post Evaluation)	INATEC

[1] "Improvement of Cattle Productivity for Small and Medium Scale Farmers Project in the Republic of Nicaragua (2005-2010), Project on Diffusion of the Sustainable Agricultural Technology for Small Farmers. (2008-2013).

<table>
<tr><td rowspan="3">instructions in agriculture and livestock sector have been continuously taught at CETAs in order to contribute to improve technical education of INATEC.</td><td>didactic materials according to its necessity and continuously carries out the evaluation after its use.</td><td>● Materials have been evaluated and updated in 2020 and 2021, including Training Modules, Teaching Plans, Didactic Materials and didactic videos to strengthen the teaching-learning process, by reflecting opinions of not only instructors and students, but also the private productive sector.</td><td></td></tr>
<tr><td>2. Agriculture and livestock technical training (theoretical and practical) is carried out in a sustainable way, to the instructors of the Agriculture and Livestock Technology Teaching Centers (CETAs)</td><td><u>Status of the achievement: Achieved beyond the plan.</u>
(Ex-Post Evaluation)
● In 2019, four technical training courses were conducted for a total of 50 instructors of 25 CETAs. Two educational videos were produced.
● In 2020, two training courses were conducted for a total of 26 instructors of 15 CETAs. Also, two webinars were conducted (3,500 participants).
● 13 technical training courses were conducted for a total of 196 instructors in 2021.
✓</td><td>INATEC.</td></tr>
<tr><td>3. At least 80% of the students of the General Agriculture and livestock Engineer courses, approve the evaluation that is applied at the end of each module.</td><td><u>Status of the achievement: Achieved beyond the plan.</u>
(Ex-post Evaluation)
● More than 80% of the students of the General Agriculture and Livestock Engineer Courses passed the evaluation at the end in 2019, 2020 and 2021.
<table>
<tr><td></td><td>No. of students who took the evaluation</td><td>No. of students who passed the evaluation</td><td>%</td></tr>
<tr><td>2019</td><td>382</td><td>329</td><td>86%</td></tr>
<tr><td>2020</td><td>375</td><td>334</td><td>89%</td></tr>
<tr><td>2021</td><td>610</td><td>562</td><td>92%</td></tr>
</table></td><td>INATEC.</td></tr>
</table>

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 70% and 100%, respectively). Outputs were produced as planned. Therefore, the efficiency of the project is ④.

4 Sustainability

<Policy Aspect>

Production at the field level and also vocational training have been prioritized in the national development plan "National Plan for Fighting Poverty and Human Development" (2022-2026). Vocational training of the agricultural and livestock sector has supported also by the "General Education Law" (Law 582) (2006) and "Regulatory Law of INATEC" (Law 1063) (2021)." It is expected that these laws would be continuously effective.

<Institutional/Organizational Aspect>

INATEC headquarters and 15 CETAs have sustained the structure for providing quality vocational training and implemented the Annual Operation Plan. At the headquarters, the Curriculum Department of the Directorate of Educational Programs has been responsible for curricular and material development, through the technical roundtables, based on the Technical Standards of Labor Competencies. The Curriculum Department was reorganized in 2020, consisting of 20 public officers (14 Professional Training Specialists, 2 Layout Designers, 2 Secretaries, 1 Department Head and 1 Educational Program Director). The number of the officers has been sufficient for fulfilling the responsibilities. 311 instructors were hired to attend the Agricultural and Livestock Technical Baccalaureate, General Agricultural Technician Course, General Technician in Agronomy Course, and General Technician in Zootechniques Course in 2021. The instructors have been able to focus on the subjects in their area of expertise. Classes of CETAs have been supervised by the technical-teaching assistant director, the area chief and methodology experts three times per month. There has been no plan for changes in this organizational setting.

<Technical Aspect>

Instructors have sustained sufficient skills, as they have been trained by INATEC's National Training Center for Instructors to guarantee the quality of technical education and training. Training opportunities have been open to also instructors from private centers and other public organizations who meet the entry requirements. The guidebooks and textbooks developed by the project have been utilized, including "Writing Know-How" for developing students' textbook and "Video Material Production Process and Methods." Based on these resources, INATEC developed 29 didactic videos, 2 webinars, 2 other educational materials and 7 Podcast from 2019 to 2021. Instructors and students of CETAs have been able to access to the necessary guidebooks and textbooks, either physical or digital, through the portal site, PortalTEC. In order to maintain sufficient technical competencies, INATEC has institutionalized the materials developed by the project and made them digitally available, and it would continue training and monitoring processes in each center.

Table: Budget of INATEC (million Nicaraguan Córdoba)

	2019	2020	2021	2022	2023 (plan)
Programmed	1,425	1,499	1,637	1,780	2,124
Executed	1,362	1,291	1,637	544	NA

Note: The executed budget of 2022 was for the first four months. The planned budget of 2023 was in the approval process at the time of ex-ante evaluation.

Table: Budget allocated to CETAs in the agricultural sector (Nicaraguan Córdoba)

	2019	2020	2021	2022
Allocated	5,521,071	4,389,341	5,669,341	6,350,551

<Financial Aspect>

INATEC has continuously secured the necessary budget for curriculum/textbook development and instructor training, as the budget has been increasing, despite the country's socio-political crisis and the COVID-19 pandemic. Also, CETAs have received the necessary allocation to guarantee technical education and training, covering teaching materials, supplies, infrastructure, salaries for teaching and administrative staff, etc. According to INATEC, the cost for reproducing the students' textbooks have been included in the budget of 2023. As the budgets have been increasing, financial backup would be expected.

<Environmental and Social Aspect>

No issue on environmental and social aspect related to the vocational training of INAEC has been observed and it has not been necessary to take any countermeasures.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy, institutional/organizational, technical, financial and environmental and social aspects. Therefore, the sustainability of the project effects is ④.

5 Summary of the Evaluation

The project mostly achieved the Project Purpose which was to strengthen teaching techniques of INATEC's instructors of the agriculture and livestock sector. Since the project completion, the Overall Goal has been achieved, as all of them have continuously used the curricular materials revised by the project. INATEC has continued the curricular and material development and training of CETA instructors, where more students have passed the evaluation at the end of the class. Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Non-score Items

Adaption and Contribution:

- During the project period, JICA Nicaragua Office had close communication with the Directors' Committee of INATEC regarding the project progress along with the project design and the operational plan. Before the project was completed, JICA Nicaragua Office and INATEC developed the action plan to sustain the project effects with the "Monitoring Sheet for Completed Projects" which was introduced for JICA technical cooperation projects by JICA Nicaragua Office in 2019. This close communication and the use of specific monitoring form and accompaniment have ensured the implementation of the action plan which has resulted in the continuation of effectiveness.

IV. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- It is recommended to INATC to motivate the instructors to refer to the methodological guides "Training of Teachers with the Cascade Model" together with "Technical Verification Criteria" so that they could conduct effective training based on their learning levels.
- It is recommended to INATEC maintain the "PortalTEC" so that the instructors and students could always access to the materials when they need, so that they could constantly use the information as didactic planning, defined training plans and support documents.

Lessons Learned for JICA:

- In this project, the Project Purpose was mostly achieved by the time of project completion. Since then, the project effects have continued and the Overall has been achieved beyond the plan. INATEC's efforts for sustaining the project outputs have been supported by JICA Nicaragua office. INATEC has developed the action plan to continue the project effects, and this has been monitored and supported through the monitoring sheet by JICA Nicaragua Office. Thus, for all projects it is effective to develop the action plan for sustainability with the implementing agency before the project is completed and monitor the implementation together. This kind of tool would strengthen the communication and trust with the implementing agency. Through the action plan, it is important to fully have agreement on what specific actions are necessary to achieve the Overall Goal and how the implementing agency monitors the progress with JICA office.

Instructors elaborating bio-inputs based on the textbook developed by the project at the Agricultura Center.

Workshop conducted in the General Agricultural Technology course.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Colombia Office: February 2023

Country Name	Project for Strengthening Flood Risk Management Capacity
Republic of Colombia	

I. Project Outline

Background	Colombia is located on the fringe of the volcanic Andes, with great rivers and presenting vulnerabilities to weather and natural disasters. During La Niña[1] between years of 2010 and 2011, 28 of the 32 departments were affected by floods and landslides caused by massive heavy rains. That historical disaster wreaked 2.3 million affected people and 26 billion pesos (1.26 billion Japanese yen) for recovery and rehabilitation. The government of Colombia promulgated many laws, decrees and regulations to accelerate efforts to prevent and reduce disaster by introducing the Disaster Risk Management in regional planning. However, demarcation of roles for managing flood risk among the institutions at national, departmental and municipal levels was not sufficiently organized and the activities related to flood risk management were not being implemented effectively. These were causing problems such as insufficient exchange of observational data, lack of maintenance and proper administration of the observation infrastructure.		
Objectives of the Project	Through strengthening capacities for the flood risk assessment, flood forecasting and warning, enhancing the collaboration among the related entities, and formulating provisional integrated flood risk management plans for the pilot areas, the project aims at enhancing the capacity of Colombian institutions in flood management, thereby contributing to the reduction of flood risk in Colombia.		
	1. Overall Goal: The reduction of flood risk in Colombia. 2. Project Purpose: Capacity of Colombian institutions in flood management is enhanced.		
Activities of the project	1. Project site: Río Negro Basin in the Department of Cundinamarca. 2. Main activities: Training of the staff of National Unit for Disaster Risk Management (UNGRD), Institute of Hydrology, meteorology and Environmental Studies (IDEAM) and other related entities on hydrological and hydraulic modelling, flood risk mapping, flood risk assessment, flood forecasting, etc., clarifying roles of the related entities, formulation of the integrated flood risk management plans (IFMP) for the pilot river basin, preparation of the guidelines for IFMP formulation, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 7 persons 2) Trainees received in Japan: 24 persons 3) Equipment: PCs, printers, hydrological analysis software, Geographic Information System (GIS) software, etc. 4) Operational cost: project operational expenses. Colombian Side 1) Staff allocated: 20 persons 2) Facility: Office space for experts, etc. 3) Operational cost: activity implementation expenses, installation and operation and maintenance of the equipment, etc.		
Project Period	(ex-ante) June 2015 to June 2018 (actual) July 2015 to July 2018	Project Cost	(ex-ante) 246 million yen, (actual) 240 million yen
Implementing Agency	National Unit for Disaster Risk Management (UNGRD), Institute of Hydrology, Meteorology and Environmental Studies (IDEAM), Regional Autonomous Corporation of Cundinamarca (CAR), Department of Cundinamarca, and Ministry of Environment and Sustainable Development (MADS)		
Cooperation Agency in Japan	Oriental Consultants Global Co., Ltd., Pacific Consultants Co., Ltd.		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Indicator 1 of the Project Purpose was set as "planning capacity regarding flood management." In the terminal evaluation, the achievement status was judged by verifying if the counterpart (C/P) agencies developed reports after participating in the capacity building activities. In the ex-post evaluation, the continuity of the effects was verified by asking two major implementing agencies (UNGRD and IDEAM) if they have developed any reports related to flood risk management based on monitoring and evaluation.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Colombia the time of Ex-ante Evaluation>

The "National Development of Planning: For the Prosperity of All Citizens" (2010-2014) included target indicators including risk management efforts for regional plans (Land Management Plans (POTs) and Management and Regulation Plans for Basin (POMCAs)) that local governmental corporations and municipalities were obliged to develop, improvement of early warning systems and observation networks for frequent disasters, and strengthening of disaster hazard mapping capacity. In addition, the plan called for strengthening the SNGRD with the primary objective of integrated risk management. The project was consistent with the development policy of Colombia at the time of ex-ante evaluation.

<Consistency with the Development Needs of Colombia at the time of Ex-ante Evaluation>

Colombia is located on the fringe of the volcanic Andes, with great rivers and presenting vulnerabilities to weather and natural disasters. However, demarcation of roles for managing flood risk among the institutions at national, departmental and municipal levels was not sufficiently organized. Thus, the project was consistent with development needs of Colombia for effective implementation of activities

[1] La Niña is a phenomenon in which sea surface temperatures in the same area remain below normal. It is the colder counterpart of El Niño.

related to flood risk management at the time of ex-ante evaluation.
<Appropriateness of Project Design/Approach>
No problem attributed to the project design/approach was confirmed.
<Evaluation Result>
In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.)
[Coherence]
<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>
One of the priority areas was "responses to environmental issues and disaster," and in this regard, it was specified that support would be provided for environmental administration, such as waste and wastewater treatment in urban areas, as well as strengthening support for natural disaster response efforts, such as earthquakes, volcanoes, and floods[2]. Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.
<Interlinkage with other JICA's Interventions>
Any collaboration/coordination between the project and other JICA's intervention was not clearly planned at the time of ex-ante evaluation.
< Cooperation with Other Institutions/Coordination with International Frameworks>
Any cooperation/coordination with donors or international frameworks was not clearly planned at the time of ex-ante evaluation.
<Evaluation Result>
In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]
In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>
At the time of project completion, the Project Purpose was mostly achieved as planned. All the C/P institutions prepared the report based on their learning in the training in Japan (Indicator 1) though the reports prepared at the department level could not be confirmed. Regarding the flood forecasting and warning, IDEAM installed 36 new hydrological stations (Indicator 2), and the Department of Cundinamarca examined the plan to strengthen the early warning system through the installation of real-time stations within the department. For the effective use and share of data for flood management, C/P institutions realized that there was improvement in collaboration between participating and relevant entities (Indicator 3). IFMP formulation guidelines were developed for the principal rivers and subzones (Indicator 4).
<Continuation Status of Project Effects at the time of Ex-post Evaluation>
By the time of ex-post evaluation, the project effects have continued. IDEAM and UNGRD has developed the annual report based on the flood risk monitoring or evaluation and the monitoring reports of 2019 and 2020 were shared with JICA Colombia office as committed at the time of project completion. The report of 2021 was developed but not sent to JICA office because it took much time to complete it because of the pandemic of COVID-19. New hydrological stations have not been installed since the project completion, but UNGRD has agreed with IDEAM for improving the weather forecast and early warnings at the national level to assure the transmission of satellite data from 427 hydro-meteorological stations. The database of flood events has been shared by IDEAM and MADS. Besides, IDEAM and CAR have operated and maintained the hydrological data in real time to provide the information for studies in a strip of the Magdalena River to propose flood and river erosion control measures in the municipality of Puerto Boyacá. IFMP formulation guidelines for both the principal rivers and subzones have been effective.
<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>
At the time of ex-post evaluation, the Overall Goal has been partially achieved. The number of coordination meetings among related institutions was not confirmed in the ex-post evaluation (Indicator 1). However, it could be interpreted that relevant meetings have been held as follows. The instruments for planning, operation and management of hydrographic basins and aquifers had been regulated by the Decree 1076 of 2015, based on which issues related to risk management be included in POMCA. These efforts required coordination among the relevant entities. The technical guide and protocol for promotion of POMCA to include risk management issues was reviewed in 2021 and has been in the process of revision (Indicator 2). Regarding POMCAs that introduced the concept of integrated flood management, four POMCAs were developed with the concept of integrated flood management for Rio Bogota, Rio Seco y other directs of Magdalena, Rio Guayuriba and Rio Guavio in 2019 (Indicator 3). Incorporation of the concept of the provisional plan of IFMP for Sub Zone (IFMP-SZ) in the POMCA of Rio Negro Cuenca has been in process. With regard to the reduction measures implemented in the pilot basin, no structural or non-structural intervention measure has been implemented in the Rio Negro basin (Indicator 4). The reason could not be confirmed in the ex-post evaluation.
<Other Impacts at the time of Ex-post Evaluation>
No impact other than explained above has been confirmed in the ex-post evaluation.
<Evaluation Result>
In light of the above, the effectiveness/impact of the project is ②.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Capacity of Colombian institutions in flood management is enhanced.	1. Planning capacity regarding flood management.	Status of the achievement (Status of the continuation): Partially achieved (Continued). (Project Completion) ● All the C/P entities prepared reports on the participation in the training in Japan; however, it was not possible to confirm the	Project Completion Report.

[2] MOFA, ODA Databook 2015.

		preparation of other types of reports.	
		(Ex-post Evaluation) ● IDEAM and UNGRD has annually developed the follow-up report on flood risk management since 2019.	UNGRD.
	2. Capacity of flood forecasting and warning.	Status of the achievement (Status of the continuation): Mostly achieved as planned (Partially continued). (Project Completion) ● IDEAM installed 36 new hydrological stations at the national level. Although the installation of new stations was not confirmed in other C/P entities, the Department of Cundinamarca studied the plan to strengthen the early warning system through the installation of real-time stations within the department.	Project Completion Report.
		(Ex-post Evaluation) ● IDEAM have sustained the exiting hydrological stations, but not have newly installed any hydrological stations since the project.	UNGRD.
	3. Effective use and share of data for flood management.	Status of the achievement (Status of the continuation): Mostly achieved as planned (Continued). (Project Completion) ● According to MADS, UNGRD, and CAR, there was improvement in collaboration between participating and relevant entities. MADS answered that it had not been collaborating with other entities in a meaningful manner at the beginning of the project, but the relationship was strengthened by the project, by recognizing and sharing the relevant information.	Project Completion Report.
		(Ex-post Evaluation) ● The database of flood events has been shared by IDEAM and MADS.	UNGRD.
	4. IFMP formulation guideline developed.	Status of the achievement (Status of the continuation): Achieved as planned (Continued). (Project Completion) ● IFMP formulation guidelines were developed.	Project Completion Report.
		(Ex-post Evaluation) ● Both the Guideline for IFMP-RP Formulation and the Guideline for IFMP-SZ Formulation have been in force.	UNGRD.
(Overall goal) The reduction of flood risk in Colombia.	1. Number of coordination meetings among entities for the implementation of indicators 2, 3, and 4.	Status of the achievement: Not verifiable. (Ex-post Evaluation) ● The number of meetings could not be confirmed. ● It could be interpreted that inter-institutional meetings for preparation and response to flood situations have been conducted, considering the revision of POMCA-related guides.	UNGRD.
	2. A protocol for the incorporation of DRM in POMCAs that involves the concept of integrated flood management exits.	Status of the achievement: Not achieved. (Ex-post Evaluation) ● The technical guide and protocol for promotion of POMCA to include risk management issue has been in the process of revision.	UNGRD.
	3. Number of POMCAs that introduce the concept of integrated flood management.	Status of the achievement: Partially achieved. (Ex-post Evaluation) ● The concept of integrated flood management was reflected in 4 POMCAs (for Rio Bogota, Rio Seco y other directs of Magdalena, Rio Guayuriba and Rio Guavio) in 2019. ● Incorporation of the concept of the IFMP-SZ provisional plan has not been reflected in the POMCA of the Rio Negro basin because it has not been updated.	UNGRD.
	4. Number of reduction measures implemented in the pilot basin of the project.	Status of the achievement: Not achieved. (Ex-post Evaluation) ● No reduction measure has been implemented in the pilot basin.	UNGRD.

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 98% and 100%, respectively). Outputs were produced as planned. Therefore, the efficiency of the project is ④.

4 Sustainability

<Policy Aspect>

Flood risk management has been prioritized in the "National Disaster Risk Management Plan" (2015-2030), which has guided actions of the state and the civil society in terms of risk knowledge, risk reduction and disaster management. Thus, the political backup for sustaining the project effects could be expected to continue for future.

<Institutional/Organizational Aspect>

The demarcation of roles among central and local governments related to flood risk management of principal rivers has been clearly defined. Specifically, UNGRD has functioned as a coordinator of SNGRD, and MADS has formulated relevant strategies and also acted

as a technical advisor. IDEAM has been responsible for meteorological and hydrological observation of the basin, hydrological and hydraulic modeling of the main channel, forecast and flood warning. However, with respect to jurisdiction over the Magdalena River, CAR has jurisdiction over its tributaries but not over the banks of the river. The agreement for collaborative flood risk management among MADS, CORMAGDALENA and IDEAM has been still effective. With regard to the subzone level, the demarcation of functions between the central and local governments has been clearly, such as CAR, COR, departments and municipalities. Subzones have been managed through POMCA, and the Basin Council has been established for the activity implementation. However, there has not been a sufficient number of the staff assigned for the flood risk management section at all institutions, as there have been many other duties which should be performed. UNGRD might be restructured as results of the presidential election held in 2022, but it has been presumed by UNGRD itself that the knowledge-based disaster risk management would be continued by the new administration.

<Technical Aspect>

According to UNGRD, IDEAM has sustained the knowledge for the topics including a) hydrologic & hydraulic modeling, b) flood risk mapping including vulnerability analysis using GIS and c) flood forecasting and warning, through training opportunities provided in the projects with international partners such as NASA SERVIR, GEOGLOWS and the World Meteorological Organization, while IDEAM has needed more capacity building in the topic of hydrologic observation and data analysis. UNGRD itself has considered that it has sustained the knowledge for a) flood risk mapping including vulnerability analysis using GIS, b) hydrologic observation and data analysis and c) flood forecasting and warning. UNGRD has had a system of capacity building for the new staff on risk management in general. For the new staff in the area of flooding knowledge, they have been familiarized with the project outputs. The guidelines for formulation of IFMP-RP and IFMP-SZ developed by the project have been utilized in the forums where regional issues of Magdalena River are discussed.

<Financial Aspect>

Financial data could not be confirmed in the ex-post evaluation. According to UNGRD, since the disaster risk management has been its mission and the budget has been provided by the central government for this purpose.

<Environmental and Social Aspect>

No issue on environmental and social aspect by the promotion of flood risk management has been observed and it has not been necessary to take any countermeasures

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and technical aspects and some problem in the financial aspect of the implementing agency. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project mostly achieved the Project Purpose which was to enhance the capacity of related institutions for planning, flood forecasting and warning, and data management related to flood risk management, and the project effects have continued. Regarding the Overall Goal, the exact data for verifying the achievement could not be confirmed. Since POMCA have been newly developed and coordination meetings among the related entities have been conducted, it could be presumed that flood risks have been reduced to some extent. Regarding the sustainability, small issues include the shortage of the staff who could dedicate only to the flood risk management. On the other hand, IDEAM and UNGRD have mostly sustained knowledge for flood risk management. The guidelines developed by the project have been effective and utilized.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- For flood risk management, it is indispensable to sustain communication and information sharing among the related institutions. It is recommended to UNGRD as the main institution to designate a permanent staff responsible for coordinating meetings with other institutions and communicating with the JICA office for monitoring purposes. UNGRD can request JICA Office to explain its cooperation to a newly assigned staff.
- It is recommended to UNGRD to complete the revision of the technical guide and protocol for promotion of POMCA as early as possible and to update POMCA of the Rio Negro basin reflecting the concept of IFMP-SP so that risk reduction measures could be taken in the basin. It is also important to assign a staff responsible for implementing and monitoring POMCA based on the monitoring plan. When risk reduction measures are taken, it is requested to report to JICA Office, as it could not be confirmed in the ex-post evaluation

Lessons Learned for JICA:

- When the project was completed, it was agreed with the implementing agencies to conduct monitoring of the progress of the Overall Goal and annually report to the JICA office. Actually, the report was submitted to the JICA office in 2019 and 2020. However, it did not include all necessary information such as the number of the coordination meetings, although it was presumed based on the activity progress that they had actually meetings, which made difficult the verification of the achievement level of the Overall Goal in the ex-post evaluation. To ensure the agreed matters after the project completion, it is important to recommend to the implementing agency to assign a permeant staff which participated in the project so that she/he could follow the matters. Also, it is important for the JICA office to direct the national staff to continue the communication with the implementing agencies. Even if the national staff leaves the office, it is necessary to assign to another staff to follow the matters.

Interview at the Magdalena River

Crossing the Magdalena River

Internal Ex-Post Evaluation for Technical Assistance under Finance and Investment Account

conducted by Iraq Office: March, 2023

Country Name	**The Project on Horticulture Technology Improvement and Extension**
Republic of Iraq	

I. Project Outline

Background	Iraqi agricultural sector was the second most important industry, but the productivity of agriculture had remained low due to aging agricultural production infrastructure, salt accumulation in irrigated farmland, and lack of knowledge and technology in agriculture. With high annual rainfall, Kurdistan region-Iraq of northern Iraq (Erbil, Duhok, and Sulaymaniyah Governorates) had high potential agricultural productivity, but the repression and destruction of farming villages during the civil war and the recent drought had led to a decline in agricultural production. As one of the approaches to revitalizing rural areas, the Ministry of Agriculture and Water Resources (MoAWR) of the Kurdistan Regional Government (KRG) had been working to promote production by introducing facility cultivation of vegetables and new varieties of fruit trees. However, an appropriate technology had not been updated properly, the capacity development of government officials involved in agriculture had not been promoted, and thus an extension system had not been firmly established. As a result, the old methods of cultivation were continuously used and the quality of crops declined. To expand the production of horticultural crops that would lead to rural development, it was necessary to introduce and disseminate appropriate horticultural technologies with a view to promoting marketing based on market needs.		
Objectives of the Project	Through the baseline survey and demonstration field activities, the preparation of the detailed plan for the extension activities, and training to extension workers and farmers, the project aims to disseminate suitable horticultural technologies to farmers to respond to market needs, thereby contributing to increasing the income of farmers in Kurdistan region-Iraq. 1. Overall Goal: Income from horticultural crops of farmers in the Kurdistan region is increased through introduction and dissemination of suitable horticulture technologies and promotion of marketing. 2. Project Purpose: Horticulture technologies suitable to local agricultural conditions are disseminated to target farmers to respond to market needs.		
Activities of the Project	1. Project Site: Three Governorates (Erbil, Duhok, and Sulaymaniyah) in the Kurdistan region 2. Main Activities: (1) To conduct baseline surveys and demonstration field activities to determine the actual conditions of farmers and suitable horticulture technologies. (2) To prepare the detailed plan for the extension of suitable horticulture technologies (3) To conduct the extension activities by providing training to extension workers and farmers 3. Inputs (to carry out the above activities) at the time of Terminal Evaluation Japanese Side: 1) Experts: 6 persons (long-term) 5 persons (short-term) 2) Trainees received: 1 person in Japan and 15 persons in the third country (Jordan) 3) Equipment: closed-nursery system sets, water tanks, computers, etc. Iraqi Side: 1) Staff allocated: 32 persons 2) Land and facilities: Project Office, demonstration field, etc.		
Project Period	(ex-ante) August 2011– July 2016 (actual) August 2011 – August 2016	Project Cost	(ex-ante) 480 million yen, (actual) 702 million yen
Implementing Agency	Ministry of Agriculture and Water Resources (MoAWR), Kurdistan Regional Government (KRG)		
Cooperation Agency in Japan	Ministry of Agriculture, Forestry, and Fisheries		

II. Result of the Evaluation

<Constraints on Evaluation>

・Due to the effects of COVID-19 and security issues, data and information obtained during the field survey were limited. They were collected only through telephone interviews with a limited number of extension workers, farmers, and MoAWR officials.

<Special Perspectives Considered in the Ex-Post Evaluation>

[Evaluating the continuation status of the Project Effects

・In order to examine the status of the project effects, it is also important to examine whether the dissemination by the extension workers has been continued. Therefore, "Have the extension workers continued disseminating the technologies introduced by the project?" is used as supplementary information 1.

・In order to examine the effectiveness of the new techniques introduced by the project, "How have researchers who worked on the project evaluated the effectiveness of appropriate horticulture technologies by MoAWR?" is used as supplementary information 2.

[Evaluating the achievement of Overall Goal]

・To examine the achievement status of the Overall Goal "Income from horticultural crops of farmers in the Kurdistan region is increased through introduction and dissemination of suitable horticulture technologies and promotion of marketing", the only indicator "Farmers' income increases through adopting suitable horticulture technologies after 5 years of the completion of the project" is set. Since it is also important to examine the direct outcome brought by the dissemination of suitable horticulture technologies and the promotion of marketing, in this ex-post evaluation study, "Have the crop production increased through adopting suitable horticulture technologies after 5 years of the completion of the Project?" is used as supplementary

information 3.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Iraq at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Iraq at the time of ex-ante evaluation. The Iraqi National Development Plan (NDP) (2010-2014) sets out a vision for the agricultural sector that includes the promotion of domestic production for food security, reduction of poverty in rural areas through increased agricultural production, and economic diversification away from oil dependence. KRG states in its Agricultural Sector Strategic Plan (2009-2013) that the mission of the agricultural sector is to achieve food self-sufficiency in the Kurdistan region-Iraq by utilizing natural, budgetary, and human resources as well as advanced technology and knowledge.

<Consistency with the Development Needs of Iraq at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Iraq to disseminate the horticulture technologies suitable to local agricultural conditions to target farmers to respond to market needs at the time of ex-ante evaluation as stated in "Background" above.

<Appropriateness of Project Design/Approach>

As described below, it is judged that the effectiveness/Impact and sustainability of the project are low. The project design/approach was considered as appropriate as described in the Ex-ante Evaluation Sheet in that the introduction and dissemination of appropriate horticultural technologies were appropriate to the revitalization of rural areas and poverty reduction since horticultural crops (fruits and vegetables) served as a means of earning cash income even on a small scale. With no prior accumulation of agricultural technology as the first technical cooperation in the agricultural field in the Kurdistan region-Iraq, and with political instability tending to bring activities to a halt, it was difficult to give sufficient consideration to sustainability. Under such severe circumstances, it should be well noted that local cultivation of broccoli, which had only been imported, was rapidly accelerated, and the broccoli was even available in local grocery stores by the time of project completion.

After the completion of the project, the project activities were adversely affected by two other external factors, such as financial difficulties and no effective measures taken by the authority to stabilize the market. Since the project's completion, there was no continuation of publicity activities, including the introduction of cooking methods for broccoli, nor ongoing research on broccoli cultivation due to financial difficulties. Authority failed to take effective measures to control the influx of inexpensive vegetables and fruits from outside, and the price of broccoli plummeted. This phenomenon has been observed in other vegetables, and farmers who no longer see potential in agriculture have been leaving the industry at an accelerating pace. These external factors were beyond the scope of the assumption for the project to cope with.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy to Iraq at the time of ex-ante evaluation. According to the economic cooperation policy for Iraq as of 2011, Japanese assistance aimed to support the areas in line with NDP (2010-2014) from the viewpoint of respecting the ownership of the Iraqi side and improving the effectiveness of the assistance. One of the four priority areas focused on by this policy is strengthening the infrastructure for economic growth in the oil and gas sector, agriculture, and mining, etc.[1]

<Collaboration/Coordination with other JICA's interventions>

Although the collaboration/coordination between the project and the Japanese ODA loan project namely the "Irrigation Sector Loan (Loan Agreement in January 2008)" was planned at the time of ex-ante evaluation and was implemented, any effects were not confirmed at the time of ex-post evaluation.

<Cooperation with other institutions/ Coordination with international framework>

Any cooperation/coordination with other institutions was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]

In light of the above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project purpose was achieved beyond the plan. The project conducted a baseline survey in the target area, and based on the results of the survey, the Researcher took the initiative to verify several appropriate technologies for horticultural crops that meet market needs. Vegetable and fruit tree test cultivation, as well as promotion cultivation in demonstration plots, were also conducted. To disseminate appropriate cultivation technologies, training for extension workers was conducted and field days were held to provide guidance to farmers. Appropriate technologies were also compiled into horticultural technology guidelines. Through these activities, broccoli cultivation was selected as suitable for local agricultural conditions[2] to respond to market needs and disseminated to target farmers. It was confirmed by the telephone sample interviews conducted at project completion with 41 farmers who participated in the Field Day, 30 farmers (73.2%) already told other farmers about the new techniques of broccoli cultivation for dissemination (Indicator 1). Through these activities, a system of the Researchers-Extension Workers-Farmers Cycle, in which problems and solutions for the cultivation are shared, was established. The system was the first of its kind in the Kurdistan region and proved to be an effective way for the dissemination of new techniques. The role of extension workers in disseminating the technology was also clearly recognized.

1 Source: The Ministry of Foreign Affairs, "ODA Country Data Collection" (2011)

2 Having considered several horticultural crops, the project selected broccoli for reasons, such that broccoli was considered a new crop that was nutrient and could be sold at a high price in the market. Most importantly, the farmers embraced broccoli cultivation, which was disseminated at Field Day.

Considering that the project often faced difficulties due to political unrest, it should be well noted that the project achieved favorable results.

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

By the time of the ex-post evaluation, the project effects have not continued. According to the telephone interviews with 17 farmers, only three farmers (18%) continued to grow broccoli by applying the technologies introduced by the project. Interviews with farmers revealed that for about two years right after the project completion, many farmers started broccoli cultivation. However, the more farmers produced broccoli, the fewer prices were given in the market under the circumstances that no price control was being installed by the authority. As a result, most of the farmers gave up cultivating broccoli by the time of ex-post evaluation and some farmers went back to growing crops, such as tomatoes and cucumbers with a conventional method.

The unavailability of the same seed variety in the local market and that of a good heating system in case of cold areas are other issues that made it difficult for farmers to continue growing broccoli, either. Telephone interviews with two extension workers for Ebril and Duhok Governorates revealed that no budgetary support from MoAWR made it difficult for them to continue disseminating the technologies (Supplementary Information 1). As for how researchers who worked on the project evaluated the effectiveness of appropriate horticulture technologies by MoAWR, there was no information obtained during the study. (Supplementary Information 2).

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of ex-post evaluation, it was not possible to examine the achievement status of the Overall Goal since the quantitative data was not available. The resulting decline in market prices forced farmers to give up broccoli production because they could no longer make a profit from broccoli cultivation. Therefore, it is most likely that farmers' income did not increase through adopting suitable horticulture technology for broccoli cultivation. The broccoli production data were not available, either (Supplementary Information 3).

<Other Impacts at the Time of Ex-Post Evaluation>

According to the telephone interviews with farmers and extension workers, local broccoli was seen at vegetable shops all over KRI for about two years after the project. This indicates that broccoli cultivation was well accepted by farmers and became popular among them until the market price fell. According to the interviews with farmers, the guideline for broccoli production technologies in the local language was used in the Syrian refugee camp through the project by other development partners.

It was also identified by the telephone interviews with farmers and extension workers that most of the people concerned with the project realized the "Researchers-Extension Workers-Farmers Cycle" was important to continue to improve agriculture in the Kurdistan region, however, the situation did not continue since the extension workers could not visit the farmers because of the lack of budget for activities.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ①.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td>(Project Purpose)
Horticulture technologies suitable to local agricultural conditions are disseminated to target farmers to respond to market needs.</td><td>Indicator 1
More than 60 % of the farmers who attended Filed Day tell other farmers about the new techniques.</td><td>Status of the Achievement (Status of the Continuation): Achieved beyond the plan (not continued)
(Project Completion)
・For those who participated in the Field Day, the telephone sample interviews were conducted with 41 farmers (half of those who participated in the Field Day) at the project completion, and 30 farmers (73.2%) of them already told other farmers about the new techniques of broccoli cultivation achieving the target of 60%. (The percentage by each governorate is unknown.)
(Ex-Post Evaluation)
・According to the interviews with 17 farmers which represents 42% of those surveyed at the project completion, only three farmers (18%) have continued to grow broccoli by applying the new techniques introduced by the project. Others have stopped broccoli cultivation.
・One of the major reasons is that broccoli cultivation was no longer profitable since its market prices fell when the production increased without price controls by authority. Another reason is that it was not possible to obtain the same quality of seed variety. Furthermore, in the case of the Duhok Governorate, the production cost became high because it required a heating system when it got very cold.
<table>
<tr><th></th><th colspan="2">At the time of Project completion</th><th></th><th colspan="3">At the time of ex-post evaluation</th></tr>
<tr><th>Governorate</th><th>Number of participants of Field Days</th><th>Number of Field Day participants interviewed</th><th></th><th>Interviewed</th><th>Continued broccoli cultivation</th><th>Not Continued broccoli cultivation</th></tr>
<tr><td>Erbil</td><td>40</td><td>24</td><td></td><td>5</td><td>2</td><td>3</td></tr>
<tr><td>Duhok</td><td>18</td><td>3</td><td></td><td>4</td><td>0</td><td>4</td></tr>
<tr><td>Sulaymaniyah</td><td>24</td><td>14</td><td></td><td>8</td><td>1</td><td>7</td></tr>
<tr><td>Total</td><td>82</td><td>41</td><td></td><td>17</td><td>3</td><td>14</td></tr>
</table>
</td><td>Telephone interviews with farmers

Telephone interviews with farmers</td></tr>
<tr><td>(Overall Goal)
Income from horticultural crops of farmers in the Kurdistan region</td><td>Indicator 1
Farmers' income increases through adopting suitable horticulture</td><td>(Ex-Post Evaluation) Not verifiable
・No quantitative data is available. Telephone interviews with farmers indicated that broccoli production increased for about two years right after the project completion because many farmers started growing broccoli. However, the resulting decline in market prices forced farmers to give up broccoli production because they could no</td><td>NA</td></tr>
</table>

is increased through introduction and dissemination of suitable horticulture technologies and promotion of marketing.	technologies after 5 years of the completion of the project.	longer make a profit from broccoli cultivation. ・It is most likely that farmers' income did not increase through adopting suitable horticulture technology for broccoli production.	

3 Efficiency

While the project period was as planned (the ratio against the plan: 100%), the project cost exceeded the plan (the ratio against the plan: 146%). The reason for the excess of the project cost was the political instability in the region, which forced experts to use bulletproof vehicles in more areas during their regional trips or to instruct remotely from Jordan or Japan to the Kurdish region.

Outputs were produced as planned.

In light of the above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

Under the Iraq National Development Plan (2018-2022), the Government of Iraq sets four major objectives for the agricultural sector which include the increase in the GDP contribution of the agricultural sector as well as sustainable food security.

<Institutional/Organizational Aspect>

The organizational structure of MoAWR and the number of laboratory and extension offices for each governorate have been unchanged, however, many of the staff under the organization have been on leave due to financial difficulties. According to the interview with officers of MoAWR, it is difficult for them to carry out any activities mainly due to the lack of funds. Neither the current number of laboratory staff including researchers nor the current number of extension workers are available.

<Technical Aspect>

Due to the financial difficulties, all the activities including training, have been stopped. It has been difficult for MoAWR to create an environment to transfer the technologies introduced by the project. As for a series of technical guidelines, many staff found them useful as a source of information, especially for those manuals or guidelines of production technologies of broccoli prepared in the local language.

<Financial Aspect>

Because of the ongoing economic crisis in KRG, it is difficult for MoAWR to allocate any budget for research activity and extension service activities.

<Environmental and Social Aspect>

Telephone interviews with farmers revealed that there are high-quality products in the market imported from Iran and Turkey and it is difficult for MoAWR and KRG to control the market price and quantity of the imports from outside.

<Evaluation Result>

In light of the above, serious problems have been observed in terms of institutional/organizational, technical, financial, environmental and social aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is ①.

5 Summary of the Evaluation

The project achieved the project purpose beyond the plan to disseminate the horticulture technologies suitable to local agricultural conditions to target farmers in order to respond to market needs. After the project's completion, the project effects have not continued. The achievement of the Overall Goal to increase the income from horticultural crops of farmers in the Kurdistan region through the introduction and dissemination of suitable horticulture technologies and promotion of marketing was not verifiable because of the unavailability of data. As for sustainability, major problems have been observed in terms of the institutional/organizational, technical, financial, environmental, and social aspects of the implementing agency. As for efficiency, the project cost exceeded the plan

Considering all of the above points, this project is evaluated to be unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

・KRG should reactivate the "Researchers-Extension Workers – Farmers Cycle" in which farmers share problems and solutions for cultivation in order to improve agriculture in the region.

It was confirmed by the study that most of the people concerned with the project realized the "Researchers-Extension Workers-Farmers Cycle" worked well in the Kurdistan region-Iraq. However, it has not continued after the project completion due to the lack of funds for activities of extension services.

Lessons Learned for JICA:

1) In areas where the land is infertile and the market capacity is small, the project should be planned using multiple measures, such as the promotion of multiple horticulture crops, adjusting the crop schedule, and effective measures to stabilize the market by the authority.

The increase in broccoli production to the point of price collapse can be evaluated as a result of the successful adoption of locally adaptable technology by the project. However, specialization in broccoli production and the lack of effective measures to stabilize the market have led many farmers away from broccoli production.

2) While it would be desirable to include diversification of extension crops, marketing, and sustainability considerations in the project plan, it would be difficult to do all these in one project in a conflict-affected area where there is no accumulated experience. Therefore, one

possible way is that the project activities should be monitored as it proceeds and evaluated once after one to two years. Then, those activities that have proven to be successful should be introduced later on in order to sustain a successful dissemination approach.
This project was the first technical cooperation in the Kurdish region, and it was not feasible to accomplish the various activities included in the project. In addition, there was a lot of political instability during the project period, which made it difficult to review and adjust the project operation midway.

3) In verifying the achievements of the Project Purpose and the Overall Goal, it is desirable to set multiple indicators (quantitative and qualitative) and verify them from multiple perspectives. This is particularly important for projects that include the capacity development of human resources, in order to see the cause-and-effect relationship between human resource development and the outcome.
This project was difficult to evaluate because only one outcome indicator was set for each individual Project Purpose and the Overall Goal, even though both of them were to be achieved through human resource development.

	
An unutilized greenhouse in Duhok	Green House in Bagera/Duhok showing growing Tomato and Cucumber

Internal Ex-Post Evaluation for Technical Assistance under Finance and Investment Account

conducted by Iraq Office: September, 2022

Country Name	**Project for Spreading Water Users Associations for the Efficient Use of Irrigation Water**
Republic of Iraq	

I. Project Outline

Background	Agriculture, especially irrigated agriculture, is a very important sector for Iraq. However, at the time of ex-ante evaluation, the productivity of agriculture in Iraq remained low due to many reasons, including deterioration of agricultural infrastructure, salt accumulation in the irrigated land, and lack of knowledge and techniques on agriculture. The situation became even worse due to reduced in-flow into rivers in Iraq, as neighboring countries constructed large dams and developed vast areas of irrigated agricultural land. Therefore, it was essential to facilitate more efficient use of water through strengthening capacity for operation and maintenance of irrigation and drainage infrastructure, fair and optimal water distribution, raising awareness for water conservation, and introducing water-saving technology. Under such situation, JICA carried out "Karbala Project" (2006-2008) (Third Country Training Program), in which training programs were conducted on Water Users Associations (WUAs) systems and techniques of water-saving irrigation. The Government of Iraq (GOI) requested further cooperation in order to disseminate the achievements and good practices of the project in the country.		
Objectives of the Project	Through improving the capacity of relevant agencies on irrigated agriculture to manage and monitor projects, facilitate the activities of WUAs and Project Management Teams (PMTs), and extend improved irrigation farming practices, the project aims at developing these agencies' capacity to guide WUAs to manage irrigation water in the pilot project sites, thereby contributing to efficient irrigation water management by WUAs in the pilot project sites. 1. Overall Goal: Efficient irrigation water management by WUAs is conducted in the pilot project sites. 2. Project Purpose: Relevant agencies[1] on irrigated agriculture develop their capacity for irrigation water management by WUAs in the pilot project sites.		
Activities of the Project	1. Project Site: 17 pilot project sites in 15 governorates (Najaf, Diwaniya, Wasit, Salah Al-Din, Kirkuk, Anbar, Diyala, Babil, Dhi-Qar, Ninawa, Baghdad, Karbala, Muthanna, Maysan, and Basrah)[2] 2. Main Activities: (1) Conduct trainings for relevant officials on project management, establishment, operation, management, and extension of WUAs, operation and maintenance (O&M) of water management facilities, improved irrigation farming practices and extension skills; (2) Monitor pilot projects, advise relevant officials for improvement and share lessons from each pilot project among stakeholders; and (3) Conduct trainings for key farmers from the pilot project sites on WUA activities and improved irrigation farming practices etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 5 persons 2) Trainees Received in Japan: 32 persons 3) Trainees Received in Third Countries (Jordan: 239, Turkey: 94 and Egypt: 12 persons) 4) Equipment: Laptop PCs, digital cameras, PC software, GPS receivers, web meeting speakers, EC meters, pH meters etc. 5) Local operation cost Iraqi Side 1) Staff Allocated: 4 persons 2) Land and Facility: Meeting rooms in MOWR, etc. 3) Operation Cost: Salary of counterpart personnel (CPs), airfare from Baghdad to Amman, etc.		
Project Period	(ex-ante) March 2012 – March 2015 (actual) April 2012 – March 2015	Project Cost	(ex-ante) 252 million yen, (actual) 382 million yen
Implementing Agency	Ministry of Water Resources (MOWR)		
Cooperation Agency in Japan	Kaihatsu Management Consulting, Inc.		

II. Result of the Evaluation

<Constraints on Evaluation>

- In this Ex-Post Evaluation, due to the security situation in Iraq, JICA made an evaluation judgment by analyzing information acquired by sending and collecting questionnaires, and through telephone and e-mail interviews with persons concerned. No field survey was conducted.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Iraq at the Time of Ex-Ante Evaluation>

The project was consistent with the development policy of Iraq such as "the reduction of poverty in rural areas through increased agricultural production" and "efficient use and conservation of water resources" as set forth in the "National Development Plan (NDP) (2010-2014)" at the time of ex-ante evaluation.

[1] "Relevant agencies" includes Ministry of Water Resources (MOWR), The Prime Minister's Supreme Commission of Agricultural Initiative (SCoAI), Ministry of Planning (MOP), Ministry of Agriculture (MOA), and regional offices of MOWR and MOA.

[2] Pilot projects were conducted in 17 locations in total (in addition to one pilot project in each of the 15 target governorates, one pilot project in Ishaque, which is located between Baghdad and Salah Al-Din governorates, and another pilot project in Mabain Al-Nahrain, which is located between Baghdad and Babil governorates were added).

<Consistency with the Development Needs of Iraq at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Iraq for efficient water use due to the decrease in the amount of available water inflow into Iraq accompanying the development of large dams and irrigation in neighboring countries and inappropriate domestic water resource management at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

No problem attributed to the project design/approach was confirmed, and thus the project design/approach was appropriate.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy[3] to Iraq to strengthen the foundation for economic growth including oil and gas, agriculture, mining, and manufacturing sectors at the time of ex-ante evaluation.

<Collaboration/Coordination with other JICA's interventions>

The collaboration/coordination between the project and the "Irrigation Sector Loan" (ODA loan, 2008-2017) of JICA was planned at the time of ex-ante evaluation. A direct positive effect was not confirmed, as large equipment procured under the loan such as tankers, rollers, and excavators were provided not to WUAs but to MOWR's governorate offices. However, indirect positive effect, such as contribution to appropriate water distribution in project sites through dredging and other maintenance works in irrigation canals by MOWR's governorate offices utilizing the equipment procured under the loan, was confirmed at the time of ex-post evaluation.

<Cooperation with other institutions/ Coordination with international framework>

Any cooperation/coordination with other donors, NGOs, universities or private companies was not clearly planned at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In light of the above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project Purpose was mostly achieved as planned. Indicator 1 was evaluated as achieved as planned, since 60% of the approved WUAs in the pilot project sites started implementing their action plans. Indicator 2 was also evaluated as mostly achieved as planned, based on the fact that (1) 87% of PMTs targeted for Phase 1 and 2[4] excluding those unable to continue activities due to deteriorating security conditions started implementing their water extension plans, and (2) 71% of PMTs including those targeted for Phase 3 started implementing their water extension plans.

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

By the time of the ex-post evaluation, the project effects have continued and further developed. As for Indicator 1, over 60% of the approved WUAs in the pilot project sites have continued to implement their action plans. Moreover, the establishment of WUAs has been encouraged by MOWR owing to this project, 70 new WUAs in total have been established and operating in most governorates. As for Indicator 2, after project completion, the role of PMT was transferred to the WUA Section of the Directorate of Water Resources (DOWR) which was established in each governorate. In addition, after 2016, activities related to water extension plans have been conducted not only by WUA Sections in governorates but also by all the departments/sections of MOWR. Thus, the implementation of water extension plans can be said to have further developed beyond what was aimed in the project.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of the ex-post evaluation, the Overall Goal has been mostly achieved as planned. Indicator 1 was evaluated as achieved beyond the plan, since over 80% of the approved WUAs in the pilot project sites have implemented their action plans. However, Indicator 2 was evaluated as partially achieved, since the number of complaints from farmers on water distribution could not be said as decreased, due to severe water scarcity in Iraq, accompanying illegal usage of water, and control and destruction of several water resources and irrigation facilities by the Islamic State in Iraq and Syria (ISIS).

<Other Impacts at the Time of Ex-Post Evaluation>

WUAs consist of small-scale farmers including female farmers who have a vulnerable status in Iraqi culture. Female farmers are involved in farming and some of them have land ownership. The project promoted information sharing on WUAs and efficient water uses among family members, since female farmers often cannot attend WUA meetings due to traditional custom in rural areas, which has led to empowerment of female farmers.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Relevant agencies on irrigated agriculture develop their capacity for irrigation water	Indicator 1 60% of the approved WUAs in the pilot project sites implement their action plans as planned.	Status of the Achievement (Status of the Continuation): achieved as planned (continued and further developed) (Project Completion) 15 WUAs were approved in total, of which nine WUAs (60%) started implementing their action plans. One of major activities	source：Project Completion Report, Answers to the questionnaire (MOWR)

[3] ODA country data collection (2011)

[4] The project period was divided into three phases (the first year was the Phase 1, the second year was the Phase 2, and the final year was the Phase 3).

<table>
<tr><td>management by WUAs in the pilot project sites.</td><td></td><td>implemented was the selection of board members of WUAs.
(Ex-Post Evaluation)
17 WUAs have been established and operating in the pilot project sites till the time of ex-post evaluation. Well over 60% of the approved WUAs have implemented their action plans. In addition, 70 new WUAs in total have been established and operating in most governorates after project completion[5].
<table>
<tr><th>Year</th><th>Number of WUAs prepared and implemented action plans in the pilot project sites</th><th>Percentage</th></tr>
<tr><td>2015</td><td>17</td><td>100%</td></tr>
<tr><td>2016</td><td>Data not available</td><td>N/A</td></tr>
<tr><td>2017</td><td>Data not available</td><td>N/A</td></tr>
<tr><td>2018</td><td>Data not available</td><td>N/A</td></tr>
<tr><td>2019</td><td>17</td><td>100%</td></tr>
<tr><td>2020</td><td>15</td><td>88%</td></tr>
<tr><td>2021</td><td>14</td><td>82%</td></tr>
</table></td><td></td></tr>
<tr><td></td><td>Indicator 2
80% of PMTs of Phase 1 and Phase 2 implement their water extension plans as planned.

* “Water extension plan” = water-saving irrigation extension plan</td><td>Status of the Achievement (Status of the Continuation): mostly achieved as planned (continued and further developed)
(Project Completion)
Out of 11 PMTs targeted for Phase 1 and 2, seven PMTs (64%) started implementing their water extension plans. Reasons for not starting the implementation of water extension plans in Salah Al-Din, Anbar and Kirkuk governorates were that governorate offices of MOWR were closed and/or officers could not go to fields due to deteriorating security conditions. Excluding these three PMTs, the achievement rate was 87%. Moreover, five PMTs targeted for Phase 3 already started implementing their water extension plans. Including PMTs targeted for Phase 3, 12 (71%) out of 17 PMTs in total started implementing their water extension plans.
(Ex-Post Evaluation)
The role of PMT, including the implementation of water extension plans, was transferred to the WUA Section of DOWR which was established in all of 15 governorates. After 2016, the MOWR recognized and prioritized the importance of water extension plans, so that activities related to water extension plans have been conducted throughout the MOWR including WUA sections in 15 governorates as one of the important activities.</td><td>source：Project Completion Report, Answers to the questionnaire (MOWR)</td></tr>
<tr><td>(Overall Goal)
Efficient irrigation water management by WUAs is conducted in the pilot project sites.</td><td>Indicator 1
80% of the approved WUAs in the pilot project sites prepare their action plan and implement as planned.</td><td>(Ex-Post Evaluation) achieved beyond the plan
See Indicator 1 of the Project Purpose.</td><td>source：N/A</td></tr>
<tr><td></td><td>Indicator 2
The number of complaints from farmers on water distribution in the pilot project sites is decreased after the WUA manage irrigation water.</td><td>(Ex-Post Evaluation) partially achieved
All the WUA Sections in the pilot project sites have received complaints from farmers on water distribution, since Iraq has faced severe water scarcity and illegal usage of water. In addition, several water resources were controlled by ISIS and irrigation facilities were destroyed, which had negative impact on water distribution.</td><td>source：Answers to the questionnaire (MOWR)</td></tr>
</table>

3 Efficiency

Although the project period was within the plan (the ratio against the plan: 97%), the project cost considerably exceeded the plan (the ratio against the plan: 152%). One of the reasons for exceeding the planned cost was that, due to the deteriorating security condition in Iraq during the project implementation because of ISIS, it was necessary to change the training location (originally in Iraq) to third countries and to cover the travel expenses of CPs, which increased the project cost.

Outputs were produced as planned.

In light of the above, the efficiency of the project is ②.

4 Sustainability

<Policy Aspect>

The needs for competent management of water resources and improvement of on-farm irrigation efficiency through integrated water

[5] Due to the recent severe shortage of water, Iraqi government restricted or cancelled the agricultural plan in each governorate depending on the situation. Some WUAs have recently not been able to implement their action plans since agriculture plans of their governorates were cancelled (no distribution of irrigation water).

resource management are stated in "NDP (2018-2022)".

<Institutional/Organizational Aspect>

At the time of the ex-post evaluation, MOWR (the headquarter (HQ)) was in the process of changing its organizational structure in order to improve efficiency of WUA related works, through establishing the WUA Department and integrating all the sections in charge of WUA related works into the department. On the other hand, as stated above, at the governorate level, the WUA Section has been established as an official and permanent section in each DOWR after project completion, which has the same responsibility as PMTs that were temporary units. At the time of the ex-post evaluation, only five staff was assigned at the WUA Department in MOWR HQ, and only one or two staff was assigned at the WUA Section of each DOWR. The number of staff at both the central and governorate levels was limited due to the shortage of staff and budget, however, MOWR was making efforts to improve the situation at the time of the ex-post evaluation. On the other hand, according to MOWR, the number of members in most WUAs in the pilot project sites was generally sufficient to conduct irrigation water management by themselves, although further increase of the number of members would be desirable in the future.

<Technical Aspect>

MOWR started a training system for staff of MOWR and MOA in 2022, in which training on how to involve WUAs in the initial irrigation management was provided to 18 to 22 participants. The idea of the training was inspired by this project, and contents of the training system has been developed during the subsequent project (Project for Sustainable Irrigation Water Management through Water Users Associations). In addition, MOWR has conducted several workshops and training courses for its staff including those at the governorate level and published some articles in MOWR's internal magazine after the project completion. Thus, staff of MOWR and DOWRs have necessary skills and knowledge to promote and disseminate efficient irrigation water management by WUAs. On the other hand, although no regular and systematized training has been established for WUAs, DOWRs have conducted workshops and trainings for WUAs upon necessity. The level of knowledge and skills of WUA members is different among different WUAs. Some WUAs lack sufficient technical skills, and it is necessary to build their capacity and to enable them to manage the irrigation facilities. As the subsequent project is focused more on establishing the training systems, knowledge and skills of WUAs were being strengthened through the subsequent project at the time of the ex-post evaluation.

<Financial Aspect>

Due to the difficulties of financial situation of Iraqi government, only a limited amount of budget has been allocated to the WUA Department at the HQ of MOWR. The amount of budget allocated was 6,400 thousand Iraqi Dinar in 2019, 2,000 thousand Iraqi Dinar in 2020, and 4,325 thousand Iraqi Dinar in 2021. The budget is mainly used to conduct trainings on WUA activities, while staff salaries and other necessary expenses have been covered by other types of national budget. At the time of the ex-post evaluation, there is no system of collecting irrigation fees, since the law on the collection of irrigation fees has been pending for many years. However, MOWR has a plan to collect irrigation fees, and water users fee from WUAs and farmers to increase their budget, and this idea has been promoted through the subsequent project.

<Environmental and Social Aspect>

As stated above, Iraq has faced with severe water shortages due to the climate change and the development of large dams and irrigation in neighboring countries. These are external factors, however, MOWR has been trying to mitigate such impact through disseminating efficient irrigation water management by WUAs.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional, financial and environmental and social aspects of the implementing agency. Therefore, the sustainability of the project effects is ②.

5 Summary of the Evaluation

The project mostly achieved developing relevant agencies' capacity for irrigation water management by WUAs in the pilot project sites as planned, and mostly achieved efficient irrigation water management by WUAs in the pilot project sites as planned. After the project completion, relevant agencies' capacity for irrigation water management by WUAs have continued and further developed. As for sustainability, the number of staff at both the central and governorate levels was limited due to the shortage of staff and budget, and Iraq has also faced with severe water shortages. However, MOWR has maintained technical skills through provision of trainings and workshops. As for efficiency, the project cost significantly exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Non-score Items

Adaption and Contribution:

Since this project was conducted at a time of frequent changes in the security situation in Iraq, JICA carefully consulted with the implementing agency and JICA experts on the project activities in order to ensure the safety of relevant persons and achieve the project objective. Moreover, although the project had to change the plan due to the unstable security situation in Iraq, JICA experts worked hard to adjust the project components to achieve the project objective through communicating with counterparts and other related people.

IV. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

For MOWR and MOA:

As capacity development requires a long time and the idea of irrigation water management by WUAs is relatively new to Iraq, it is crucial to continue to promote the understanding of the idea in relevant organizations for obtaining their support. Thus, MOWR and MOA should continue implementation of workshops and training courses for officials of MOWR, MOA, their governorate offices and relevant organizations to promote their understanding.

Lessons Learned for JICA:

As stated above, MOWR and its governorate offices have faced with the shortage of staff and budget. When a similar project is to be implemented in future, project components to strengthen the organizational structure and financial basis of an implementing agency should

also be included to enable the agency to maintain and expand important activities introduced by the project.

WUA meeting in Missan Governorate

Training session in Diyala Governorate

conducted by Jordan Office: October 2022

Country Name	the Project for the Construction of the Petra Museum
Jordan	

I. Project Outline

Background	Jordan is not only rich in cultural heritage as tourism resources but also blessed with unique natural landscapes. Tourism accounted for 12.4% of the Gross Domestic Products (GDP) (2010) as a major industry for obtaining foreign currencies. It was also expected to grow as a source of employment opportunities for young people (under 24 years old), who accounted for about half of the unemployed in the country. Petra is one of the proudest World Heritage sites and one of the largest tourist destinations in the country, attracting about 0.63 million of the 8.25 million annual tourists to the country (2012). However, most of the tourists stayed in Petra for a very short period of time due to the lack of tourist attractions and commercial facilities other than the ruins. Therefore, in order for the local community to benefit from the economic effects of tourism, it was necessary to develop an attractive tourist point.					
Objectives of the Project	To strengthen the functions of exhibiting historical and cultural heritages and providing information on the importance of preserving archaeological sites by constructing a museum adjacent to the entrance to the Petra Archaeological Park in Wadi Musa Town, Ma'an Province, thereby contributing to attracting tourists to the area.					
Contents of the Project	1. Project Site: Wadi Musa Town in Ma'an Province (entrance to the Petra Archaeological Park) 2. Japanese side: Facility: Museum (Floor area: Approximately 1,800 m^2) (Exhibition room: 902 m^2, Entrance: 303 m^2, Administration Division: 270 m^2, etc.) Equipment: Supplementary facilities and equipment (Projector for interior, lightening set, touch panel, etc.) 3. Jordan side: Cleaning of the site, planting in the site, infrastructure connection, procurement of general furniture, equipment and fittings, etc.					
Project Period	E/N Date	March 1, 2014 (after amendment: March 11, 2015, September 25, 2016)	Completion Date (ex-ante)	March, 2016	Completion Date (actual)	October 3, 2018
	G/A Date	March 1, 2014 (after amendment: March 26, 2015, September 25, 2016)				
Project Cost	E/N Grant Limit / G/A Grant Limit: 783 million yen (before amendment: 686 million yen) Actual Grant Amount: 777 million yen					
Executing Agency	Petra Development and Tourism Region Authority (PDTRA)					
Contracted Agencies	Main Contractor(s): Kahtan Haddadin & Partners Co Ltd., Nissei Trading Co., Ltd. Main Consultant(s): FreeTime International Inc., Yamashita Sekkei Inc., INTEM Consulting, Inc. Agent: Japan International Cooperation System					

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- In the ex-ante evaluation, the target year was set as 2019 (three years after the project completion) for verification of the quantitative effects of the project. However, as the project was completed in 2018, the target year was changed to 2022 in the ex-post evaluation, and the achievement in the same year was referred to for verification of the effects.
- In the ex-ante evaluation, the contribution to the increase in the value of the region as a tourist resource was expected as one of the qualitative effects. As it is a result of the strengthened functions of the Petra Museum, it was verified as an impact in the post-evaluation.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Jordan at the Time of Ex-Ante Evaluation >

As the "National Strategies for Tourism for 2011-2015" included preservation of archaeological sites and tourism promotion, the project was consistent with the development policy of Jordan at the time of ex-ante evaluation.

<Consistency with the Development Needs of Jordan at the Time of Ex-Ante Evaluation >

In Jordan, the tourism has been a major industry for obtaining foreign currency, and it was expected to grow as a source of employment opportunities for young people. Petra is one of the largest tourist destinations in the country but most of the tourists stayed in Petra for a very short period of time due to the lack of tourist attractions and commercial facilities other than the ruins. The project was consistent with the development needs of Jordan at the time of ex-ante evaluation, which was to develop an attractive tourist point in Petra.

<Appropriateness of Project Design/Approach>

It was planned that the facility would be designed with special attention to barrier-free access in the ex-ante evaluation. The constructed museum is accessible for all the people including wheelchair users with the ramp from the main access road to the entrance of the museum. The floor in the building is flat without gaps, and the accessible bathroom is equipped in the lobby area. Wheelchair uses only need support when they open and close the entrance and exit doors. The museum staff has been trained to provide support to persons with disabilities. Thus, the project design/approach was highly appropriate.

<Evaluation Result>

In light of the above, the relevance of the project is ③[1].

[1] ④：very high, ③：high, ②：moderately low, ①：low

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

In the "Country Assistance Policy for the Hashemite Kingdom of Jordan" (2012), one of the priority areas was "support for self-reliant and sustainable economic growth," and it included support for promotion of industries with high development potential, such as tourism, which was expected to generate foreign currency revenues. Therefore, the project was consistent with the Japan's ODA policy to Jordan at the time of ex-ante evaluation.

<Collaboration/Coordination with other JICA's interventions>

The collaboration/coordination between the project and the dispatched JICA advisors on "Cultural Heritage and Tourism Development Advisor" (2013-2015, 2016-2019) was planned at the time of ex-ante evaluation and was implemented, and positive effects were confirmed at the time of ex-post evaluation. Specifically, the advisors supported all the process for opening and promoting the museum, such as exhibits selection, production of real size reconstruction models, captions development, public relation with medias, etc. Also, the advisors trained the museum staff for improving the accessibility and facility management. In addition, the technical cooperation project, "Project for Community-Based Regional Tourism Development in Petra Regions" (2015-2020) was implemented as planned. It supported the museum for its management and development of contents such as short movies, digital signage, leaflets, and guidebooks.

<Cooperation with other institutions/ Coordination with international framework>

Although the cooperation/coordination with the United States Agency for International Development (USAID) was planned at the time of ex-ante evaluation and has been ongoing, any positive effects were not confirmed at the time of ex-post evaluation. The Visitor Center constructed by USAID has been functioning as a ticket center, and efforts for effective utilization of the center has been facilitated by the succeeding "Project for Formulating Tourism Development Master Plan in Petra Region" (2021-2025).

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Effectiveness>

The project objectives were almost achieved as planned. In 2022, a total of 289 objects were exhibited in a form with explanations regarding dates and historical cultural properties (Indicator 1), consisting of 274 archeological objects and 13 folklore objects. Archeological objects are the property of the Department of Antiquities. Because of the smooth coordination, the Petra Museum has borrowed the objects based on the agreement. On the other hand, folklore objects are the property of the Petra Museum. Besides, 30 objects were in storage, and some other objects were rent to other museums including the Metropolitan Museum in the United States. Such rent objects will be exhibited soon after they return to the Petra Museum. At the time of ex-pot evaluation, the Petra Museum was planning to update the objects list to re-borrow the same objects or add new ones.

As qualitative effects, firstly, the valuable cultural heritages excavated from the Petra site and its surroundings have been properly preserved by the Petra Museum with monitoring their conditions on a daily basis, according to PDTRA. The museum has controlled the temperature and humidity and started using the Integrated Pest Management tool to control pest. Secondly, educational activities and information dissemination have been carried out for local residents and visitors. In 2019, five awareness raising activities on the archaeological objects and heritage were conducted, and a total of 331 participated in the activities, including school students and tour operators. Since 2020, despite of the pandemic of COVID-19, two of the activities have been carried out annually.

As supplemental information, the number of the visitors has not increased as expected but reasonably well. In 2019, there were 26,602 visitors in November and December, but in 2020 and 2021 there were 36,554 and 56,625 visitors, because the museum was open for three and eight months only, respectively.

<Impact>

Several positive impacts have been confirmed. Firstly, according to PDTRA, the museum has contributed to increasing the tourists' length of stay (2019 statistics) and enriching the tourists' experience through providing information to help them understand the history of Petra. The museum also has provided interesting explanations for all displayed pieces to explain the story of Nabatea which had flourished in Petra around the second century B.C. Secondly, the local products such as fabrics with stich work, silver accessories, potteries, and bottles have been bought from the local producers and associations and sold at the museum shop. Also, postcards and other products including T-shirts, mugs, pens and brooches printed some artifacts displayed in the museum have been designed jointly by the museum staff and produced by suppliers in Amman. Thus, the product development has contributed to the local economy. Thirdly, the Petra Museum has created employment. Some low-income local residents have been employed on the short-term contract basis. Also related to local employment, the Petra Museum has empowered women by employing six permanent museum staff, five cleaning staff and five part-time staff.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Quantitative Effects

Indicators	Baseline 2013 Baseline Year	Target 2019 3 Years after Completion	Actual 2020 1 Year after Completion	Actual 2021 2 Years after Completion	Actual 2022 3 Years after Completion	Source
Number of cultural properties of Petra that are exhibited in a form with explanations regarding dates and historical cultural properties	0	300	287 (274 archeological objects +13 folklore objects)	289 (276+13)	289 (276+13)	PDTRA.

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 99%), the project period considerably exceeded the plan (ratio against the plan: 212%). The project period exceeded the plan because of the eligible candidate's declination on three biddings for the selection of the contractor. Finally, the local contractor was selected. Outputs were produced as planned.

In the light above, the efficiency of the project is ②.

4 Sustainability

< Institutional/Organizational Aspect>

The organizational structure of the Petra Museum been sustained as expected, and no structural change was expected at the time of ex-post evaluation. It has been operated by the Museum Unit as single department under the Commissioner of PDTRA. The following staff have been working at the museum: Director, Assistant director, a curator, three assistant curators, two receptionists, eight gallery staff, a person in charge of maintenance, and three security staff. In addition, an IT staff of PDTRA has supported the museum as necessary.

<Technical Aspect>

As all the facility of the museum has been maintained without major problems, the museum staff has sustained sufficient skills for operation and maintenance, according to PDTRA. As long as the current staff works at the museum, it is presumed that there would be no concern in the technical aspect.

Budget assigned for operation and maintenance of the museum (JOD)

	2019	2020	2021	2022 (as of June)
Personnel expenses	87,125	98,062	145,866	52,970
Exhibition related cost	0	0	0	10,000
Asset conservation and research	0	0	0	0
Energy cost	55,847	85,453	85,272	28,420
Facility and equipment	6,442	3,076	10,184	425

Source: Petra Museum.

<Financial Aspect>

The budget for operation and maintenance of the Petra Museum has been sufficient, as the required budget and supplies have been provided to the museum. No particular concern was confirmed at the time of ex-post evaluation. The budget for the asset conservation and research and exhibition were not allocated from 2019 to 2021. However, considering the operation and maintenance status and also the decrease in the visitors during the pandemic of COVID-19, it was presumed that there was no particular concern. As of the time of ex-post evaluation, no entrance fee has been collected so as to increase the number of visitors.

<Environmental and Social Aspect>

The Petra Museum has a system to receive complaints and comments from the visitors. As of the time of ex-post evaluation, no issue on the environmental and social aspects by the operation of the museum has been observed and it has not been necessary to take any countermeasures.

<Current Status of Operation and Maintenance>

Most of the facility and equipment have been utilized without problems, except for the following. First, the heavy entrance and exit doors have rubbed the floor since they need to be opened and closed manually each time, and they have required calibration at a frequent interval. PDTRA has been considering several options to improve the situation. Second, the surface of the stone floor tiles have got deteriorated with the use and the internal air conditioning. Third, the interior projectors have been somehow functioning but the yellow shadow has been projected because of the deterioration of the lamps. PDTRA has purchased lamps from the local agent, but the cost was very high. They hoped that they had options of lower running cost.

As maintenance activities, the Petra Museum has cleaned the facility every day. Also, the museum cleaned drainpipes, repaired sealing pf exterior fittings, and cleaned gutters and manholes between 2021 and 2022.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy, institutional/organizational, technical, financial, and environmental and social aspects. Therefore, the sustainability of the project effects is ④.

5 Summary of the Evaluation

The project almost achieved the project objectives as planned. Archeological objects and folklore objects have been exhibited at the Petra Museum with explanations regarding dates and historical cultural properties as expected, and the valuable cultural heritages excavated from the Petra site and nearby have been properly preserved by the Petra Museum. Regarding sustainability, the Petra Museum has sustained the necessary organizational structure, budget and staff, and most of the facility and equipment have been utilized without problems. With regard to the project efficiency, the project period significantly exceeded the plan due to the bidding failures.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- It was found in the ex-post evaluation that the information desk is not exactly on the path from the main entrance to the gallery, and the Petra Museum has had less opportunity to proactively provide information to encourage visitors to spend even longer time in Petra. Therefore, the Petra Museum is recommended to have another desk in front of the main entrance to provide the brochure and sell the museum guidebook to the visitors. Through this, the sales of the guidebook could be increased, and may contribute to visitors' longer stay in Petra.

Lessons Learned for JICA:

- PDTRA fixed the projector through supplier agent in Jordan, but the cost was very high. They hoped that they had options of lower running cost. The equipment needs to be selected om close consultation with the counterpart.
- Overall, the Petra Museum was designed considering the physical accessibility and it has been accessible by wheelchairs users with support of the museum staff or other people. However, the doors of the main entrance cannot be opened by wheelchair users themselves. Actually, these doors are too heavy for most visitors to open and close. The accessibility check by wheelchair users (and other persons with disabilities) should be done at the designing and construction phase to ensure that the design be really universal.

Meeting with the Museum Curator

Meeting with the Museum Director

Internal Ex-Post Evaluation for Technical Cooperation Project (Technical Assistance under Finance and Investment Account)
conducted by Kenya Office: December, 2022

Country Name	**Rice-based and Market-oriented Agriculture Promotion Project**
Republic of Kenya	

I. Project Outline

Background	Among the three major staple crops in Kenya, maize, wheat, and rice, the consumption of rice, which is easy to prepare, was increasing rapidly, especially in urban areas, as the population grew. As a result, the country's self-sufficiency rate had been decreasing year by year and was below 20% at the time of ex-ante evaluation, with the shortage being imported from abroad. In order to promote the increase in rice production, incentives for farmers were needed. Producing high value-added rice that meets the needs of the market was deemed to increase the farm income, which would lead to the sustainable farming. In the Mwea Irrigation Scheme (MIS), which produced more than 50% of the country's rice, it was very important to properly assess the situation of farmers and provide them with support that meets their needs in order to increase rice production in Kenya in the future.		
Objectives of the Project	Through (i) identifying potential rice-based market-oriented farming systems, (ii) enhancing capacity of irrigation water management for improving rice-based and market-oriented farming systems, (iii) enhancing production and post-harvesting technologies for improving rice-based and market-oriented farming systems, (iv) practicing the rice-based and market-oriented farming systems by farmers in MIS, and (v) disseminating the market-oriented approach by development organizations, the project aims at increasing the agricultural profit of farmers in MIS, thereby contributing to disseminating the market-oriented approach in other irrigation schemes.		
	1. Overall Goal: The market-oriented approach established in Mwea Irrigation Scheme is disseminated and adopted in other irrigation schemes. 2. Project Purpose: The agricultural profit of farmers in Mwea Irrigation Scheme is increased through the market-oriented approach.		
Activities of the project	1. Project site: MIS (in Kirinyaga County) 2. Main activities: (i) identifying potential rice-based market-oriented farming systems, (ii) enhancing capacity of irrigation water management for improving rice-based and market-oriented farming systems, (iii) enhancing production and post-harvesting technologies for improving rice-based and market-oriented farming systems, (iv) practicing the rice-based and market-oriented farming systems by farmers in MIS, and (v) disseminating the market-oriented approach by development organizations. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 18 persons 2) Trainees received in Japan: 30 persons 3) Trainees received in the third countries (Uganda, Ghana, Egypt and Tanzania): 32 persons 4) Equipment: Measurement equipment, agricultural machinery, vehicles, office equipment, etc. Kenyan Side 1) Staff allocated: 11 persons 2) Land and facilities: Office space and operation room in Mwea, the trial farm in Mwea Irrigation Agricultural Development (MIAD) Centre for the Project 3) Local operational expenses: purchase of vehicles, new office construction expenses, tools for agricultural machineries, etc. Prototype reaper, electricity, water, fuel for transportation, office furniture and a part of stationeries		
Project Period	(ex-ante) December 2011 - November 2016 (actual) January 2012-January 2017	Project Cost	(ex-ante) 685million yen, (actual) 475 million yen
Implementing Agency	Ministry of Agriculture, Livestock and Fisheries (MoALF) (Currently, Ministry of Agriculture, and Livestock Development: MoALD) Ministry of Water and Irrigation (MoWI) (currently, Ministry of Water, Sanitation and Irrigation: MoWSI), National Irrigation Board (NIB) (Currently, National Irrigation Authority: NIA) (Cooperating agencies)		
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries		

II. Result of the Evaluation

1 Relevance/Coherence
[Relevance] <Consistency with the Development Policy of Kenya at the Time of Ex-Ante Evaluation > The project was consistent with the development policy of Kenya at the time of ex-ante evaluation. Agriculture has been identified as a key sector in the "Kenya Vision 2030", the national development plan. In the "Agricultural Sector Development Strategy" (ASDS), productivity enhancement, agribusiness promotion, and improved market access are the key objectives. The "National Rice Development Strategy" (NRDS), formulated in 2008, plans to promote rice cultivation to enhance food security and improve farmers' livelihoods. <Consistency with the Development Needs of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs for increasing rice production of Kenya at the time of ex-ante evaluation. Kenya's self-sufficiency rate had been decreasing year by year and there was a need to increase farm income.

<Appropriateness of Project Design/Approach>

No problem attributed to the project design/approach was confirmed.

As for the equality, there were vulnerable households in the scheme in terms of scarcity of irrigation water that subjected farmers in the lower sections to less water form rice production. The project involved the locals and also supported the most vulnerable ones with input and advice. And in the end, all farmers both in the upper and lower sections have been able to equitably benefit from the available irrigation water and can produce rice every season.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy to Kenya at the time of ex-post evaluation. Based on the "Country Assistance Program" formulated in 2000, five areas were identified as the priority areas for assistance. The "agriculture and rural development" was one of the priority areas with emphasis on market-responsive agricultural development through rice crop promotion[1]

<Collaboration/Coordination with other JICA's interventions>

The collaboration/coordination between the project and other projects of JICA was planned at the time of ex-ante evaluation and was implemented, and the positive effects expected were confirmed at the time of ex-post evaluation.

The project utilized outcomes of JICA's previous interventions, such as, "Mwea Irrigation Development Project" (phase 1) (1989-1991), a grant aid project for the development of irrigation facilities, rehabilitation of existing ones and establishment of Mwea Irrigation Agricultural Development (MIAD) Center; "Mwea Irrigation Agricultural Development Project"(1991-1996), a technical cooperation project for human resource development of NIB (now NIA) for operation and maintenance of the irrigation facilities. The continuation of utilization and synergy were confirmed at the time of ex-post evaluation, as the irrigation facilities improved and better operation/maintenance (O&M) have been useful for better water management in the scheme to promote the enhancement through Water Saving Rice Culture (WSRC). Further, MIAD provided the trail farm and personnel of MIAD has continued working for a succeeding technical cooperation project "Capacity Development Project for Enhancement of Rice Production in Irrigation Schemes" (CaDPERP) (2019-2024). The other JICA project that has been synergized was with the "Project on Enhancing Gender Responsive Extension Services in Kenya" (PEGRES) (2014-2017) that developed Gender Mainstreaming Package (GMP) as an extension tool in agriculture and implemented in the target areas under the project, and the GMP was confirmed to be continuously used by CaDPERP at the time of ex-post evaluation. Also, through a grant aid project of "Food Security Project for Underprivileged Farmers" (2KR) in 2012, the project was provided with agricultural machinery to enhance adoption of rice technologies, and they were still utilized by the succeeding project at the time of ex-post evaluation.

The project was implemented as part of ODA loan project of infrastructure development, "Mwea Irrigation Development Project" (Phase 2) (2010-2023) for expansion of paddy area and dam development. Although the infrastructures are yet to be completed fully, it is expected to facilitate adoption of the project approaches further by the succeeding projects.

<Cooperation with other institutions/ Coordination with international framework>

The cooperation/coordination with the World Bank's Natural Resource Management Project (NRMP) was planned at the time of ex-ante evaluation and implemented as planned, and the positive effect(s) was/were confirmed at the time of ex-post evaluation. The project promoted double cropping among farmers around the canals lined by NRMP. In this regard, the project constructed 400m long by-pass canal to provide water to farms that were cut-off from water access for double cropping. This enhanced the water supply and improved efficiency through lining of the canal.

There are other collaborations as follows: (1) The project staff members for the succeeding project from MoALD have supporting Kilimo Trust with development of training materials for Uganda on Good Agronomic Practices (GAPs) as guided by manuals under the project. (2) The project lined up with other stakeholders such Kilimo Trust, International Rice Research Institute (IRRI) and Kenya Agricultural and Livestock Research Organization (KALRO) in promoting and supporting the availability of certified seeds in Western Kenya with high-yielding and market-accepted varieties, (3) an increase in rice production enhanced by the project contributed to the Coalition for African Rice Development (CARD) initiative.

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project Purpose was achieved as beyond the plan. The result of baseline survey conducted at the start of the project in 2011 showed the annual average profit of conventional farmers 58,150 Kenyan Shillings (Ksh) per farmer. As the result of project activities, such as adoption of new rice cropping technology, mainly Water Saving Rice Culture (WSRC), plus Improved Ratoon Production (IRaP), sequential crops production, improved irrigation water management, appropriate agriculture mechanization and so forth, the annual average profit of core farmers increased to Ksh 137,462 with 136% in ratio of rice cropping in 2015 and ratoon in 2016 in total. However, the target figure for the indicator was significantly lowered from 240% to 40% in 2014, as the project thought 240% was unrealistic[2].

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

[1] Source: MOFA, ODA Data book 2011

[2] The original indicator turned out to be unrealistic in terms of cropping system, unit productivity ratio per acre, value of production ratio per kg and production cost per acre. Since the rice cultivation yield did not increase as expected

By the time of the ex-ante evaluation, the project effects have continued. Despite the climate-related challenges during the season at the time of ex-post evaluation, effects have continued to be felt across the entire MIS (expanding from 30% to 50% of scheme) and impact has been still notable in yields and profits. Due to the serious drought experienced in the last season, water scarcity affected the "rice + ratoon" farmers the most. "Double cropping" farmers got their yields boosted quite a lot in the second cropping phase when water usually has low competition.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of ex-post evaluation, the Overall Goal has been partially achieved. Efforts towards dissemination of the project approach for new rice cropping techniques mentioned above across MIS reached the 50% mark up from 30% in 2015. While other schemes across the country have not been able to adopt the approach, efforts can be noted in escalating various components of the approach in various schemes. CaDPERP as the succeeding project, was designed to upscale the project technologies in MIS and customize for adoption of the same approaches in Ahero irrigation scheme and West Kano irrigation scheme (both in Kisumu County).

Various organizations have promoted the adoption of the technologies mainly at MIS. Irrigation Water Users Association (IWUA) has had sensitization meetings with farmers through their unit leaders. Mwea Rice Growers Multipurpose Cooperative Society Ltd (MRGM), the farmer's cooperative with membership of over 7,000 households, has pushed the agenda of the project technologies to its members through training/contact meetings. Kirinyaga County – the county extension officers (Sub-County Agriculture Officer (SCAO) and Ward Agriculture Extension Officer (WAEO)) collaborate with CaDPERP to provide extension services to farmers on these technologies. Agriculture Sector Development Programme (ASDSP) has applied guidelines developed under the project to train farmers on Good Agronomic Practices (GAP). Previous core farmers who underwent training on project technologies also have shared skills and passed message of the project to other neighboring farmers

<Other Impacts at the Time of Ex-Post Evaluation>

No negative impacts on the natural environment have been observed.

Some positive impacts have been observed in terms of gender aspect. As mentioned above ("Coherence"), GMP under PEGRES was introduced in the target areas under the project, and fully embraced by its succeeding project (CaDPERP). Through this gender extension tool, households were trained as a unit on participatory agricultural activities, which enabled women to increase their involvement in productive farming activities. This has resulted in enhanced harmonious decision-making process in rice production activities.

No negative impacts have been observed in terms of social aspects.

The project has produced some positive impacts on the national policy. The "National Rice Development Strategy 2" (NRDS 2) (2019-2030) proposes upscaling of improved rice production technologies as part of increasing rice production and productivity. Some of the technologies highlighted were developed under the project.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr>
<td>(Project Purpose)
The agricultural profit of farmers in Mwea Irrigation Scheme is increased through the market-oriented approach.</td>
<td>Indicator 1
The average profit of farmers in Mwea Irrigation Scheme from irrigated field is increased by at least 40%.</td>
<td>Status of the Achievement (Status of the Continuation): achieved beyond the plan (continued)
(Project Completion)
<table>
<tr><th colspan="4">Yield (unit in kg/acre)</th></tr>
<tr><th>2011 Conventional Rice + Ratoon (n=357)</th><th>2015 Conventional Rice + Ratoon (n=15)</th><th>2015 Rice + Ratoon Core farmers (n=27)</th><th>2015 Double Cropping Core farmers (n=19)</th></tr>
<tr><td>2,083</td><td>3,321</td><td>3,782</td><td>4,960</td></tr>
<tr><td>100%</td><td>159%</td><td>182%</td><td>238%</td></tr>
<tr><th colspan="4">Profit (unit in Ksh/acre)</th></tr>
<tr><td>58,150</td><td>99,449</td><td>137,462</td><td>182,542</td></tr>
<tr><td>100%</td><td>171%</td><td>236%</td><td>314%</td></tr>
</table>
(Ex-post evaluation)
<table>
<tr><th></th><th colspan="2">2015</th><th colspan="2">2022</th></tr>
<tr><th></th><th>Yield (kg/acre)</th><th>Profit (Ksh/acre)</th><th>Yield (kg/acre)</th><th>Profit (Ksh/acre)</th></tr>
<tr><td>Rice + Ratoon Core farmers*</td><td>3,782</td><td>137,462</td><td>3,087</td><td>140,696</td></tr>
<tr><td>Double Cropping Core farmers**</td><td>4,980</td><td>182,542</td><td>6,240</td><td>345,600</td></tr>
</table>
*n=27
**n=19</td>
<td>JICA documents, Interview (Project Manager for CaDPERP; SCAO for Mwea West), Questionnaires, FGD (Core Farmers)</td>
</tr>
<tr>
<td>(Overall Goal)
The market-oriented approach established in Mwea Irrigation Scheme is disseminated and</td>
<td>Indicator 1
At least 2 irrigation schemes adopt the market-oriented approach established in Mwea Irrigation Scheme within 3 years after</td>
<td>(Ex-Post Evaluation) partially achieved
Expansion to other schemes (including MIS)
<table>
<tr><th>Name of scheme</th><th>Since</th><th>Type of approach/technology adopted</th><th>Area for which the technologies were adopted</th><th>Number of farmers adopted</th><th>Organization which promoted the adoption</th></tr>
<tr><td>Mwea</td><td>2012</td><td>WSRC</td><td>All sections</td><td>>50%</td><td>The</td></tr>
</table></td>
<td>Questionnaires, Interviews (Project Manager, CaDPERP; MIS Manager), FGD with Core Farmers</td>
</tr>
</table>

adopted in other irrigation schemes.	completion of the Project.	(Kirinyaga County)		IRaP	All sections	>50%	project/CaDPERP, IWUA, NIA, MIAD, MRGM, ASDSP, Kirinyaga County
				Mechanized harvesting	All sections	90%	
				Push weeding	All sections	30%	
		Ahero (Kisumu County)	2017	WSRC	Just introduced	-	The project
				Mechanized harvesting	All scheme areas	-	Farmer groups, Individual MIS farmers
		West Kano (Kisumu County)	2017	WSRC	Just introduced	-	-
				Mechanized harvesting	All scheme areas	30%	Agrized (private farm), Individual farmers
		Bunyala (Busia County)	2019	Mechanized harvesting	Entire scheme	30%	MoALD (Engineering Services Department)
		Bura (Tana River County)	2021	Mechanized harvesting	Entire scheme	30%	NIA, Individual farmers

Expansion within MIS

	Project completion 2016	Ex-post valuation 2022
Section	Mwea, Tebere, and Ndekia sections	Mwea, Tebere, Ndekia, Thiba, Wamumu, and Karaba
Number of households	2,213 households (Out of 7,452 households in Mwea Irrigation Scheme)	3,739 households (out of 11,244 households in Mwea Irrigation Scheme)

During the project period, promotion of RiceMAPP approaches was not started in other regions, but a trial with two farmers, one in Abero and the other in West Kano was made without intention of dissemination. These two farmers have continued to implement leveling, line transplanting, timely fertilizer application, intermittent irrigation, and a bit of mechanization. While farmers in the two schemes have generally embraced these technologies, only about 7 farmers practice at least one technology in West Kano and Ahero with majority embracing only line planting. However, the succeeding project (CaDPERP) has finalized customization trials of these approaches for Ahero and West Kano.

3 Efficiency

Both the project cost and the project period were within the plan (the ratio against the plan: 69% and 100 %, respectively). Outputs were produced as planned.

In the light above, the efficiency of the project is ④.

4 Sustainability

<Policy Aspect>

Several support policies and programs have been set up all working towards sustaining the gains of the project. As mentioned above ("Impact"), NRDS (2019 – 2030) proposes upscaling of improved rice production technologies, including the technologies developed under the project, as part of increasing rice production and productivity. Initiatives under the "National Agricultural Mechanization Policy, 2021", the "Strategic Food Reserve Trust Fund" (SFRTF), have promoted agricultural mechanization, and food security respectively. The "Irrigation Act 2019" transformed NIB to NIA and expanded the mandate to include irrigation research thereby devolving services to 5 regions including Mt. Kenya East (MIS) and Nyanza (Ahero and West Kano) through participatory management of schemes. This empowers farmers in management of agricultural water and inclusion of farmers' representative (IWUA) at the Management Board of NIA.

<Institutional/Organizational Aspect>

The structural changes and the number of staff in the sustenance system of the approach have been somehow sufficient and well created and functional towards enhancement of the gains

The structure has been functioning well from national to irrigation scheme level. Rice Promotion Programme (RiPP) Unit has been set up in the MoALD with specific focus on promotion of rice production across the country. At the same time, implementation structure of CaDPERP includes the Ministry of Water, Sanitation & Irrigation, Kenya Agricultural and Livestock Research Organization (KALRO) and Counties, which needed clearer coordination channels - and this is where Joint Agriculture Secretariat (JAS) was established as a communication link between national and county levels. MIAD also hosts CaDPERP with the Officer-in-Charge being the Unit Leader for MIS.

At MIS, MIAD of NIA has been responsible for dissemination within the MIS, Sub-County Agriculture Officer (SCAO) and Ward Agriculture Extension Officer (WAEO) have been responsible for dissemination in the Kirinyaga County, and RiPP Unit has been

responsible for national dissemination.

As for the number of staff, 62 staff member of MIAD have been actively engaged. According to the Officer-in-Charge, this number has been sufficient; however, there is optional need for an Irrigation Engineer. The Kirinyaga county government has had 36 key staff members under the department of agriculture and about 7 of them have been assigned in the Mwea West sub-county where MIS is located. This number has not been sufficient and the county government has employed new staff to bridge the gap however, only one staff (water management) has been engaged in CaDPERP for upscaling and dissemination to Ahero/West Kano. At the national level, RiPP Unit has had only 3 key members of the staff despite the wider national mandate. According to the Head of RiPP, there is need for about 5 more staff members to handle (i) Monitoring & Evaluation, (ii) Agribusiness (iii) Crop production & technology dissemination, and (iv) irrigation.

<Technical Aspect>

Most of the staff members in each of the organizations have undergone good training and capacity-building processes and the numbers of trained staff are sufficient with the exception of Kirinyaga County that just recruited fresh staff. These new staff members need training to introduce them to extension of project approaches, and CaDPERP plans to conduct some training to them meanwhile. At national level, CaDPERP has supported RiPP Unit.

The guidelines and manuals developed under the project, such as IRaP, WSRC, water management and appropriate mechanization have been utilized.

<Financial Aspect>

While almost all the organizations have no dedicated budget allocation from the government, there is still evidence of ability to finance and sustain activities related to promotion of the approach.

At MIS level, NIA has continued to allocate some funds for implementation of MIAD activities although it generates internal revenue for most of its activities. For example, in the fiscal year 2021-2022, MIAD had a budget of up to KES. 7 million almost fully financed from internal revenue.

As for the dissemination in the Kirinyaga County, no data on this could be obtained from the county government of Kirinyaga.

At the national level for dissemination to other schemes, there is no dedicated budget allocation to the unit for promotion of its mandate towards these approaches but RiPP activities are supported by work plans. This kind of facilitation has continued to be provided by the MoALD through an umbrella basket for crop diversification in which RiPP budget requirement of usually approximately KES. 50 million.

<Environmental and Social Aspect>

No monitoring system has been developed for environmental and social purposes, as risks was regarded minimum.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ②.

5 Summary of the Evaluation

The project almost achieved the increase in the profit of farmers (Project Purpose) and partially achieved the adoption of the project approaches (Overall Goal). Coherence is high. As for the Sustainability, some problems have been observed in terms of the financial aspect, though no problems have been observed in terms of policy, institutional and technical aspects.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

1.Availability of financial and personnel resources

- National government needs to allocate and avail funds on regular basis to the government agencies that are responsible for promotion of rice production across the country (NIA, RiPP).
- Kirinyaga County and Kisumu County governments to ensure dispatch of relevant extension officers to CaDPERP to improve sustainability of gains under the project. NIA on the other hand, needs to take a higher role in the projects under CaDPERP and dispatch dedicated personnel with specific role.
- It is important for NIA through the Principal Secretary, Ministry of Water, Sanitation and Irrigation and Rice Promotion Programme (RiPP) through the Principal Secretary for Crop Development of MoALD, to ensure an Environmental Management Plan (EMP) is developed for each scheme

Lessons Learned for JICA:

- When the guidelines were developed for each of the technologies, some aspects have been inappropriate for farmers and may not be adopted quite easily, due to limited involvement of end-users (farmers). In the future, it then becomes necessary to do so in a participatory manner and put in place a system for regular review of the manuals through different editions. At the same time, the existing manuals and guidelines should be reviewed before the CaDPERP completes.
- The initial stages of the trials focused more on academic approach. This caused adoption rate by farmers became unexpectedly lower due to lack of farmer-centeredness of the technologies developed. Experts in close cooperation with counterparts should become deliberate with the inclusion of expected users of technologies to be developed for efficient rollout and effective adoption. A clear system for sustaining the project activities through continued budgeting by the beneficiary should have been incorporated in the planning phase.

Line planting shown in a paddy field as practiced by one of the successful core farmers

A core farmers using a push-weeder in his paddy field

Internal Ex-Post Evaluation for Development Planning Project

conducted by Zimbabwe Office: March, 2023

Country Name	**The Development of a Geospatial Information Database Project**
Republic of Zimbabwe	

I. Project Outline

Background	The population of the capital city, Harare, was estimated to grow rapidly from about 658,000 in 1982 to about 1.6 million in 2012. However, the rapid population growth was accompanied by inadequate urban infrastructure development. As a result, dysfunctional infrastructure brought about traffic congestion, environmental pollution, and shortage of public services. Under those circumstances, there was a need for the development of 1:5,000 topographic maps and the establishment of a geospatial information database, which were necessary for infrastructure development and urban planning aiming at improving public health. However, the existing topographic maps in Zimbabwe were not in line with the situation because the latest topographic maps were 1/50,000 and 1/250,000 (1/5,000 and 1/2,500 in some urban areas) maps prepared by Department of the Surveyor General of the Ministry of Lands and Rural Resettlement 30 years ago.		
Objectives of the Project	The project aims at developing 1:5,000 digital topographic maps (about 96 km^2) and digital orthophotos (about 1,700 km^2) and by strengthening the capacity of the Department of the Surveyor General for digital topographic mapping, thereby contributing to the planning, development, and maintenance of infrastructure in Harare, the capital city of Zimbabwe and its surrounding areas. 1. Expected Goals through the proposed plan[1]: (1) Water supply and sewerage and public hygiene services are developed, and the living environment is improved in Harare and its surrounding areas. (2) Infrastructure development is carried out in Harare and its surrounding areas, and economic development is achieved.		
Activities of the Project	1. Project site: Harare and its surrounding areas 2. Main activities: Taking of aerial photographs, ground control point survey, aerial triangulation, preparation of digital orthophotos, preparation of Harare street map, structurization of digital data, training of DGS staff on preparation of digital orthophotos, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Mission members: 12 persons 2) Trainees received: 4 persons 3) Equipment: Levelling equipment, handheld GPS, digital camera, PC, GIS software, digital photogrammetry workstation, CAD software, etc. Zimbabwe Side 1) Staff allocated: 5 persons		
Project Period	(ex-ante) May 2015 to April 2017 (actual) June 2015 to June 2017	Project Cost	(ex-ante) 337 million yen, (actual) 381 million yen
Implementing Agency	Department of the Surveyor General, Ministry of Lands and Rural Resettlement		
Cooperation Agency in Japan	Asia Air Survey Co., Ltd., PASCO Corporation.		

II. Result of the Evaluation

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Zimbabwe at the Time of Ex-Ante Evaluation >

The "Medium Term Plan" (2010-2015) focused on the development of environments that promotes economic growth in urban areas, in which the development of sustainable infrastructure, water supply and sewerage, and sanitation services have been identified as priority areas. The project was consistent with the development policy of Zimbabwe at the time of ex-ante evaluation.

<Consistency with the Development Needs of Zimbabwe at the Time of Ex-Ante Evaluation >

The topographic maps developed 30 years ago in the country had not been updated, and thus there was a need for the development of 1:5,000 topographic maps and the establishment of a geospatial information database for the development of infrastructure and urban planning. The project was consistent with the development needs of Zimbabwe at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③ (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same afterwards.).

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

One of the priority areas for the assistance for Zimbabwe was the one that would contribute to human security[2]. The related supports included the efforts to improve access to safe water and sanitation, in order to restore living standards that have deteriorated due to economic turmoil since 2000. The project was consistent with the Japan's ODA policy to Zimbabwe at the time of ex-post evaluation.

<Collaboration/Coordination with other JICA's interventions>

Any collaboration/coordination between the project and other JICA's intervention was not clearly planned at the time of ex-ante

[1] The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

[2] Ministry of Foreign Affairs ODA Databook (2015).

evaluation.
<Cooperation with other institutions/Coordination with international framework>
Any cooperation/coordination with other institutions or donors was not clearly planned at the time of ex-ante evaluation.
<Evaluation Result>
In light of the above, the coherence of the project is ②.

[Evaluation Result of Relevance/Coherence]
In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement for the Objectives at the Time of Project Completion>
All of the outputs were produced by the time of project completion. Digital topographic maps (mapping area: 96 km^2, 12 sheets) and digital orthophoto maps with contour lines (mapping area: 1,700 km2, 2,228 sheets) were developed as planned. Also, new digital aerial photos with high ground resolution were taken. For capacity development of DSG, technical transfer was conducted in the fields of aerial photography, ground control point survey, aerial triangulation, field identification and field completion, digital plotting and digital compilation, digital orthophoto preparation, map representation, preparation of provided data and promotion of utilization of geospatial datasets, and technical support to the data users.
< Utilization Status of the Proposed Plan at the Time of Ex-post Evaluation>
The proposed plan has been partially utilized by the time of ex-post evaluation. The developed digital topographic maps have been officially approved by the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development in July 2017. Also, the developed digital topographic maps and digital orthophoto maps with contour lines have been sold and distributed by DSG. For promotion of the maps, DSG has introduced the products in the Zimbabwe International Trade Fair in 2022, Zimbabwe Agricultural Show in 2019, and Provincial Agricultural Show in 2019. No exact data of the use of the products were available (Indicators 1 and 2), because DSG has not managed the data, but several examples were confirmed in the ex-post evaluation, such as the use by the Municipality of Harare and the Environmental Management Agency.
<Status of Achievement for Expected Goals through the Proposed Plan at the Time of Ex-post Evaluation>
The expected goals through the proposed plan have been partially achieved at the time of ex-post evaluation. According to DSG, the water utility facility has been mapped based on the project outputs. This has made it easier to search for an alternative water facility when water pipes burst. Also, because of the water facility mapping, repairs have been conducted more speedily than before. On the other hand, no information related to the improvement of the livelihood due to sewerage and public hygiene services has been confirmed.
<Other Impacts at the Time of Ex-post Evaluation>
As explained above, due to the easier finding of alternative water facilities, women's burden has been reduced because it had been their roles. No negative impact on the environment has been confirmed.
<Evaluation Result>
In light of the above, the effectiveness/impact of the project is ②.

Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

Aim	Indicators	Results	Source
(Utilization Status of the Proposed Plan) (1) DSG's capability for topographic mapping is improved, and digital topographic maps are produced from digital orthophotos. (2) Digital topographic maps are used for efficient water supply, sewerage, sanitation services and infrastructure development and maintenance.	1. Number of development plans prepared with the digital topographic maps	Status of Utilization: Partially utilized. (Ex-post Evaluation) ● The number of development plans prepared with the digital topographic maps were not available from DSG. DSG has not tracked the record of development plans that are prepared with the maps. ● However, it was confirmed that at least the Environmental Management Agency formulated the wetlands Master plan using the street map prepared by DSG.	DSG.
	2. Number of projects related to infrastructure development implemented with the digital topographic maps	Status of Utilization: Partially utilized. (Ex-post Evaluation) ● The number of development projects prepared with the digital topographic maps were not available from DSG. DSG has not tracked the record of development projects that are prepared with the maps. ● However, it was confirmed that at least the Municipality of Harare has used the maps for the water and sanitation infrastructure development and management. Also, the Civil Protection Department under the Ministry of Local Government, Public Works and National Housing has planned to use the maps for hazard mapping.	DSG.
(Expected Goals through the Proposed Plan) (1) Water supply and sewerage and public hygiene services are developed, and the living environment is improved in Harare and its surrounding areas. (2) Infrastructure development is carried out in Harare and its surrounding areas, and	1. The living environment is improved in Harare and its surrounding areas through developed water supply and sewerage and public hygiene services.	Status of Achievement: Partially achieved. (Ex-post Evaluation) ● Based on the project outputs, the water utility facility has been mapped. Even when the water pipes burst, it has become easy to find alternative water utility facility.	DSG.
	2. Infrastructure development is carried out in Harare and its surrounding areas.	Status of Achievement: Not achieved. (Ex-post Evaluation) ● Infrastructure development has not been carried out yet, however, the Environmental Management Agency formulated the Wetlands Master Plan from the street maps developed by	DSG.

economic development is achieved.		DCG and the Civil Protection Department has planned to use it for hazard mapping.	

3 Efficiency

Both the project cost and the project period slightly exceeded the plan (the ratio against the plan: 113% and 104%, respectively). The project period exceeded very slightly, presumably because one month was extended for finalization of the final report. Outputs were produced as planned.

In the light above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

The Copyright Act (2004) has secured DSG's access to the geospatial information of the National Mapping Authority.

< Institutional/Organizational Aspect>

The organizational structure of DSG has been sustained since the time of project completion. However, the number of staff to promote the use of digital topographic maps has not been sufficient because DSG has not had a marketing division. On the other hand, it has participated in national and international events such as trade fairs to bring awareness to clients and other stakeholders about its available data and information.

<Technical Aspect>

DSG answered that its staff have sustained necessary skills for promoting digital topographic maps including: 1) aerial photography, 2) ground control points survey, 3) aerial triangulation, 4) field identification and field completion and 5) map representation and map finishing. The skills of structurization of digital data" was expected to be taught, the technology transfer was not carried out sufficiently during the project period because of time constraints. DSG has sustained and practiced the knowledge for updating the digital maps, supported by the follow-up project, "Promoting Geospatial Data Utilization Including Data Update by Science, Technology and Innovation" (2021-2022). On the other hand, the manuals developed by the project have been available but not in much use because they have not supported the updated software.

<Financial Aspect>

DSG has not continuously secured a specific budget for promotion purposes since it has not had the marketing division, but it has participated in aforementioned trade fairs for the promotion purpose. DSG has got profits from selling digital maps. The profit data were not available, but it could be presumed that there has definitely been an increase in sales because the maps have been usually sold out once they were produced.

<Environmental and Social Aspect>

No issue on environmental and social aspect by the utilization of the developed digital topographic maps has been observed and it has not been necessary to take any countermeasures.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is ②.

5 Summary of the Evaluation

The project prepared the digital topographic maps and digital orthophoto maps with contour lines. After the project completion, the developed maps have been mostly utilized as planned. The maps have been sold and distributed, and they have been utilized by the government agencies for developing the plan and infrastructure. Regarding sustainability, a section and staff specializing in marketing have been needed for further promotion of the digital maps. As for the project efficiency, both the project cost and period slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is recommended to DSG to assign a staff member specialized in marketing or train the existing staff on marketing for further promotion of digital topographic maps, while it does not have an independent marketing section. In the long term, it is recommended to establish a marketing department and allocate necessary budget and assign staff specialized in marketing to that department.

Lessons Learned for JICA:

- In the ex-post evaluation, the indicators set for verifying the utilization status of the developed maps were not available because DSG has not tracked the data. DSG has not had the mandate to follow the utilization result of the maps after it sells them. To evaluate the continuation of the effects and impacts of the project, the data monitoring is indispensable, and otherwise even good result could be overlooked. When the project is concluded, it is necessary to clarify the monitoring data, data collection method, and monitoring roles of the implementing agency, and get agreement in writing.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Rwanda Office: December 2022

Country Name	Project for Capacity Building of Provincial Health Staff for Maternal and Child Health
Republic of Burundi	

I. Project Outline

Background	The maternal mortality ratio (500 per 100,000 live births, 2010) and the under-five child mortality ratio (96 per 1,000 live births, 2010)[1] in Burundi were high compared to other Sub-Saharan African countries, and improvement of maternal and child health was an urgent need. The neonatal mortality accounted for 31% of the under-five mortality (20% for perinatal mortality)[2], and the high institutional mortality ratios of 85.7 (maternal mortality ratio of 100,000 live births, 2011) and 6.1 (neonatal mortality ratio of 1,000 live births, 2011)[3] indicated not only limited access to health facilities but also insufficient health care services provided at these facilities.		
Objectives of the Project	Through strengthened capacities to (1) formulate in-service training programs, (2) implement training programs, (3) conduct maternal and perinatal mortality surveillance, (4) conduct monitoring and evaluation, and (5) apply 5S-KAIZEN-TQM[4] at the district hospital level in Gitega and Mwaro, the project aims at strengthening the technical capacity for quality continuous care in health facilities focusing on EONC*, BEmONC* and CEmONC*, thereby contributing to the reduction of maternal and perinatal mortality in health facilities. *EONC: Essential Obstetric and Newborn Care BEmONC: Basic Emergency Obstetric and Newborn Care CEmONC: Comprehensive Emergency Obstetric and Newborn Care		
	1. Overall Goal: To contribute to the reduction of maternal and perinatal mortality in health facilities. 2. Project Purpose: To strengthen the technical capacity for quality continuous care in health facilities focusing on EONC, BEmONC and CEmONC.		
Activities of the project	1. Project site: Gitega and Mwaro. 2. Main activities: Training of the health staff on maternal death surveillance and response (MDSR), training of the hospital personnel on 5S-KAIZEN-TQM, training of trainers for in-service training, training of care providers on BEmONC, development of training modules and materials, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 7 persons 2) Trainees received in Japan: 54 persons 3) Training received in third countries: 19 persons 4) Equipment: Training manikins, obstetric suction equipment, incubators, etc. 5) Operational cost: cost for hiring local consultants, etc. Burundian Side 1) Staff allocated: 73 persons 2) Facility: Office space for Japanese experts 3) Operational cost: Cost for maintaining office spaces		
Project Period	(ex-ante) July 2013 to June 2017 (48 months) (actual) August 2013 to August 2018 (60 months) (Extension period: July 2017 to August 2018)	Project Cost	(ex-ante) 410 million yen, (actual) 263 million yen
Implementing Agency	Ministry of Public Health and Fight Against AIDS		
Cooperation Agency in Japan	None.		

II. Result of the Evaluation

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Burundi the time of Ex-ante Evaluation>

In the "National Health Development Plan II" (2011-2015), the sector objective was set as "to improve the health of the people, and the three main targets are to reduce mortality from infectious and non-communicable diseases, maternal and neonatal mortality, and under-five mortality. The project was consistent with the development policy of Burundi at the time of ex-ante evaluation.

<Consistency with the Development Needs of Burundi at the time of Ex-ante Evaluation>

As explained in the project background, the maternal mortality ratio (500 per 100,000 live births, 2010) and the under-five child mortality ratio (96 per 1,000 live births, 2010) in Burundi were high, and improvement of maternal and child health was an urgent need. Thus, the project was consistent with such development needs of Burundi at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. No problem attributed to the project design/approach was confirmed.

<Evaluation Result>

In light of the above, the relevance of the project is ③. (④ : very high, ③ : high, ② : moderately low, ① : low. *To be the same

[1] Demographic and Health Survey 2010.

[2] Countdown to 2015: 2012 Country Profiles (Burundi). http://www.countdown2015mnch.org/documents/2012Report/2012/2012_Burundi.pdf

[3] Ministry of Public Health and Fight Against AIDS (2012) "Activity Report: Exercise 2011 (Bilan des Activites: Exercice 2011)."

[4] An approach to improving service quality based on improving the workplace environment through 5S (sort, set, shine, standardize and sustain) activities, to achieve TQM (Total Quality Management).

afterwards.)

[Coherence]

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

One of the priority areas was improvement of basic social services focusing on the health and water/hygiene sectors. Support would be provided for decreasing infant mortality ratios and improving maternal and child care services through capacity building of health personnel and strengthening health facilities[5]. Thus, the project was consistent with Japan's ODA policy for Burundi at the time of ex-ante evaluation.

<Interlinkage with other JICA's Interventions>

The collaboration/coordination between the project and "Project for Strengthening Capacities of Prince Regent Charles Hospital and Public Health Centers in Bujumbura City for Improvement of Mother and Child Health" (2009-2012) of JICA was planned at the time of ex-ante evaluation was implemented thereafter, and the positive effects of the linkage were confirmed at the time of ex-post evaluation. The training materials and trainers related to 5S approach implemented at the Prince Regent Charles Hospital in the preceding project were utilized in this project, which has resulted in diffusion of the project effects to other provinces.

< Cooperation with Other Institutions/Coordination with International Frameworks>

The cooperation/coordination with other donors was planned at the time of ex-ante evaluation, and the positive effect was confirmed at the time of ex-post evaluation. The project experience has been diffused to other provinces (Cankuzo, Kirundo, Ngozi and Rutana) under the grant aid project in collaboration with the United Nations Children's Fund (UNICEF), "Project for the Reinforcement of Maternal and Child Health Services in Four Provinces of Burundi" (2018), in particular, the experience of training of the health staff and introduction and utilization of the maternal and child health record books.

<Evaluation Result>

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

At the time of project completion, the Project Purpose was partially achieved. The proportion of post cesarean infection cases decreased by 2017 but increased in 2018 (Indicator 1). Reasons of the increase in 2018 included the increase in the number of patients beyond the hospital capacity, a shortage of medicine in the country and delays in 5S activities at the hospitals. Regarding the medical records, 20% of maternal deaths and 69% of near miss cases were reported with the medical records in 2014, both improved to 100% (Indicator 2), attributed to the improved recording capacity.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

By the time of ex-post evaluation, the project effects have continued. The proportion of post cesarean infection cases have drastically decreased in both provinces of Gitega and Mwaro (Indicator 1). To accept more patients and reduce infections, the hospitals have made efforts including training of the staff on infection prevention and control, monthly clinical audits, bimonthly supervision by the reproductive health focal point. There was an increase only in 2020 in Mwaro because there were some emergency and unscheduled cesarean operations conducted without sufficient preparation and doctors. That situation was exacerbated by the pandemic of COVID-19. Also, the lack of the patients' hygiene after the caesarean was another reason. The number of cesarean operations has been increasing because women who have given birth by cesarean once would have a second and subsequent cesareans. Regarding the medical records, all of maternal deaths and near miss cases have been reported in both provinces (Indicator 2). It has been ensured that all patients have come to hospital with the maternal and child health record book at the time of the consultation, childbirth, and so on. All of the health facilities must have medical records available for patients. Also, the MDSR sessions have been conducted by all hospitals in both provinces. At the time of ex-post evaluation, JICA was implementing the "Project for Strengthening Maternal and Child Health Services" (2019-2023) in Gitega and Mwaro, with the aim of improving continuous maternal and child care, particularly obstetric and newborn care. Ongoing training and other activities through this succeeding project have been considered to be one of the factors contributing to the continued effects of the project.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

At the time of ex-post evaluation, the Overall Goal has been achieved. The perinatal mortality rate per 1,000 live births in health facilities has decreased much by 2019 but since then has been increasing in both provinces of Gitega and Mwaro (Indicator 1). The fluctuating data needed careful interpretation. It was because there was no good reporting system of infant deaths before 2019 and therefore the comparison with the baseline data was not appropriate. The reason of the increase in the perinatal mortality rate since 2019 in Gitega has been the low quality of care for newborn survival, according to the Gitega Hospital. Another reason has been the increase in unwanted pregnancies at young ages. The maternal mortality ratio per 100,000 in health facilities has decreased in both of the target provinces (Indicator 2). The reason of the drastic decrease in maternal mortality in Gitega has been that more pregnant women have given birth at health facilities and got greater access to quality emergency obstetric, according to the same source. Improved capacity of the health staff was also mentioned as a contributing factor.

<Other Impacts at the time of Ex-post Evaluation>

The following positive impact has been confirmed by the ex-post evaluation. First, The project experience has been used in the succeeding "Project for Strengthening Maternal and Child Health Services" (2019-2023). The experience in training the health staff based on clinical evidence has been utilized. Second, the 5S implementation training model developed by the project has been evaluated, and 5S has been officially adopted as a national strategy for healthcare service quality improvement.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is ③.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source

[5] MOFA, ODA Databook 2012.

<table>
<tr>
<td>(Project Purpose)
To strengthen the technical capacity for quality continuous care in health facilities focusing on EONC, BEmONC and CEmONC.</td>
<td>1. Proportion of post cesarean infection case is reduced.</td>
<td><u>Status of the achievement (Status of the continuation): Not achieved (Achieved and continued).</u>
(Project Completion)
● The proportion of post cesarean infection cases increased in both provinces.
<table>
<tr><th></th><th>2014</th><th>2017</th><th>2018 (-August)</th></tr>
<tr><td>Cesareans</td><td>238</td><td>192</td><td>345</td></tr>
<tr><td>Infection case</td><td>18</td><td>11</td><td>40</td></tr>
<tr><td>Proportion</td><td>7.6%</td><td>5.7%</td><td>11.6%</td></tr>
</table>
(Ex-post Evaluation)
● The proportion of post cesarean infection case have decreased compared to during the project period.
(Gitega)
<table>
<tr><th></th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Cesareans</td><td>951</td><td>1123</td><td>1409</td></tr>
<tr><td>Infection case</td><td>NA.</td><td>22</td><td>42</td></tr>
<tr><td>Proportion</td><td>NA</td><td>2%</td><td>3%</td></tr>
</table>
(Mwaro)
<table>
<tr><th></th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Cesareans</td><td>785</td><td>837</td><td>959</td></tr>
<tr><td>Infection case</td><td>31</td><td>129</td><td>20</td></tr>
<tr><td>Proportion</td><td>4%</td><td>16%</td><td>2%</td></tr>
</table>
</td>
<td>Project Completion Report.

Gitega Hospital, Mwaro Health Province.</td>
</tr>
<tr>
<td></td>
<td>2. Number of maternal deaths and near miss cases for whom medical records are available is increased.</td>
<td><u>Status of the achievement (Status of the continuation): Achieved as planned (Continued).</u>
(Project Completion)
● The number of maternal deaths and near miss cases for whom medical records were available increased in both provinces.
<table>
<tr><th></th><th>2014</th><th>2017</th><th>2018 (-August)</th></tr>
<tr><td>Total maternal death</td><td>39</td><td>53</td><td>49</td></tr>
<tr><td>Proportion of records</td><td>20.1%</td><td>98.9%</td><td>100%</td></tr>
<tr><td>Total near miss case</td><td>48</td><td>56</td><td>42</td></tr>
<tr><td>● Proportion of records</td><td>69%</td><td>100%</td><td>100%</td></tr>
</table>
(Ex-post Evaluation)
● All of maternal deaths and near miss cases have been reported with medical records.
(Gitega)
<table>
<tr><th></th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Total maternal death</td><td>8</td><td>8</td><td>9</td></tr>
<tr><td>Proportion of records</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Total near miss case</td><td>284</td><td>374</td><td>386</td></tr>
<tr><td>Proportion of records</td><td>100%</td><td>100%</td><td>100%</td></tr>
</table>
(Mwaro)
<table>
<tr><th></th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Total maternal death</td><td>14</td><td>20</td><td>38</td></tr>
<tr><td>Proportion of records</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td>Total near miss case</td><td>12</td><td>24</td><td>17</td></tr>
<tr><td>Proportion of records</td><td>100%</td><td>100%</td><td>100%</td></tr>
</table>
</td>
<td>Project Completion Report.

Gitega Hospital, Mwaro Health Province.</td>
</tr>
<tr>
<td>(Overall goal)
To contribute to the reduction of maternal and perinatal mortality in health facilities.</td>
<td>1. Reduce 20 % of perinatal mortality rate in health facilities in Mwaro and Gitega provinces</td>
<td><u>Status of the achievement: Partially achieved.</u>
(Ex-post Evaluation)
● The perinatal mortality rate per 1,000 in health facilities has decrease
● d by 2019 but since then has been increasing in both provinces.
<table>
<tr><th></th><th>2013</th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Gitega</td><td>25.8</td><td>2.94</td><td>17.6</td><td>24.7 (-4%)</td></tr>
<tr><td>● Mwaro</td><td>22.0</td><td>9.5</td><td>10.4</td><td>14.0 (-36%)</td></tr>
</table>
</td>
<td>Gitega Hospital, Mwaro Health Province.</td>
</tr>
<tr>
<td></td>
<td>2. Reduce 20% of the maternal mortality ratio in health facilities in Mwaro and Gitega</td>
<td><u>Status of the achievement: Achieved beyond the plan.</u>
(Ex-post Evaluation)
● The maternal mortality ratio per 100,000 in health facilities has decreased in both provinces.
<table>
<tr><th></th><th>2013</th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Gitega</td><td>125.3</td><td>2.2</td><td>1.9</td><td>1.9 (-98%)</td></tr>
<tr><td>● Mwaro</td><td>112.7</td><td>-</td><td>12.4</td><td>58.7 (-48%)</td></tr>
</table>
</td>
<td>Gitega Hospital, Mwaro Health Province.</td>
</tr>
</table>

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 64%), the project period exceeded the plan (ratio against the plan:

125%). The project cost was less than the planned because the JICA experts needed to leave the country due to security issues and shortened the contract. Regarding the project period, the project extended one year to implement activities suspended by the security issues. Outputs were produced as planned. Therefore, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

Capacity building of the health personnel on maternal and child health care services has been prioritized in the "National Health Policy" (2016-2025). Thus, the political backup has been expected to sustain in the coming years.

<Institutional/Organizational Aspect>

For provision of maternal and child health care services including capacity building of the health staff, the Ministry of Public Health and Fight against AIDS has been responsible for coordination, overall monitoring and evaluation of training interventions. The Provincial Health Offices have ensured the implementation of these interventions by supporting the Health District Offices. The Ministry of Public Health and Fight against AIDS has not assigned a sufficient number of health staff (doctors, nurses and others) to provide maternal and child health care services to the Provincial Health Offices of Gitega and Mwaro. The lack of the personnel at the provincial level has been partly attributed to the fact that some doctors and midwives have not received a salary higher than that of the Government of Burundi. The performance of the health facilities has been supervised by the Provincial Doctor or the hospital director, and this supportive supervision has helped retaining and motivating the health staff in resource-constrained settings. There has been no plan to change these institutional settings.

<Technical Aspect>

The health staff (physicians, anesthesiology nurses, etc.) of Gitega and Mwaro Provinces have sustained necessary skills and knowledge for maternal and child health care, as training opportunities have been given continuously in the country with financial support of the development partners. Training topics covered MDSR, 5S-KAIZEN-TQM and BEmONC from 2019 to 2021. Each of the Provincial Health Offices of Gitega and Mwaro have developed the annual training plan, and, therefore, it is expected that training opportunities would continue. The Maternal Mortality Surveillance Audiovisual Materials and training materials on EONC and safe cesarean section developed by the project have been utilized, as well as the provided medical equipment for EONC.

<Financial Aspect>

Financial data was not available in the ex-post evaluation. However, it was presumed that the Provincial Health Offices of Gitega and Mwaro have not been able to secure the necessary budget for providing maternal and child health care services, including training and supervision, as evidenced in the mid-term evaluation of the "Reproductive, Maternal, Neonatal, Child and Adolescent Health Strategic Plan" (2019-2023) which was carried out in March 2022. The Ministry of Public Health and Fight against AIDS has requested and relied on development partners to strengthen basic training programs for maternal and child health care providers.

<Environmental and Social Aspect>

No issue on environmental and social aspect by the capacity building of the health personnel has been observed, and it has not been necessary to take any countermeasures.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agency. However, the overall sustainability of the project effects is ③.

5 Summary of the Evaluation

The project has achieved the Project Purpose which was to strengthen the technical capacity for quality continuous care in health facilities focusing on EONC, BEmONC and CEmONC. The project effects have continued, and the Overall Goal has been achieved as the maternal and perinatal mortality have mostly reduced. Furthermore, positive impacts including the incorporation of the project result (5S approach) in the national health strategy has been observed. With regard to the project efficiency, the project period exceeded the plan. Regarding the coherence, the project experience has been diffused to other provinces in collaboration with other donors. As for the sustainability, the health staff of Gitega and Mwaro Provinces have received continuous training opportunities and sustained necessary skills and knowledge for maternal and child health care.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- It is recommended that the Ministry of Public Health and Fight against AIDS assign specialist doctors with higher salaries to motivate them to work at the provincial level.
- It is recommended that the Ministry of Public Health and Fight against AIDS include the topic of effective use of the maternal and child health record book in the ongoing training. Since the health record book contains all the information related to previous pregnancies, it is very useful in providing quality prenatal consultations and responding emergent operations. Improved prenatal consultation will help to reduce unscheduled caesareans.
- It is recommended to the Ministry of Public Health and Fight Against AIDS to invest more in the infrastructure development including the establishment of health facilities and provision of medicines to respond to emergent or unscheduled operations and the needs of increasing population.

Lessons Learned for JICA:

- The Project Purpose was partially achieved by the time of project completion, and it has been achieved since the project completion. The effects of the project have fully continued, and positive impacts including the incorporation of the project result (5S approach) in the national health strategy were witnessed. To realize this, the project made efforts so that the project activities were in line with and part of the strategies and annual plans of the implementing agencies. It also supported the coordination capacity for scaling up the project outputs to other provinces. Thus, it is important to align the project activities and outputs with the government strategies and plans and to conduct capacity building activities for improving coordination capacity from the project formulation phase so that the project outputs will be politically adopted and implemented in the field.



Before (left) and after (right) of 5S KAIZEN practises


Maternal and child health record book

conducted by Philippine Office: March, 2022

Country Name	**The Project for Cordillera-wide Strengthening of the Local Health System for Effective and Efficient Delivery of Maternal and Child Health Services**
Republic of the Philippines	

I. Project Outline

Background	Cordillera region, located in the northern part of the Philippines, has indigenous groups with a different language and culture which has accounted for 70% of the population. As resided in mountain areas and was geographically isolated, they had limited access to health services. For the reasons, the Ministry of Health (MOH) considered the region as a "geographically isolated and disadvantaged area" and as a prioritized area for health programs. However, MOH had faced difficulty providing effective programs due to the following reasons from the provider side: insufficient skilled personnel, equipment, medical supply, and budget allocation for health; and the following from the recipients: the culture-religion, finances, lack of knowledge. As such, promoting universal health care for all was an urgent issue, and it was necessary to improve health services across the whole region targeting multiple provinces.		
Objectives of the Project	Through establishment of a mechanism on utilization of common health trust fund for Inter-Local Health Zone (ILHZ), trainings on setting up and monitoring barangay health emergency and preparedness for Provincial Health Offices (PHOs) and Municipal Health Offices (MHOs), trainings on Basic Emergency Obstetric and Neonatal Care (BEmONC) for health care professionals and midwifes, provision of medical and non-medical equipment for target health facilities, and sharing of lessons learned and good practices of the project, the project aimed at strengthening local health system in the region to deliver effective and efficient Maternal and Child Health services, thereby improving the health status of people, particularly of women and children, in the region.		
	1. Overall Goal: Health status of people in the region is improved, particularly of women and children. 2. Project Purpose: Local health system in the region is strengthened to deliver effective and efficient Maternal and Child Health (MCH) services.		
Activities of the Project	1. Project Site: the whole area of Cordillera region (six provinces and Baguio city) 2. Main Activities: 1) Establishment of a mechanism on utilization of common health trust fund for ILHZ, 2) Trainings on setting up and monitoring barangay health emergency and preparedness for PHOs and MHOs, 3) Trainings on BEmONC for health care professionals and midwifes, 4) Provision of medical and non-medical equipment for target health facilities, 5) Sharing of lessons learned and good practices of the project, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 10 persons 2) Trainees received: 17 persons 3) Equipment: electric generator set for hospital, delivery table with footstool, instrument cabinet, etc. 4) Local expense: costs for project activities		Philippine Side 1) Staff allocated: 89 persons 2) Land and facility: project offices in Department of Health – Cordillera Administrative Regional Office, Abra province, and Apayao province 3) Local expense: utility costs, transportation cost, etc. United States Agency for International Development (USAID) side Local expense: N/A
Project Period	(ex-ante) February 2012 – January 2017 (actual) February 2012 – February 2017	Project Cost	(ex-ante) 480 million yen (actual) 566 million yen
Implementing Agency	Department of Health (DOH), Department of Health – Cordillera Administrative Regional Office (DOH-CAR)		
Cooperation Agency in Japan	System Science Consultant, Inc.		
Related Project	Other donors' cooperation: USAID: Community Maternal Neonatal Child Health and Nutrition Scale up Follow-on (CMSU2), 2016-2019		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- The data collection method/reliability of facility-based delivery, Antenatal care (ANC) and Postnatal care (PNC) is significantly different before and after 2016. Health personnel was not able to track all pregnant women or those who gave birth in some private facilities did not captured after 2016.
- The data collected during the project implementation cannot be compared with the one collected after the project, since the project calculated ANC and PNC rates based on actual deliveries, while after the project, Center for Health Development, Cordillera Administrative Region (CHD-CAR)/PHOs calculated ANC/PNC rates based on estimated number of pregnant women set by the Field Health Service Information System (FHSIS). Therefore, simply comparing baseline values and results in 2017 is not relevant and the baseline data is referred as a supplemental information.
- Regarding achievement for project purpose, it is evaluated as "achieved" in case that the indicators at project completion exceeded 80% of the target value.

1 Relevance

<Consistency with the Development Policy of Philippines at the time of Ex-ante Evaluation>

The project was consistent with the Philippines' development policies such as "Universal Health Care for All Filipinos" (2010-2016) aiming at strengthening of maternal and child health and its health system and the "Maternal, Neonatal and Child Health and Nutrition"

(2009) setting a maternal and child health sector as one of the most priority policies.
<Consistency with the Development Needs of Philippines at the time of Ex-ante Evaluation>
The project was consistent with the Philippines' development needs for promoting universal health care for all especially including geographically isolated and disadvantaged area and improving health services across the whole region targeting multiple provinces.
<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>
The project was consistent with the Japan's ODA policy for Philippines. "The Country Assistance Program for the Republic of the Philippines" (2008) prioritized "Rectification of disparities (alleviating poverty and redressing regional disparity)" including expansion of basic social services for socially vulnerable people such as women, children, and indigenous peoples.
<Evaluation Result>
In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>
The Project Purpose was partially achieved by the time of project completion. All the three target provinces achieved 80% of the target value for each province and are equal with or improved the facility-based delivery rates compared to the baseline values (Indicator 1). Regarding prenatal and post-partum care completion rate, 2 provinces except Apayao achieved the target value. Apayao province did not achieve 80% of the target value by 2017 and less than the baseline value (Indicator 2 and 3). The number of functioning ILHZs had increased from 7 in 2011 to 19 in 2017 (Indicator 4). All 6 provinces and Banguio city started Maternal and Neonatal Death Review (MNDR) in 2013 and had continued it (Indicator 5). The number of BEmONC capable health facilities had increased from 0 in 2011 to 193 in 2017 (Indicator 6). The number of Rural Health Units (RHUs) and Barangay Health Stations (BHSs) with Maternal Care Package (MCP) accreditation had increased from 12 in 2011 (12 RHUs) to 141 in 2017 (51 RHUs and 93 BHSs) (Indicator 7).
<Continuation Status of Project Effects at the time of Ex-post Evaluation>
The project effects have partially continued. Facility-based delivery (FBD) rates improved in both target and non-target areas (see overall goal indicator 3) after project completion mainly due to sustained local government unit (LGU) policy (e.g., local ordinances and incentives), improved quality of MCH services, increased awareness and closer monitoring of pregnant women, and the expansion of coverage of MCP from Philhealth. Prenatal care and post-partum care completion rates in target provinces were below target mainly due to (1) more stringent monitoring of pregnant/post-partum mothers and improved data cleaning and data quality checking at the provincial and municipal level, (2) pregnant mothers seeking ANC and PNC services from private practitioners within and outside the province are not captured by the DOH reporting system, and (3) some pregnant mothers relocating to other provinces not completing the required number of Antenatal Care (ANC)/ Postnatal Care (PNC) visits. Number of ILHZs and number of provinces conducting MNDRs were sustained as ILHZs and MNDRs have been institutionalized as part of the Maternal, Newborn, Child Health and Nutrition (MNCHN) strategy. Number of BEmONC-capable RHUs and BHSs, and number of RHUs and BHSs with MCP accreditation declined since 2018 due to more stringent DOH requirements for securing License-to-Operate for birthing facilities.
<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>
The Overall Goal has been partially achieved at the time of ex-post evaluation based on the data collected for three indicators.
Indicator 1 was not achieved. Maternal mortality ratio (MMR) went up from 45 per 100,000 livebirths in 2015 to 67 in 2019 due to late referral of cases and improved monitoring of death cases during the period. However, a declining trend in MMR was observed from 2016 to 2018.
Indicator 2 was achieved. Infant mortality rate declined from 11 per 1,000 livebirths in 2015 to 4 per 1,000 livebirths in 2019 due to increased facility-based delivery rate and closer monitoring of pregnant women and post-partum mothers in the region.
Indicator 3 was achieved. Overall facility-based delivery rate in the region improved from 92% in 2015 to 97% in 2019.
<Other Impacts at the time of Ex-post Evaluation>
Some positive impacts were observed at the time of ex-post evaluation, according to result of questionnaire survey and online interviews. As positive impacts related to gender, women were empowered to seek and avail of quality health services for herself and her children, LGUs recognized the importance of ensuring the health and safety of women and newborns, and quality of MCH services of birthing facilities in the region was perceived by respondents of MCH services to have significantly improved. The capacity of LGUs to deliver MCH services was also enhanced through the intensive training of personnel from RHUs and BHSs on various topics such as BEmONC. The referral system developed under the project for MCH was expanded to other services being delivered by DOH-CAR such as family planning and adolescent health services.
No negative impacts were observed.
<Evaluation Result>
Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Sources</th></tr>
<tr><td>(Project Purpose)
Local health system in the region is strengthened to deliver effective and efficient MCH services.</td><td>Indicator 1: 85% of deliveries of pregnant women in the target sites are conducted in health facilities [Baseline (2012): 3 target sites total 79%. Provincial baseline (2012) / Target (2017): Abra (6 municipalities) 73%/85%, Apayao 67%/80%, Benguet</td><td><u>Status of the Achievement: Achieved (Continued)</u>
(Project Completion)
• All the three target provinces achieved 80% of the target value for each province and improved the facility-based delivery rates compared to the baseline values.
• However, the facility-based rates in the three target provinces showed downward trends in after improving for the period from 2013 to 2015, due to MCH data collection and reporting issues during the period 2016 to 2017 (e.g., health personnel was not able to track all pregnant women or those who gave birth in some private facilities were not captured during the period 2016 to 2017).
[Facility-based delivery rate in the target provinces (Unit: %)]
<table>
<tr><th>Province / Year</th><th>2012 (BL)</th><th>2017 (Target)</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th></tr>
</table></td><td>Project Completion Report, DOH FHSIS System Monitoring Data, Interview with DOH Counterparts, questionnaire survey, remote interviews</td></tr>
</table>

	83%/90%].	Abra province* | 73 | 85 | 86 | 95 | 97 | 74 | 75 Apayao province | 67 | 80 | 80 | 84 | 88 | 83 | 78 Benguet province | 83 | 90 | 87 | 90 | 93 | 88 | 83 (Ex-post Evaluation) [Facility-based delivery rate in the target provinces (Unit: %)] Province / Year | 2018 | 2019 Abra province | 70 | 97 Apayao province | 79 | 92 Benguet province | 83 | 95	
	Indicator 2: 80% of pregnant women in the target sites receive prenatal care at least 4 times during pregnancy [Baseline (2012): 3 target sites total 90%. Provincial baseline (2012)/target (2017): Abra 45%/70%, Apayao 89%/90%, Benquet 93%/95%].	Status of the Achievement: Partially achieved (Not verified) (Project Completion) • The one province (Apayao) did not achieve 80% of the target value by 2017 and less than the baseline value due to (i) highly mobile population; (ii) pregnant mothers seeking ANC services from private practitioners within and outside the province not captured by the DOH reporting system; and (iii) MCH data collection and reporting issues during the period 2016 to 2017 arising from varied interpretation and understanding of health personnel about ANC completion rates by pregnant women and post-partum mothers. • Abra and Benguet province exceeded targets due to increased awareness of pregnant mothers on the need for prenatal care resulting from the information dissemination and close monitoring by Community Health Teams (CHTs). [Prenatal care completion rate in the target provinces (Unit: %)] Province / Year | 2012 (BL) | 2017 (Target) | 2013 | 2014 | 2015 | 2016 | 2017 Abra province* | 45 | 70 | 80 | 84 | 84 | 117 | 124 Apayao province | 73 | 85 | 79 | 77 | 85 | 57 | 60 Benguet province | 62 | 80 | 72 | 81 | 84 | 100 | 125 Note: Some rates exceeding 100% may be due to pregnant mothers who moved to other provinces during the course of pregnancy and thus had ANC records in more than 1 area or they may be pregnant women who have not yet delivered at the end of the reporting period. (Ex-post Evaluation) [Prenatal care completion rate in the target provinces (Unit: %)] Province / Year | 2018 | 2019 Abra province | 129 | 57 Apayao province | 47 | 56 Benguet province | 103 | 58 • Prenatal care completion (ANC) rates significantly decreased in 2019 in Abra and Benguet provinces. In case of Abra province, it is because of the improvement of pregnancy tracking and data reporting including conduct of more stringent data quality checks and data reconciliation at the provincial and municipal level. In case of Benguet province, it is because of (i) more stringent monitoring of pregnant mothers and improved data validation at the provincial and municipal level; (ii) pregnant mothers seeking ANC services from private practitioners within and outside the province are not captured by the DOH reporting system; (iii) and some pregnant mothers relocating to other provinces not completing the required number of ANC visits. • However, the data collected during the project implementation cannot be compared with the one collected after the project, since the project calculated ANC rates based on actual deliveries, while after the project, CHD-CAR/PHOs calculated ANC rates based on estimated number of pregnant women set by the FHSIS.	Project Completion Report, DOH FHSIS System Monitoring Data, Interview with DOH Counterparts, questionnaire survey, remote interviews
	Indicator 3: 90% of post-partum women in the target sites receive post-partum care at least 2 times [Baseline (2012): 3 target sites total 90%. Provincial baseline (2012)/target (2017): Abra 66%/80%,	Status of the Achievement: Partially achieved (Not verified) (Project Completion) • The one province (Apayao) did not achieve 80% of the target value by 2017 and less than the baseline value due to the same reasons as indicator 2. • Abra and Benguet province exceeded targets due to the same reasons as indicator 2. [Post-partum care completion rate in the target provinces (Unit: %)] Province / Year | 2012 (BL) | 2017 (Target) | 2013 | 2014 | 2015 | 2016 | 2017 Abra | 66 | 80 | 97 | 100 | 99 | 100 | 85	Project Completion Report, DOH FHSIS System Monitoring Data, Interview with DOH Counterparts, questionnaire

	Apayao 89%/90%, Benguet 93%/95%].	province* / Apayao province / Benguet province (89, 90, 92, 92, 97, 61, 64; 93, 95, 97, 98, 98, 81, 132) (Ex-post Evaluation) [Post-partum care completion rate in the target provinces (Unit: %)] Province / Year: 2018 / 2019 Abra province: 91 / 58 Apayao province: 59 / 57 Benguet province: 123 / 66 • Post-partum care completion (PNC) rates significantly decreased in 2019 in Abra and Benguet provinces due to the same reasons as indicator 2. • However, the data collected during the project implementation cannot be compared with the one collected after the project due to the same reasons as indicator 2.	survey, remote interviews
	Indicator 4: Number of functioning ILHZs is increased in CAR [baseline 7 ILHZs in 2011].	Status of the Achievement: Achieved (Continued) (Project Completion) • The number of functioning ILHZs had increased from 7 in 2011 to 19 in 2017. • Number of functioning ILHZ was maintained at 19 in 2017 due to the sustained support of LGUs to ILHZ activities. (Ex-post Evaluation) Indicator: 2016 / 2017 / 2018 / 2019 No. of functioning ILHZs: 19 / 19 / 19 / 19	Project Completion Report, questionnaire survey, remote interviews
	Indicator 5: MNDR is conducted in all 6 provinces and Baguio city in CAR [baseline: no MNDR was conducted in CAR in 2011].	Status of the Achievement: Achieved (Continued) (Project Completion) • All 6 provinces and Baguio city started MNDR in 2013 and had continued it. (Ex-post Evaluation) • All 6 provinces and Baguio city continued the conduct of MNDR after project completion. Indicator: 2016 / 2017 / 2018 / 2019 No. of provinces that conduct MNDR: All 6 provinces Baguio city / All 6 provinces / All 6 provinces / All 6 provinces	Project Completion Report, questionnaire survey, remote interviews
	Indicator 6: Number of BEmONC capable health facilities (hospitals, RHUs and BHSs) is increased in CAR [baseline: 0 facility in 2011; target 177 facilities by 2017 (37 hospitals, 50 RHUs and 90 BHSs)].	Status of the Achievement: Achieved (Partially Continued) (Project Completion) • The number of BEmONC capable health facilities had increased from 0 in 2011 to 193 in 2017 (36 hospitals, 52 RHUs and 105 BHSs). • The number of BEmONC capable health facilities was maintained at 193 in 2017. (Ex-post Evaluation) Indicator: 2016 / 2017 / 2018 / 2019 No. of BEmONC capable hospitals, RHUs and BHSs: 193 facilities (36 hospitals, 52 RHUs 105 BHSs) / 193 facilities (36 hospitals, 52 RHUs 105 BHSs) / 125 facilities (36 hospitals, 37 RHUs 52 BHSs) / 123 facilities (36 hospitals, 35 RHUs 52 BHSs)	Project Completion Report, questionnaire survey, remote interviews
	Indicator 7: Number of RHUs and BHSs with MCP accreditation is increased in CAR [baseline: 12 facilities in 2010; target 131 facilities by 2017 (53 RHUs and 78 BHSs)]	Status of the Achievement: Achieved (Partially Continued) (Project Completion) • The number of RHUs and BHSs with MCP accreditation had increased from 12 in 2011 (12 RHUs) to 141 in 2016 (51 RHUs and 93 BHSs). • The number of health facilities with MCP accreditation was maintained at 141 in 2017. (Ex-post Evaluation) Indicator: 2016 / 2017 / 2018 / 2019 No. of RHUs and BHSs with MCP accreditation: 141 facilities (51 RHUs and 90 BHSs) / 141 facilities (51 RHUs and 90 BHSs) / 125 facilities (36 Hospitals, 37 RHUs and 52 BHSs) / 123 facilities (36 hospitals, 35 RHUs and 52 BHSs)	Project Completion Report, questionnaire survey, remote interviews
(Overall Goal) Health status of people in the region is improved,	Indicator 1: Maternal Mortality Ratio (per 100,000 live births)	Status of the Achievement: Not achieved (Ex-post Evaluation) • Reduction in MMR from 2016 to 2018 is primarily due to increase in facility-based delivery rate, improved pregnancy tracking by BEmONC-trained personnel, conduct of regular death reviews and improved referral system.	questionnaire survey and remote interviews, DOH MNCHN Strategy Manual

particularly of women and children.		• The significant increase in MMR in 2019 may be attributed to the late referral of cases and improved monitoring of death cases during the period. Indicators | 2017 | 2018 | 2019 Maternal Mortality Ratio | 43 | 40 | 67	of Operations, 2011
	Indicator 2: Infant Mortality Rate (per 1,000 live births)	Status of the Achievement: Achieved (Ex-post Evaluation) • Infant mortality rate decreased from 11 per 1,000 live births in 2015 to 4 per 1,000 live births in 2019 which may be attributed to increased facility-based delivery rate and closer monitoring of pregnant women and post-partum mothers in the region. Indicators | 2017 | 2018 | 2019 Infant Mortality Rate | 9 | 9 | 4	questionnaire survey and remote interviews, DOH MNCHN Strategy Manual of Operations, 2011
	Indicator 3: Facility-based delivery rate (of all deliveries occurred in CAR)	Status of the Achievement: Achieved (Ex-post Evaluation) • Overall facility-based delivery rate in the region improved from 92% in 2015 to 97% in 2019. Indicators | 2017 | 2018 | 2019 Facility-based delivery rate | 74 | 74 | 97	questionnaire survey and remote interviews, DOH MNCHN Strategy Manual of Operations, 2011

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 118%). Outputs were produced as planned. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

The project was consistent with the Philippines' development policies such as DOH Administrative Order No. 2008-0029, aimed to rapidly reduce maternal and neonatal mortality through local implementation of an integrated MNCHN strategy, at the time of ex-post evaluation.

< Institutional/Organizational Aspect>

The organizational structure required to sustain the activities and benefits arising from MCH has maintained. At the DOH-Center for Health Development of the Cordillera Administrative Region and the provincial level, there are no changes in organizational structure. The unit in charge of MCH continued to perform its function. The unit in charge of MCH at CHD is composed of 4 regular employees and 2 temporary (job order) personnel, which is deemed sufficient. On the other hand, 2 personnel per province are in charge of coordinating delivery of MCH services at the provincial level. While health manpower complement at the provincial level might be deemed insufficient due to local budgetary constraints, this issue was currently being addressed by hiring temporary personnel on job order-basis and the Human Resources for Health (HRH) program of DOH. In addition, the use of MNCHN referral guideline and BEmONC monitoring system developed by the project was sustained in the 6 provinces and 1 city in the region.

<Technical Aspect>

The level of technical knowledge and skills of health personnel responsible for promoting MCH services in CAR has been sustained and enhanced through the on-the-job mentoring and coaching during the quarterly BEmONC Monitoring and Supervision visits (SSV) and regular trainings being provided by CHD and PHOs. The manuals and tools were still being used although the RBTCL manual was not being used as the region was using the updated FHSIS manual.

<Financial Aspect>

Financial support for the promotion of MCH activities have been continuously provided by the national and local governments. These regular budgetary allocations sustained key MCH-related activities such as conduct of SSVs, MNDRs, ILHZ meetings, and so on. In addition, the municipal LGUs have continuously allocated budget for the monthly incentives of CHT volunteers delivering frontline MCH services at the barangay level.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose and the Overall Goal to improve health status of people in the region, particularly of women and children, through the strengthening local health system in the region to deliver effective and efficient Maternal and Child Health services. Regarding sustainability, although there had been slight problems in allocating sufficient number of staff to promote MCH services in CAR, the necessary knowledge, skills, and manual/guidelines were sustained and adequate budgets were secured. As for efficiency, the project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[For CHD-CAR]

Regarding ANC and PNC data, inconsistencies were observed in CHD-CAR data arising from (i) varied interpretation and understanding of health personnel about ANC/PNC completion rates by pregnant women and post-partum mothers; (ii) inability of the reporting system to capture pregnant mothers seeking ANC services from private practitioners within and outside the province; and (iii) calculation of ANC/PNC completion rates based estimated number of pregnant women. Therefore, it is recommended that CHD-CAR continue the conduct of orientation for health personnel using online/virtual platforms on the proper counting of PNC visits, raise awareness of pregnant mothers on the proper timing of ANC visits, and use the actual number of deliveries for calculating ANC and PNC.

[For LGUs]

Regarding staffing at the provincial level, only 2 personnel per province were in charge of coordinating delivery of MCH services at the municipal level due to local budgetary constraints, and the stuffing was insufficient. 2 additional personnel or position per province are required to be filled. It is recommended LGUs advocate for the filling up of vacant positions at the provincial level as a means of improving MCH services and achieving MCH indicator targets.

Lessons Learned for JICA:

The level of technical knowledge and skills of health personnel responsible for promoting MCH services in CAR has been sustained and enhanced through the on-the-job mentoring and coaching during the quarterly BEmONC Monitoring and Supervision visits. Thus, it is essential to incorporate institutionalization of the supportive supervision for quality improvement of MCH services at BEmONC-capable facilities into the project design at the time of project preparation in order to introduce effective MCH contributing to improvement of facility-based delivery rates in target areas.

Pre-natal check-ups of mothers in Apayao

Post-partum visit of a midwife to a mother in Apayao

Internal Ex-Post Evaluation for Technical Cooperation Project (SATREPS[1])

Conducted by Namibia Office: Nov, 2022

Country Name	**Flood- and drought-adaptive cropping systems to conserve water environments in semi-arid regions**
Republic of Namibia	

I. Project Outline

Background	North central area of Namibia is semi-arid land with annual average rainfalls of 400 mm. However, flood water pouring from Angola Plateau in the rainy season forms vast seasonal wetlands. For the last decades, the annual rainfalls in the area had been volatile for the range from 200 mm to 1,000 mm and such volatility of rainfalls had induced catastrophic flood and drought in the same area. On the other hand, the people were engaged in subsistence farming based on pearl-millet and stock raising which generated limited cash income. Although pearl millet is dryness-resistant crop, the unforeseen catastrophic floods and extreme drought lowered the productivity. Under such situation, the farmers in the area expected to introduce rice cultivation, which has the highest flood-resistance. Therefore, research to develop locally appropriate farming method was necessary in order to realize food security and economic independence of the subsistence farmers in the area forming the seasonal wetlands as well as to conserve water environment which is often affected caused by natural environment in the north central Namibia.		
Project Objectives	Through i) researches and proposal on rice-based mixed cropping systems, ii) establishment of methods to disseminate the proposed mixed cropping systems, iii) estimation of possible areas for the proposed mixed cropping systems and integration of the proposed mixed cropping systems, the project aimed at developing "Flood- and drought-adaptive cropping systems", thereby contributing to dissemination of the developed cropping system in the north-central Namibia and to consideration of the developed cropping system in the northeastern areas of the country. 1. Expected Overall Goal: 1) "Flood- and drought-adaptive cropping systems" are disseminated in the north-central Namibia to contribute to the food security and cash income of local farmers. 2) "Flood- and drought-adaptive cropping systems" are considered for the north-eastern areas of Namibia where high rainfall occurs as well as in neighbouring countries. 2. Project Purpose: "Flood- and drought-adaptive cropping systems" are developed which can sustainably preserve the water environment of the semi-arid region.		
Project Activities	1. Project Site: The Faculty of Agriculture and Natural Resources, Ogongo Campus of the University of Namibia (UNAM) and seasonal wetlands in north-central Namibia. 2. Main Activities: 1) Examination of appropriate cultivation methods and techniques as well as measures for establishing rice-based mixed cropping systems with resilience against environmental stress such as flood and drought, 2) Examination of sustainability of the proposed mixed cropping systems from the socio-economic viewpoints, 3) Estimation of change of flood water and analysis of the water balance of the seasonal wetland, 4) Implementation of field day and participatory research and extension activities on the rice-based mixed cropping systems, and so on. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 22 persons 2) Trainees received: 50 persons 3) Equipment: Vehicles, Water pump, Greenhouse, Rice milling, Climate monitoring equipment, Portable photosynthesis system, Porometer, Automatic area meter, Tractor, and so on. 4) Local operation cost: travel expenses, meeting cost and other general expenses. Namibian Side 1) Staff allocated: 25 persons 2) Facilities and land: Office space for Japanese researchers and experts, laboratories, a greenhouse, crop experiment fields, seed room, rice packing room and storage room 3) Local operation cost: travel allowances, utility cost, cost for tractor and disc harrow		
Project Period	February 2012 – February 2017	Project Cost	Ex-ante: 516 million yen Actual: 434 million yen
Implementing Agencies	Directorate of National Research, Science, Technology and Innovation, Ministry of Education Faculty of Agriculture and Natural Resources, University of Namibia (UNAM)		
Cooperation Agency in Japan	Kinki University, Nagoya University, Tohoku University, Ryukoku University and University of Shiga Prefecture		

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of Namibia at the Time of Ex-Ante Evaluation > The Project was consistent with Republic of Namibia's policy aiming at agricultural production to contribute to ensure food and to increase income at household level and national level as well as improvement of land productivity set in the "Vision 2030" (2004). <Consistency with the Development Needs of Namibia at the Time of Ex-Ante Evaluation> The Project was consistent with Namibia's development needs for farmers in north-central area with willingness to practice adoptive

[1] SATREPS: Science and Technology Research Partnership for Sustainable Development

crop cultivation against unstable climate (drought and flood situations) because annual production of pearl millet, which is the traditional crop in the north-central area, was unstable and the degree of fluctuation was large.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The Project was consistent with Japan's ODA Policy for Namibia, which prioritized the following two areas of i) development of economic and industrial base and ii) improvement of basic life, based on the Namibia's National Development Plan[2].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved at the time of project completion. Two types of "Guidelines for Flood- and Drought- adaptive cropping systems" covering the results of research activities including i) crop science, ii) development studies, iii) hydrology, and iv) integrated study of agricultural and social science were compiled (Indicator 1).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued since project completion. University of Namibia (UNAM) together with Directorate of Agricultural Production Extension Engineering Services (DAPEES) of Ministry of Agriculture and Water and Land Reform (MAWLR), based on the guidelines, have continued to promote the integration of rice cultivation into the pearl millet-dominated local cropping system by encouraging local farmers to cultivate rice in small seasonal wetlands in the pearl millet fields in north-central Namibian regions, despite recurrent droughts.

In addition, UNAM has continued related research activities, including i) Ridge formation with strip tillage alleviates excess moisture stress for drought-tolerant crops, ii) The effects of soil tillage methods and fertilizer application on the yield and growth of pearl millet in seasonal wetland in northern Namibia, iii) Productivity assessment of short-duration rice (Oryza sativa L. and Upland NERICA) genotypes in semi-arid North-central Namibia, iv) A study on the effect of fertilizer application on growth and yield components of pearl millet (Pennisetum glaucum L.) subjected to field flooding, and v) Mitigation of flood stress for pearl millet (Pennisetum glaucum L.) through fertilizer application. Also, UNAM has continued to use the research equipment provided by the SATREPS project for monitoring weather data at UNAM-Ogongo Campus and north-central regions of Namibia for the abovementioned research.

<Status of Achievement for Expected Overall Goal at the time of Ex-post Evaluation>

The Expected Overall Goals have been achieved. The Overall Goal 1 for dissemination of the "Flood and drought- adaptive cropping systems" proposed by the SATREPS project was achieved through continuous implementation of the field day. Although the field day had been regularly held for the period from 2017 to 2019, no field day was held in 2020 due to the COVID 19 pandemic. The Overall Goal 2 for sharing the research results of the SATREPS project has been also achieved. UNAM and the Japanese experts have initiated collaborative research with the University of Botswana and UNAM presented the results on the new cropping systems at Maun Campus in 2019. Also, UNAM shared rice seeds with the Maun Campus to initiate the new cropping system and the research on rice. Although it was arranged for counterpart researchers from Botswana to visit UNAM and learn the techniques, it was not able to be realized due to the COVID 19 pandemic.

For the utilization of research outcomes, DAPEES has promoted to share the guidelines on the new cropping systems proposed by the SATREPS project through the field visits as a part of the extension activities. The driving force is the motivated farmers by the SATREPS project to utilize the knowledge and skills on the new cropping system for better livelihood.

<Other Impacts at the time of Ex-Post Evaluation>

There are some other positive impacts of the Project confirmed at the time of the ex-post evaluation. The mixed cropping of pearl millet and rice proposed by the SATREPS project mitigated the negative impacts of low rainfalls and the lack of floodwaters from Angola. Even though rice was not be able to harvested due to the lack of adequate volume of water in the local seasonal wetlands caused by the drought after the project completion, pearl millet, which is a drought resistant crop, was able to survive and to provide the grains for the farmers. The fact verified that the mixed cropping of pearl millet and rice improved moisture resistance of pearl millet as the research output of the SATREPS project and showed that the practice of the proposed cropping brought about the effect. In addition, the SATREPS project has successfully made more involvement of local women in the project activities, in particular, in the cropping activities. It can be because of the fact that women are traditionally associated with the cropping activities and they have interests in the cropping activities.. Also, the other reason might be that local women derive most of their farm income from the sales of crops rather than from livestock.

Another positive impact from the aspect of research capacity was confirmed. The researchers of UNAM involved in the SATREPS project improved their scientific capacity to publish their research paper in international journals and their technical capacity to utilize various equipment and to forge collaboration with other researchers in Namibia and abroad. In addition, the researchers became able to write proposal for funding of other projects within DAPEES and to conduct research trials, record good quality of data and interpret of research data. Furthermore, the scientific literacy of the staff of MAWLR has been improved through the SATREPS project in order to promote the guidelines for the dissemination of the mixed cropping systems proposed by the SATREPS project.

No negative impact by the SATREPS project was confirmed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, both the effectiveness and impact of the project is high.

Achievement of Project Purpose

Aim	Indicators	Results

[2] Ministry of Foreign Affairs, "ODA Country Databook 2011".

<table>
<tr><td>(Project Purpose)
“Flood- and drought-adaptive cropping systems” are developed which can sustainably preserve the water environment of the semi-arid region.</td><td>Indicator 1:
Guideline for “Flood- and drought-adaptive cropping systems” is compiled.</td><td>Achievement Status: Achieved (Continued)
(Project Completion)
● Two types of “Guidelines for “Flood- and drought- adaptive cropping systems” covering the results of research activities including i) crop science, ii) development studies, iii) hydrology, and iv) integrated study of agricultural and social science were compiled.
(Ex-Post Evaluation)
● UNAM together with DAPEES/MAWLR, based on the guideline, have continued to promote the integration of rice cultivation into the pearl millet-dominated local cropping system by encouraging local farmers to cultivate rice in small seasonal wetlands in the pearl millet fields in north-central Namibian regions, despite recurrent droughts.</td></tr>
<tr><td>(Overall Goal 1)
“Flood- and drought-adaptive copping systems” are disseminated in the north-central Namibia to contribute to the food security and cash income of local farmers.</td><td>(Indicator 1-1)
Field Day held regularly on the cropping systems.</td><td>Achievement Status: Achieved
(Ex-post evaluation)
[No. of field day held]<table><tr><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>1</td><td>2</td><td>2</td><td>0</td></tr></table>In 2020, due to the COVID 19 pandemic, no field day was organized.</td></tr>
<tr><td>(Overall Goal 2)
“Flood- and drought-adaptive cropping systems” are considered for the north-eastern areas of Namibia where high rainfall occurs as well as in neighbouring countries.</td><td>(Indicator 2-1)
Information on research results of cropping systems is shared with neighbouring countries.</td><td>Achievement Status: Achieved.
(Ex-post evaluation)
● UNAM and Japanese experts have initiated collaborative research with the University of Botswana. In 2019, UNAM presented the research results on the new cropping systems at Maun Campus and also share rice seeds with the Campus to initiate the cropping system and rice research. It was arranged for counterparts from Botswana to come and learn the techniques at UNAM in 2019; however, this could not happen due to the covid-19 pandemic.</td></tr>
</table>

Source：Terminal Evaluation Report, JST Terminal Report, Questionnaires survey with UNAM and MAWLR

3 Efficiency

The project cost and the project period were within the plan (the ratio against the planned: 83%, 100%, respectively). The project outputs were produced as planned.

Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspects>

The government of Namibia announced “The 5th National Development Plan” (2017/18-2021/22) in May, 2017 for realization of “the Vision 2030”. The National Development Plan aims at “improvement of small farmers’ productivity” as one of five Key Changer. Thus, the dissemination of the “flood and drought- adaptive cropping systems”, as utilization of the research outcomes of the SATREPS project, has been backed up by the government policy.

<Institutional/Organizational Aspects>

UNAM has maintained a research team that continues the research activities related to the outputs produced by the SATREPS project. The team consists of five researchers, three technicians and three labors. UNAM has continuously utilized the research facilities provided by the SATREPS project and has been fully responsible for the maintenance services of such facilities.

MAWLR has plan to continue research activities but the Division of Crop Research and Production does not have staff for research. Since UNAM conducts all project activities with full collaboration with the government, MAWLR and UNAM have always collaborated in research activities related to crop systems in order to create better knowledge and skills and come up with new technologies that best fit the end users.

<Technical Aspects>

As mentioned above, the research capacity of UNAM on cropping system has been improved as they have been able to continue their research activities, including implementing research trials, recording good quality of data and interpreting research data into the research articles. Also, the researchers of UNAM became capable to write proposals for funding of other projects within MAWLR through DAPEES. They also have continued to conduct both scientific and academic research using the research facilities provided by the SATREPS project. Research capacity has improved as MAWLR staff prepares proposal for funding, at national level, and conducts research trials, of which research articles are produced.

<Financial Aspects>

UNAM has annual budget commitment (300,000-500,000 Namibian dollars (NAD)) for the activities related to the SATREPS project.

UNAM has initiated an annual event of rice harvest day, aiming at promoting not only rice production activities but also dissemination of the information on the various flood- and drought-adaptive cropping systems developed by the research activities related to the SATREPS project. In addition, UNAM has made efforts to obtain other sources of fund for their research activities. For example, in 2019/2020 financial year, a team of researchers from various departments of the entire Faculty of Agriculture and Natural Resources submitted a proposal on rice value chain to UNAM for internal funding, which was funded to the total of 400,000 NAD. These search activities are currently underway and were going to run until 2021.

MAWLR has availed its human resources in terms of extension personnel to disseminate the technologies. However, since the government budget has been limited due to the effect of global economic depression caused by the COVID 19 pandemic, MAWLR has not be able to ensure the sufficient research staff for crop research and production as mentioned above.

<Evaluation Result>

In the light above, there has been concerns about the institutional/organizational and financial aspects. Therefore, the sustainability of the effects through the Project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and the expected Overall Goal for development and dissemination of the improved cropping system against floods and droughts. As for sustainability, while there is a slight concern about the government budget to ensure the sufficient staff for crop research and production, UNAM has sustained the research team with sufficient skills and knowledge to continue the research activities related to the cropping systems. Considering all of the above points, this project is evaluated to be highly satisfactory.

III Recommendations & Lessons Learnt

Lessons Learnt for JICA：

- Under the coordination and cooperation between UNAM as a research institute and MAWLR as a government organization responsible for extension of farming methods, the flood and drought adaptive cropping system developed by the SATREPS project has been disseminated to the farmers in the target area as expected and the activities for utilization of the research outcomes have been realized. In addition, the activities promoting the local farmers to introduce the new cropping system during the implementation of the SATREPS project contributed to motivating the farmers to use the mixed cropping system after the project completion. Therefore, in case of research and development projects to directly benefit to farmers such as this SATREPS project, the project design to promote coordination between research institutes and government organizations which are responsible for extension activities and to incorporate activities to address direct beneficiaries will facilitate activities to utilize research outcomes for extension of new farming technologies even after the project completion.

Field Day

Assembling Gauge Rainfall by the research members

Internal Ex-Post Evaluation for Technical Cooperation Project (SATREPS[1])

Conducted by Mozambique Office: March, 2023

Country Name	**Sustainable Jatropha Biofuel Production in Mozambique**
Republic of Mozambique	

I. Project Outline

Background	Mozambique depended on oil imports which accounted for 11% of total imports and induced a fiscal burden. At the same time, since 80 % of primary energy consumption depended on firewood, deforestation associated with firewood collection became a serious problem. Therefore, the government of Mozambique aimed at introduction of renewable energy including biofuel derived from Jatropha for reduction of oil imports and forest conservation. On the other hand, while the country has adequate land for Jatropha cultivation of approximately 3.3 million ha, scientific knowledge on Jatropha cultivation had not been accumulated in the country. In addition, there was almost no research on safety of biodiesel fuel (BDF) and solid fuel using Jatropha and wastewater treatment after BDF refining. Under such situation, research on sustainable utilization of Jatropha was required.		
Project Objectives	Through development of cultivation technology and breeding of Jatropha, BDF production and effective utilization of residues, safety evaluation of BDF and byproducts, as well as proper management methods of hazard and exposure BDF and solid fuel, the project aimed at establishment of Jatropha cultivation system suitable for semi-arid areas in Mozambique and scientific verification of effectiveness of environmental conservation, thereby contributing to improvement of yield of Jatropha, enhancement research capacity for BDF and dissemination of power generation from Jatropha. 1. Expected Overall Goal: 1) Cultivation and breeding technologies are succeeded by researchers in Mozambique and the yield of Jatropha seeds in unit area is improved. 2) Research capacities of researchers and students in Eduardo Modlane University (Universidade Eduardo Modlane; UEM) are enhanced, and UEM and PETROMOC lead the research and development BDF in Mozambique. 3) Power generation from Jatropha oil is continued in the model village and the model is propagated to other regions 2. Project Purpose: Jatropha cultivation system suitable for semi-arid areas in Mozambique is established. Effectiveness of environmental conservation and improvement are scientifically verified by the establishment of mentioned cultivation, conversion and utilization technologies.		
Project Activities	1. Project Site: Mapto and Boane (Mapto Province), Licaca Village (Inhambane Province) 2. Main Activities: 1) 1) Cultivation test of non-toxic Jatropha, component analysis of seeds and fruits and application test of oil cake derived compost as alternative fertilizer, 2) Development of technologies to produce solid fuels, combustion experiments of BDF and solid fuel, 3) Safety evaluation of Jatropha BDF and solid fuel products as well as soil after using fertilizer made from Jatropha press cake, 4) Energy and Greenhouse Gas (GHG) balance evaluation based on Lifecycle Assessment (LCA) methodology and evaluation of environmental effects caused by land use change, 5) Cost benefit analysis of BDF and solid fuel production and delivery system and examination on village electrification based on Jatropha cultivation, and so on. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 23 persons 2) Trainees received: 8 persons 3) Equipment: BDF plant, diesel power generator, Lab and field equipment, vehicles, computers, printer, photocopier, office furniture, electric appliances, etc. 4) Local operation cost: Administrative expenses, travel expenses and so on. Mozambican Side 1) Staff allocated: 19 persons 2) Facilities and land: Office space and laboratory in UEM, office space and experimental field in Boane, BDF plant in Petróleo de Moçambique S.A. (PETROMOC) 3) Local operation cost: Utility cost borne by UEM and PETROMOC, payroll for technician born by UEM		
Project Period	Ex-ante: April 2011- March 2016 Actual: February 2012 – February 2017	Project Cost	Ex-ante: 306 million yen Actual: 362 million yen
Implementing Agencies	Eduardo Modlane University (UEM), Petróleo de Moçambique S.A. (PETROMOC)		
Cooperation Agency in Japan	The Tokyo University, Kanazawa Institute of Technology, Kurume University, Nippon Biodiesel Fuel Co., Ltd., Association of African Economy and Development Japan ECA Committee (AFRECO)		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

Based on the research outputs of this SATREPS project, the "Power Kiosk Project Using Jatropha Biofuel by No Electricity Village People (JICA Partnership Program/Support type April 2017- September 2019)" was implemented as a follow-up project. Since the follow-up technical cooperation project aimed at promotion of electrification by using Jatropha Biofuel based on the research outputs by the SATREPS project, this ex-post evaluation examined contribution of the technical cooperation project to the expected Overall Goal and the utilization of the research outcomes by the SATREPS project (社会実装) .

[1] SATREPS: Science and Technology Research Partnership for Sustainable Development

1 Relevance

<Consistency with the Development Policy of Mozambique's at the Time of Ex-Ante Evaluation >

The Project was consistent with Mozambique's policies of the "National Policy and Strategy for Biofuel" (2009) setting a legal framework to introduce biofuel to substitute fossil fuel and the "Strategy for New and Renewable Energy Development" (2011-2025) aiming at promotion of more efficient energy system.

<Consistency with the Development Needs of Mozambique's at the Time of Ex-Ante Evaluation>

The Project was consistent with Mozambique's development needs for introduction of renewable energy including biofuels such as BDF derived from Jatropha in order to reduce import oil for improvement of trade balance and to promote forest conservation by reduction of firewood consumption.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The Project was consistent with Japan's ODA Policy for Mozambique prioritizing support for climate change and environment area as one of the three priority areas by the policy dialogue between Mozambique and Japan in March 2011[2].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved at the time of project completion. A production process for BDF derived from Jatropha was established and the model BDF plant at PETROMOC, a Mozambican national fuel company, was operated by the Mozambican counterparts (Indicator 1). LCA on electrification of off grid village by the Jatropha fuel was conducted and GHG emission reduction was quantitatively estimated (Indicator 3). Although impacts of Jatropha cultivation were assessed, Jatropha cultivation technology in degraded land was not fully established since the SATREPS project used lands which had already prepared for Jatropha cultivation (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have partially continued since project completion. Some of the research outputs by the SATREPS project have been utilized and the research activities related to the SATREPS project have been continued at the time of ex-post evaluation. In June 2016, UEM signed an agreement with the Fund of Energy (Fundo de Energia: FUNAE) in order to implement a project "Increase Access to Energy Services through Installation of Multifunctional Platform (PMF) powered by Coconut Oil as Biofuel" to provide grain milling services, refrigeration, battery charging, lanterns, an energy store for sales of small renewable energy products for income generation, in Marrucua, Morrumbene District, Inhambane Province in 2018. In addition, the research outputs by the SATREPS project, including Jatropha cultivation method, Jatropha BDF production system and Power Kiosk using Jatropha biofuel, have been utilized for the research activities by the graduated students for their degrees and for undergraduate students. The courses of the Chemical Engineering Department of the Faculty of Engineering of UEM, such as the "Chemical Engineering Laboratories II" and the optional discipline of "Energy" have been developed by using the research equipment installed by the SATREPS project.

Some research equipment installed in the Faculties of Engineering, Science and Agronomy and Forest Engineering (FAEF) by the SATREPS project including Jatropha BDF plant have been utilized for the research works by the undergraduate and graduate students. Also, FAEF transferred the agricultural equipment installed in the Boane experimental field to Sabie and has used for agronomic testing. On the other hand, the Power Kiosk has not been used continuously because the Agricultural Association of Licaca has not yet managed to produce specific plan for its use.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goals have been not achieved. The Overall Goal 1 has not been achieved since no new variety was introduced and no field of the bred trees was established due to the lack of finance for the activities (Indicator 1-1). The Overall Goal 2 has been partially achieved. While the six research papers related to the research outputs by the SATREPS project were published and the three papers have been under review (Indicator 2-1), the number of graduate and undergraduate students who completed their degree theses related to the research outputs by the SATREPS project was far below the target (Indicator 2-2). The Overall Goal 3 has not been achieved. According to UEM, a national development program must be run by the government. It is deemed that there are no known initiatives to update the National JBDF Development Program (Indicator 3-1). In terms of rural electrification by using the research output of the SATREPS project, there was no electrified village by the Jatropha biofuel nor Power Kiosk using Jatropha biofuel because of the lack of fund to disseminate the model developed by the SATREPS project (Indicator 3-2).

<Other Impacts at the time of Ex-Post Evaluation>

There are some positive impacts of the Project confirmed at the time of the ex-post evaluation. While the Power Kiosk installed by the SATREPS project has not been regularly operated without the specific plan, the Power Kiosk has been installed by a private construction company at the Agricultural Association of Licaca, a non-profit organization formed to provide services to members, mostly women. Upon installation of the Power Kiosk, the association began to provide services such as battery rental, battery charging, phone charging, batteries and other services for members of the association and for the Licaca community. The Power Kiosk has been run by a woman. As of 2018, the Agricultural Association of Licaca benefited from the support of the "Power Kiosk" Project using biofuel through Jatropha for people in the Village without Access to Electricity" under the JICA Partnership Program. The project resulted in the creation and legalization of the company, " Quiosque de Energia de Licaca "

As mentioned above, the capacity of researchers involved in the activities of the SATREPS project has been improved through the continuation of the related research activities and the academic achievements of the graduate and undergraduate students based on the research outputs by the SATREPS project. The researchers used the research outputs of the SATREPS project to prepare the project proposal "Biomass for Energy", funded by the government of Sweden for the period 2017-2022. Furthermore, the research outputs of the SATREPS project are used in the teaching and learning processes in undergraduate courses and especially in the classes of the two master courses of "Master in Renewable Energy Science and Technology" and "Master in Renewable Energy Systems Management". With a duration of 2 years, the two master's courses began in 2019 and are coordinated by the Eduardo Mondlane University Energy Research Center.

[2] Ministry of Foreign Affairs, Japan, "ODA Databook" (2011)

No negative impact by the SATREPS project was confirmed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, both the effectiveness and impact of the project is fair.

Achievement of Project Purpose

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="3">(Project Purpose)
Jatropha cultivation system suitable for semi-arid areas in Mozambique is established.
Effectiveness of environmental conservation and improvement are scientifically verified by the establishment of mentioned cultivation, conversion and utilization technologies.</td><td>Indicator 1:
Biofuel production model with improved GHG and energy balance is transferred to partner research institutes, and is run by C/P researchers.</td><td>Achievement Status: Achieved (Continued)
(Project Completion)
● Jatropha BDF production process was established.
● BDF plants were operated at PETROMOC by the Mozambican counterpart members.
(Ex-Post Evaluation)
● The BDF plant at FAEF has been utilized for the research works by the undergraduate and graduate students of UEM.</td><td>● Terminal Evaluation Report,
● JST Terminal Report,
● Questionnaires survey with UEM</td></tr>
<tr><td>Indicator 2:
Impact of Jatropha cultivation and biofuel production technologies making use of currently degraded land is verified.</td><td>Achievement Status: Not verified. (Partially continued)
(Project Completion)
● Since the SATREPS project used land already prepared for the cultivation of Jatropha, the achievement level of the indicator was not verified.
● Jatropha cultivation technology in degraded land was not fully established but impacts of Jatropha cultivation was assessed.
(Ex-Post Evaluation)
● The Jatropha cultivation method and the Jatropha BDF production system have been utilized by the undergraduate and graduate students for their degree works in FAEF.</td><td>● Terminal Evaluation Report,
● JST Terminal Report,
● Questionnaires survey with UEM</td></tr>
<tr><td>Indicator 3:
Greenhouse gas emission reduction of a designated Jatropha production and utilization system is quantitatively estimated and improvement of the system performance will be proposed.</td><td>Achievement Status: Achieved (Partially continued)
(Project Completion)
● LCA analysis of electrification of off grid village by Jatropha fuel was conducted and GHG emission reduction was quantitatively estimated.
<table>
<tr><th>Fuel for power generation</th><th>Fossil energy resource inputs</th><th>GHG emission</th></tr>
<tr><td>100% diesel</td><td>15.722MJ</td><td>0.289kg CO2 equivalent</td></tr>
<tr><td>60% Jatropha crude oil mixed diesel (improved variety by the SATREPS project)</td><td>6.629MJ</td><td>0.142kg CO2 equivalent</td></tr>
<tr><td>60% Jatropha crude oil mixed diesel (native variety in Mozambique)</td><td>7.470MJ</td><td>0.188kg CO2 equivalent</td></tr>
</table>
(Ex-Post Evaluation)
● The Power Kiosk installed at FAEF has been used by a professor of the Department of Physics for his doctoral thesis.
● The pilot installation of Licaca Power Kiosk did not operate regularly in the period of 5 years after the completion of the SATREPS project.</td><td>● Terminal Evaluation Report,
● JST Terminal Report,
● Questionnaires survey with UEM</td></tr>
<tr><td>(Overall Goal 1)
Cultivation and breeding technologies are succeeded by researchers in Mozambique and the yield of Jatropha seeds in unit area is improved.</td><td>Indicator 1-1:
A new variety with yield of over two times compared with local varieties is bred in the project site, and field of the bred trees is established by UEM for seed production.</td><td>Achievement Status: Not achieved
(Ex-post evaluation)
● No new variety was introduced and no field of the bred trees was established.
● It was not possible to carry out this activity because the plan presented by FAEF was not financed.</td><td>Questionnaires survey with UEM</td></tr>
<tr><td>(Overall Goal 2)
Research capacities of researchers and students in UEM are enhanced, and UEM and PETROMOC lead the research and development BDF in Mozambique.</td><td>Indicator 2-1:
Research papers on following areas are published:
1) BDF production and effective use of residues.
2) Safety evaluation of BDF and byproducts at the production and utilization processes.</td><td>Achievement Status: Achieved.
(Ex-post evaluation)
● The following 6 papers were published after the project completion:
➢ Effect of Storage Conditions on the Quality of Jatropha Curcas Oils
➢ Technical and Economic Assessment of Hybrid Off-Grid Energy System in Rural Licaca, Mozambique.
➢ Production of Biodiesel from Jatropha Curcas L., and Engine Performance with Blends Fuels
➢ Generator Engine Performance and Exhaust Gas Emissions, Using Biodiesel from Jatropha Curcas with Kerosene Blends
➢ An optimized solid-liquid method for rapid extraction of phorbol</td><td>Questionnaires survey with UEM</td></tr>
</table>

	3) Environmental evaluation for biofuel production and utilization.	esters from Mozambican Jatropha seeds ➢ Efficient vortex-assisted extraction of phorbol esters from Jatropha leaves and correlation between leaves and seeds in phorbol esters content ● 3 papers have been under review: ➢ Determination of genetic gain in seed yield of new genotypes of Jatropha (Jatropha curcas L.) through the evaluation of seedlings. ➢ Vortex-assisted solid-liquid extraction for rapid screening of oil content in Jatropha seed: an alternative to the modified Soxhlet method. ➢ Effect of heterosis and correlation analysis on seed traits using reciprocal crosses in Jatropha curcas L. grown in Mozambique. Industrial Crops and Products	
	Indicator 2-2 2 researchers obtain a Doctor degree, and in total over 100 graduate and undergraduate students complete their thesis related to the project.	Achievement Status: Not achieved. (Ex-post evaluation) ● Academic achievements based on the research outputs by the SATREPS project were as follows: ➢ 1 researcher obtained a Doctorate degree in 2020. ➢ 2 graduate students completed their master's degree theses during the period from 2016 to 2019 ➢ 18 undergraduate students completed their research papers during the period from 2016 to 2019.	Questionnaires survey with UEM
(Overall Goal 3) Power generation from Jatropha oil is continued in the model village and the model is propagated to other regions	Indicator 3-1: Key and basic data are to be compiled necessary for formation of the National JBDF Development program.	Achievement Status: Not achieved. (Ex-post evaluation) ● UEM understand that a national development program must be run by the government. It is deemed that there are no known initiatives to update the National JBDF Development Program.	Questionnaires survey with UEM
	Indicator 3-2: 5-10 villages are expected to be energized by Jatropha	Achievement Status: Not achieved. (Ex-post evaluation) ● No village was electrified by using Jatropha biofuel nor the Power Kiosk using Jatropha biofuel.	Questionnaires survey with UEM

3 Efficiency

Although the project cost exceeded the plan (the ratio against the plan: 118%), the project period was as planned. Since the market environment for Jatropha BDF changed in Mozambique, the project scope was changed to introduce activities for rural electrification activities by using Jatropha biofuel which required additional costs to purchase electrification equipment such as generators. (the ratio against the plan: 100%). The project outputs were produced as planned.

Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspects>

The research activities related to the SATREPS project have been backed up by the government policy. The "Government Five-Year Plan 2020-2024" (PQG 2015-2019) focuses a) development of human and social capital by establishing programs and synergies with higher education, professional technical, research and technological base institutions that contribute to stimulate innovation and entrepreneurship, b) promoting employment and improving productivity and competitiveness by promoting the value chain of national primary products ensuring the integration of local content, and c) development of economic and social infrastructures by increasing the access and availability of electricity, liquid fuels and natural gas for the development of socio-economic activities.

<Institutional/Organizational Aspects>

There are no changes in the organizational/institutional mechanism to use the research outputs of the SATREPS project. The utilization of the research outcomes is being made through the network established between UEM, government entities and researchers from Mozambique and the Kingdom of Sweden. This network was created in 2017 and envisaged the development of a Ph.D. program in renewable energies to be carried out in a sandwich regime with the Swedish Universities of Chalmers and Malardalen, within the scope of the collaboration between UEM and the Swedish International Development Agency (Sida). The doctoral program is coordinated by CPE based at the Faculty of Sciences, which is located on the Main University Campus of UEM, as mentioned above. The research outputs of the SATREPS project are used by teachers and researchers involved in teaching the master's degree in Science and Technology of Renewable Energies, also coordinated by CPE.

The maintenance of the equipment installed in the Power Kiosk, in Licaca, District of Jangamo could only be guaranteed with the existence of funds for the continuous realization of the project activities. A UEM engineer stopped working at the beginning of 2020, he was responsible for the laboratory installed at PETROMOC, he retired due to financial difficulties that the University Foundation has faced in recent years but the laboratory has been continuously utilized for the research activities by the UEM researchers and students. A technician left UEM in 2017, was responsible for the Boane experimental field and directly assisted the activities of the agricultural area in Licaca. However, the equipment installed in the Boane experimental field were transferred to Sabie and they have been still in use.

<Technical Aspects>

At the end of the project, it was found that the researchers improved their research capacity to continue with the research activities related to the thermal and biochemical conversion of biomass into energy. The number of researchers has increased due to the return of 3 employees who obtained a doctoral degree in Sweden. On the other hand, although two senior officials left the research activities and UEM

due to lack of budget to pay their salaries, the UEM researchers and students have been able to continue the related research activities using the research equipment and facilities installed by the SATREPS project.

The support and improvement of research activities have been achieved by the continuous participation of all researchers in activities to supervise research projects of disciplines in the energy area taught at the Faculty of Engineering (in the Department of Chemical Engineering), Faculty of Sciences and Faculty of Agronomy and Forest Engineering and in the supervision / co-supervision of the work of master and Ph.D. students in Science and Technology of Renewable Energies, all offered by CPE. Furthermore, the participation in research works developed in partnership with national and foreign higher education and research institutions have contributed to sustaining and improving their research capacities

The improvement of scientific literacy by government authorities is evident in the successive five-year plans (PQG 2015-2019 and PQG 2020-2024) that provide for the production of energy from solutions similar to those studied ones under the SATREPS project.

<Financial Aspects>

UEM has continued to finance research activities with its own and external resources. For example, the project "Biomass for Energy" is funded by Sida under the financing of the general program called "Building a Research and Education Environment for Modern Renewable Energy Systems" (BREEMRES) and coordinated by CPE. In addition, as mentioned above, the "Increase Access to Energy Services through Installation of Multifunctional Platform Powered by Coconut Oil as Biofuel" project in Marrucua, Morrumbene District, in the province of Inhambane, has been implemented under the partnership agreement signed in 2016 between UEM and the Energy Fund (FUNAE).

The financial resources of the BREEMRES program will be used to finance part of maintenance services for some of the research equipment installed by the SATREPS project that will be used for research works done by master's and doctoral students in Renewable Energy Science and Technology.

<Evaluation Result>

In the light above, there has been no concern from any aspects. Therefore, the sustainability of the effects through the Project is high.

5 Summary of the Evaluation

The project partially achieved the Project Purpose for establishing the sustainable Jatropha cultivation system and the project effects have been partially continued. While the Overall Goal 1 for the introduction of new variety of Jatropha and the Overall Goal 3 for village electrification by the Jatropha oil have not been achieved yet, the Overall Goal 2 for enhancement of research capacity has been progressed. As for efficiency, the project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learnt

Recommendations for Implementing Agency:

（For UEM）

- It is essential for UEM to maintain links with FUNAE to promote renewable energies from biomass, including Jatropha; and to disseminate the research outputs by the SATREPS project so that other actors can be benefited through use of the scientific information obtained the research works related to the SATREPS project.

Lessons Learnt for JICA:

- It is necessary for JICA to maintain close contact with the different stakeholders in order to maximize the project effects of the SATREPS project because realization of the expected research outcomes requires certain period of time and follow up by other stakeholders, including development partners as funding agencies. Also, it is essential to consider sustainability of expected research activities and dissemination of the research outputs for utilization of the research outcomes from the project preparation stage to the post project period.

No Photo available at the time of ex-post evaluation

Internal Ex-Post Evaluation for Development Planning Project

conducted by Senegal Office: March 2022

Country Name	**Project on Promotion of rural development in harmonization with Ecology and Economy: Promotion of Ecovillages**
Republic of Senegal	

I. Project Outline

Background	In Senegal, more than 60% of the population lived in rural areas and made their livelihood from agriculture, stockbreeding and fishery which depended on natural resources. Overexploitation of natural resources had caused environmental degradation. It caused a vicious cycle of reduced productivity of agriculture which resulted in a decline in income, further worsening poverty, and acceleration of migration of the young population from rural areas. In this context, in 2008, the government of Senegal launched an initiative of the "Ecovillage Promotion Program" aiming to promote sustainable rural development in harmony with ecology and economy. As an implementing agency of this program, the government established the National Agency for Ecovillage (ANEV) in August 2008. However, the agency did not have specific medium- to long-term operation plans and implemented only some model activities with the limited budget and manpower.		
Objectives of the Project	Through establishing ecovillage platforms and preparing development plans and guidelines and tools for its implementation, the project aimed at implementation of rural development based on the development plans, thereby contributing to promotion of rural development utilizing natural energy in the three target regions. Expected goals through the proposed plan[1]: Ecovillages will be promoted in the three targeted regions.		
Activities of the Project	1. Project Site: Approximately 2,400 villages in the regions of Louga, Fatick and Thiès 2. Main Activities: 1) strengthening of the mechanism of coordination between ministries and their partners and local authorities concerned at central, regional and local level, 2) development of the master plan and the tools which allow the implementing agency to promote rural development in harmonization of ecology and economy, 3) implementation of the pilot activities in the three target areas, at least five sites, and 4) strengthening of the capacity of the implementing agency and other relevant institutions. 3. Inputs (to carry out above activities) Japanese Side (1) Mission members:10 persons (2) Trainees received:2 persons (3) Equipment: vehicles, office equipment Senegalese Side (1) Staff allocated: 2 persons (2) Facilities and equipment: project office (3) Local cost: cost for utility of offices (electricity, water, and telephone)		
Project Period	October 2012 - July 2016 (Extension: April 2016 - July 2016)	Project Cost	Ex-ante: 447 million yen, Actual: 490 million yen
Implementing Agency	National Agency for Ecovillage (ANEV), Ministry of Ecology and Natural Protection (ANEV was dissolved in October 2019. ANEV's activities were handed over to the Senegalese Agency for Reforestation and Great Green Wall (ASERGMV), Ministry of Environment and Sustainable Development)		
Cooperation Agency in Japan	Earth and Human Corporation		

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Statements of the "Expected goals through the proposed plan" and "Expected utilization of the proposed plan" in the Ex-ante Evaluation Sheet (January 2012) and the Record of Discussion (R/D) (July 2012) were somewhat different. The ex-post evaluation was conducted using the statements in the R/D because the R/D was the official document signed by the parties of the governments of Senegal and Japan.
- Since no indicator for the "Expected goals through the proposed plan" and "Expected utilization of the proposed plan" was defined in the R/D, the indicators prepared in the Ex-ante Evaluation Sheet were used for evaluating their achievements in this ex-post evaluation.
- Data for the ex-post evaluation was collected through the questionnaires and telephone interviews on the implementing agencies, other related organizations, and the heads of the villages involved in the project, but the field survey on the villages was not carried out due to the incidence of COVID-19.

1 Relevance

<Consistency with the Development Policy of Senegal at the Time of Ex-Ante Evaluation>

The government of Senegal issued the national development strategy of "Economic and Social Policy Document" in November 2011. The document laid out a vision of "a sustainable development and the positive spin-offs distributed in solidarity through an emerging economy." The strategic orientations to translate this vision into actions and tangible results were based on three pillars, and one of the three pillars was accelerating access to basic social services, social protection and sustainable development. Ecovillage plan was prepared by the Ministry of Ecology and Natural Protection as one of the measures for realizing this pillar. Therefore, the project was consistent with the development policies of Senegal at the time of ex-ante evaluation.

<Consistency with the Development Needs of Senegal at the Time of Ex-Ante Evaluation>

The responsibility and mandate of ANEV was the execution of "Ecovillage Promotion Program" targeting 14,000 villages which accounted for around half the total number of villages in the country. However, without specific medium- to long-term operation plans, AVEV has implemented only some model activities with its limited budget and manpower without any collaboration with other

[1] The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

governmental organizations and development partners. Therefore, the project was consistent with the development needs of Senegal at the time of ex-ante evaluation.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

In the Japan's "Country Assistance Policy for the Republic of Senegal" (May 2012 revised in April 2014), one of the two priority areas (Medium Goals) was the support for sustainable economic development through promotion of the primary sector in which 71% of the total population engaged. Therefore, the project was consistent with the Japan's ODA policy for Senegal at the time of ex-ante evaluation.

<Appropriateness of Project Design/Approach>

ANEV, the major implementing agency of the project, was officially dissolved by the presidential decree in October 2019. As stated below, this has significantly affected the utilization of the proposed plan and sustainability of the project. Although the month and year when the dissolution of ANEV was initially proposed could not been identified.

<Evaluation Result>

In light of the above, the relevance of the project is fair.

2 Effectiveness/Impact

<Status of Achievement for the Objectives at the time of Project Completion>

The objectives of the project were achieved by the time of project completion by preparing the master plans and tools for promoting ecovillage activities, implementing the pilot activities, and improving the capacity of ANEV. With its own manpower and budget, ANEV established platforms in three regions, drafted village inventories (lists of villages to be ecovillages) in two regions, and applied outputs and experience obtained in the pilot activities to those regions.

<Utilization Status of the Proposed Plan at the time of Ex-post Evaluation>

The proposed plan prepared by the project has not been utilized after the completion of the project. ANEV was officially dissolved in 2019 along with other 14 agencies as a part of the government's administration modernization program. After the cessation of ANEV's activities, the ecovillage activities based on the master plan using the tools developed by the project have significantly reduced. The Ecovillage Platforms formulated by the project have also ceased their activities losing the initiative and leadership of ANEV. But, in the process of the ex-post evaluation, ASERGMV in charge of implementation of the "Ecovillage Promotion Program" has shown the interest in the proposed plan prepared by the project and requested the project documents for their review.

<Status of Achievement for Expected Goals through the Proposed Plan at the time of Ex-post Evaluation>

The expected goal through the proposed plan prepared by the project has not been achieved. Although the necessity of the ecovillage certification system was recognized by ANEV and the related agencies, the system has no longer functioned after the dissolution of ANEV in 2019.

<Other Impacts at the time of Ex-post Evaluation>

Some positive impacts and no negative impact have been observed at the time of ex-post evaluation. According to the telephone interviews with the heads of villages in the target areas, although the project has not drastically changed the situation of the villages in the target areas, some positive effects can be observed. For example, the number of farmers equipped with solar systems for water pumping has increased after the project. Beekeeping introduced by the project has extended to some other villages and one of the villages succeeded in securing a contract with a Japanese trading company and has exported tons of beeswax to Japan to this date. Inspired by the success of the village exporting beeswax to Japan, the Japanese Embassy in Senegal funded beeswax processing centers in Dakar and Ziguinchor in 2018 as a part of the assistance to the local projects implemented by the Senegalese government for human security. According to a report made by the Animal Industry Directorate of the Ministry of Breeding and Animal Production, there has been a significant increase in the marketing of honey and beeswax caused by these projects. No negative impact on natural, social and economic environment has been observed.

<Evaluation Result>

Some positive impacts have been observed at the time of ex-post evaluation, although due to the utilization status and the status of achievement for expected goals through the proposed plan at the time of ex-post evaluation, the effectiveness/impact of the project is low.

Status of Achievement of Utilization Status of the Proposed Plan, and Expected Goals through the Proposed Plan

Aim	Indicators	Results
Utilization Status of the Proposed Plan	Indicator 1: The percentage of villages implementing rural development based on the master plan utilizing ecovillage implementation tools in the three target regions will be over xx%.	(Ex-post Evaluation) not achieved After the dissolution of ANEV in 2019, the villages implementing rural development based on the master plan using the tools developed by the project have not increased. ASERGMV started its ecovillage activities in 2019 and has implemented an emergency program named Toulou Keur ("house fields" in local language) which put emphasis on food security and agroecology[2] in the context of COVID 19 pandemic.
	Indicator 2: Operation status of the Ecovillage Platforms functioning according to the master plan at central and regional levels (the number of meetings periodically held, meeting reports, updating status of the monitoring reports of ecovillage activities, etc.)	(Ex-post Evaluation) not achieved Along with the dissolution of ANEV, it lost the initiative and leadership. As the result, the Ecovillage Platforms have ceased their activities.
Expected Goals through the Proposed Plan: Ecovillages will be promoted in the three	Indicator 1: The number of villages certified as ecovillage in the three target regions.	(Ex-post Evaluation) not achieved Although the necessity of the ecovillage certification system was recognized by ANEV and the related agencies, the system has no longer functioned after the dissolution of ANEV in 2019.
	Indicator 2:	(Ex-post Evaluation) partially achieved

[2] Farming that centers on food production that makes the best use of nature's goods and services while not damaging these resources. (Source: website of the Agroecology Fund)

targeted regions. (not to be assessed)	Changes in the villages certified as ecovillages in the three target regions, e.g. the number of facilities using natural energy, area of fruits tree planting, livelihood of households, etc.	According to telephone interviews with the heads of villages involved in the project, the situation of the villages has not been largely changed. They are still facing the difficulties of limited access to water, energy, and food all through the year. However, the number of farmers equipped with solar power systems for water pumping has increased after the project, and their cultivated areas has extended. Beekeeping introduced by the project has been disseminated to some other villages. It is producing cash income and contributed to the improvement of the livelihood of villagers.
	Indicator 3: Achievement status of the targets in the development plans in the three target regions.	(Ex-post Evaluation) not achieved Although the upgrading of certified ecovillages was targeted by the project, ecovillage certification system and grading system have not functioned after the dissolution of ANEV.

Source: ANEV, Final Report (2016)

3 Efficiency

In order to align with the new policy announced by the government in 2013 for promoting local autonomy, the project rearranged its activities, and both of the project period and cost exceeded the original plan (the ratio against the plan: 110% respectively). The outputs were produced as originally planned by the end of extended period of the project. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The "Emerging Senegal Plan (PSE)" (2014) envisioned an emergence of Senegal by 2035 with social solidarity under the rule of law. For realizing this vision, a ten-year plan from 2014 to 2023 was developed, which consists of three pillars: 1) a structural transformation of the economy, 2) promotion of human capital, social welfare, and sustainable development, and 3) reinforcements of governance, system, peace and security. The ecovillage promotion was consistent with the agriculture promotion and utilization of local potential in the pillar 1, the maintaining of food security and promotion of green economy and natural resources management in the pillar 2.

<Institutional/Organizational Aspect>

Taking over the functions of ANEV to promote ecovillage activities, ASERGMV was established in 2019 assigning the former Minister of Environment as the General Director. Although it is still in the start-up process at the time of ex-post evaluation in 2021, ASERGMV has started field operations and social network expansion activities. ARDs involved in the project as regional platform secretaries have been functioning for rural development. However, the ecovillage promotion activities introduced by the project have not been continued by ARDs without the leadership and budget from ANEV.

<Technical Aspect>

ASERGMV has reemployed most of the former staff members of ANEV to take advantage of the knowledge and techniques they learned in the project. Although some equipment provided by the project including biodigesters[3] have not functioned due to ceased technical and financial support from ANEV, the number of farmers equipped with solar power systems for water pumping has increased.

<Financial Aspect>

Because ASERGMV is a new agency and still in the institutional arrangement process, the budget for operation has not been fully allocated by the Ministry of Finance. In 2020, for the requested amount of 5 billion FCFA[4], 500 million FCFA was allocated. However, since the President of Senegal made an instruction at the council of ministers to support ASERGMV's activities, ASERGMV is expected to receive 4 billion FCFA for 2021. Data of the amount of budget for ecovillage promotion is not available because it is not segregated as an expense item. Regardless the amount, the budget for ecovillage promotion is supposed to be allocated mainly to Toulou Keur program but not to the ecovillage promotion activities introduced by the project.

<Evaluation Result>

In light of the above, problems in terms of the institutional/organizational and technical aspects and major problems in terms of the financial aspect of the implementing agency have been observed. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The objectives of the project were achieved by the time of project completion by preparing the master plans and tools for promoting ecovillage activities, implementing the pilot activities, and improving the capacity of ANEV. However, ANEV was dissolved three years after the completion of the project. Because of the dissolution of ANEV, the ecovillage promotion activities introduced by the project have been ceased in the target regions. As for sustainability, problems have been observed in terms of the institutional/organizational, technical and financial aspects. As for efficiency, both of the project cost and period exceeded the plan. Considering all the above points, this project is evaluated to be unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is recommended that the Ministry of Environment and Sustainable Development provides strong support for ASERGMV by providing adequate administrative and technical advice and human and financial resources to accelerate ASERGMV's institutional arrangement process and to start its activities in full scale without any loss of time.
- It is recommended that ASERGMV starts its ecovillage promotion activities in full scale by putting the experiences of the project to use. Tangible assets or the equipment provided by the project may be restored and reused by the villagers with technical and financial assistance from ASERGMV. Intangible assets, particularly, the former staff members of ANEV, who have improved their capacity through the experience of the project and are seeking for chances to be re-employed by ASERGMV, could be substantial workforces to promote ecovillage activities of ASERGMV.

Lessons Learned for JICA:

[3] A system that biologically digests animal manure (mainly cow dung) and produces combustible biogas.

[4] FCFA: Franc de la Communauté Financière Africaine

- Large-scale dissolution or reorganization of a governmental organization usually takes some years from the planning until the execution. In case of the project, ANEV was dissolved three year after the project completion. There is a possibility that the negotiation of the dissolution of ANEV was initiated along with the progressing of the project activities. Based on this experience, it is recommended that a project team has close and frequent communications with the top-level management of the implementing agency, its supervisory agency, and development partners. And when a predictive information is obtained, the project should undertake necessary and possible measures to sustain the project effects including policy, institutional/organizational, technical and financial sustainability.

Internal Ex-Post Evaluation for Technical Cooperation Project (SATREPS[1])

Conducted by Gabon Field Office: March, 2022

Country Name	**Conservation of Biodiversity in Tropical Forest through Sustainable Coexistance between Human and Wild Animals**
Gabonese Republic	

I. Project Outline

Background	Congo Basin, located in Central Africa, has the second largest tropical forest following Amazon in the world. In particular, Gabon has the high forest coverage in Congo Basin and has high level of biodiversity and many endemic species. The government of Gabon started to take measures for conservation of abundant ecosystem in the country through establishment and management of national parks and introduction of ecotourism based on the national parks. However, there have been issues to conduct effective conservation activities because of the insufficient collection and analysis of scientific data on tropical forest ecosystem. In addition, it was necessary to accumulate scientific knowledge for introduction of ecotourism in an appropriate manner, including countermeasures against amphixenosis.		
Project Objectives	Through development of ecological map of the Moukalaba-Doudou National Park (Parc National de Moukalaba-Doudou: PNMD), proposing safe contact with primates, development of scientific methodology for ecotourism and promotion of environmental education for the local communities, the project aimed at proposing methodology of sustainable management of biodiversity with participation of local people based on scientific data. 1. Expected Overall Goal: None 2. Project Purpose: Methodology of community based sustainable management of biodiversity with participation of local people is proposed based on scientific data.		
Project Activities	1. Project Site: National Park of Moukalaba Doudou (PNMD) and neighboring area (Doussala zone) 2. Main Activities: 1) Development of ecological map of PNMD, 2) Proposing safe contact with larger mammals, in particular primates, 3) Development of scientific methodology for ecotourism aiming at observation of primates, 4) Promotion of environmental education and training of local specialist, so on. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 28 persons 2) Trainees received: 14 persons 3) Equipment: Sensor cameras, autoclaves, vehicles, satellite telephones, etc. 4) Local operation cost: Cost for construction consultant and constructor, cost for materials, and so on Gabonese Side 1) Staff allocated: 16 persons 2) Facilities and land: Office space and laboratory in the campus of Research Institute of Tropical Ecology (IRET) 3) Local operation cost: Cost for utilities, travel expenses, cost for office appliance, and so on		
Project Period	September 2009 – September 2014	Project Cost	Ex-ante: 449 million yen Actual: 531 million yen
Implementing Agencies	Research Institute of Tropical Ecology (Institut de Recherche en Écologie Tropicale: IRET), the National Center of Scientific Research and Technology (Centre National de la Recherche Scientifique et Technologieque: CENAREST) of the Ministry of Higher Education and Scientific Research (Ministère del'Enseignement Supérieur et de la Recherche Scientifique), National Agency of National Park (L'Agence Nationale de Parcs Nationaoux: ANPN)		
Cooperation Agency in Japan	Kyoto University, Kagoshima University, Chubu Gakuin University, Yamaguchi University, Kyoto Prefectural University		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Gabon at the Time of Ex-Ante Evaluation >

The Project was consistent with the Gabon's development policy. The President of Gabon expressed efforts for forest and biodiversity conservation through establishment of national park network and promotion of ecotourism at the World Summit on Sustainable Development (WSSD) in Johannesburg, Republic of South Africa in September 2001. No detail policy document on the forest and biodiversity conservation was not prepared but the policy directions was presented by the President's speeches.

<Consistency with the Development Needs of Gabon at the Time of Ex-Ante Evaluation>

The Project was consistent with Gabon's development needs for effective conservation activities of tropical rain forest in Congo basin in the country through establishment and management of national parks and introduction of ecotourism based on the national parks.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The Project was consistent with Japan's ODA Policy for Gabon prioritizing cooperation for environmental area as since the government of Gabon focused on environment[2].

<Evaluation Result>

In light of the above, the relevance of the project is high.

[1] SATREPS: Science and Technology Research Partnership for Sustainable Development

[2] Ministry of Foreign Affairs, "ODA Country Data book 2009"

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved at the time of project completion. A document called "PROCOBHA Perspectives" was prepared to preset the concept and long-term vision for ecotourism development and biodiversity conservation for PNMD. The draft of methodology of community based sustainable management of biodiversity based on the scientific data was prepared and presented to ANPN (Indicator 1).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued since project completion. The fauna and flora map produced by the SATREPS project have been used by ANPN and IRET for gorillas mapping for example. Since 2018, a small and selective ecotourism in terms of gorilla observation[3] has been ongoing in order to finance for functionalizing the research station, which was planned to be constructed under the SATREPS project. All constructions for the research station have been completed except the installation of solar panels, which have still not been provided because of the insufficient remaining budget for purchase caused by repeated and unforeseen additional work expenditure and by the unexpected financial difficulties of Gabon as a result of the drop of oil price which prevented the country from paying its full financial contribution. Environmental education of the villagers has been continuously conducted through the grassroot technical cooperation project funded by JICA aiming at training of local tour guides for ecotourism development in the communities[4]. IRET plans to include it as a subject in the school program. Gabon Untouched, a Spanish NGO, plans to help reopen the primary school in Doussala village. Ecotourism handbooks and guidebooks have been used by IRET, ANPN and NGOs as reference. The Sciences Faculty of the University of Montpelier, France with IRET has been conducting a project, "Screening of fruit species ate by medium and large mammals'', financed by the Francophone University Agency (Agence Universitaire de le Francohonie: AUF) and supervised by Prof Bretagnole since 2017. IRET is also planning with an NGO, "Project of Bio monitoring of mammal diseases, using non-invasive methods". It is expected that the collaboration with another ongoing SATREPS project, "The Project for Establishment of Laboratory Surveillance System for Viral Diseases of Public Health Concern" (SYMAV project) of Lambarébé will contribute to the development of medical kits for to better health monitoring results.

Although the research station constructed has been still used to some extent the laboratory equipped as a research station has been underused due to insufficient energy production one of the power generators and other lab equipment were damaged after the flood of the entire region in December, 2018. The vehicle provided by the SATREPS project is still in use. On the opposite, the IRET Laboratory is used a lot by different partners. For example, Health Sciences University (by research students) had sent student to use the facilities in order to analyze the effectiveness of meningitis vaccine on the strains present among children in Gabon. IRET has been using the facilities for bacteriological and microbiological screening of human and animal faecal samples; extraction of DNA from faecal samples and tissus; PDR amplification; visualization with electrophoresis (sequencing is then done in Lambaréné). ANPN has been using the laboratory for its efficient tracking of elephants through sampling of faecal, tissues and bones from which DNA is extracted for the genotype through real time PCR. The Research Institution of Agricultural and Forestry (L'Institut de Recherche Agricole et Forestière: IRAF), under the Ministry of Higher Education, has been using the laboratory for screening of viruses from animal tissue samples. The Institute of Pharmacopeia and Traditional Medecine (l'Institut de Pharmacopée et de Médecine Traditionnelle (IPHAMETRA), under the Ministry of Higher Education, also uses the laboratory for the analysis of antiparasitic activity on plants extracts.

<Status of Achievement for Expected Overall Goal at the time of Ex-post Evaluation>

No expected Overall Goal was set at the time of project design. The outcomes of the SATREPS project have been used by IRET for the inventory of the regional fauna. In terms of environmental education, tourists have been the first beneficiaries.

According to ANPN, the SATREPS project has deepened the understanding on the resource (gorillas) and the sustainable ecotourism with the participation of local people, making the information available. However, there is currently no group of gorillas that are observable and accustomed to humans as the initial group leader has passed away and members of the family are now disseminated. Combined with the fact that there have been few travelers, local people may not necessarily benefit the expected outcome of the project if tourism activities do not increase.

<Other Impacts at the time of Ex-Post Evaluation>

There are some positive impacts of the Project confirmed at the time of the ex-post evaluation. Through the participation of a female researcher in the SATREPS project gave an opportunity to encourage other female researchers to join an international joint research project in the context of Gabon where only a limited number of female researchers have participated in national and international research projects. Thanks to the availability of equipped laboratories combined with the training programs, the capacity of researchers has been improved. As for now, 7 national agents have obtained their doctorates, 4 of them are now senior researchers and 2 of them will apply for the position of associate professor. It has been observed that the government is being more interested in terms of biodiversity conservation questions. Still, it seems that some efforts are needed in terms of making known the results of scientific researche in general to the public, ministries as that of tourism and to the Government itself. Dr. Ngomanda, the new CENAREST Commissioner, is working toward the creation of a team/organization dedicated solely to this objective. The SATREPS project has created some economic activities, such as some seasonal jobs for the villagers since a wood company have left the region.

No negative impact by the SATREPS project was confirmed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, both the effectiveness and impact of the project is high.

Achievement of Project Purpose

Aim	Indicators	Results

[3] As one of the research outputs of the SATREPS project, the researchers of Kyoto University conducted observations of a gorilla groups for habituation to human through a long-term observation without feeding, which enables gorillas to naturally behave in front of observers, in order to introduce ecotourism based on the gorilla observation and developed a scientific method and manual for ecotourism.

[4] "Training of community guides for ecotourism development in Mukaraba area". ECOLOGIC, a Japanese general incorporated association is an implementing agency for the project.

(Project Purpose) Methodology of community based sustainable management of biodiversity with participation of local people is proposed based on scientific data.	Indicator 1: Methodology of community based sustainable management of biodiversity scientific data is presented in report and proposed to related organizations such as the National Agency of National Park (L'Agence Nationale des Parcs Nationaux: ANPN)	Achievement Status: Achieved (Continued) (Project Completion) ● A document called "PROCOBHA Perspectives" was prepared to preset the concept and long-term vision for ecotourism development and biodiversity conservation for PNMD. ● The draft of methodology of community based sustainable management of biodiversity based on the scientific data was prepared and presented to ANPN. (Ex-Post Evaluation) ● The key research outputs have been used for introduction of the ecotourism in the target region.

Source：Terminal Evaluation Report, JST Terminal Report, Questionnaires survey with project coordinators.

3 Efficiency

Although the project period was as planned (the ratio against the planned: 100%), the project cost exceeded the plan (the ratios against the plan: 118%). The project outputs were produced as planned.

Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspects>

One of the three pillars within the "Emerging Gabon Strategic Plan", which is a long-term vision for the period up to 2025, published in 2012, is Green Gabon. It describes an integrated approach to environmental conservation and sustainable development. Within this document, there is a mention of pursuing biodiversity conservation, which supports the activities of this project. The research is recognized as one of the various activities for environmental conservation, and priorities on its content and budget allocation are left up to each ministry.

<Institutional/Organizational Aspects>

The positions of head of the research station and head of laboratory have been created as a result of this SATREPS project. Around 50 persons (staffs and researchers) have participated in the SATREPS project. Among them 8 trackers are employed on a part-time basis and are divided in two shifts. 6 researchers are permanently working on sites (Doussala and IRET) and are also divided in shifts. A scientific committee reuniting all partners and institutions concerned[5] has been put in place about the following topics: "Monitoring of biodiversity in Moukalaba-Doudou Park"; "Biomonitoring (health monitoring) of biodiversity"; and "Human versus animal conflicts resolution and sustainable coexistence between man and animal in and the hereabouts of Moukalab-Doudou Park".

For an efficient operation of the facilities and equipment installed by the SATREPS project, IRET has assigned a head of the research station and 3 other staff (all four are researchers), and they work on a shift basis for the operation of the research station. In addition, one technician is in charge of the maintenance of generator and electricity supply of the station. For the laboratory, a head of laboratory and 1 assistant work permanently for the operation of the laboratory of Libreville. For the technical maintenance of all technical laboratory equipment, a private company named ESTTM has been hired by IRET.

<Technical Aspects>

Since the researchers have equipped facilities and equipment to develop research program, their capacities have improved through participation in national and international scientific seminars. Also, housing of researchers at the station makes it easier for them to conduct biological and microbiological analysis on site, isolate bacteria strains, genetic studies up to genotyping with real time PCR. Thanks to the ECOLOGIC project, the capacity of the local specialists and trackers have greatly improved. Their level of literacy in terms of ecotourism is without doubting among the highest in the country.

On the other hand, the scientific literacy of the government has not been much improved due to a lack of communication from the Ministry of Research.

After the SARTREPS project, the training for the maintenance of the equipment, mainly the power generator, could not be completed. For the maintenance of laboratory equipment installed in IRET, no staff has been trained or hired but the private company has been hired by IRET.

<Financial Aspects>

The funds for the research activities related to the SATREPS project are mainly coming from NGOs and other institutions than the Ministry of Research and extra activities organized by IRET. No permanent financing has been secured. The facilities/equipment expenses are to be borne by the Ministry of Research which has not secured a budget for this specific use. Due to the deteriorating economic situation mainly, the Ministry of Research have not been able to secure a budget for the research activities related to the SATREPS project.

<Evaluation Result>

In the light above, there has been some problem from technical and financial aspects, but the policy and institutional/organizational aspect has been in good condition. Therefore, the sustainability of the effects through the Project is fair.

5 Summary of the Evaluation

The project was achieved the Project Purpose for preparation of the concept and long-term vision for ecotourism development and biodiversity conservation for PNMD. As for sustainability, there have been some concerns from the technical and financial aspects but the organizational setting has been adequate to continue the related research activities. As for efficiency, the project cost exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learnt

[5] Joint Research Unit (Unité Mixe de Recherche) (CENRS) from France, under the supervisions of Prof Bretagnole; Spanish NGO Gabon Untouched, under the supervision of Anotonio Anoro; Kyoto University; Chubu Gakuin University with Prof Takenoshita, Nagasaki University; Panel of students from the University of Nagasaki who often come to Gabon through their research study programs

Recommendations for Implementing Agency:

- It is suggested that IRET encourages the Ministry of Research and related ministries to develop research strategies which will boost their implication and activities.
- It is recommended that IRET sets up regular opportunities for the Ministry of Research and other relevant institutions to become more aware of the importance of this project by organizing activities such as workshop.
- It is necessary for IRET to take actions for securing a steady budget from the Ministry of Research.

Lessons Learnt for JICA:

- In case where construction of facilities is planned during the project implementation and the cost is borne by the implementing agency, there are risks including delay of the construction work due to unexpected additional work, economic environment and fiscal conditions. Therefore, it can be expected that possible countermeasures against the assumed risks will enable to fully realize project effects and to ensure sustainability of the project effects.
- Activities including equipment maintenance training that could not be completed during the project period may remain unimplemented due to difficulties in follow-up, even if planned after the project. It could be more effective to take some measures such as extending the project period to ensure that the activities are implemented.

Gorillas in the s observed in the forest in Doussala, Tchibanga

Vegetation in Doussala, Tchibanga

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bangladesh Office: December, 2022

Country Name	**Safe Motherhood Promotion Project**
People's Republic of Bangladesh	**Safe Motherhood Promotion Project(Phase 2)**

I. Project Outline

Background	In Bangladesh, maternal and child health indicators remained poor. One of the reasons for the high maternal and infant mortality rates were difficulty to detect and treat abnormal pregnancies due to the low maternal health checkup rate, which caused the delays in the treatment. Also, only about 12% of deliveries were made at health facility or with birth attendant having birth attendance training. Under such circumstance, a technical cooperation project was implemented to develop an effective model for improvement of Maternal and Child Health (Phase 1 project). In order to apply the model, a succeeding project was implemented (Phase 2 project).		
Objectives of the Project	Through strengthening of safe delivery service system, establishing Community Support System (CmSS)/groups, identification of good practices of Maternal and Neonatal Health (MNH) services and consolidation of it in national strategies, etc, the Project aimed at expanding the approaches to improve MNH services quality and utilization, thereby contributing to improvement in MNH.		
	<Phase 1> 1. Overall Goal: Approaches of Reproductive Health (RH) services extracted from the Project are standardized and applied to other districts. 2. Project Purpose: Health status of pregnant and post-partum women and neonates improves in the target district. <Phase 2> 1. Overall Goal: Maternal and neonatal health status is improved in Bangladesh. 2. Project Purpose: The approaches to improve MNH services quality and utilization in line with Health, Population, and Nutrition Sector Development Program (HPNSDP) are expanded in Bangladesh.		
Activities of the Project	1. Project site: <Phase 1>Narsingdi district <Phase 2>Narsingdi, Jessoreand Satkhira districts 2. Main activities: <Phase 1>(i) strengthening of safe delivery service system, (ii)establishing CmSS/groups, etc. <Phase 2>(i) identification of good practices of MNH services and consolidation of it in national strategies, (ii) developing a package of MNH interventions under Upazila Health System (UHS), etc. 3. Inputs (to carry out above activities) Japanese Side <Phase 1> 1) Expert: 7persons 2) Training in Japan:13 persons 3) Training in the third country: 4 persons (India) 4) Equipment: Equipment related to Emergency Obstetric Care (EmOC) and neonatal care services, renovation of health facilities. 5) Local Cost: local staff, contract with NGOs, hospitals, consultants <Phase 2> 1) Experts:11 persons 2) Training in the third countries: Sri Lanka, Tanzania and Kenya 3) Equipment: Equipment for neonatal care, etc. 4) Operation cost: Contract with CARE Bangladesh Bangladeshi Side <Phase 1> 1) Staff allocated: 30persons 2) Land and facilities: project office 3) Local Cost: Partly borne by the Bangladesh side (Medical equipment, drug, consumable supplies, materials and operation cost for project office) <Phase 2> 1) Staff allocated: persons: 34 persons 2) Land and facilities: Office premises, provision of building, etc.		
Project Period	<Phase 1> (ex-ante) April 2006-March 2010 (actual) July 2007-June 2011 (Extended period: July 2010-June 2011) <Phase 2 > (ex-ante) July 2011 -June 2016 (actual) July 2011-June 2016	Project Cost	<Phase 1> (ex-ante) 396 million yen (actual) 404million yen <Phase 2> (ex-ante) 492 million yen (actual) 440 million yen
Implementing Agency	Ministry of Health and Family Welfare (MoHFW)		
Cooperation Agency in Japan	-		

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to the restriction under COVID-19, information was collected through collecting a questionnaire and telephone interviews.

< Special Perspectives Considered in the Ex-Post Evaluation >

- As the Phase 1 and Phase 2 projects share the common goal, the indicators for the Phase 2 project are verified to check the level of achievement of the Project Purpose and the Overall Goal.
- Continuation status of the project effects are analyzed as factors to achieve the Overall Goal.

1 Relevance

<Consistency with the Development Policy of Bangladesh at the Time of Ex-Ante Evaluation >

The projects were consistent with the development policy of Bangladesh.

In the Health Nutrition and Population Sector Program (HNPSP) (fully operational in 2005), the improvement of Maternal and Child Health, especially antenatal and postnatal maternal and reproductive health conditions was addressed as a priority issue. Also, the "National Strategy for Accelerated Poverty Reduction II" (2009-2011) aimed at solving the problems in the area of maternal and child health through the measures of quantitative expansion of skilled birth attendants, expansion of Postnatal Cares (PNC), and expansion of Emergency Obstetric Care (EmOC) services. Health, Population and Nutrition Sector Development Program (HPNSDP) (2011-2016) continued to prioritize improvement of Maternal and Neonatal Health.

<Consistency with the Development Needs of Bangladesh at the Time of Ex-Ante Evaluation >

The projects were consistent with the development needs of Bangladesh on Maternal and Child Health. The Maternal and Child Health indicators remained poor partly because of low maternal health checkup rate as well as high percentage of delivery without proper birth attendance.

Even after improvement of the Maternal and Child Health indicators in the country, challenges remained: weak coordination of function at the central level, necessity of promotion of Primary Health Care (PHC) service delivery at the community level, which was necessary to support Maternal and Child Health activities, lack of Comprehensive Emergency Obstetric Care (C-EmOC) services in health facilities, lack of Postnatal Care (PNC) services, lack of neonatal care, problems of access to health facilities in some areas, lack of skilled birth attendants, and lack of services for the poorest.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The projects were also consistent with Japan's ODA policy to Bangladesh. The Country Assistance Program to Bangladesh, which was being revised as of December 2005 prioritized social development and human security which includes health.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

Under the Phase 1 project, the Narsingdi Model, a model that showed how to strengthen the relationship between pregnant women and maternal and child health service providers by organizing community support groups for pregnant and nursing mothers, was developed. In order for the Government of Bangladesh to reflect some of the findings and measures obtained from the Norsindhi Model in the HPNSDP for nationwide implementation, Phase 2 was implemented aiming to further improve the model and strengthen the system for nationwide dissemination.

The Project Purpose of the Phase 2 was achieved at the time of the project completion. All the 5S-CQI-TQM[1] hospitals in Satkhira and Narsingdi achieved over 75% on 5S at MNH services areas which was above the target of 70%(Indicator 1), the percentage of Community Support Groups (CSGs) functional in Satkhira was 82% relative to the target of 70% (Indicator 2), the proportion of women with complications using EmOC in Satkhira district and Kalaroa Upazila was 80.9% which was just over the target of 80% (Indicator 3), the proportion of deliveries assisted by skilled personnel in Satkhira and Kalaroa districts increased to 54.8% and 68.1% respectively against the target of 50% (Indicator 4), almost all Community Clinics (CCs) in Bangladesh established CSGs (Indicator 5), and the number of TQM pilot hospitals expanded to 106 (Indicator 6).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued after the project was completed. As mentioned above, the continuation status of the project effects is analyzed as factors to achieve the Overall Goal of Phase 2. The 5S-CQI-TQM and CSG concepts have been taken in the policy and implemented country-wide. This implied the effectiveness of the concept has been highly evaluated and incorporated to the policy in MOHFW.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal of Phase 2 has been achieved. There has been no consistent data on Maternal Mortality Raito (MMR) from MoHFW at both national and district levels), and data on MMR seemingly worsened (it was 194 in 2010 and became 196 in 2016[2], with no relevant data published in 2019). However, according to the World Bank, the MMR decreased from 258 (2010) to 173 (2017), showing a 30% reduction. This is a significant improvement compared to the overall goal of 26% reduction from 194 to 143. Additionally, since the Ministry does not have consistent data and referred to the World Bank's figures, Neonatal Mortality Rate (NMR) decreased from 32.4 (2007) to 19.1 (2019). This data up to 2019 was deemed a 41% reduction, almost achieving the overall goal of a 44% reduction from 37 to 21 in the NMR. Both MMR and NMR have improved; therefore, the indicators are deemed "achieved."

The Government of Bangladesh has committed to improving the country's maternal and neonatal health situation, and as a result, the targets for the attainment of MMR and NMR were achieved. Other data indicate that there has been a significant improvement in the maternal health process indicators during the period from 2010 to 2019, such as uptake of Ante-Natal Care (ANC) (from 71.2% to 75.2%), delivery by skilled providers (from 26.5% to 59.0%), institutional delivery (from 23.4% to 53.4%) and Post-Natal Care (PNC) (from 22.5% to 66.7%), and so on[3].

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[1] 5S means "Set, Sort, Shine, Standardize, Sustain", CQI means "Continuous Quality Improvement" and TQM means "Total Quality Management".

[2] Source: Bangladesh maternal mortality survey (BMMS) 2010, BMMS2016

[3] Source: MOHFW

Since many other organizations (including the government) have had MNH interventions in the country, it is not possible to disaggregate the contribution of the project to the change in maternal and neonatal health indicators from national data. However, considering the following situation, it can be said the project somewhat has contributed. At the target sites, improvement of quality of services due to the introduction of 5S-CQI-TQM at hospitals and CSGs at the community level were believed to have contributed to the improvement in the utilization of hospital services such as ANC, PNC, delivery, and neonatal care. Besides, 5S-CQI-TQM and CSG concepts have been taken in the policy, and implemented country-wide and with the support of other development partner agencies.

The strategy for Quality Improvement (QI) was first introduced in Bangladesh by the project and subsequently adopted by the government. The government established the Quality Improvement Secretariat (QIS) at the Health Economics Unit (HEU) under the MoHFW in 2015, and QIS developed the national plan for QI, which was being revised at the time of ex-post evaluation. The strategy adopted 5S-CQI-TOM. QI committees have been formed at the divisional and district levels, as well as within Medical College Hospitals to implement and monitor the QI activities in all the districts. Work Improvement Teams (WITs) have also been formed at the district hospitals, where 5S was introduced. The staff of several district hospitals have been trained on 5S and PDCA (Plan, Do, Check, and Act) by QIS. Other development partners such as Save the Children, UNICEF and UNFPA have adopted this strategy (5S & PDCA) to improve the quality of services at their project districts.

As for CSGs, considering the success and effectiveness of the CmSS, MoHFW adopted the CmSS model as an approach for community mobilization and replicated the model country-wide as Community Support Groups (CSG) through its existing grass-root level service facilities called Community Clinics (CC). Using the experiences of the project (implemented by CARE Bangladesh), MoHFW established three (03) CSGs under each of CC catchment areas for creating awareness, mobilizing local resources, promoting accountability, facilitating effective referrals, and developing other required supports for the poor women in accessing timely maternal and child health services.

<Other Impacts at the time of Ex-post Evaluation>

No negative impacts on the natural environment have been observed. There has been no land acquisition or resettlement.

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Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal（Phase 2）

Aim	Indicators	Results	Source
(Project Purpose) The approaches to improve MNH services quality and utilization in line with Health, Population, and Nutrition Sector Development Program (HPNSDP) are expanded in Bangladesh.	Indicator 1: The proportion of all the TQM hospitals in Satkhira and Narsingdi achieved 70% or more on 5S at the MNH service areas (ANC/PNC corner, delivery room, operation theater and female ward)	Status of the Achievement: achieved (continued) (Project Completion) All the 5S-CQI-TQM hospitals in Satkhira and Narsingdi achieved over 75% on 5S at MNH services areas. (Ex-post Evaluation) The exact indicator data in Satkhira and Narsingdi has not been obtained due to the restriction of covid19 period. However, the concept of 5S-CQI-TQM is considered as an essential aspect of the quality of MCH health services at the hospital, which is already incorporated in the policy. Compared with the achieved goal that "Approaches of Reproductive Health (RH) services extracted from the Project are standardized and applied to other districts," the indicator has been achieved.	JICA documents
	Indicator 2: The percentage of CSGs functional in Satkhira is increased to 70% or more.	Status of the Achievement: achieved (continued) (Project Completion) The percentage of CSGs functional in Satkhira was 82% (540 CSGs out of total 657 CSGs). (Ex-post Evaluation) The CSG concept has been incorporated in policy and implemented nationally, which means CSGs are functional. The indicator is considered as achieved.	JICA documents
	Indicator 3: The proportion of women with complication using EmOC services increases to 80% or more in Satkhira and Kholaroa	Status of the Achievement: achieved (not verifiable) (Project Completion) The proportion of women with complications using EmOC in Satkhira district and KalaroaUpazila was 80.9%. (Ex-post Evaluation)Although data showed that birth delivery by skilled personnel and institutional birth delivery has a rising trend nationwide, this does not necessarily mean that the proportion of women with complications using EmOC services continues to be 80%. It was challenging to collect enough information to conclude due to the restriction of Covid19 at the evaluation time, so it was concluded as "not verifiable."	JICA documents
	Indicator 4: Proportion of deliveries assisted by skilled personnel (C-SBA, SSN/FWV with midwifery training, MBBS	Status of the Achievement: achieved (continued) (Project Completion) The proportion of deliveries assisted by skilled personnel in Satkhira district increased to 54.8% as of the terminal evaluation (baseline: 37.4%), and in Kalaroa, it increased to 68.1% (baseline: 45.6%) (Ex-post Evaluation) Despite that the Birth delivery by skilled personnel increased from 26.5% to 59.0%, and institutional birth delivery rose from 23.4% to 53.4% nationwide between 2010 and 2019 in Bangladesh, which does not necessarily mean that the proportion of deliveries assisted by skilled personnel in the areas is more than 50%. On the other hand, the indicator can be assumed to improve in parallel with the	JICA documents

	doctor) *increases to 50% or more * (i) C-SBA: Community based Skilled Birth Attendant, (ii) SSN/FWW: Senior Staff Nurse/Family Welfare Volunteer, (iii) MBBS: Bachelor of Medicine & Bachelor of Surgery	increment on skilled birth attendant and institutional birth delivery of the nationwide data. The indicator has been achieved at the end of the project, and we can assume it remains achieved now.	
	Indicator 5: The proportion of established CSGs reaches to 100% in Bangladesh	Status of the Achievement: achieved (continued) (Project Completion) According to the CBHC documents, the number of established CSGs was 39,240 in Bangladesh (99.4% of the target: 40,149 as of June 2015). In 2013, RCHCIB issued the government order that all CCs should create CSGs as per the guideline. (Ex-post Evaluation) The Precise data on the CSG establishment number has not been collected due to the restriction by COVID-19. Still, CSG has been incorporated at the Policy level, and CCs have expected to formulate the CSG; thus, the indicator is deemed achieved.	JICA documents
	Indicator 6: TQM pilot hospitals expands to more than initial four hospitals (baseline: 3)	Status of the Achievement: achieved (continued) (Project Completion) The number of pilot hospitals was 106 in Bangladesh. (Ex-post Evaluation) The concept of 5S-CQI-TQM has been incorporated in the policy and implemented nationally. It is regarded as achieved.	JICA documents
(Overall Goal) Maternal and neonatal health status is improved in Bangladesh.	Indicator 1: MMR is reduced from 194 (2010) to under 143	(Ex-post Evaluation) achieved There has been no consistent data on Maternal Mortality Raito (MMR) from MoHFW at both national and district levels), and data on MMR seemingly worsened (it was 194 in 2010 and became 196 in 2016[4], with no relevant data published in 2019). However, according to the World Bank, the MMR decreased from 258 (2010) to 173 (2017), showing a 30% reduction. This is a significant improvement compared to the overall goal of 26% reduction from 194 to 143. **National level MMR*** 2010: 258, 2011: 248, 2012: 238, 2013: 227, 2014: 214, 2015: 200, 2016: 186, 2017: 173, 2018: N/A, 2019: N/A *Data is only available up to 2017.	World Bank
	Indicator 2: NMR is reduced from 37 (2007) to under 21.	(Ex-post Evaluation) achieved Since the MOHFW does not have consistent data and referred to the World Bank's figures, Neonatal Mortality Rate (NMR) decreased from 32.4 (2007) to 19.1 (2019). This data up to 2019 was deemed a 41% reduction, almost achieving the overall goal of a 44% reduction from 37 to 21 in the NMR. Both MMR and NMR have improved. **National level NMR** 2007: 32.4, 2008: 31.0, 2009: 29.6, 2010: 28.3, 2011: 27.0, 2012: 25.8, 2013: 24.8, 2014: 23.5, 2015: 22.5, 2016: 21.6, 2017: 20.7, 2018: 19.8, 2019: 19.1	World Bank

3 Efficiency

Although the project costs for Phase 1 and Phase 2 were within the plan, the project periods exceeded the plan (the ratio against the plan: 95%, 111%, respectively). The outputs were produced as planned. Therefore, the efficiency of the projects is fair.

4 Sustainability

<Policy Aspect>

The concept of 5S-CQI-TQM has become the strategy of QIS, HEU of MoHFW, "Strategic Planning on quality of care for health service delivery in Bangladesh" (2015-2032) to achieve an effective health system that provides the highest quality of care by quality improvement of hospital services. CSG concept is in line with the "Revitalization of Community Health Care Initiatives" project under the MOHFW.

<Institutional/Organizational Aspect>

There has been no change in the institutional/organizational structure to promote the concepts and models introduced by the project. As mentioned above, QIS was established at HEU, MOHFW in 2015. The mandates of the QIS have been to a) develop the QI tools, guidelines, standards, Standard Operating Procedures (SOPs), and policies, etc., b) develop Monitoring and Evaluation (M&E) system for the quality

[4] Source: Bangladesh maternal mortality survey (BMMS) 2010, BMMS2016

of care for health service delivery; c) ensure attainment of national health care standards; and d) coordination with govt. agencies, NGOs, and autonomous bodies.

At the time of ex-post evaluation, the QIS was staffed with a program manager (Joint Secretary), one consultant, and 2 Medical Officers (MO) from the government side. In addition, development partners have supported the QIS with some staff (Save the Children: 2 consultants; UNICEF: 1 MO, UNFPA: 1 MO). The overall activities of the QIS have been led by the Director General (DG) (Additional Secretary), HEU.

QI committees have been formed at the divisional and district levels, as well as within Medical College Hospitals to implement and monitor the QI activities in all the districts. WITs have also been formed at the district hospitals, where 5S is introduced.

<Technical Aspect>

To sustain those skills and knowledge, MoHFW kept the option for training, refresher training in their Operation Plan (OP).

Many materials with regards to QI such as 5S and PDCA have been developed to implement the strategy across the country. As mentioned above, QI committee have been formed to implement and monitor the QI activities. The staff of several district hospitals has been trained on 5S and PDCA by QIS.

<Financial Aspect>

MoHFW has had a sufficient budget for training in different OPs. Those are from the Government of Bangladesh and RPA (Reimbursable Project Aid) by DPs. About 61% of the total budget of the 4th sector program is coming from the Government of Bangladesh The total budget under the 4th sector budget (2017-2022) for HEU was about Tk. 2,218.3 million, of which 7% was allocated for QIS.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy, institutional/organizational, technical and financial aspects. Therefore, the sustainability of the project effects is high.

5 Summary of the Evaluation

The projects achieved the Project Purpose, as the targets such as adoption of 5S, functioning of CSGs, using EmOC, deliveries assisted by skilled personnel, establishment of CSGs and the number of TQM pilot hospitals were achieved. The Overall Goal has been achieved, as MMR and NMR have improved, and the project has contributed to this achievement since the concepts of 5S and CSG have been incorporated into the policy. As for efficiency, the project periods exceeded the plan, however, the project costs were within the plan.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

TQM program will strengthen 5S activities and support their dissemination. TQM program has been spread widely through Bangladesh and has been put into practice in many hospitals. It is critical that TQM program should be implemented more actively and the activities should be sustainable Although solid leadership in hospitals is essential for TQM, it could be easily undermined by personnel transfer. Also, obtaining the effectiveness of TQM in quality improvement of health services would take a relatively long time, compared with the fact that people can see the effectiveness of 5S by its appearance and cleanness in the hospital in such a short time. Thus, the quality of TQM would require continuous monitoring and supervision. To improve the quality of TQM program, the Government of Bangladesh needs to promote hospitals to maintain TQM program with PDCA cycle and share good practices with other hospitals.

Lessons Learned for JICA:

From the outset, the Phase 2 project focused on improving and expanding MNH services quality and utilization, which was highly relevant to the health strategies of the government of Bangladesh in line with the "Health, population, and nutrition sector development program 2011－2016". Primarily, the Phase 2 project focused on the linkage between policy formulation and operationalization with the Government of Bangladesh, which is considered one of the critical aspects of this Project's high ratings. This linkage has been established through several approaches, such as field tours and forums organized for the policymakers and development partners, which helped them get a clear picture of 5S-Kaizen-TQM and CSG concepts.

Creating such opportunities to demonstrate project ideas at the practical level is really useful in helping policymakers and development partners get a deeper understanding of the issues and become supportive. In addition, as an approach to policy recommendations in a project, it is necessary to devise ways to incorporate the knowledge gained in the project into a form that is easy for the government to utilize and link this to recommendations and advice with the better understanding of a health system, health policy, and its context in a country. Moreover, early on, a project also brought senior government officials from the Ministry of Health to the site, which facilitated their understanding of the Project. Collaboration with HPNSDP was also accelerated.

Besides, CSG has been incorporated into the policy to create awareness, mobilize local resources, facilitate effective referrals, and develop other required supports for poor women to access timely maternal and child health services, which can be deemed as one contributor to the improvement of MMR and NMR. After the formulation of CSG, its activation needs to be considered to have maximum results. In a limited resource setting of the government health sector in Bangladesh, NGOs played a significant role in facilitating the activities of CSG. On the other hand, recognition of the fact that this could not develop government capacity in the long term if NGOs alternatively play the role of the government health sector itself. This means formulating a project in collaboration with NGOs will need to be carefully considered, including how the government could take over this responsibility.

(Left Photo) Creating and utilizing a community map to identify pregnant women and mothers

(Right Photo) The Project aimed at improving MNH services quality and utilization

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bangladesh Office: December, 2022

Country Name	**Safe Motherhood Promotion Project**
People's Republic of Bangladesh	**Safe Motherhood Promotion Project(Phase 2)**

I. Project Outline

Background	In Bangladesh, maternal and child health indicators remained poor. One of the reasons for the high maternal and infant mortality rates were difficulty to detect and treat abnormal pregnancies due to the low maternal health checkup rate, which caused the delays in the treatment. Also, only about 12% of deliveries were made at health facility or with birth attendant having birth attendance training. Under such circumstance, a technical cooperation project was implemented to develop an effective model for improvement of Maternal and Child Health (Phase 1 project). In order to apply the model, a succeeding project was implemented (Phase 2 project).		
Objectives of the Project	Through strengthening of safe delivery service system, establishing Community Support System (CmSS)/groups, identification of good practices of Maternal and Neonatal Health (MNH) services and consolidation of it in national strategies, etc, the Project aimed at expanding the approaches to improve MNH services quality and utilization, thereby contributing to improvement in MNH.		
	<Phase 1> 1. Overall Goal: Approaches of Reproductive Health (RH) services extracted from the Project are standardized and applied to other districts. 2. Project Purpose: Health status of pregnant and post-partum women and neonates improves in the target district. <Phase 2> 1. Overall Goal: Maternal and neonatal health status is improved in Bangladesh. 2. Project Purpose: The approaches to improve MNH services quality and utilization in line with Health, Population, and Nutrition Sector Development Program (HPNSDP) are expanded in Bangladesh.		
Activities of the Project	1. Project site: <Phase 1>Narsingdi district <Phase 2>Narsingdi, Jessoreand Satkhira districts 2. Main activities: <Phase 1>(i) strengthening of safe delivery service system, (ii)establishing CmSS/groups, etc. <Phase 2>(i) identification of good practices of MNH services and consolidation of it in national strategies, (ii) developing a package of MNH interventions under Upazila Health System (UHS), etc. 3. Inputs (to carry out above activities) Japanese Side <Phase 1> 1) Expert: 7persons 2) Training in Japan:13 persons 3) Training in the third country: 4 persons (India) 4) Equipment: Equipment related to Emergency Obstetric Care (EmOC) and neonatal care services, renovation of health facilities. 5) Local Cost: local staff, contract with NGOs, hospitals, consultants <Phase 2> 1) Experts:11 persons 2) Training in the third countries: Sri Lanka, Tanzania and Kenya 3) Equipment: Equipment for neonatal care, etc. 4) Operation cost: Contract with CARE Bangladesh Bangladeshi Side <Phase 1> 1) Staff allocated: 30persons 2) Land and facilities: project office 3) Local Cost: Partly borne by the Bangladesh side (Medical equipment, drug, consumable supplies, materials and operation cost for project office) <Phase 2> 1) Staff allocated: persons: 34 persons 2) Land and facilities: Office premises, provision of building, etc.		
Project Period	<Phase 1> (ex-ante) April 2006-March 2010 (actual) July 2007-June 2011 (Extended period: July 2010-June 2011) <Phase 2 > (ex-ante) July 2011 -June 2016 (actual) July 2011-June 2016	Project Cost	<Phase 1> (ex-ante) 396 million yen (actual) 404million yen <Phase 2> (ex-ante) 492 million yen (actual) 440 million yen
Implementing Agency	Ministry of Health and Family Welfare (MoHFW)		
Cooperation Agency in Japan	-		

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to the restriction under COVID-19, information was collected through collecting a questionnaire and telephone interviews.

< Special Perspectives Considered in the Ex-Post Evaluation >

- As the Phase 1 and Phase 2 projects share the common goal, the indicators for the Phase 2 project are verified to check the level of achievement of the Project Purpose and the Overall Goal.
- Continuation status of the project effects are analyzed as factors to achieve the Overall Goal.

1 Relevance

<Consistency with the Development Policy of Bangladesh at the Time of Ex-Ante Evaluation >

The projects were consistent with the development policy of Bangladesh.

In the Health Nutrition and Population Sector Program (HNPSP) (fully operational in 2005), the improvement of Maternal and Child Health, especially antenatal and postnatal maternal and reproductive health conditions was addressed as a priority issue. Also, the "National Strategy for Accelerated Poverty Reduction II" (2009-2011) aimed at solving the problems in the area of maternal and child health through the measures of quantitative expansion of skilled birth attendants, expansion of Postnatal Cares (PNC), and expansion of Emergency Obstetric Care (EmOC) services. Health, Population and Nutrition Sector Development Program (HPNSDP) (2011-2016) continued to prioritize improvement of Maternal and Neonatal Health.

<Consistency with the Development Needs of Bangladesh at the Time of Ex-Ante Evaluation >

The projects were consistent with the development needs of Bangladesh on Maternal and Child Health. The Maternal and Child Health indicators remained poor partly because of low maternal health checkup rate as well as high percentage of delivery without proper birth attendance.

Even after improvement of the Maternal and Child Health indicators in the country, challenges remained: weak coordination of function at the central level, necessity of promotion of Primary Health Care (PHC) service delivery at the community level, which was necessary to support Maternal and Child Health activities, lack of Comprehensive Emergency Obstetric Care (C-EmOC) services in health facilities, lack of Postnatal Care (PNC) services, lack of neonatal care, problems of access to health facilities in some areas, lack of skilled birth attendants, and lack of services for the poorest.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The projects were also consistent with Japan's ODA policy to Bangladesh. The Country Assistance Program to Bangladesh, which was being revised as of December 2005 prioritized social development and human security which includes health.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

Under the Phase 1 project, the Narsingdi Model, a model that showed how to strengthen the relationship between pregnant women and maternal and child health service providers by organizing community support groups for pregnant and nursing mothers, was developed. In order for the Government of Bangladesh to reflect some of the findings and measures obtained from the Norsindhi Model in the HPNSDP for nationwide implementation, Phase 2 was implemented aiming to further improve the model and strengthen the system for nationwide dissemination.

The Project Purpose of the Phase 2 was achieved at the time of the project completion. All the 5S-CQI-TQM[1] hospitals in Satkhira and Narsingdi achieved over 75% on 5S at MNH services areas which was above the target of 70%(Indicator 1), the percentage of Community Support Groups (CSGs) functional in Satkhira was 82% relative to the target of 70% (Indicator 2), the proportion of women with complications using EmOC in Satkhira district and Kalaroa Upazila was 80.9% which was just over the target of 80% (Indicator 3), the proportion of deliveries assisted by skilled personnel in Satkhira and Kalaroa districts increased to 54.8% and 68.1% respectively against the target of 50% (Indicator 4), almost all Community Clinics (CCs) in Bangladesh established CSGs (Indicator 5), and the number of TQM pilot hospitals expanded to 106 (Indicator 6).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued after the project was completed. As mentioned above, the continuation status of the project effects is analyzed as factors to achieve the Overall Goal of Phase 2. The 5S-CQI-TQM and CSG concepts have been taken in the policy and implemented country-wide. This implied the effectiveness of the concept has been highly evaluated and incorporated to the policy in MOHFW.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal of Phase 2 has been achieved. There has been no consistent data on Maternal Mortality Raito (MMR) from MoHFW at both national and district levels), and data on MMR seemingly worsened (it was 194 in 2010 and became 196 in 2016[2], with no relevant data published in 2019). However, according to the World Bank, the MMR decreased from 258 (2010) to 173 (2017), showing a 30% reduction. This is a significant improvement compared to the overall goal of 26% reduction from 194 to 143. Additionally, since the Ministry does not have consistent data and referred to the World Bank's figures, Neonatal Mortality Rate (NMR) decreased from 32.4 (2007) to 19.1 (2019). This data up to 2019 was deemed a 41% reduction, almost achieving the overall goal of a 44% reduction from 37 to 21 in the NMR. Both MMR and NMR have improved; therefore, the indicators are deemed "achieved."

The Government of Bangladesh has committed to improving the country's maternal and neonatal health situation, and as a result, the targets for the attainment of MMR and NMR were achieved. Other data indicate that there has been a significant improvement in the maternal health process indicators during the period from 2010 to 2019, such as uptake of Ante-Natal Care (ANC) (from 71.2% to 75.2%), delivery by skilled providers (from 26.5% to 59.0%), institutional delivery (from 23.4% to 53.4%) and Post-Natal Care (PNC) (from 22.5% to 66.7%), and so on[3].

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4 Sustainability

<Policy Aspect>

The concept of 5S-CQI-TQM has become the strategy of QIS, HEU of MoHFW, "Strategic Planning on quality of care for health service delivery in Bangladesh" (2015-2032) to achieve an effective health system that provides the highest quality of care by quality improvement of hospital services. CSG concept is in line with the "Revitalization of Community Health Care Initiatives" project under the MOHFW.

<Institutional/Organizational Aspect>

There has been no change in the institutional/organizational structure to promote the concepts and models introduced by the project. As mentioned above, QIS was established at HEU, MOHFW in 2015. The mandates of the QIS have been to a) develop the QI tools, guidelines, standards, Standard Operating Procedures (SOPs), and policies, etc., b) develop Monitoring and Evaluation (M&E) system for the quality

[4] Source: Bangladesh maternal mortality survey (BMMS) 2010, BMMS2016

of care for health service delivery; c) ensure attainment of national health care standards; and d) coordination with govt. agencies, NGOs, and autonomous bodies.

At the time of ex-post evaluation, the QIS was staffed with a program manager (Joint Secretary), one consultant, and 2 Medical Officers (MO) from the government side. In addition, development partners have supported the QIS with some staff (Save the Children: 2 consultants; UNICEF: 1 MO, UNFPA: 1 MO). The overall activities of the QIS have been led by the Director General (DG) (Additional Secretary), HEU.

QI committees have been formed at the divisional and district levels, as well as within Medical College Hospitals to implement and monitor the QI activities in all the districts. WITs have also been formed at the district hospitals, where 5S is introduced.

<Technical Aspect>

To sustain those skills and knowledge, MoHFW kept the option for training, refresher training in their Operation Plan (OP).

Many materials with regards to QI such as 5S and PDCA have been developed to implement the strategy across the country. As mentioned above, QI committee have been formed to implement and monitor the QI activities. The staff of several district hospitals has been trained on 5S and PDCA by QIS.

<Financial Aspect>

MoHFW has had a sufficient budget for training in different OPs. Those are from the Government of Bangladesh and RPA (Reimbursable Project Aid) by DPs. About 61% of the total budget of the 4th sector program is coming from the Government of Bangladesh The total budget under the 4th sector budget (2017-2022) for HEU was about Tk. 2,218.3 million, of which 7% was allocated for QIS.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy, institutional/organizational, technical and financial aspects. Therefore, the sustainability of the project effects is high.

5 Summary of the Evaluation

The projects achieved the Project Purpose, as the targets such as adoption of 5S, functioning of CSGs, using EmOC, deliveries assisted by skilled personnel, establishment of CSGs and the number of TQM pilot hospitals were achieved. The Overall Goal has been achieved, as MMR and NMR have improved, and the project has contributed to this achievement since the concepts of 5S and CSG have been incorporated into the policy. As for efficiency, the project periods exceeded the plan, however, the project costs were within the plan.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

TQM program will strengthen 5S activities and support their dissemination. TQM program has been spread widely through Bangladesh and has been put into practice in many hospitals. It is critical that TQM program should be implemented more actively and the activities should be sustainable Although solid leadership in hospitals is essential for TQM, it could be easily undermined by personnel transfer. Also, obtaining the effectiveness of TQM in quality improvement of health services would take a relatively long time, compared with the fact that people can see the effectiveness of 5S by its appearance and cleanness in the hospital in such a short time. Thus, the quality of TQM would require continuous monitoring and supervision. To improve the quality of TQM program, the Government of Bangladesh needs to promote hospitals to maintain TQM program with PDCA cycle and share good practices with other hospitals.

Lessons Learned for JICA:

From the outset, the Phase 2 project focused on improving and expanding MNH services quality and utilization, which was highly relevant to the health strategies of the government of Bangladesh in line with the "Health, population, and nutrition sector development program 2011－2016". Primarily, the Phase 2 project focused on the linkage between policy formulation and operationalization with the Government of Bangladesh, which is considered one of the critical aspects of this Project's high ratings. This linkage has been established through several approaches, such as field tours and forums organized for the policymakers and development partners, which helped them get a clear picture of 5S-Kaizen-TQM and CSG concepts.

Creating such opportunities to demonstrate project ideas at the practical level is really useful in helping policymakers and development partners get a deeper understanding of the issues and become supportive. In addition, as an approach to policy recommendations in a project, it is necessary to devise ways to incorporate the knowledge gained in the project into a form that is easy for the government to utilize and link this to recommendations and advice with the better understanding of a health system, health policy, and its context in a country. Moreover, early on, a project also brought senior government officials from the Ministry of Health to the site, which facilitated their understanding of the Project. Collaboration with HPNSDP was also accelerated.

Besides, CSG has been incorporated into the policy to create awareness, mobilize local resources, facilitate effective referrals, and develop other required supports for poor women to access timely maternal and child health services, which can be deemed as one contributor to the improvement of MMR and NMR. After the formulation of CSG, its activation needs to be considered to have maximum results. In a limited resource setting of the government health sector in Bangladesh, NGOs played a significant role in facilitating the activities of CSG. On the other hand, recognition of the fact that this could not develop government capacity in the long term if NGOs alternatively play the role of the government health sector itself. This means formulating a project in collaboration with NGOs will need to be carefully considered, including how the government could take over this responsibility.

(Left Photo) Creating and utilizing a community map to identify pregnant women and mothers

(Right Photo) The Project aimed at improving MNH services quality and utilization

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by India Office: March, 2023

Country Name	**Project for Maximisation of Soybean Production in Madhya Pradesh**
Republic of India	

I. Project Outline

Background	According to the National Research Centre for Soybean (NRCS), among other oilseeds, soybean had been grown most extensively in India both in terms of area and production. Madhya Pradesh State (MP) had long been the largest producer of soybean in India. On the other hand, MP had also been one of the poorest states in India. Without sufficient investment, most of soybean cultivation in MP had been rain-fed and carried out mainly by marginal and small-scale farmers. Thus, the yield per hectare of those farmers in MP was lower than that of other states at the time of ex-ante evaluation.		
Objectives of the Project	In Madhya Pradesh State of India, through development of the soybean production strategy, technologies in fertilization, pest/disease control and improvement of cultivation methods, the project aims at the establishment of soybean cultivation system designed for small and poor farmers, thereby disseminating those technologies for small and poor farmers in the target area. 1. Overall Goal: Soybean cultivation technology for small and poor farmers is disseminated by the DoFWAD (1), JNKVV (2) and RVSKVV (3). 2. Project Purpose: Soybean cultivation system designed for small and poor farmers is established. Note: (1) DoFWAD: Department of Farmer Welfare and Agriculture Development under the Government of MP (2) JNKVV: Jawaharlal Nehru State Agricultura University (3) RVSKVV: Rajmata Vijayaraje State Agriculture University		
Activities of the Project	1. Project site: Madhya Pradesh State 2. Main activities: (1) Development of the strategy, (2) Developments of fertilization technology, pest/disease control technology, (3) Improvement of cultivation methods, (4) Systematization of individual technologies 3. Inputs (to carry out above activities) Japanese Side: (at the terminal evaluation) 1) Experts: 6 persons (Long-term) 61 persons (Short-term) 2) Trainees received: 12 persons in Japan, 17 persons in Brazil 3) Equipment: vehicles, scooters, laboratory equipment and office equipment 4) Local expenses Indian Side: (at the terminal evaluation) 1) Staff allocated: 40 persons (26 from JNKVV and 14 from RVSKVV) 2) Facilities: Project Office, field equipment, etc.		
Project Period	June 2011 – February 2017 (Extended period: June 2016 – February 2017)	Project Cost	(ex-ante) 355million yen, (actual) 528 million yen
Implementing Agency	Department of Farmer Welfare and Agriculture Development (DoFWAD) under Government of Madhya Pradesh Jawaharlal Nehru State Agricultura University (JNKVV) Rajmata Vijayaraje Scindia State Agriculture University (RVSKVV)		
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of India at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, this project was consistent with the "11th Five-Year Plan (2007-2012)", which stated that it was necessary to improve the agricultural research and to develop the appropriate agricultural technologies to respond to the local needs and expected that state agriculture universities should play a major role as the regional research institutes, which also referred that the revitalization of agriculture sector was considered as one of the most important issues.

<Consistency with the Development Needs of India at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, this project was consistent with India's development needs to develop the soybean production strategy which led to the establishment of soybean cultivation system designed for small and poor farmers as described in "Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with "Japan's Country Assistance Program for India (May 2006)", in which the Government of Japan committed to the assistance for the local development as one of the three pillars, and which stated that it was necessary to increase incomes of residents in rural areas through the introduction of technology for improving agricultural productivity, to develop intensive irrigation facilities and improve roads providing access to markets and communication system in the rural areas, etc.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

By the end of the project completion, the project achieved its purpose: "Soybean cultivation system designed for small and poor farmers is established". Three technological components (cultivation, fertilization and seed treatment) of recommended technologies were

confirmed as effective through the results of 2015 Kharif season[1]. It is likely that cultivation technology system was proved effective compared with conventional cultivation methods (Indicator 1). No assessment was made on how many pilot farmers were willing to continue to adopt the technologies (Indicator 2). Considering the continuation status of this indicator, however, it is presumed that at the time of project completion, there must have been some willingness among pilot farmers to continue adopting the recommended technologies introduced by the Project. The cultivation manuals, namely "Soybean Production Field Book (Manual)" and "Soybean Production and Utilization Guide book" (hereinafter referred to as "Soybean Cultivation Manuals") and "Diagnosis Book on Pests and Diseases in MP", were approved at the Joint Coordinating Committee (JCC) meeting in 2017 and were adopted by DoFWAD by the project completion (Indicator 3).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

After the project completion, the project effects have continued. According to the questionnaire survey and interviews with pilot farmers, the effectiveness of recommended technologies has been proven by their responses. Three out of four recommended technologies have been continuously adopted by 70% or more than 70% of those pilot farmers. Lack of financial resources to purchase necessary machineries, such as sub soilers[2] is the major reason for those pilot farmers who discontinued applying the recommended cultivation technologies. The cultivation manuals developed by the Project have been utilized in trainings and workshops and Agricultural Science Centres (KVKs). These manuals are also disseminated through DoFWAD website, etc.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

It is observed that the Overall Goal, "Soybean cultivation technology for small and poor farmers is disseminated by the DoFWAD, JNKVV and RVSKVV" has been achieved. According to the JNKVV and RVSKVV, Soybean Cultivation Manuals, and "Diagnosis Book on Pests and Diseases in MP", have been utilized in trainings and workshops on related topics which are conducted at KVKs, universities, State Department and ICAR (Indian Council of Agricultural Research) through face-to-face or online. These manuals are also disseminated through DoFWAD website, KVK Social Networking Services (SNS) (i.e. Whatsapp), YouTube, leaflets, pamphlets, etc. KVK is currently providing crop production advisory services through the SNS in which more than 70,000 farmers are registered (Indicator 1). Though the data is not available, it is presumed that the number of farmers adopting the soybean cultivation technology introduced by the project has increased considering the fact that more than 70% of pilot farmers under survey have continued adopting one or more cultivation technology systems developed by the Project and that the manuals developed by the project have been widely disseminated and more than 65,000 farmers have been trained in 2020 and 2021 (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

It was identified through the survey that the project contributed to the increase of the income of pilot farmers to some extent. The average income (net return of soybean cultivation) of pilot farmers in 10 districts during 2 years of the project implementation period (from 2016 to 2017) was Rs.56,664 per hectare. Although the data was exclusive to the pilot areas and was affected by other various measures (i.e. government support programs), the same average income during 2 years (from 2019 to 2020) increased to Rs.72,402 per hectare; 28% increase since the project completion.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th></tr>
<tr><td>(Project Purpose)
Soybean cultivation system designed for small and poor farmers is established.</td><td>Indicator 1:
Cultivation technology system is proved effective compared with conventional cultivation methods in pilot farms.</td><td>Status of the Achievement: achieved (continued)
(Project Completion)
・On-Farm-Trial/Testing (OFT) was conducted for three technological components (cultivation, fertilization and seed treatment) with several pilot farmers each in 9 selected districts for the period of 2012 to 2015. The results of 2015 Kharif season showed that the yield of recommended practices in all three technological components was higher than the other treatment in all the districts.
(Ex-post Evaluation)
・Questionnaire survey and interviews conducted in 10 districts[3] where 136 pilot farmers were targeted revealed the effectiveness of recommended technologies. As shown below, pilot farmers surveyed were convinced with benefits of adopting the cultivation technology system established by the project and lack of financial resources to purchase machineries is the major reason for them not to adopt the recommended technologies.
<table>
<tr><th>Recommended technology</th><th>Reasons for using the recommended technologies</th><th>Reasons for not using the recommended technologies</th></tr>
<tr><td>Cultivation using Ridge & Furrow Feeder and Broad Bed and Furrow (BBF) Planter</td><td>It improves drainage and crop productivity.</td><td>Do not have the financial sources to purchase the machines.</td></tr>
<tr><td>Seed treatment with fungicide, pesticide and bio fertilizers</td><td>Highly convinced with benefits of developed seed treatment.</td><td>N/A</td></tr>
<tr><td>Fertilizer use for NPK[4] /Micro Nutrient</td><td>Convinced that it will reduce cost of cultivation for the same amount of production.</td><td>Unknown about the recommended technology</td></tr>
</table>
</td></tr>
</table>

[1] Kharif season (rainy seasons) varies by crop and region, starting at the earliest in May and ending at the latest in January. In India the season is popularly considered to start in June and end in October.

[2] Subsoiler: a tractor-mounted farm implement used for deep tillage, loosening and breaking up soil at depths below the levels worked by moldboard ploughs, disc harrows, or rototillers.

[3] The number of districts for pilot farmers increased since the Project was implemented for 2 years in Dhar district and for 3 years in Dewas district and thus making 10 districts.

[4] NPK: Nitrogen, Phosphors and Potash

Use of sub soiler	N/A	Do not have the financial sources to purchase the machines.

Indicator 2:
More than 70% of pilot farmers are willing to continue to adopt one or more technologies in the cultivation system established by the Project.

Status of the Achievement: not verifiable (continued)
(Project Completion)
・No survey was conducted for assessing how many pilot farmers were willing to continue to adopt the recommended technologies.
(Ex-post Evaluation)
・Among 4 recommended technologies, 3 recommended technologies have been continuously adopted by 70% or more than 70% of pilot farmers surveyed at the time of ex-post evaluation.

Percentage of pilot farmers who adopted the recommended technologies introduced by the project

Technologies		At the time of Project Completion (2017)	At the time of ex-post Evaluation (2021)
Cultivation	Conventional cultivation method	N/A	30%
	Recommended technology (using Ridge & Furrow Feeder and BBF Planter)	N/A	70%
Seed treatment	Conventional cultivation method	N/A	11%
	Recommended technology (Seed treatment with pest management)	N/A	89%
Fertilizer	Conventional cultivation method	N/A	21%
	Recommended technology (NPK/Micro nutrient)	N/A	79%
Soil	Conventional cultivation method	N/A	82%
	Recommended technology (using subsoiler)	N/A	18%

Indicator 3:
The cultivation manual developed by the Project is adopted by the DoFWAD.

Status of the Achievement: achieved (continued)
(Project Completion)
・The cultivation manuals, namely Soybean Cultivation Manuals (a set of "Soybean Production Field Book (Manual)" and "Soybean Production and Utilization Guide book") and "Diagnosis Book on Pests and Diseases in MP" were approved at the JCC meeting, then adopted by DoFWAD in 2017.
(Ex-post Evaluation)
・The Soybean Cultivation Manuals and "Diagnosis Book on Pests and Diseases in MP" were published and 3,000 copies and 500 copies were printed respectively. Although the number of printings is limited, manuals have been copied and utilized in trainings and workshops on related topics which are conducted at universities and KVKs. These manuals are also disseminated through DoFWAD website, KVK SNS (i.e. WhatsApp), YouTube, leaflets, pamphlets, etc. KVK is currently providing crop production advisory services through Social Networking Services (SNS) (i.e. Advisory services using "Whatsapp" which is one of the most prevalent SNS in India) in which more than 70,000 farmers are registered.

(Overall Goal)
Soybean cultivation technology for small and poor farmers is disseminated by the DoFWAD, JNKVV and RVSKVV.

Indicator 1:
Manual compiled by the Project is utilized by KVKs in trainings for dissemination staff and farmers.

(Ex-post Evaluation) achieved
・Various institutions such as ICAR, Universities, KVKs and State department are delivering training programs to farmer using Soybean Cultivation Manuals developed by the project. More than 65,000 farmers were trained through webinar during 2020-21 as shown below.

No. of farmers attending the Training Program using Soybean Cultivation Manuals developed by the project (2020-21)

Institution/Department	Farmers trained per year through webinar and video conference
ICAR-Indian Institute of Soybean Research (IISR)	5,000
KVK Indore	400
KVK, Ujjain	300
KVK, Dhar	200
KVK, Hoshangabad	100
KVK, Chhindwara	150
Department of Agriculture (DOA), Indore	25,000
DOA, Dhar	10,000
DOA, Ujjain	15,000
DOA, Jabalpur	5,000
DOA, Chhindwara	2,500
DOA, Hoshangabad	1,000
JNKVV, Jabalpur	300
RVSKVV, Indore	500
Total	65,450

	Indicator 2: Number of farmers adopting cultivation technology system established by the Project increased.	(Ex-post Evaluation) achieved ・At the time of project completion, no survey was conducted to pilot farmers whether they had adopted the cultivation technology system established by the project. Hence it is not possible to make a comparison between the situation at the time of completion and that of at the time of ex-post evaluation. However, considering the survey results such that 3 out of 4 recommended technologies have been continuously adopted by 70% or more than 70% of pilot farmers, the manuals developed by the project have been widely disseminated via website of DoFWAD etc. and more than 65,000 farmers have been trained annually in 2020 and 2021, it is presumed that the number of farmers adopting cultivation technology system established by the project has increased.

Source: JICA documents, Questionnaires with pilot farmers, interviews with KVKs, RVSKVV, JNKVV and DoFWAD

3 Efficiency

Both of project period and project cost exceeded the plan (ratio against plan: 113% and 149%, respectively). The extension of 8 months was agreed at the Terminal Evaluation Study to implement the supplementary activities in another Kharif season. The project cost increased to cover the operation of the extended period. The Outputs of the project were produced as planned.

Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

Under the strategy, namely "Doubling Farmers' Income (2017-2022)" which falls under the previously known "Five-Year Plan", the Government of India (GOI) has committed to enhance the agricultural development and to achieve a doubling of the farmer's income by 2022 especially in the rural areas. As a part of the strategies, GOI has aimed to increase agricultural productivity by promoting research and development for increased production and supply of quality seeds; by promoting balance used of fertilizers and pesticides; and by disseminating newly developed farming systems to farmers through agriculture institutions such as universities with its network of KVKs.

<Institutional /Organizational Aspect>

DoFWAD bears the overall responsibility of soybean production in MP having the established system of agriculture extension network. About 40 staffs are deployed at district level for the extension works. While research on soybean cultivation has been carried out mostly by State Agricultural Universities including JNKVV and RVSKVV, an extension work is done through KVKs which were affiliated under those universities as well as State Department of Agriculture. Apart from the state government structure, autonomous organizations under the central government, India Council of Agricultural Research (ICAR) and its affiliate, Directorate of Soybean Research (DRSoy) have supported "All India Coordinated Research Project on Soybean (AICRP) [5]" to provide the funding and coordination operation for the research and development on soybean production.

With regards to research and development and the extension activities, JNKVV has a comprehensive system of research and development and dissemination of agricultural technologies as it has 21 KVKs[6], which conduct field trials for the technology developed by AICRP and provide trainings for farmers. It was identified from the survey at the time of ex-post evaluation that the organizational structure of JNKVV including KVKs is sufficient for extension work. Under RVSKVV, there are 22 KVKs in total, and the organizational structure is sufficient for extension work as well.

<Technical Aspect>

Regular training on soybean production technologies has been imparted by various KVKs and the content of the training is mainly related to the improved package of technologies of soybean production. This type of training is organized just before the sowing of soybean and is participated by 30 to 40 farmers on average. Training to the farmers and state departmental staff including extension workers is also provided by the Agriculture Technology Management Agency (ATMA)[7] whose trainers are trained as Master Trainers by the State Agricultural Universities including JNKVV and RVSKVV. Furthermore, the dissemination and demonstration of soybean production technologies are also conducted under AICRP and other promotional programs. It was identified by the ex-post evaluation study that the soybean techniques acquired through this project have now been disseminated by extension workers who had gone through such training. Therefore, there are no major difficulties to disseminate the soybean techniques even though almost half of CPs (researchers) at JNKVV and RVSKVV have been involved in research projects for other crops.

<Financial Aspect>

The budget of DoFWAD for soybean production in MP for the past three years has seen marginal increase. Both of JNKVV and RVSKVV receive the funds from the AICRP only and use it for research and dissemination of extension work at the university. The amount has been decreasing for JNKVV. For RVSKVV, the data is available for the year 2016-17 only.

Budget of DoFWAD on soybean production in MP Currency Unit: Indian Rupees (Rs.)

2018-19	2019-20	2020-21
160,545,000	195,314,000	180,962,000

Source: DoFWAD

Budget for soybean project by JNKVV and RVSKVV (research/ dissemination) Currency Unit: Indian Rupees (Rs.)

University	2016-17	2017-18	2018-19	2019-20
JNKVV(1)	5,733,333	4,980,667	4,473,333	4,560,000
RVSKVV (2)	470,000	na	na	na

Source: JNKVV and RVSKVV

Note: (1) The budget reduction represents the reduction of payroll costs due to that the retirement of two principal scientists were replaced

5 JNKVV has played as a focal point of AICRP.

6 KVK is positioned under the JNKVV but supervised by Zonal/Regional Agricultural Research Station (RARS).

7 ATMA is supported by the funding from the central government (90%) and the state government (10%).

by lower grade scientists.

(2) The budget includes the RVSKVV Gwalior alone for extension work. The budget for research has been allocated separately from AICRP of which data is not available.

<Evaluation Result>

In light of the above, some problem has been observed in terms of the financial aspect. Therefore, the sustainability of the effects through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose, "Soybean cultivation system designed for small and poor farmers is established." The effects of the project have continued after the project completion, and the Overall Goal, "Soybean cultivation technology for small and poor farmers is disseminated by the DoFWAD, JNKVV and RVSKVV." has been achieved.

As for the sustainability, there are no problems in the policy, institutional/organization and technical aspects, but some problems have been observed in terms of the financial aspect. As for the efficiency, both of project cost and project period exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to the implementing agency:

To: DoFWAD

・ It is proved that cultivation technologies established by the project have been effective compared with the conventional cultivation methods. However, about 20% of pilot farmers surveyed have not adopted one of recommended technologies that requires the use of machineries, such as subsoilers because they cannot afford to buy the machineries. It is recommended that DoFWAD and the State Government explore the possibility of providing supporting schemes to marginal farmers (such as subsidy or affordable rental services), so that expensive machinery such as subsoilers become accessible and adopted by the small and marginal farmers.

To: JNKVV/RVSKVV

・More than 70% of the farmers interviewed continue to apply at least one or more cultivation technologies developed under the project, and farmers' income has increased. It is recommended that JNKVV and RVSKVV should continue to work closely with KVKs to impart important soybean cultivation technologies developed under the project to marginal farmers as some farmers had returned to the conventional method.

Lessons Learned for JICA:

・JICA, DoFWAD, and JNKVV/RVSKK shall discuss and confirm the methodology to conduct an end-line survey before the project completion. If it is not feasible to conduct an end-line survey and make an evaluation based on the indicators according to the project design framework, it shall be reviewed among the stakeholders so that project outcome at the time of project completion and at the time of ex-post evaluation can be compared.

・It is important to carefully determine the relevance of cultivation technologies to be developed under the project, especially if the introduction cost of the technologies is costly for the marginal farmers. Though most of the recommended technologies introduced by the project have been continuously used by farmers, one of recommended technologies that requires the subsoiler has not been well adopted because the equipment was hardly affordable for them.

Photos

Cluster demonstrations on Soybean concerning insect pest management have been conducted.

Demonstration plot of Soybean has been conducted in Hoshangabad.

Internal Ex-Post Evaluation for Technical Cooperation Project (SATREPS[1])

Conducted by Mexico Office: February 2023

Country Name	**Joint Research Project on Formation Mechanism of Ozone, VOCs, and PM2.5 and Proposal of Countermeasure Scenario**
United Mexican States	

I. Project Outline

Background	In Mexico, although the critical situation on air pollution was improved in 1990's, (particularly in the Mexico City Metropolitan Area), air pollution control had been continuously an important policy issue since the air pollution was expanding to the rural areas. Photochemistry air pollution is mainly caused by Ozone which is produced by photochemistry reaction of NOx (nitrogen oxides) and VOCs (volatile organic compounds) by ultraviolet radiation. The strong oxidation by Ozone adversely affects human body and ecological system. VOCs include toxic elements such as benzene and toluene. VOCs produce PM (particle matter) 2.5 which induces health problems, in particular, on respiratory tract, as a result of reaction against Ozone. Therefore, it was necessary to research on formation mechanisms of such pollutants and countermeasures.		
Project Objectives	Through evaluation of the dynamics of VOCs and PM2.5 in the atmospheric environment as well as personal exposure level to VOCs, and elaboration of countermeasure scenarios to mitigate air pollution, the project aimed at enhancement of capacity to study formation mechanism of Ozone, VOCs and PM2.5 and to develop proposal of co-benefits countermeasures scenario based on key scientific findings. 1. Expected Overall Goal: None 2. Project Purpose: Capacity to study formation mechanism of Ozone, VOCs and PM2.5 and to develop proposal of co-benefits countermeasure scenario based on key scientific findings are enhanced.		
Project Activities	1. Project Site: Mexico City, Monterrey, Guadalajara 2. Main Activities: 1) Development of the ozone measurement system and measuring of distribution of Ozone and meteorological factors in atmospheric environment, 2) Evaluation of dynamics of VOCs in atmospheric environment, 3) Establishment of instrumental analytical systems for specification of PM2.5 and evaluation of dynamics of PM2.5 in the atmospheric environment, 4) Evaluation of personal exposure level to VOCs including Aldehydes, PM2.5 and CO, 5) Establishment of database by utilizing monitoring data produced by the three target cities and estimation of rates of contribution of emission sources to air pollution, 6) Elaboration of countermeasure scenario to mitigate air pollution, and so on. 3. Inputs (to carry out above activities): Japanese Side 1) Experts: 18 persons 2) Trainees received: 24 persons 3) Equipment: Ozonesonde observation system, slit-jet air samplers, ion chromatography, automatic air samplers, servers for modeling, and so on. Mexican Side 1) Staff allocated: 40 persons 2) Facilities and land: Laboratory and project office in INECC 3) Equipment: Analytical equipment, including X-ray fluorescence analyzer 4) Local operation costs: Utility costs, travel expenses for staff		
Project Period	Ex-ante: January 2011 – December 2015 Actual: January 2011 – December 2015	Project Cost	Ex-ante: 287 million yen, Actual: 255 million yen
Implementing Agencies	National Institute of Ecology and Climate Change (INECC)		
Cooperation Agency in Japan	Ehime University		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

[Evaluation on the achievement level of the Project Purpose by the time of project completion]

Since no verifiable indicator was set in the project design, the achievement level was verified based on the judgement by the terminal evaluation which was agreed by both parties of the counterpart and JICA.

[Verification of the achievement level of the expected Overall Goal]

Since there is no Overall Goal set in the project design, efforts for the utilization of the research outcomes such as the utilization of the scientific findings and monitoring data produced by the SATREPS project for policy/programs to be formulated by the targeted state governments and the federal government was verified as "the expected Overall Goal".

1 Relevance

<Consistency with the Development Policy of Mexico at the Time of Ex-Ante Evaluation >

The Project was consistent with Mexico's policies. In addition to the "National Development Plan" (2007) prioritizing "Environmental Sustainability", one of the five priorities, the "Sectoral Program of Environment and Natural Resources" highlighting the necessity of regular monitoring and management of air quality and pollutants and the "National Strategy for Climate Change" (2007) promoting mitigation measures including reduction of greenhouse gas were implemented.

<Consistency with the Development Needs of Mexico at the Time of Ex-Ante Evaluation>

[1] SATREPS: Science and Technology Research Partnership for Sustainable Development

The Project was consistent with Mexico's development needs for mitigating air pollutions based on scientific findings through study of formation mechanism of Ozone, VOCs and PM2.5.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The Project was consistent with Japan's ODA Policy for Mexico prioritizing support for environmental issues, as one of the three priority areas[2].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved at the time of project completion. Through the research activities to produce the planned research outputs, the capacity to study formation mechanism of targeted air pollutants, Ozone, VOCs and PM2.5 was strengthened and the capacity to develop countermeasure scenarios was enhanced.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued since project completion. INECC has still maintained the capacity obtained in the SATREPS project in terms of assessing the dynamics of transformation of pollutants in the Atmosphere (analytical capacities for particle assessment, VOCs analysis, personal exposure and modeling). In addition, INECC expanded the result of the SATREPS project through various projects with new organizations. So far, three new organizations have participated in the projects. INECC has been also working with the Megalopolitan Environmental Commission (México's Comisión Ambiental de la Megalópolis: CAME） which includes 7 States (Mexico City, State of Mexico, Hidalgo, Morelos, Tlaxcala, Puebla and Queretaro). There is an agreement within INECC and CAME for Air Quality Assessment of all components of the SATREPS project to be conducted in Mexico City, State of Mexico, Hidalgo, Morelos, Tlaxcala, Puebla and Queretaro (2019-2024). The activities included are: i) Monitoring of PM2.5 and VOCs in the Megalopolis, ii) Modeling of transport and photochemical transformations in the atmosphere by using photochemistry model of an automatic vertical profile system, iii) Personal exposure studies, and iv) Evaluation and assessment of monitoring networks.

In addition, new research projects related to the SATREPS project have been implemented in the States of Guanajato, Hidalgo and Monterrey under the collaboration with INECC and the states governments, SENMARNAT and the National Autonomous University of Mexico.

In terms of operation and maintenance of the research equipment provided by the SATREPS project, they have been almost good. For example, INECC has used Slit-jet air samplers and Ion chromatography in Mexico City Area for contingence assessment under cooperation among INECC, the Ministry of Environment and Natural Resources (SEMARNAT), and Mexico City Secretary of Environment and CAME. The main goal is to assess contingencies in ozone of the dry season. Also, INECC has been using the Modeling Servers to evaluate the air quality through photochemistry models of WRF-CHEM, and currently INECC is transferring to cloud systems. In addition, the X-Ray Particle Analyzer is to be used in Tula, Hidalgo; and other sites on Megalopolitan Area. However, some equipment, such as Ozonesonde observation system, has not been used at the time of the ex-post evaluation since official attribution for ozone observation is in the National Meteorological Service (NMS) and structure changes have been taking place at the NMS and a national ozone observation program has not been implemented in a regular basis.

<Status of Achievement for Expected Overall Goal at the time of Ex-post Evaluation>

Since the Expected Overall Goal was not set forth for this SATREPS project, this ex-post evaluation verified "efforts for utilization of the research outcomes by the project"[3]. The research outputs and results of the SATREPS project are included in the Air Quality Program of Nuevo Leon (Pro Aire Nuevo León Period 2016-2025), and all components of the SATREPS project including the Ozoneonde observation system are reflected in the Air Quality assessment in the capitol city and the six state governments (2019-2024) under the agreement between INECC and CAME as mentioned above. In addition, the results from the SATREPS project are also to be considered in the actualization of the Air Quality Program of Mexico City （Mexico City PROAIRE）(2021-2030) after finishing of the "Mexico City PROAIRE" (2011-2020) as well as the National Strategy of Air Quality 2018 (Until publication of the new Pro Aire, the previous one is still valid). Furthermore, the activities related to the research outputs of the SATREPS project have been aligned with the Sectorial Program for Environment and Natural Resources (Programa Sectorial de Medio Ambient y Recursos Naturales: PROMARNAT) (2020-2024). PROMARNAT includes all the activities for administration of the Federal Government for the period from 2020 to 2024. Besides that, the research outputs of the SATREPS project were included in the Air Quality Program of Nuevo Leon (PROAIRE Nuevo León Period 2016-2025).

Also, INECC has been disseminating the research outputs of the SATREPS project through the INECC homepage, including the Joint Research Project on the Mechanisms of Ozone Formation, Volatile Organic Compounds and PM2.5 and proposal of scenarios of measures for their control in the Metropolitan Areas of Mexico City, Guadalajara and Monterrey. INECC has the Operational Program (2020-2024) including a research project for air quality issues in order to protect people's health.

Additionally, through the learning obtained by the SATREPS Project among INECC-University of Ehime, it was possible to work for the first time in Mexico on cutting-edge research projects on air quality and its effect on climate change at the peer level, and several articles were published in Peer-reviewed journals. This experience was used by INECC in negotiations with the National Science and Technology Council (CONACYT) for the development of the "National Strategic Program on Climate Change and Air Quality (PRONACE)" with emphasis on cities and that will run from 2021-2024. PRONACE will coordinate national research on these issues and will allocate financially resources from CONACYT. With regard to actions at the international level, Mexico has provided learning from the SATREPS Project within the framework of the Forum of Ministers of the Environment of Latin America and the Caribbean and through south-south cooperation with El Salvador, and so on.

<Other Impacts at the time of Ex-Post Evaluation>

Some positive impacts by the SATREPS project were observed at the time of ex-post evaluation. The Authorities in the State and Local Governments learned the importance on scientific information to prevent air contamination and how the air quality modeling could help to

[2] Ministry of Foreign Affairs, "ODA Country Data book" 2010

[3] In case of SATREPS projects without Overall Goal, those expected impacts mentioned at terminal evaluation should not be considered for evaluation assessment at sub-rating for effectiveness/impact nor does at its overall rating).

the air quality forecast. Also, INECC developed the air quality modeling research, with one deputy director of modeling. Personnel of the State Governments of of Nuevo Leon, Jalisco and Mexico City; personnel of SEMARNAT; and the CAME improved their scientific literacy on air quality monitoring and control. INECC has training programs to air quality authorities of the local governments. The last training activity is planned for 2021

The Laboratory of INECC moved to a new location in 2018-2020 and secured the quality of the analysis done with the infrastructure obtained with the SATREPS project.

No negative impact by the SATREPS project was confirmed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, both the effectiveness and impact of the project is high.

Achievement of Project Purpose

Aim	Indicators	Results	Source
(Project Purpose) Capacity to study formation mechanism of Ozone, VOCs and PM2.5 and to develop proposal of co-benefits countermeasure scenario based on key scientific findings are enhanced.	N.A.	Achievement Status: Achieved (Continued) (Project Completion) ● The capacity to study formation mechanism of targeted air pollutants, Ozone, VOCs and PM2.5 was strengthened through the production of the Outputs of the SATREPS project. ● The capacity to develop countermeasure scenario was enhanced through the production of the Outputs of the SATREPS project. (Ex-Post Evaluation) INECC started the following new research projects with other institutes: ● Low Emission Zone in Guadalajara (2019-2021): Collaborating with the Ecology Institute of the State Government of Guadalajara. The main output is to get information to prepare policy strategies for the City of Leon, the capital city of Guadalajara ● Air Quality Assessment in Tula, Hidalgo (2020-2021): Collaborating with CAME, the State Government of Hidalgo, the National Autonomous University of Mexico, and SEMARNAT. The main output is to assess information on the air pollution and environmental transformations in order to take measures to prevent it and to reduce the exposure of the population of Tula. ● Characterization of the environment of the monitoring stations currently in operation in the Metropolitan Area of Monterrey City (2020): Collaborating with the Centro Mario Molina, the State Government of Nuevo Leon. The main output of this project is to identify policy actions to reduce air pollution in the Metropolitan Area of Monterrey City.	- Terminal Evaluation Report, - JST Terminal Report, - Questionnaire survey to INECC

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan:89%, 100%, respectively). The project outputs were produced as planned.

Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspects>

The policies and programs related to research on air quality have been elaborated in the level of region and institution. The results of the SATREPS project were included in PROAIRE of the State of Nuevo Leon. Some of the actions and coordination with INECC were considered in the preparation of PROAIRE of the State of Jalisco and the review of the PROAIRE developed in 2018. For the Megalopolitan Area in Central Mexico, where Mexico City is included, CAME included the results and activities from SATREPS project in their activities as shown in their Working Plans. At the federal level, the results of the SATREPS project and cooperation with INECC was included in the National Strategy of Air Quality.

<Institutional/Organizational Aspects>

As mentioned above, INECC has the agreement within CAME for air quality assessment based on all components of the SATREPS project to be conducted in Mexico City, States of Mexico, Hidalgo, Morelos, Tlaxcala, Puebla and Queretaro (2019-2024). In addition, there have been joint activities with the State Government of of Nuevo Leon, Mexico City, Guanajuato, and CAME. The air quality modeling group, personal exposure, VOCs and particle matter groups of INECC participate in several project with CAME and with Monterrey City local government.

INECC has 10 scientists in the General Coordination of Contamination and Environmental Health who have been capacitated by the SATREPS project. Also, the relevant authorities have sustained the technicians trained by the SATREPS project: The National Center of Metrology with least 5 technicians, the Government of Mexico City with at least 2 technicians, the State Government of Nuevo Leon with at least 2 technicians and the Jalisco Government with at least 2 technicians.

Furthermore, INECC has cooperation with the Atmosphere Sciences Center (CCA) of UNAM, the Autonomous University of Ciudad Juarez, the Public Health National Institute, the National Center of Metrology , the National Council of Science and Technology under the National Strategic Program of Air Quality and Climate Change.

The Ministry of Environment and Natural Resources (SEMARNAT) confirmed on December 21,2021 that the person and authority of INECC will be part of Semarnat.

<Technical Aspects>

INECC has a legal mandate to make scientific research. The research line is implemented for air quality issues and projects are done every year. INECC has maintained the laboratory capacity and acquired independence by moving the laboratory to a new facility that belongs to the Ministry of Environment. INECC has also maintained the methodology of cooperation used in the SATREPS project and is now planning a similar project for Tula-Hidalgo region where work will be done with CCA-UNAM. INECC has a training program every year where training is provided to all technical personnel. On the other hand, the Laboratory of INECC has a Quality Management System and as part of that, training is secured to all technical staff in order to warranty the quality of results from the laboratory.

The above-mentioned governments have been improving their scientific literacy to formulate necessary government program for air quality control based on the research outputs by the SATREPS project.

<Financial Aspects>

In despite of budget cuts, INECC has secured budget for maintaining all equipment and capacities established by SATREPS project on annual basis. The Sectorial Program for Environment and Natural Resources (Programa Sectorial de Medio Ambiente y Recursos Naturales, PROMARNAT) 2020-2024 includes all the activities for the Federal Government for the Administration 2020-2024.Also, the Federation Expenses Program (Presupuesto de Egresos de la Federación: PEF) secures the budget for all institutions in a yearly basis. PEF 2021 has been published and budget for INECC has been secured for 2021.

When there is cooperation with State Governments, they give additional budget for specific activities. INECC has programed the following activities for 2021: i) Campaigns for the identification of high-emitting vehicles, via remote sensor, at the entrances to the Megalopolis (2020-2024), ii) Development and maintenance service for the analysis, processing and dissemination of air quality information system of the Megalopolis), iii) Elements for the characterization and diagnosis of air quality in the Tula air basin), iv) Training of staff of the SMCAs in the Megalopolis in the facilities of the INECC Laboratories), v) Advice to define the maximum values of concentration of atmospheric pollutants for the Metropolitan Area of the Valley of Mexico, and vi) Weather and air quality forecast for the Metropolitan Areas of Monterrey, Guadalajara and Mexico Valley . In despite of the reduction in government budget, cooperation was secured considering different institutions. The most relevant cooperation was the Memorandum of Understanding among INECC and CAME for the monitoring support of air quality using the methods established in SATREPS project; INECC has also included the topics related to support of air quality to local governments and maintaining the Laboratory Capacities in its Institutional Program 2020-2024.

<Evaluation Result>

In the light above, there has been no problem from any aspects. Therefore, the sustainability of the effects through the Project is high.

5 Summary of the Evaluation

The project has achieved the Project Purpose to enhance capacity to study formation mechanism of Ozone, VOCs and PM2.5 and to develop proposal of co-benefits countermeasure scenario based on key scientific findings, and the research outputs of the SATREPS project have been utilized for the policies and programs related to air quality in Mexico. Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learnt

Recommendations

[For INECC]

- To keep working in an interinstitutional way in order to secure continuous improvement on air quality issues and use capacities created with the SATREPS Project.
- To strengthen cooperation with State and Municipal Governments in order to reduce the gaps of knowledge on their staff and internalize the learning from SATREPS Project.
- To work together with the National Meteorological Service to include ozone observation in their rutinary activities.

Lessons Learnt for JICA:

- The SATREPS project resulted the excellent research outputs. In particular, the research on formation mechanism of Ozone, PM2.5 and VOCs have been implemented not only in the three pilot cities of the SATREPS project but also other states and have contributed to improving quality of life of the people. Thus, it can be considered as a good practice of the efforts for the utilization of the research outcome. In, addition, INECC has continuously been promoting utilization of their survey results in the SATRPES project for updating the PROAIREs under the cooperation with other state governments and metropolitan governments. Also, INECC has continued necessary activities and trainings. In this background, although the budget of INECC has been reduced and the new headquarters of the INECC Air Quality Research Center moved, the Mexican leaders of the SATREPS project have continued to their activities and disseminated the technologies which they have learned through the SATREPS project. Thus, in order to materialize the utilization of research outcomes of SATREPS projects, it is effective to select research institutes with human resources and organizational capacity for coordination and cooperation with government organizations in addition to high research capacity to steadily produce results through international joint research. For this SATREPS project, the coordination and collaboration with the following institutions involved in air environment management has contributed to continuous dissemination and utilization of the research outputs; the Megalopolis Environmental Commission (Comisión Ambiental de la Megalópolis: CAMe) (federal organization), the National Autonomous University of Mexico (Universidad Nacional Autónoma de México: UNAM) (academic institution), the state environmental authorities (the state governments), and Mario Molina Center for Strategic Studies of Energy and Environment (NPO think-tank) established by Mr. Mario Molina, a co-recipient of the Nobel Prize in Chemistry, who discovered the Antarctic ozone hole and the threats to ozone layer from chlorofluorocarbon gases.
- As mentioned above, since there are various governmental organizations, research and academic institutions concerning air environment management in Mexico, the researchers involved in the SATREPS project have been able to belong to any of those institutions and be engaged in activities related to air environment management in despite of personnel reshuffling caused by the change of the government. In addition, good relationships among the researchers of INECC and other institutions which has been inspiring each other has made INECC functional as a responsible federal organization for air environment management. Under such situation, cooperation or collaboration among those institutions through some projects enabled to elaborate alternative methodologies or system for viable air monitoring by even limited resources through mutually covering by budget shortage and renting necessary equipment. Therefore, from

the viewpoints of continuity of research work and continuous efforts for utilization of research outcomes after project completion, it is preferrable to a strategy for post project period based on proper stakeholder analysis for reviewing research networks and collaborative work with government institutions of possible counterpart research institutes at the time of project formulation.

Air Quality Monitoring Station using research outputs of SATREPS projects, Integrated System of Environmental Monitoring (Sistema Integral de Monitoreo Ambiental: SIMA) at Nuevo Leon, the Government of Monterrey

Trainings for local technicians for operation of equipment sampling PM2.5 (small volume) at the monitoring station in Monterrey, Nuevo Leon, during the implementation of measuring activity.

END

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Saint Lucia Office: January, 2023

Country Name	**the Project for Improvement of Fishery Equipment and Machinery in Antigua and Barbuda**
Antigua and Barbuda	

I. Project Outline

Background	In Antigua and Barbuda, the government was exploring the diversification of industries, which had relied on tourism, and one of them was to further develop fishery by effectively utilizing its own resources. Japan had contributed to the promotion of fishery through the provision of fisheries facilities and equipment through grant aid and technical cooperation. However, some of the fishery equipment provided had deteriorated due to aging, etc., resulting in a shortage of ice and fresh fish storage space. This led to not only distribution problems such as deterioration of freshness but also a reduction of fishing frequency. At the same time, in order to control overfishing in coastal waters, the government had been shifting from bottom fishery to offshore floating fisheries and had started using fish aggregating devices (FADs) to create offshore fishing grounds. However, it was facing many issues such as ensuring stable commercial fishing in offshore fishing grounds, developing underutilized resources and promoting their distribution, and monitoring illegal fishing.			
Objectives of the Project	This project aimed to improve fish distribution and to promote fishery management by upgrading part of the equipment developed under the past grant aid projects and related equipment at the four fisheries complexes (Point Wharf, Market Wharf, Parham, and Urlings) as well as by installing new equipment for fishery management, thereby contributing to the sustainable fishery development of the country.			
Contents of the Project	1. Project Site: Point Wharf and Market Wharf (St. John's), Parham (St. Peter's), Urlings and Mt. Obama (St. Mary's), Freetown (St. Philip's), Codrington (Barbuda), and Offshore. 2. Japanese side: Provision of grant necessary for the procurement of refrigeration equipment (3 locations),[1] air-conditioning equipment (1 location), water supply equipment (3 locations), submerged FADs (2 locations), radar system (5 locations), VHF radio system (1 location), an insulated truck, and a multipurpose boat. 3. Antigua and Barbuda side: Securing of permits related to the radar system and the radio system; sharing of radar images with the Coast Guard (i.e., purchase and installation of equipment required to enable data sharing); disposal of equipment and machinery after removal; destruction of recovered refrigerant; explanation to and securing of agreements from facility users; etc.			
Project Period	E/N Date	June 11, 2015	Completion Date	November 17, 2016 (Completion of installation of equipment)
	G/A Date	July 15, 2015		
Project Cost	E/N Grant Limit / G/A Grant Limit: 584 million yen, Actual Grant Amount: 554 million yen			
Executing Agency	Ministry of Agriculture, Lands, Fisheries and Barbuda Affairs (MALFB)			
Contracted Agencies	Main Contractor(s): NITTOSEIKO Co., Ltd. Main Consultant(s): OAFIC Co., Ltd.			

II. Result of the Evaluation

<Constraints on Evaluation>

・ Due to COVID-19, both Antigua and Barbuda and Japanese sides faced the difficulty in usual communication filling out the questionnaire as well as carrying out the projects site visits. Following travel restrictions, quarantine measures and work from home policy, it took extra months to complete the survey. As a result, JICA St. Lucia Office contracted the Caribbean Regional Fisheries Mechanism (CRFM) to support the office in implementing a smooth evaluation process. This evaluation report is a result reflecting such constraints and limited site visits.

1 Relevance

<Consistency with the Development Policy of Antigua and Barbuda at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the project was consistent with the development policies of Antigua and Barbuda as the government was tackling sustainable fishery development through the Fisheries Development Strategy 2011-2015, a five-year plan for fisheries development. The plan includes the development goals of (1) Preparation of a comprehensive Fisheries Management Plan, (2) Utilization of under-exploited species, (3) Infrastructure development (fishery complexes and hurricane shelters), (4) Revision of fisheries legislation, and (5) Development of National Plan of Action to Address the Illegal, Unreported and Unregulated (IUU).

<Consistency with the Development Needs of Antigua and Barbuda at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, there was a need to improve fish distribution and fishery management promotion, as mentioned in "Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

Fisheries was one of the two priority areas of Japan's assistance for Antigua and Barbuda in 2015. Japan aimed to continue to cooperate for sustainable development and management of the fisheries industry for diversification of industries.[2]

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

[1] The refrigerant was converted from R22 (one of hydrochlorofluorocarbons: HCFC) to R404a (one of hydrofluorocarbons: HFC) except for Point Wharf, where the existing refrigerating system was still in good condition. The Montreal Protocol on Substances that Deplete the Ozone Layer was designed to phase-out or to reduce the production and consumption of HCFC to zero by 2030 for developing countries; the target for HFC was undetermined as of 2014. It was desirable to select natural refrigerant (e.g., ammonia) having less impact on ozone depletion and global warming. However, since there was a technical difficulty involved with handling ammonia, which was not widely available in the country, the executing agency wished to switch to R-404a.

[2] Ministry of Foreign Affairs, ODA Data Collection (2015)

<Effectiveness>

The project's objective, namely, "to improve fish distribution and to promote fishery management," was partially achieved in the target year (2019). Among the five quantitative indicators, the achievement of Indicators a, c, d, and e was limited, and Indicator b was not verifiable. However, many of the expected qualitative effects have manifested.

Regarding the improvement of fish distribution, the refrigeration equipment procured under this project has been in operation in all three target fisheries complexes. Ice sales (Indicator a) data for all these sites were available only for the target year, 2019, with actual results for that year being slightly less than half of the target level. In other years, the available performance data were also below the target for the respective sites. The Fisheries Division of the MALFB, the executing agency, explained the reason as follows. First, drought conditions caused the unavailability of water for making ice. Second, the late disbursement of monies from the Treasury to address routine maintenance resulted in more frequent breakdowns of the equipment. Third, there is competition from a private supplier supplying ice at more convenient hours and with mobility using a refrigerated truck. Forth, at Urlings, a significant portion of the fleet is comprised of dive boats targeting queen conch (Strombus gigas) and, to a lesser extent, live Caribbean spiny lobster (Panulirus argus). In this case , ice is not required; ice is detrimental to the survival of live lobsters, and queen conch can survive out of water for extended periods. In addition, the amount of ice being sold is less than before this project because, with the older system, plate ice that is heavier was used while the crushed ice is sold now. Nevertheless, it was confirmed that the freshness of fishery products has improved due to the greater use of ice in fishing operations post-2016. For example, the percentage of finfish trips using ice increased from 86% in 2015 to 93% and 98% in 2018 and 2019, respectively. In 2020, the percentage was 86% as cases of COVID-19 amongst staff resulted in closures of various ice plants. Also, the COVID-19 pandemic caused more nearshore operation due to the limited fishing time. Therefore, fish were still fresh. In addition, and there was less demand given the closure of hotels, etc. In sum, the fishing operations were downscaled; therefore, there was less demand for ice, but the product freshness improved.

Regarding the promotion of fishery management, the project's submerged FADs have been in use. The total number of fishing boats that entered the submerged FADs per annum (Indicator b) cannot be directly compared with the target value because the units are different between the target and actual values (vessel-trip and vessel-day, respectively; see the note under the table below). Also, some FADs were not in full operation at all times, and this accounted for the decreased number of fishing days in 2019. Nevertheless, certain utilization has been constantly made, and it has promoted fishery management, which had also been supported by the Caribbean Fisheries Co-Management Project (JICA technical cooperation project known as the CARIFICO project, 2013-2018). Under the CARIFICO Project, a co-management governance structure for the moored FAD fishery was facilitated with the formation of the Antigua and Barbuda FAD Fishers Association under the Friendly Societies Act in 2017. This allowed for greater input and understanding of fisheries management decisions and devolution in terms of fisheries governance.

The effects of the equipment for monitoring and surveillance for fishery management are limited. Among related quantitative indicators, annual operating days of the multipurpose boat (Indicator c) and the total number of detections of assumed illegal vessels per annum (Indicator d) have been almost zero, and the number of annual operating days of the surveillance radar (Indicator e) has been 51-57% of the target. According to the Fisheries Division, problems with the multipurpose boat include that the cruising speed (approx. 6 knots; maximum of approx. 8 knots) does not support traveling more than a few miles from the port. Also, the high noise level causes in communication issues between the captain and crew as well as headaches. These issues have resulted in fisher-folks refusing to accompany Fisheries Division on training or exploratory fishing exercises. As for the radar system and the radio system, there are connectivity issues and the inability to detect small fishing vessels without a radar reflector installed on vessels. These issues were discussed with the contractors during the initial phase of operation and the review after one year, and technicians were sent to check the system and make adjustments to the devices. The communication systems between the two sites in Antigua are functional but not in Barbuda due to the physical damage caused by Hurricane Irma in August 2017. Under such situations, it was not practical for the Fisheries Division to have the radar operating all the time. The radar is turned on when necessary.

<Impact>

The expected impact of this project, namely, "contribution to the sustainable fishery development," has manifested. The Fisheries Division acknowledged the following positive impacts. First, as mentioned above, the refrigeration equipment has enhanced the safety and quality control of seafood. Second, the human resource development of fishers has been enhanced regarding gear construction, deployment, and maintenance, as well as fishing techniques. Local FAD fishers have been modifying the original design of the FADs and are now sharing their knowledge in FAD design, construction, and utilization with fishers in Barbuda and Montserrat. Third, fishery management in the areas of monitoring, control, and surveillance has been improved to some extent, although the radar system did not function as intended, e.g., the use of the fisheries monitoring center in the Fisheries Division. Fourth, data collection has been improved to better guide decision-making. Employees at the Urlings and Parham Fisheries Complexes[3] with the ice production are responsible for collecting data from fishers. These catch and effort data and biological data can be validated via independent surveys and to inform stock assessments. Validation of these types of data was done in 2017/18, and the multipurpose boat was useful for this in the South of the island.

The Fisheries Division also pointed out a positive impact on gender: as authorized fishers, female captains, crews, and fish vendors benefited from improved access to affordable ice, thereby enhancing the quality of fish sold or processed. No adverse impacts were observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicators	Baseline 2014 Baseline Year	Target 2019 3 Years after Completion	Actual 2017 1 Year after Completion	Actual 2018 2 Years after Completion	Actual 2019 3 Years after Completion	Actual 2020 4 Years after Completion
Indicator a: Annual ice sales (Total	1,140	2,000	671	766	927	707

[3] At Market Wharf Fisheries Complex, Antigua Fisheries Limited (AFL), a statutory body that is outsourced the operation, has their own arrangement for data collection.

volume of Market Wharf, Parham, and Urlings) (ton/year) [1]			(2 locations only)	(2 locations only)	(All 3 locations)	(2 locations only)
Indicator b: Total number of fishing boats entered the submerged-type FADs per annum (vessel-trip) [2]	0	700	N.A.	N.A.	N.A.	N.A.
(Reference) Total number of fishing boats entered the submerged-type FADs (vessel-day) [3]	-	-	1,092	1,326	390	N.A.
Indicator c: Annual operating days of the multipurpose boat [4]	0	140	7	16	1	N.A.
Indicator d: Total number of detections of the assumed illegal vessels per annum [5]	0	200	0	0	0	N.A.
Indicator e: Annual operating days of Surveillance radar [6]	0	350	180	220	200	N.A.

Source: Ex-ante Evaluation Report; Fisheries Division

Note: (1) For Indicator a, the target value was estimated as the total amount of ice production from new ice-making equipment to be installed at each site. The actual figures for the years except 2019, the target year, are the sum of Market Wharf and Urlings, as data for Parham is not available.

(2) For Indicator b, the target value was estimated as 82 vessels with FAD license (22 registered vessels at the time of planning + 60 new vessels) x 9 trips/year (based on Dominican data) = 738. The unit is vessel-trip.

(3) For reference related to Indicator b, the values were estimated by 15 vessels x 1.4, 1.7, or 0.5 day/week (in 2017, 2018, and 2019, respectively) x 52 weeks. The unit is vessel-day. The values include the number of fishing boats operating around the two FADs installed by this project and smaller FADs deployed under the JICA CARIFICO Project.

(4) For Indicator c, the target value was estimated as 36 days for at-sea training, 44 days for FAD installation and monitoring, and 60 days for trial pot fishing.

(5) For Indicator d, the target value was estimated as 1,992t (fish reportedly caught by illegal vessels) ÷ 8.4t (fish catch per vessel) = 237 illegal vessels estimated to have operated (figures are all as of 2006). The project plan anticipated that there would be a possibility that the number of illegal vessel detections might be lower than the target by the effects of a deterrent through the operation of surveillance radar.

(6) For Indicator e, the target value was estimated as 365 days minus 15 days for maintenance and inspection.

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 95% and 94%, respectively). The outputs were produced as planned. Therefore, the efficiency of the project is high.

The sharing of images of illegal fishing boats detected by the Fisheries Division with the Coast Guard, one of the planned undertakings of the Antigua and Barbuda side, has not been carried out as the Coast Guard has not prepared the necessary infrastructure (e.g., optical fiber). While this has affected the maximization of the effects of this project, it shall not be treated as a factor that reduces efficiency since it does not affect the functioning of the radar system itself.

4 Sustainability

<Institutional/Organizational Aspect>

There is an organizational structure for operation and maintenance (O&M) of each of the equipment procured by this project. For the refrigerating system and water supply system, except for Market Wharf, the operation is carried out by each fishery complex under the Fisheries Division (around five staff members are assigned), and maintenance is carried out by maintenance staff (two staff members assigned) of the Fisheries Division. O&M of the equipment at Market Wharf is outsourced to Antigua Fisheries Limited (AFL), a statutory body dealing with seafood processing, marketing, and ice sales. For the submerged FADs, the Fisheries Division and fishers carry out O&M. For the multipurpose boat and the surveillance radar system, the Fisheries Division carries out O&M. For the radio system, O&M is carried out by Parham Fisheries Complex, where the system is installed. According to the Fisheries Division, there is enough staff to properly conduct their O&M responsibilities respectively.

<Technical Aspect>

The technical level for O&M at the time of the ex-post evaluation for the facilities of the fisheries complexes, FADs, the multipurpose boat, and surveillance radar system was considered to be sufficient, as confirmed by the Fisheries Division. For the refrigerating system, the Senior Maintenance Officer has previous training in refrigeration and electrical engineering, and both maintenance officers would have completed training in Japan in refrigeration. For the water supply system, assistance from the Public Works Department is available. For the surveillance radar system, maintenance support from Antigua Public Utilities Authority (APUA) is available. As for the training mechanism, the Fisheries Division has partnered with the Antigua and Barbuda Institute for Continuing Education (ABICE) in the Work Experience Training program for students enrolled in the Refrigeration Department. The Fisheries Division received two trainees in 2021. An issue is that the remuneration packages offered by the private sector for skilled technicians are usually more attractive than that offered by the Fisheries Division/Government, so it is usually difficult to retain the technicians in the Fisheries Division/Government system.

<Financial Aspect>

The Fisheries Division acknowledged that the O&M budget was not enough; what is allocated in the approved budget is normally less than what is requested in budget submission to properly support O&M. The Fisheries Division also gave information that there is an issue of the late disbursement by the Treasury for the purchase of material/parts required for O&M. Though the budget is insufficient, a minimum budget seems to be secured to operate facilities and equipment as far as observed at the project sites. The concrete budget data was not available.

<Current Status of Operation and Maintenance>

The project's equipment is mostly operated with breakdowns and repairs; however, maintenance is not always at the scheduled time due to late payment from the Treasury. The issues at the time of the ex-post evaluation include the refrigeration equipment at Market Wharf (the condition of the compressor is poor, and assistance is being sought for an upgrade), the submerged FADs (the surface markers were lost), and the surveillance radar system at Codrington (Barbuda) (not in use due to a destruction of the microwave communication antenna by Hurricane

Irma).

<Evaluation Result>

In light of the above, some problems have been observed in terms of the financial aspects and the current status of the operation and maintenance system. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project partially achieved the objective of improving fish distribution and promoting fishery management as the freshness of fish improved by using the refrigerating equipment and offshore fishing increased utilizing the submerged FADs, although the performance did not reach the targeted level quantitatively, and some equipment was not utilized as expected. Regarding sustainability, some problems were found in the financial aspect and the status of some equipment due to insufficient budget and slow disbursement for O&M. However, no problems were found in the institutional/organizational and technical aspects. Also, both the project cost and the project period were within the plan, and thus the efficiency of project implementation is high. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to the Executing Agency:

- There is a downtime of the ice plants at Market Wharf, Parham, and Urlings Fisheries Complexes – late disbursement of monies from the Treasury to address routine maintenance resulted in more frequent breakdowns. The Fisheries Division is recommended to continue advocating for the disbursement of funds to address routine maintenance.
- The ice machines, the multipurpose boat, FADs, and radar system are not used as expected. The equipment was procured based on needs surveys conducted by JICA, but on the ground, realities and challenges have limited the full use of this equipment. In order to determine how best to utilize the equipment under the current conditions would require stakeholders' engagement and technical expertise to determine feasible options. Thus, the Fisheries Division is recommended to initiate such activities to improve equipment utilization.
- The Fisheries Division is encouraged to continue to adopt the co-management approach on the development of FAD fisheries between fishers and the Fisheries Division for the sustainable use of fishery resources through FADs, including those procured under this project.

Lessons Learned for JICA:

- FAD fishers have improved upon their techniques for the harvesting of pelagic fish to the point where they have been able to share their knowledge in FAD design, construction, and utilization with fishers in Barbuda and Montserrat. When introducing FAD fishing, the installation of FADs could go with the introduction of the collaborative co-management approach regarding the development of FAD fisheries with fishers and the Fisheries Division.
- The establishment of the Antigua and Barbuda FAD Fisheries Association under the CARIFICO project is a promoting factor for the utilization of the submerged FADs through the enhancement of fisheries governance and. This is a good example of collaboration between a grant aid project and a technical cooperation project for institution building, which not only promoted the use of procured equipment, but also increased the sustainability of the institution where sharing of knowledge and experience gained through the use of the equipment was established.
- The cruising speed of the multipurpose boat does not support traveling more than a few miles from the port. The boat also appears to be improperly trimmed and underpowered, which results in inefficient operation in the water. The boat is also noisy, which interrupts communication between the captain and crew. The multipurpose boat was intended to be used for at-sea training for fishers, installation, monitoring, and maintenance of FADs, and surveys of reef fish and lobster catch. Field validation and trials using the boat should have been done to ensure that it would fit for purpose and to allow necessary adjustments in the design.
- Connectivity issues resulted in a lack of data transmission between the radar sites up until the third quarter of 2017. By the time the technicians had addressed the issue, the radar units had to be replaced. The communication sites on Antigua are functional; however, the one on Barbuda was damaged by Hurricane Irma. Additionally, the radar system is unable to detect small fishing vessels. The surveillance radar system was intended to be an effective tool for conducting efficient coastal and offshore surveillance and patrol activities as set out in the Antigua and Barbuda Plan of Action to Prevent, Deter and Eliminate IUU Fishing. Field validation and trials using the surveillance system should have been done to ensure that it would fit for purpose and that the system would capture the target small fishing vessels. The risk of natural disasters such as hurricanes also needs to be taken into account when designing.

Fisheries monitoring system (monitoring station equipment of the radar surveillance system) at Fisheries Division

Ice machine, ice storage, and ice inside at Urlings Fisheries Complex

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Saint Lucia Office: January, 2023

Country Name	the Project for Improvement of Fishery Equipment and Machinery in Saint Vincent and the Grenadines
Saint Vincent and the Grenadines	

I. Project Outline

Background	The fisheries industry is an important industry of Saint Vincent and the Grenadines (SVG) besides tourism and agriculture. However, the reduction of coastal marine resources due to overfishing in the entire Caribbean region, including SVG, became an issue. The Caribbean Community (CARICOM) established the Caribbean Regional Fisheries Mechanism (CRFM) in March 2003, and CRFM began activities aiming at managing fisheries resources throughout the region. For sustainable use of fishery resources, it was important to introduce resource-management fisheries to reduce fishing pressure in coastal areas and to distribute fishery products to the maximum without loss. However, another issue in SVG was the aging of main fishery equipment, such as refrigerating equipment, most of which had been developed under the past Japanese grant aid projects, and this problem would lead to distribution losses due to deterioration of freshness of landed fish.			
Objectives of the Project	This project aimed to improve fish distribution and to promote fishery management by upgrading part of equipment developed under the past grant aid projects and related equipment at the six fisheries centers as well as by installing new equipment for fishery management, thereby contributing to the sustainable fishery development of the country.			
Contents of the Project	1. Project Site: Calliaqua, Kingstown, Owia, Paget Farm (Bequia Island), Friendship Bay (Canouan Island), Clifton (Union Island), and Offshore. 2. Japanese side: Provision of grant necessary for the procurement of refrigerating system/ice plants (ice machines, compressors, ice storages, etc.[1]) (6 locations with varied subcomponents), refrigerated vans (1 location), elevated water reservoir tank (1 location), subsidiary works on some facilities, and floating submerged fish aggregating devices (FADs) (2 offshore locations). 3. SVG side: Removal and storage of cylinders filled with waste refrigerant, dismantling of existing equipment/materials to the outside, etc.			
Project Period	E/N Date	September 2, 2014	Completion Date	September 23, 2016 (Completion of installation of equipment)
	G/A Date	September 2, 2014		
Project Cost	E/N Grant Limit / G/A Grant Limit: 486 million yen, Actual Grant Amount: 400 million yen			
Executing Agency	The Ministry of Agriculture, Forestry, Fisheries, Rural Transformation, Industry and Labour (MAFFRTIL) * Ministry of Agriculture, Forestry, Fisheries and Rural Transformation (MOA) during the project implementation period.			
Contracted Agencies	Main Contractor(s): Marubeni Protechs Corporation Main Consultant(s): System Science Consultants Inc.			

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to COVID-19, both SVG and Japanese sides faced the difficulty in usual communication filling out the questionnaire as well as carrying out the projects site visits. Following travel restrictions, quarantine measures and work from home policy, it took extra months to complete the survey. As a result, JICA St. Lucia Office contracted the CRFM to support the office in implementing a smooth evaluation process. This evaluation report is a result reflecting such constraints and limited site visits.

<Special Perspectives Considered in the Ex-Post Evaluation>

- This evaluation excluded Indicator 1, "ice/fish ratio," from the ground for judging effectiveness since it might not accurately represent the effect of using the refrigerating equipment procured by the project as fish catches fluctuate due to external factors.[2] Instead, the evaluation used "ice sales" as the alternative indicator for ice/fish ratio.[3]

1 Relevance

<Consistency with the Development Policy of SVG at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the project was consistent with the governmental strategies for fisheries development that are clarified in the 2012 budget statement as the "Corporate Plan and Advance Proposal 2013-2015," including its vision, mid-term strategies, and annual top priority action plans. The fundamental policy for fisheries development is "sustainable utilization and effective development/management of fisheries resources." The mid-term strategies contain 13 items, including the development of comprehensive distribution strategies of fisheries products, improvement of fisheries infrastructure, implementation of various surveys for appropriate resource utilization, etc.

<Consistency with the Development Needs of SVG at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, there was a need to improve fish distribution and fishery management promotion, as mentioned in

[1] The refrigerant was converted from R22 (one of hydrochlorofluorocarbons: HCFC) to R404a (one of hydrofluorocarbons: HFC). The Montreal Protocol on Substances that Deplete the Ozone Layer was designed to phase-out or to reduce the production and consumption of HCFC to zero by 2030 for developing countries; the target for HFC was undetermined as of 2014. It was desirable to select natural refrigerant (e.g., ammonia) having less impact on ozone depletion and global warming. Since the Government of SVG had a view that the choice of ammonia was still immature, R404a was selected in this project because it had longer time allowance for its phasing out according to the Montreal Protocol.

[2] The preparatory survey report for the Project for Improvement of Fishery Equipment and Machinery in Antigua and Barbuda (2015). It is found that the ice/fish ratio in SVG has the same problem as Antigua and Barbuda.

[3] The use of ice production or ice sales as an alternative indicator to ice/fish ratio was confirmed as reasonable by a JICA fishery expert in the ex-post evaluation of the Project for Improvement of Fishery Equipment and Machinery in Saint Lucia (2021).

"Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

In the "Country Assistance Policy for Saint Vincent and the Grenadines" (April 2014), fisheries is one of the two priority areas of Japanese assistance.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project's objective, namely, "to improve fish distribution and to promote fishery management," was achieved in the target year (2019) as the two quantitative indicators were achieved and not achieved (but was on the increase), respectively, and the significant qualitative effects manifested on the promotion of fishery management.

Regarding the improvement of fish distribution, the refrigerating equipment procured under this project was in operation in all target fisheries centers except for Canouan Fisheries Center (Friendship Bay), which has not been in operation since 2016 as the equipment has not been leased to an operator,[4] up to 2019. The ice sales (Alternative to Indicator 1) generally increased across all sites but Friendship Bay. Although the baseline and target values for this alternative indicator are not available, the Fisheries Division of the MAFFRTIL (the executing agency) commented that the ice sales in the target year achieved their expectation. The project's equipment extended the cooling capacity of the fisheries centers, and the continued supply of ice enabled the restoration or more stable supply of fresh fish to local areas, surrounding areas, inland areas, and international markets. The fisheries centers became able to handle the increased production of fishery products due to the growing demand (domestic and international) and improved fishing gear. Also, at Owia, where the project provided subsidiary works besides the refrigerating equipment, restored the function of the whole facility, which enabled the leasing of the facility to an operator in 2017. At the time of the ex-post evaluation, however, the refrigerating equipment in Calliaqua and Owia has not operated since 2020 and 2021, respectively (see "4 Sustainability" below for details), in addition to the one in Friendship Bay.

Regarding the promotion of fishery management, the project's submerged FADs have been in use. The registered number of fishers operating at the point of the submerged FADs as their fishing ground (Indicator 2) increased but only up to 24% of the target in 2019. The Fisheries Division explained that this was due to the hesitancy among fishers to invest in new fishing techniques such as dropline, which has been promoted for sustainable fishing. Nevertheless, lessons learned and best practices adopted under the Caribbean Fisheries Co-Management Project (JICA technical cooperation project known as the CARIFICO project, 2013-2018) allowed for the co-management approach to fisheries, and fishers are slowly gravitating towards the FADs as they have come to recognize the benefits of fishing around the FADs with new techniques. The Fisheries Division also commented that the number of FADs would need to be increased to accommodate the potential number of fishing boats and to avoid over-fishing and over-crowding as fishers tend to fish around the FADs that are closer to shore.

<Impact>

The expected impact of this project, namely, "contribution to the sustainable fishery development," has manifested. The increased production and availability of ice have improved the quality of the fish landed, thus allowing fishers to get a reasonably good price for their catch. Also, reduced operational expenses since fishers can go directly to the FADs and catch fish without much hunting have improved the overall efficiency of fishing by incurring less cost and time.

Another positive impact pointed out by the Fisheries Division is an increase in employment at all target fisheries centers. The refurbished facilities allowed for an increased amount of high-value fish products such as conch and yellowfin tuna to be processed, which also required more workers. It was also a positive impact on gender, as it is estimated that 80% of those employees are women (mostly for cleaning fish products). Employees are trained by the Product Development and Quality Assurance Unit on the Seafood Processing Standards (SPS), etc. No adverse impacts were observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Baseline 2014 Baseline Year	Target 2019 3 Years after Completion	Actual 2016 Year of Completion	Actual 2017 1 Year after Completion	Actual 2018 2 Years after Completion	Actual 2019 3 Years after Completion
Indicator 1: Ice/fish ratio	3.9-8.9	3.9-8.9 or higher	N.A.	N.A.	N.A.	N.A.
Alternative to Indicator 1: Ice sales (Total volume of Calliaqua, Kingstown, Owia, Paget Farm, Friendship Bay, and Clifton (t/year)	N.A.	–	1,685	2,150	2,365	2,365
Indicator 2: Registered number of fishers operating at the point of submerged FAD as their fishing ground (persons/year)	0	500	N.A.	70	90	120

Source: Ex-ante Evaluation Report; Fisheries Division

Note: The ground for calculation of the baseline and target values is not mentioned in the existing report.

3 Efficiency

[4] The facility at Friendship Bay had not been operated since the retirement of the manager of the lessee at the time of the ex-ante evaluation; direct management by the Fisheries Division had been considered, but this has not happened until the time of the post-evaluation. Before this project installed the new equipment in 2016, a cooperative-like group once operated the facility.

While the project cost was within the plan, the project period exceeded the plan (ratio against the plan: 82% and 156%, respectively). The project implementation was delayed for several reasons, such as the schedule adjustment with the executing agency, insufficient capacity of a Japanese technician of the contractor, stoppage of power supply at three sites due to payment delay by the SVG side, prolonged payment issues between the contractor and the subcontractor for procurement of materials, and absenteeism of the facility manager and unpaid salary at the subcontractor. The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional/Organizational Aspect>

There are organizational structures in place at the target facilities. The Fisheries Division, MAFFRTIL, is responsible for overseeing fisheries centers and the operation and maintenance (O&M) of the FADs. The Government of SVG made a policy decision in 2017 to lease five of the fisheries centers to Fisheries Cooperatives and private sector investors in view of maximizing the full marketing opportunities that exist, namely: Owia, Calliaqua, Barrouallie, Bequia (Paget Farm), and Union Island (Clifton) fisheries centers, in addition to Kingstown Fisheries Center that had been operated by a private firm before this project. This change created employment for more than 200 persons, full and part-time workers who work as staff members at these facilities in particular processors, and opened new markets regionally and internationally. At the time of the ex-post evaluation, among the project's target fisheries centers, those in Kingstown, Clifton, Owia, and Paget Farm are operated by private operators, and Calliaqua Fisheries Center is operated by a fisherfolk cooperative. As already mentioned, there is an issue that Canouan Fisheries Center has not been leased for operation yet. The Fisheries Division is responsible for maintenance of the facility while in the process of selecting a suitable private sector investor to operate the facility. The number of staff assigned for O&M of the facility varies by fisheries center, but the Fisheries Division confirmed that staffing was adequate considering the current level of operations at each facility.

<Technical Aspect>

According to the Fisheries Division, most of the target fisheries centers have the basic skill/technical capacity for O&M of the project facilities, but there is a room for improvement and for hiring more skilled personnel to cope with the troubles of the equipment (see <Current Status of Operation and Maintenance> below). The Fisheries Division's technical support team, namely, the Extension Unit and the Product Development and Quality Assurance Unit, provide guidance and technical support to the operators. These units provided training for the operators on O&M and the processing and handling of fish. All operators of the five leased facilities (mentioned in <Institutional/Organizational Aspect> above) received necessary training when the leased agreements were signed along with their staff. The training is provided regularly and also at the request of the operators. A total of 24 training sessions were held with the operators of Kingstown, Bequia (Paget Farm), Calliaqua, Owia, and Union Island (Clifton) fisheries centers, and a total of 227 persons were trained. At Kingstown, there is a maintenance team of two persons with technical skills. For Calliaqua, Union Island (Clifton), and Owia, the operators consulted with the Fisheries Division and engaged private personnel with competent technical skills of O&M. For Bequia (Paget Farm), as it relates to the lack of maintenance of the equipment, the operators were written to and reminded of their O&M obligations as agreed to in the leased agreement signed in 2017. The Fisheries Division would make a recommendation in the next lease agreement to correct this situation. For the submerged FADs, the Fisheries Division continues to provide financial support in terms of materials for the construction and maintenance.

<Financial Aspect>

A budget for O&M of the project facilities/equipment is provided annually. The O&M budget is funded by the operator of each facility, with a steady expenditure of between EC$100,000 and EC$500,000 per year, depending on the facility. 20-35% of the budget is spent on maintenance, including spare parts. Regarding the submerged FADs, fishers are a bit reluctant to pay for the maintenance. The Fisheries Division continues to provide financial support in terms of materials for the construction and maintenance of the FADs. It is the policy of the Government to continue to promote the utilization of FADs in SVG.

<Current Status of Operation and Maintenance>

There have been issues with compressors at all target fisheries centers. The compressors had oil flow return, and this was reported to the contractors while compressors were under warranty so that the issue could be addressed. However, it is an ongoing issue with all the compressors at all the centers. The Fisheries Division has provided technical assistance to repair and replace parts when necessary, including assisting with procurement. The compressors require preventative maintenance on a frequent basis (almost daily).

The status of the major equipment of this project as of January 2022

Location	Equipment	In use	Current conditions
Calliaqua	Refrigeration Facilities	No	The facility is temporarily closed for renovation. The ice-making machine compressor needed to be repaired after two years of operation, and after 2020 it was not operational. The Fisheries Division is in the process of procuring the compressor from Japan. The facility is scheduled to be reopened in March 2022.
Paget Farm	Refrigeration System	Yes	The two compressors for ice-making machines needed to be repaired after two years of operation. The operator initially replaced one compressor, but the Fisheries Division requested that the original compressor design of this project be maintained.
Friendship Bay	Refrigeration System	No	Not fully operational since 2017, operation of the equipment should commence pending lease agreement in March 2022.
Clifton	Refrigeration System	Yes	The facility is in good working condition. All equipment is functional except for one ice-making machine compressor, which was broken after two years of operation. The operator of the facility is in the process of replacing the compressor, and the procurement will be done from Japan.
Kingstown	Overhauled Compressor	Yes	The equipment is well maintained. However, given the age of the equipment, there is a plan and a need for the replacement. Presently there is a window period of 15 months to have the equipment change out.
	Refrigerated vans	Yes	Good and in working condition. One of the refrigerated vans is presently undergoing maintenance (replacement parts for the motor), but replacement parts are difficult to source.
Owia	Elevated Water Reservoir Tank	No	The facility and equipment, including the ice-making machine, were in good working condition prior to the eruption of the volcano in 2021. Equipment assessment to be made (Post volcanic eruption). Assessment will be done in the first quarter of 2022.

Source: Fisheries Division

The O&M of the facilities is conducted based on the lease agreement. One of the clauses of the agreement requires the operators to submit

quarterly reports on the operation and maintenance of the facilities. All facility operators were provided with daily operational check sheets to log critical information during the operation of the equipment. The fisheries center in Kingstown keeps most of the O&M records. At the other facilities, operators rarely provide reports on a timely basis. However, the Fisheries Division conducts regular visits and provides relevant technical advice relative to the maintenance of the equipment.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational and technical aspect and the current status of the operation and maintenance system. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project achieved the objective of improving fish distribution and promoting fishery management as indicated by the increased sales of ice at most of the sites, and the increasing number of fishers operating around the submerged FADs, which is still not high as expected but in an improving trend. Regarding sustainability, some problems are found in the institutional/organizational and technical aspects and the current status of the O&M of the refrigerating equipment, particularly compressors. However, it is commendable that the executing agency continues to provide technical support to resolve the issues, and the operator of each facility has secured the necessary budgets. As for the efficiency, the project period exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to the Executing Agency:

- The Canouan Fisheries Center is presently not leased and is not in operation since 2017. The Government is still in the process of selecting a suitable private sector investor to operate the facility. The Fisheries Division is recommended to continue discussions and develop arrangements to operationalize this facility.
- In Kingstown, given the age of the overhauled compressors, there is a plan and a need for the replacement within 15 months. The Fisheries Division is recommended to continue resource mobilization activities to implement the plan to replacement of the equipment to continue supplying ice and fresh products within the15 month time period.
- In Kingstown, one of the refrigerated vans is presently undergoing maintenance, and the replacement parts for the motor are difficult to source. The Fisheries Division is recommended to source replacements for the motor and repair the vehicle in order to continue distributing the fresh product.
- For Owia Fisheries Center, the Fisheries Division is recommended to conduct an equipment assessment (Post volcanic eruption) to determine the status of the facility and equipment, which were in good working condition pre-volcanic eruption.
- FAD maintenance remains a challenge as fishers are reluctant to pay for this. The Fisheries Division is recommended to continue to provide financial support in terms of materials for the construction and maintenance of the FADs.

Lessons Learned for JICA:

- Four of the fisheries centers were leased to fisheries cooperatives or private sector investors, which led to issues with equipment maintenance and procurement of spare parts. While country obligations to maintain and properly use the equipment are specified under the Grant Aid agreement, provisions for public sector/private sector partnerships should also be made.
- At several sites, ice machines and a refrigerated van have not been functioning due to the lack of essential spare parts, procurement of which remains challenging. The ease of procuring spare parts and frequency of replacement needs to be taken into account when developing obligations for Grant Aid, given the varying environmental conditions, costs, and shipping.
- Fishers are more aware of fishery resources management after the introduction of FADs. They are more educated by receiving training through workshops and stakeholders' consultation on how to better utilize the FADs for increased catch and reduced operational cost by consuming less fuel while fishing around the FADs. The collaborative co-management approach used in developing the FAD fishery is a good practice.

Ice-making machines installed at Union Island Fisheries Centre (Clifton) under this project. Photograph taken on the January 14, 2022

Ice-making machine compressor overhauled in 2016 under this project at Kingstown Fisheries Centre. Photograph taken on August 16, 2021

conducted by Cambodia Office: October, 2022

Country Name	**Project for Facilitating the Implementation of REDD+ Strategy and Policy**
Kingdom of Cambodia	

I. Project Outline

Background	In Cambodia, the deforested area was estimated to expand to approximately 120,000 ha which accounted for 1% of the total forest area during the period between 2005 and 2010. Some of the proximate causes of the deforestation implied the structural impediments: rampant illegal logging, conversion to agricultural land, forest fires. Also, weak administrative capacity, rural poverty, and population growth were attributed to deforestation. In 2010, the government of Cambodia held a ministerial council to examine the "National Forest Plan (NFP)" comprised of: 1) forest demarcation/classification/registration, 2) conservation and utilization of forest resources and biodiversity, 3) forest law enforcement and governance, 4) village forestry, 5) capacity building and research & development, and 6) securing sustainable forest resources development to approve the plan to indicate the general direction of forest management. As being deemed highly effective and beneficial in REDD+[1], Cambodia became a member of the international cooperation framework: the REDD+ Partnership. At the end of 2010, preparatory work was launched for the implementation of REDD+ by the inter-ministerial REDD+ task force. However, it was deemed that administrative capacities had to be duly enhanced to comprehensively respond to the issue.		
Objectives of the Project	Through effective National Management of the REDD+ Readiness process and stakeholder engagement, development of the National REDD+ Strategy, improvement of capacity to manage REDD+ at the subnational/national levels, and a monitoring system and RLs/RELs framework and capacity for implementation, the project aimed at strengthening the capacity of related stakeholders for smooth implementation of REDD+ strategy and policy, thereby contributing to promoting sustainable forest management as a mitigation measure against climate change based on the experiences of REDD+ implementation in Cambodia.		
	1. Overall Goal: Sustainable Forest Management as a mitigation measure against climate change is promoted based on the experiences of REDD+ implementation. 2. Project Purpose: The capacity of related stakeholders is strengthened for the smooth implementation of the REDD+ strategy and policy.		
Activities of the Project	1. Project site: Whole country of Cambodia 2. Main activities: (1) Realization of effective National Management of the REDD+ Readiness process and stakeholder engagement, (2) Development of the National REDD+ Strategy, (3) Improvement of capacity to manage REDD+ at the subnational/national levels, (4) Design of a Monitoring System and Reference Emission Levels and/or Reference Levels (RELs/RLs) framework and capacity for implementation. 3. Inputs (to carry out the above activities) Japanese Side 1) Experts: 10 persons 2) Trainees received: 12 persons 3) Equipment: PCs, Printers, Cameras, Projectors, GPS, Water pumping machines, PV system, Boats, etc. Cambodian Side 1) Staff allocated: 29 persons 2) Facilities: office space meeting rooms for the experts 3) Local Cost: utilities, etc.		
Project Period	(ex-ante) June 2011 – May 2016 (actual) June 2011 – May 2016	Project Cost	(ex-ante) 535 million yen, (actual) 539 million yen
Implementing Agency	Forestry Administration (FA), Fisheries Administration (FiA), Ministry of Agriculture, Forestry and Fisheries (MAFF) Ministry of Environment (MoE)		
Cooperation Agency in Japan	Forestry Agency		

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to travel restrictions and lockdown measures raised during the COVID-19 Pandemic, data gathered during the ex-post evaluation was lower both in quantity and quality as on-site data collection and direct observation were not as feasible as planned. Nonetheless, mitigation measures were taken as follows; 1) rely more on existing monitoring data collected prior to COVID-19, 2) increase scope of desk-based review of administrative data, 3) use of remote data collection and analysis methods where available.

<Special perspective to be considered in the ex-post evaluation>

- The successive technical cooperation project of this project named "The Project for National and Sub-national Capacity Development for Sustainable Natural Resource Management" has been implemented. Therefore, the project effects of this project have been maintained.

1 Relevance

<Consistency with the Development Policy of Cambodia at the Time of Ex-Ante Evaluation >

The project was consistent with the development policies of Cambodia at the time of ex-ante evaluation. The "National Strategic Development Plan (NSDP)" (2006-2010) was to realize good governance through its "Rectangular Strategy." Following the plan, the

[1] It signifies Reducing Emissions from Deforestation and forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. The Paris Agreement was adopted to reaffirm that 1) GHG emission reduction through the participation of all countries and, 2) conservation of forest as a sink (promotion if REDD+) in December 2015. Cambodia has been recognized as one of the countries with great potential to contribute to emission reduction by REDD+ in the international society.

"National Forest Programme (NFP)" (2010-2029) was formulated in September 2010 to substantiate the development in the forestry sector. To achieve one of these objectives "Addressing Climate Change," REDD+ was positioned as a major component in NFP. Aligning with the programme, "Cambodia National REDD+ Roadmap" was formulated in 2010.

<Consistency with the Development Needs of Cambodia at the Time of Ex-Ante Evaluation >

The project was consistent with the needs of Cambodia at the time of ex-ante evaluation. The deforested area was estimated to be expanded to 1% of the total forest land during the period from 2005 to 2010. Some of the proximate causes of deforestation were rampant illegal logging, conversion to agricultural land, forest fires. Also, weak administrative capacity, rural poverty, and population growth were the structural impediments to coping with the issue.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy towards Cambodia. According to the "Country Assistance Program for Cambodia" (2002), the project was considered to support the efforts toward sustainable economic growth and strengthening capacities to respond to global issues.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by project completion. According to the Terminal Evaluation Report, the draft NRS was presented to the United Nations Framework Convention on Climate Change (UNFCCC) during the 21st Conference of the Parties (COP21) in 2015. With the substantive due process prior to the presentation, necessary policies and measures were thus included in the draft NRS (Indicator 1). Furthermore, after a preparatory period in the secretariat, the Cambodia National REDD+ Taskforce was inaugurated in 2013. The Consultation Groups participated in inter-ministerial consultation meetings to collectively shape the framework of the project (commonly called CAM-REDD). The participants therein expressed opinions on the contents of draft NRS that were properly incorporated into the draft toward the finalization. Thus, Policy level inter-ministerial coordination and stakeholder consultation for promoting a national REDD+ strategy was enhanced (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been continued since project completion. Concerning the national Forest Monitoring System (NFMS), in the Carbon Fund of the Forest Carbon Partnership Facility phase II (FCPF-II) program, technical methodologies of Measurement, Reporting and Verifiability (MRV) and the Satellite Land Monitoring System (SLMS) have been further enhanced as SERVIR-Mekong program[2] has supported to upgrade the methods of satellite image analysis in this regard. Also, the Forest Reference Level (FRL) has been upgraded through the activities of the FCPF-II. The comprehensive training programs by bilateral and multilateral donors have continued to support the above areas. The technical cooperation programs so far provided the specific areas of; 1) accurate assessment of land use/cover change, 2) forest inventory survey, GHG inventories for the land use, land-use change, and forestry (LULUCF) sector at the national/sub-national levels. Concerning the improvement of capacity at the subnational level, technical training has been provided periodically by FA central focusing on Forest Monitoring. In parallel, the JICA's ongoing technical cooperation project for National and Sub-national Capacity Development for Sustainable Natural Resource Management (SNRM) has focused on the capacity development of provincial staff and selected pilot communities based on their actual local needs in respective target provinces.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal had been achieved at the time of the ex-post evaluation. The rate of deforestation and/or forest degradation has been measured and officially recognized as an annual rate of change of forest cover is minus 3.5% during the period between 2010 and 2018. Also, policies and measures were taken to stem deforestation since project completion (Indicator 1). The official publication of the forest cover has been set to be made every four years and accordingly stated as shown in the Table below. Also, in terms of a specific measure, FA reported that Economic Land Concessions (ELCs)[3] in 2012 have positively contributed to stemming deforestation during the period between 2010 and 2014.

<Other Impacts at the time of Ex-post Evaluation>

The project and international projects provided the counterpart member staff to have ample opportunities to learn and perform at the regional and/or international forums. The experience to represent the country significantly motivated them to take ownership of providing solutions to the difficult issues that will be noted to globally contribute to the context of climate change. No other negative impact was confirmed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) The capacity of related stakeholders is strengthened for the smooth implementation of the REDD+ strategy and policy.	Indicator 1 Necessary policies and measures in a national REDD+ strategy are drafted.	Status of the Achievement: achieved (continued) (Project Completion) - A national REDD+ strategy (NRS) has been drafted since 2014 and revised several times being duly reviewed and agreed upon by FA, FiA, and MoE in November 2015. - The outline of the NRS was presented to UNFCCC during COP21 in December 2015. (Ex-post Evaluation) The NRS was officially endorsed by the Government in 2017. MoE submitted the Action and Investment Plan (AIP) to substantiate the implementation of the NRS. The AIP was endorsed by the Government in 2021.	Terminal Evaluation Report Interviews of former C/Ps and JICA Experts of SNRM

[2] SERVIR-Mekong program is to help the five countries in the Lower Mekong Region use information provided by Earth observing satellites and geospatial technologies to manage climate risks. The region includes Cambodia, Lao PDR, Myanmar (Burma), Thailand and Vietnam. https://servir.adpc.net/about/about-servir-mekong

[3] A land concession is a contract between the Government and another actor that gives specific rights to control an area of land for a fixed period of time and for the conduct of specific activities in that area.

	Indicator 2 Policy level inter-ministerial coordination and stakeholder consultation for promoting a national REDD+ strategy is enhanced.	Status of the Achievement: achieved (continued) (Project Completion) - The REDD+ Taskforce Secretariat started operation in 2012. The Taskforce was inaugurated in 2013 by the promulgation of the "Decision on Establishment of Cambodian REDD+ Taskforce" by the Minister of Agriculture, Forestry, and Fisheries. - The project (CAM-REDD) advised the secretariat on drafts of their terms of references (TOR) to establish 4 Technical Teams: "Benefit Sharing", "Safeguard" "REDD+ Projects" and "MRV/REL." Each TOR was approved in the 1st Taskforce meeting in 2013. The 4 teams have officially commenced in 2014. - Consultation Group (CG) members were appointed, and the first CG meeting was held in 2013. (Ex-post Evaluation) The Government issued the 2nd FRL to enhance NFMS and Safeguard Information System (SIS). - Forest management frameworks ・ National Protected Area Strategic Management Plan (NPASMP) (2017-2031) was prepared by MoE and submitted to UNFCCC. Currently, the Production Forest Strategic Plan (PFSP) is in preparation by FA. - Forest law enforcement ・ FA has suppressed a total of 5,184 cases of forestry offenses from 2017 to 2020. ・ In 2019, the National Campaign was extended and rolled out on a countrywide basis. - Community-based natural resource management ・ As of 2020, there has been a total of 639 Community Forestry (CF) being established in 21 provinces. The CF is consisting of 169,483 households in the area of about 519,016 ha. ・ Through the preparation of CF management, the area of CF has been expanded. The livelihood and capacity of CF members have been enhanced, thus increasing their income level by 20% per year. - FRL and NFMS ・ The 1st FRL was submitted to UNFCCC in 2017 and the upgraded FRL (2nd FRL) was submitted in 2021. NFMS has been continuously upgraded through the activities of FCPF II. - SIS ・ The first Summary of Information on Safeguard was submitted to UNFCCC in 2019. - REDD+ nesting[4] ・ Prakas (Ministerial Decree) and technical guidelines for REDD+ nesting have been accepted by MoE.	Terminal Evaluation Report Interviews of former C/Ps and JICA Experts
(Overall Goal) Sustainable forest management as a mitigation measure against climate change is promoted based on the experiences of REDD+ implementation.	Indicator 1 The rate of deforestation and/or forest degradation is officially recognized, and policies and measures are largely taken to reduce it.	(Ex-post Evaluation) achieved According to MoE and FA, the official publication of the forest cover has been set to be made every four years. According to FA, it was deemed that distribution of land to the affected people through ELCs in 2012 has positively contributed to stemming deforestation between 2010 and 2014. However, the moratorium on the granting of new ELC in 2012 was made and revoked around 1 million ha from a total of 2.5 million ha in 2016. And no ELCs was engaged since. Thus, it suggested that the current total area for ELCs might be equivalent to around 1.5 million ha.	Questionnaire response from FA Cambodia Forest Cover 2018

Table: Forest Cover in Cambodia

Natural forest (ha)	2010 Baseline*[1]	2014	2016	2018	Change from the base year	Annual change
Evergreen forest	3,573,437	2,973,903	2,861,233	2,799,032	-22%	-3.0%
Semi-evergreen forest	1,391,117	1,108,320	1,071,947	1,038,969	-25%	-3.6%
Deciduous forest	4,498,397	3,480,532	3,336,349	3,205,830	-29%	-4.1%
Pine forest	988,472	907,420	865,380	835,323	-15%	-2.1%
Bamboo						
Mangrove						
Rea mangrove						
Flooded forest						
Forest regrowth						
Overall	10,451,423	8,470,175	8,134,909	7,879,154	-23%	-3.5%

Note 1: Cambodia Forest Cover 2010 (Initial Forest Reference Level for Cambodia under the UNFCCC Framework, Annex 4, p. 60, Table 2)

3 Efficiency

[4] A country may need to decide whether it wants to "nest" an existing local project within the larger scale reference level. Jurisdictional approaches have the ability to access and integrate a range of financial streams, from which local projects can benefit. As such, local projects and national REDD+ efforts could be mutually beneficial, but since both tend to be developed following different guidelines or requirements, they need to be reconciled. http://www.fao.org/redd/news/detail/en/c/1175327/

Although the project period was as planned (ratio against the plan: 100%), the project cost slightly exceeded the plan (ratio against the plan: 101 %). The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

At the time of the ex-post evaluation, being aligned with the international agreement on climate change, the overall policy on REDD+ has remained to be coherently enhanced as described above. MoE and FA have been implementing the NRS and duly engaged in forest monitoring further through the technical support of the ongoing bilateral and multilateral cooperation project and program. The policy framework on the forestry sector has also remained guided by NPASMP.

< Institutional/Organizational Aspect>

In order to further efficient NFMS implementation, the main responsibility on management of the protected forest and forest conservation areas was assigned to MoE from MAFF. ELCs were passed to MAFF from MoE on April 28, 2016. As a result, the key project counterpart personnel of FA were transferred to MoE accordingly. Moreover, With the transfer of jurisdiction to the concerned local authorities (Cantonments, Divisions, and Triage), the FA staff previously engaged in cantonments were transferred to each provincial authority. From the perspective of staffing, MoE and FA perceived sufficient to promote the planned NRS implementation. Also, approximately 50 staff members of FA were assigned to GIS Remote Sensing and National Forest Inventory team. However according to the survey result, to oversee the implementation at the subnational level, they needed to forge stronger linkages and communications between national and sub-national levels.

<Technical Aspect>

According to the survey results, MoE officials have acquired the necessary skills and knowledge so that they are then capable of training officials at the sub-national level. MoE senior officials sustained technical skills and knowledge of MRV, specifically, through national LU/LC mapping and forest inventory survey in the activities of FCPF II. They were aware of the importance of duly passing down to junior officials to ensure the institutional memory of the skillset. FA has continued to apply the knowledge gained from the project to assess Cambodia's forest cover in 2018. It was imperative for them to methodically apply the principles and methods in the interpretation of forest cover, which includes verification of the accuracy of the results. In addition, the senior officials in FA were mandated to transfer the knowledge to younger officials through on-the-job training by utilizing National Forest Inventory Manual, etc. It was deemed that FA officials have been keen to obtain more knowledge about any new technology both within and outside their organizations such as Differential Global Positioning System. However, the capacity development of the sub-national level on forest monitoring, tracking, and reporting remained to be a challenge and duly required institutional efforts to realize its full potential. It is also observed that the understanding of eliciting the incentives for the local communities has been still limited and superficial at the central level, although their substantive contributions are the fundament of ensuring effective enforcement of the REDD+ related strategies and activities.

<Financial Aspect>

The survey results confirmed that the government budget for the implementation of NRS has been sufficiently allocated to MoE and FA. They reported that they have generated carbon credit revenue[5]. Also, they have had financial support from bilateral/multilateral donors especially for the capacity development and forest monitoring activities (e.g. United Nations Development Programme (UNDP) for FCPF II). The Government was in the process to submit SAP proposals[6] under Global Carbon Fund to secure a budget for future REDD+ activities. However, according to the survey result, it was observed that the budget allocation has been quite limited for the relevant operation at the sub-national level over multiple conflicting priorities at the national level. That resulted in an imminent challenge to maintain essential activities including field verification work (forest cover mapping) and daily patrol at the sub-national level.

<Evaluation Result>

In light of the above, Slight problems have been observed in terms of the institutional/organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project has achieved the Project Purpose and the Overall Goal as the capacity and readiness of implementing REDD+ were strengthened. Furthermore, it was confirmed a track record of forest cover, and necessary measures were examined to stem deforestation. As for sustainability, whereas it was confirmed that it addressed the in terms of policy aspect, some institutional/organizational, technical issues were remaining to be solved at the sub-national level. Also, there were concerns about the budget allocation for country-wide dissemination and extension to be duly implemented at the sub-national level. As for efficiency, the project cost slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- In order to further enhance the sustainability of the project as well as the impact in terms of NRS implementation at the subnational level, the capacity development of officials stationed in the target rural areas is required for further attention of relevant policymakers at the central level. It is imperative to enable them to regularly monitor and update the status of deforestation and forest cover in the National Forest Monitoring System. To do so, there is a specific need in the official stationed at the sub-national level to methodically track the field status on the map and report information and/data back to the central level in a timely manner.
- In order to further enhance the sustainability of the project as well as the impact in terms of investment to promote NRS implementation in the framework of AIP, how best to mobilize and coordinate resources should be further examined. Primarily, it is essential to establish the workable mechanism and institutional arrangement at the central level for information sharing, monitoring, and controlling the risks entailed in the investment such as illegal logging.
- In order to reduce deforestation at the sub-national level, it is critical to focus on mitigating the root of the deforestation problem:

[5] A net reduction of 645,410 tons of carbon dioxide has been monitored and recorded in the FA's pilot project during the period between January 2015 and December 2019.

[6] MRV methods developed in CAM-REDD was further enhanced in FCPF II program which will be ended in December 2021. If this proposal for Simplified Approval Process is accepted, the activities of FCPF II is expected to be succeeded by the fund of GCF.

pervasive poverty and people not being fully informed of the gravity in the rural area. Thus, it is recommended to formulate a program to improve the livelihood of local communities in the vicinity of target forests in close collaboration with NGOs and donors. Furthermore, it is also important to amply familiarize local communities and officials with related law/regulations and civil duties, so that the government would be able to deter unresponsible behaviors to aggravate the situation at the sub-national level.

Lessons Learned for JICA:

Although the project has achieved the objectives as planned, the financial aspect of sustainability has remained questionable in terms of continuation of capacity development as it is especially imperative to enhance at the sub-national level. Yet, JICA's program-based approach and initiated donor coordination in implementing the cooperation were pivotal to the capacity building to implement REDD+. Such strategic modality should be continued for the technical cooperation, to support the long-standing transboundary issue notably as climate change. Where an issue requires full ownership and long-term capacity building of the recipient country, a comprehensive, overarching program-based approach should be pursued and emulated.

Opening Ceremony for Stakeholders Consultation Workshop on Kampong Thom Forest Management Plan 2013-2017

Group Breaking Activities on Improving the Forest Management Plan

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Cambodia Office: April, 2022

Country Name	The Project for Strengthening Capacity for Maintenance of Roads and Bridges
Kingdom of Cambodia	

I. Project Outline

Background	In Cambodia, major means of transportation were road, railway, and water transportation, and particularly road transportation played a significant role. However, many roads were old, constructed in 1920s-1930s, and the civil war since 1970 devastated major roads and bridges. Heavy traffic by overloaded vehicles, periodic river floods, and others also brought about severe damages to roads and bridges. In response, donors, including JICA, provided supports such as restoration and rehabilitation of roads and bridges and the planning. Consequently, the capacity on road maintenance of the Ministry of Public Works and Transport (MPWT), the agency responsible for maintenance of roads and bridges, was enhanced. On the other hand, a systematic institution to appropriately request a budget on road maintenance was not established, and as for bridge maintenance, even fundamental works such as periodical inspection were not undertaken. Under such situation, a technical cooperation, "The Study on the Improvement of the Existing Bridges along the National Roads in Cambodia" (2012-2013) was implemented by JICA. The results of the study indicated necessity to rehabilitate around 200 bridges among the bridges under MPWT and the Ministry of Rural Development and to strengthen the MPWT's capacity on bridge maintenance.		
Objectives of the Project	Through proposing and implementation of a bridge maintenance strategic plan with the annual action plan, development of road/bridge maintenance manuals and repair manuals, inspection of bridges and roads based on the manuals, provision of training programs to foster maintenance experts, and holding seminars on road/bridge inspection and repair for other related agencies, the project aimed at enhancing capacity of Road Infrastructure Department (RID) to supervise implementing bodies maintaining roads and bridges, thereby contributing to managing appropriate maintenance of roads and bridges by MPWT.		
	1. Overall Goal: Appropriate maintenance of roads and bridges is managed by MPWT. 2. Project Purpose: Capacity of RID to supervise implementing bodies maintaining roads and bridges are enhanced.		
Activities of the Project	1. Project site: the whole area of Cambodia 2. Main activities: 1) Proposing and implementation of a bridge maintenance strategic plan with the annual action plan, 2) Development of road/bridge maintenance manuals and repair manuals, 3) Inspection of bridges and roads based on the manuals, 4) Provision of training programs to foster maintenance experts, 5) Holding seminars on road/bridge inspection and repair for other related agencies, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 21 persons 2) Trainees received in Japan: 21 persons 3) Trainees received from the third country: 9 persons (the Philippines) 4) Equipment: Dynamic Response Intelligent Monitoring System, PCs, inspection camera, etc. 5) Local expense: cost for project activities Cambodian Side 1) Staff allocated: 35 persons 2) Land and facility: an office space in Road Infrastructure Department 3) Local expense: utility cost, travel cost, implementation cost for pilot repair work, etc.		
Project Period	(ex-ante) March 2015 – March 2018 (actual) April 2015 – March 2018	Project Cost	(ex-ante) 300 million yen, (actual) 407 million yen
Implementing Agency	Road Infrastructure Department of Ministry of Public Works and Transport		
Cooperation Agency in Japan	CTI Engineering International Co., LTD. Hanshin Expressway Company Limited		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Verification of the continuous status of project effects: the ex-post evaluation verified the continuation status of indicator 1, 2 of the Project Purpose by assessing the achievement status of the Overall Goal. The continuation status of rest of the indicators of the Project Purpose were verified by checking the Financial and Technical aspects of Sustainability.

1 Relevance

<Consistency with the Development Policy of Cambodia at the time of Ex-ante Evaluation>

The project was consistent with the Cambodian development policies such as "Rectangular Strategy Phase 3" (2014-2018) promoting development of transport infrastructure, including maintenance of roads and bridges, as a means for economic growth and poverty reduction though "infrastructure development" set as one of the strategies.

<Consistency with the Development Needs of Cambodia at the time of Ex-ante Evaluation>

The project was consistent with the Cambodian development needs for strengthening the MPWT's capacity on bridge maintenance.

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

The project was consistent with the Japan's ODA policy for Cambodia. "The Country Assistance Policy for Kingdom of Cambodia" (2012) set "strengthening of economic foundation", including "development of economic infrastructure", as one of the priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. Inspection results done by the three target Department of Public Works and Transport (DPWTs) was approved by RID based on the manuals by the end of the project (Indicator 1). Repair results done by the two target DPWTs was approved by RID based on the manuals by the end of the project (Indicator 2). RID developed a short-term program budgeting for road and bridge maintenance at a national level (Indicator 3). The road and bridge maintenance cycle was shared with to concerned offices and units (Indicator 4). Maintenance budget of road and bridge was prepared by RID according to the road and bridge maintenance cycle (Indicator 5).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The current status of the indicators for the Project Purpose was verified by assessing the achievement status of the Overall Goal.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved at the time of ex-post evaluation based on the data collected for four indicators.

The road and bridge database have been updated at the end of every year since the project completion (Indicator 1). Road and bridge annual maintenance plans have been updated at the end of every year based on the updated database (Indicator 2). The road and bridge maintenance have been carried out under supervision of RID based on the maintenance plans and the maintenance and repair manuals since project completion (Indicator 3). The road maintenance and repair manuals and the bridge maintenance and repair manuals could not be reviewed. However, considering that it was due to the pandemic of Covid-19 and RID plans to review in 2022, this indicator can be treated as “not verifiable” (Indicator 4).

<Other Impacts at the time of Ex-post Evaluation>

Neither positive nor negative impacts were observed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Capacity of RID to supervise implementing bodies maintaining roads and bridges is enhanced.	Indicator 1: Inspection results done by the three target DPWTs are approved by RID based on the manuals by the end of the project.	Status of the Achievement: Achieved (Continued) (Project Completion) • All 1-digit roads and selected roads (not limited to the target DPWTs) were inspected based on the manual. • All bridges under DPWTs (not limited to the target DPWTs) were inspected based on the manual. • The above results were approved by RID. (Ex-post evaluation) Refer to the Indicator 1-3 of the Overall Goal. The road and bridge maintenance is carried out based on the road and bridge maintenance plan and the maintenance and repair manuals.	Project Completion Report (EN)
	Indicator 2: Repair results done by the two target DPWTs are approved by RID based on the manuals by the end of the project.	Status of the Achievement: Achieved (Continued) (Project Completion) • The repair results done during the project were approved by RID. (Ex-post Evaluation) Refer to the Indicator 1-3 of the Overall Goal. The road and bridge maintenance is carried out based on the road and bridge maintenance plan and the maintenance and repair manuals.	Project Completion Report (EN)
	Indicator 3: The above two target DPWTs prepare a draft budget for road and bridge maintenance for FY 2018 respectively within pre-agreed schedule.	Status of the Achievement: Achieved (Partially continued) (Project Completion) • RID developed a short-term program budgeting for road and bridge maintenance at a national level. (Ex-post Evaluation) Refer to the Financial Aspects of the Sustainability. RID has prepared the budget for road and bridge maintenance since the project completion, although the proposed budget was not approved fully.	Project Completion Report (EN)
	Indicator 4: Road and bridge maintenance cycle is explained and shared to concerned offices and units at the project warp-up seminar.	Status of the Achievement: Achieved (Continued) (Project Completion) • The road and bridge maintenance cycle was shared with the following agencies. ➢ Within MPWT: Department of Equipment and Roads Rehabilitation, Department of Sub-National Public Infrastructure and Engineering, Public Works Research Center, Department of Roads Repair and Maintenance ➢ DPWT: All DPWTs (25) ➢ Ministry of Economic and Finance ➢ The Institute of Technology of Cambodia (Ex-post Evaluation) Refer to the Technical Aspects of the Sustainability. RID has conducted a seminar to show the bridge inspection result.	Project Completion Report (EN)

<table>
<tr><td></td><td>Indicator 5: Maintenance budget of road and bridge is prepared by RID according to the road and bridge maintenance cycle.</td><td>Status of the Achievement: Achieved (Partially continued)
(Project Completion)
<Road>
• RID improved the road maintenance budget by having road condition survey results.
<Bridge>
• RID prepared the bridge maintenance budget.
(Ex-post Evaluation)
Refer to the Financial Aspects of the Sustainability. RID has prepared the budget for road and bridge maintenance since the project completion, although the proposed budget was not approved fully.</td><td>Project Completion Report (EN)</td></tr>
<tr><td rowspan="4">(Overall Goal)
Appropriate maintenance of roads and bridges is managed by MPWT.</td><td>Indicator 1: The road and bridge database is updated once / a year.</td><td>Status of the Achievement: Achieved
(Ex-post Evaluation)
<Road>
• The road and bridge database have been updated since the project completion under the regular responsibility of RID and all DPWTs. The database is updated at the end of every year.
<Bridge>
• Every year RID inspects approximately 450 bridges as the regular responsibility. The bridge database is updated at the end of each year. It is important to note that the target of the bridge inspection in the completion report was set at 500 bridge per year. In this regard, RID achieved around 90% of the target.</td><td>Interviews with RID and DPWTs and observation</td></tr>
<tr><td>Indicator 2: Road and bridge maintenance plans are updated once / a year based on the result of the road and bridge database updated.</td><td>Status of the Achievement: Achieved
(Ex-post Evaluation)
• Road and bridge annual maintenance plans are set as the regular responsibility of RID, are updated at the end of every year based on the updated database, and are closely linked to the annual budget request by MPWT to the Ministry of Economy and Finance. Every year, the technical working group of the two ministries confirms the request of MPWT before suggesting it to the higher level naming the Inter-Ministerial Committee on Maintenance of Roads, Bridges, Railways, and River Ports. The approved maintenance plans are subjected to the budget availability of the Royal Government of Cambodia allocated under budget chapter of 61 (total annual maintenance budget).</td><td>Interview with RID, and reviews of related official documents</td></tr>
<tr><td>Indicator 3: Road and bridge maintenance is carried out based on the road and bridge maintenance plan and the maintenance and repair manuals, under supervision of RID.</td><td>Status of the Achievement: Achieved
(Ex-post Evaluation)
• RID plays important role as the consultant to supervise the road and bridge maintenance and construction. The maintenance work is classified as routine maintenance, periodic maintenance and reconstruction based on the level of the damage.
• Updated result of road maintenance is shown in the table below.
[Updated Results of Road Maintenance]
<table>
<tr><th>Description</th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>Target (km)</td><td>5,000</td><td>5,000</td><td>5,000</td></tr>
<tr><td>Actual (km)</td><td>3,335</td><td>5,086</td><td>2,500
(6 months)</td></tr>
<tr><td>Achievement ratio (%)</td><td>67%</td><td>102%</td><td>50%</td></tr>
</table>
Note 1: Target was set at the 3rd Joint Review Meeting in February 2018 and was not updated every year based on the actual result.
Note 2: The reasons of low achievement ratio in 2019 were the occurrence of a natural disaster interrupting the maintenance work and the transition period to arrange or mobilize its resources to carry out the maintenance work properly.
• Regarding the bridge, 15-20 sever damaged were reconstructed from 2018 to 2020, similarly 15-20 damaged bridges were repaired per year including emergency cases (set target 8 bridges per year).</td><td>Interview and observation</td></tr>
<tr><td>Indicator 4: The road maintenance and repair manuals, and the bridge maintenance and repair manuals are regularly reviewed.</td><td>Status of the Achievement: Not verifiable
(Ex-post Evaluation)
• RID plans to review these manuals every three years. Since the project completion, 2021 is the year for the review. However, it is postponed to 2022 due to the current situation of Covid-19. Nevertheless, according to RID and DPWTs technical evaluation, the existing manuals are still useful within current situation in Cambodia and are used in their daily work.</td><td>Interviews of RID and selected DPWTs and observation</td></tr>
</table>

3 Efficiency

Although the project period was as planned (ratio against the plan: 97%), because of combined factor, the project cost exceeded the plan(ratio against the plan: 136%). Outputs were produced as planned. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

The road and bridge maintenance has been still priority for Royal Government of Cambodia, since related policies and strategies of MPWT and MEF, such as MPWT Budget Strategic Plan, Circular on Guidelines on Preparation of the Annual Financial Law and Circular No. 242 MEF on the Establishment and Roles of Inter-Ministerial Committee on Repair and Maintenance of Roads, Bridges, Railways, and River Ports, aim to address the development issue of road and bridge maintenance.

<Institutional/Organizational Aspect>

There have been no changes in the way negatively impact the outputs of the project to promote/disseminate road and bridge maintenance targeted by the project. RID has sufficient number of staff to promote/disseminate road and bridge maintenance targeted by the project.

<Technical Aspect>

With the road maintenance work conducted every year and the available road and bridge maintenance manuals, RID and DPWT staffs are practicing their skills on their daily work. Thus, their technical skills are sustained. All the manuals are also utilized as references and guidelines are regularly utilized. RID did not conduct the maintenance expert training program, instead conducted On the Job Training (OJT) for road and bridge inspection, and delivered a seminar to show the result of bridge inspection of the previous year.

<Financial Aspect>

The budget for functioning the key responsibility of RID, including the implementation of the annual maintenance plan, after the project completion are secured every year to some extent, although the budget for the implementation of the annual maintenance plan was approved lower than proposed RID tries to manage not less than 90% of the target repairs and maintenance using the approved budget.

[Budget for road and bridge maintenance] (Million US dollars)

2017 (Actual)	2018 (Actual)	2019 (Actual)	2020 (Actual)	2021 (Plan)	2022 (Plan)
148.75	160	164.63	123.60	125	130

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and the Overall Goal to manage appropriate maintenance of roads and bridges by MPWT, through the enhancement of capacity of RID. Regarding sustainability, although there had been slight problems in conducting the maintenance expert training program and securing the budget for the implementation of the annual maintenance the technical skills are sustained and RID tries to manage not less than 90% of the target repairs and maintenance using the approved budget. As for efficiency, the project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[Maintenance Expert Training Program]

MPWT/RID should conduct maintenance expert training program, connect the expert training program with existing programs of other related institutions and develop the maintenance of road and bridge syllabus for the Institute of the Public Work and Transport to scale out the awareness and capacity development for the young generation engineers employed by MPWT/RID as the officials in public work and transport.

[Updates of Road and Bridge Maintenance Manuals (outputs of the project)]

MPWT/RID should continuously update the manuals by the following procedures:

- Technical workshop to review existing manuals
- Working group to update the manual
- Dissemination workshop on the drafts
- Approval of the competent authority of MPWT
- Notification of the updated guideline to all DPWTs
- Follow-up training and capacity development from RID to DPWT

[Promotion of the awareness of the project outputs among member of the Inter-Ministerial Committee for Repairs and Maintenance of Roads, Bridges, Railways, and River Ports]

MPWT/RID should conduct regular presentations or workshop to promote the awareness of the project outputs among Inter-Ministerial Committee for Repairs and Maintenance of Roads, Bridges, Railways, and River Ports and discuss the three-year maintenance plan and annual plan within the committee.

Lessons Learned for JICA:

None

	
Inspection Ruessei Srok Bridge along NR21B (previously known as NR110, where pilot project was conducted,	The reparing work is in good condition

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Laos Office: September, 2022

Country Name	**Project for Urban Water Environment Improvement in Vientiane Capital**
Lao People's Democratic Republic	

I. Project Outline

Background	In Vientiane Capital (VC), Laos, there had been a concern about deterioration of river water quality in urban areas due to an increase in untreated wastewater caused by the recent rapid economic development, which had led to a higher standard of living and population growth. In addition, due to development of large-scale infrastructures such as industrial parks and commercial facilities, the amount of wastewater from business establishments containing chemical substances was increasing, and the increase in the amount of pollutants (generated pollution load) was expected to become an issue in the future. Therefore, it had become important to improve the sewage management system by formulating an appropriate sewage management plan for the future taking measures against pollution sources such as industrial effluents, establishing a system for monitoring water quality in rivers, etc., and developing and operating related laws and regulations after identification of pollution sources and loads.		
Objectives of the Project	Through (i) strengthening capacity for planning and designing of structural and ecological measures for wastewater treatment, (ii) strengthening the operation of legal and regulatory framework for septic tanks and decentralized wastewater treatment facilities, (iii) strengthening the operational capacity of legal and regulatory framework for industrial wastewater, and (iv) raising people's awareness, the project aimed at strengthening the institutional framework and organizations for wastewater management in Vientiane capital and thereby contributing to the continuous implementation of water environmental management. 1. Overall Goal: Water environmental management is continuously implemented. 2. Project Purpose: The institutional framework and organizations are strengthened for wastewater treatment in Vientiane capital through participatory approach.		
Activities of the project	1. Project site: Vientiane Capital 2. Main activities: (i) strengthening capacity for planning and designing of structural and ecological measures for wastewater treatment, (ii) strengthening the operation of legal and regulatory framework for septic tanks and decentralized wastewater treatment facilities, (iii) strengthening the operational capacity of legal and regulatory framework for industrial wastewater, and (iv) raising people's awareness 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 7 persons 2) Trainees received: 14 persons 3) Equipment: Water Sampler with Stick, Dissolved Oxygen Meter, Heating & Drying Oven, etc. Lao Side 1) Staff allocated: 22 persons 2) Land and facilities: Project office 3) Operating expenses: travel expenses for the counterparts, utility for the project office		
Project Period	(ex-ante) July 2014-June 2017 (actual) October 2014-October2017	Project Cost	(ex-ante) 258 million yen, (actual) 343 million yen
Implementing Agency	Department of Public Works and Transport, VC (DPWT), Department of Natural Resources and Environment, VC (DoNRE) and others		
Cooperation Agency in Japan	NIHON SUIDO CONSULTANTS CO., LTD.		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Laos at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Laos. The government formulated a national environmental strategy with a target year of 2020 to achieve appropriate conservation and environmental management of the natural environment. The strategy identified eight priority areas, and water environment management was one of them under "implementation of measures for sustainable development".

<Consistency with the Development Needs of Laos at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Laos for wastewater management. As mentioned above ("Background"), deterioration of river water quality in VC and the increase in the amount of pollutants were issues.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with "Country Assistance Policy for the People's Democratic Republic of Laos" (April, 2012). Under one of the priority areas "Development of social and economic infrastructure", Japan was going to provide support to help build a comfortable society in harmony with the environment (environmental management, water treatment plants, urban planning, etc.) in order to achieve balanced economic development.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved. Counterparts applied skills/knowledge learned (Indicator 1), roles of the relevant authorities for water environmental management were identified and active participation of the citizens in water environment improvement continued (Indicator 2), and the final draft of "Strategy of Wastewater Management in Vientiane Capital" was discussed in public hearing, though not endorsed by the Assembly of VC nor confirmed by relevant Ministries (Indicator 3).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

As mentioned above, the continuation status of the project effects was analyzed as factors to achieve the Overall Goal. Skills and technologies acquired under the project have been continuously utilized, which has contributed to the Overall Goal.

At the pilot project site, the introduced Decentralized Wastewater Treatment System (DEWAT System) has been well maintained as it is desludged regularly and the maintenance fee has been regularly collected in accordance with the management guidance by DPWT-VC, thus far. As for environmental awareness activities, the school plastic waste separation and community canal cleaning have still been carried on. On the other hand, environmental education in primary schools and communities with side reader, poster, and card game did not continue after the project completion as primary schools have their own environmental textbook providing basic environmental education. It also indirectly contribute to the project output.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved, as water environmental management has been continuously implemented.

First, a water environmental management committee has been working as a mechanism to discuss and exchange the information on wastewater.

Second, the technologies/models introduced under the project have been continuously utilized. Based on the "Standard Designs and Guidelines for the Proper Installation and Maintenance of Decentralized Wastewater Treatment Facilities" developed under the project, DEWAT System has been replicated in 13 slaughterhouses and some small-scale noodle factories in Vientiane Capital. The "Inspection Guideline" have been fully utilized by Department of Industry and Commerce, VC (DoIC-VC) and DoNRE-VC in term of water quality inspection and monitoring. DPWT-VC submitted the financial proposal to Department of Planning and Investment of VC for promoting the construction of septic tanks to be applied at Engineering Faculty of National University of Lao (NOUL) in Sokpaluang village by using technology and design developed by the project. This septic tank will be a model standard in near future.

Third, based on the "Inspection Guideline" mentioned above, DoNRE-VC and DoIC-VC have conducted inspections regularly. However, citizen participation (environmental education and community cleaning) has been somewhat limited due to community budget constraint.

As for the "Strategy for Wastewater Treatment in Vientiane Capital" which formulation was supported by the project, DPWT-VC has revised and improved it: however, the authorization of the said strategy has been suspended due to the change in environmental improvement direction of Vientiane Capital. The Government of Laos obtained the non-interest loan from the Government of Hungary for a development project for construction of a wastewater treatment plant with DWPT-VC as an implementing agency. The Feasibility Study (F/S) on wastewater management regulation, centralized wastewater development plan and the centralized wastewater treatment plant was conducted, and has just endorsed by the Government Office and Vientiane Capital. This non-interest loan project will be implemented mostly in line with the draft "Strategy on Wastewater Management in Vientiane Capital", maximizes the use of data and information analyzed by the project though some information on the action plans in the strategy was reconsidered and redirected.

<Other Impacts at the time of Ex-post Evaluation>

No negative impacts on the natural environment are observed. There have been no land acquisition and resettlement.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) The institutional framework and organizations are strengthened for wastewater treatment in Vientiane capital through participatory approach.	Indicator 1: At least 80% of trainees are applying skills/ knowledge learned during the training organized by the project.	Status of the Achievement: partially achieved/(continued) (Project Completion) - It was observed that water analysis, industrial wastewater management and environmental education activities had been practiced continuously. - For instance, the teachers who participated in the training of trainers now teach environmental education to their students with tools such as posters and card games introduced by the Project in the designated 10 environmental education model schools. - DPWT-VC also apply the knowledge from the Project to prepare the guidelines for DEWATS and septic tanks. (Ex-post Evaluation) - The counterparts involved in the project activities and training have mostly utilized their knowledge, experiences, and lessons learnt obtained during the project implementation in their routine works, for instance, DoIC-VC officers have developed their own factory monitoring checklist, and DoNRE-VC also have conducted the factory wastewater quality tests in regular basis. - The introduced DEWAT System constructed in Ban Thongkhankham Village has been still used properly by 23 households as it is well maintained in regular basis. In addition, village authority based on the suggestion by the project team formulated its own management regulation and has hired a village worker to operate the system. According to the regulation, the maintenance fee of 5,000 LAK per month per household or 60,000 LAK per year per household has been also regularly collected and utilized for operation and maintenance purposes and worker salary.	JICA documents and interviews at the time of ex-post evaluation with DPWT, DoIC and DoNRE of Vientiane Capital
	Indicator 2:	Status of the Achievement: achieved/ (partially continued)	

	Roles of the relevant authorities for water environmental management are identified and active participation of the citizens in water environment improvement is continued.	(Project Completion) - Through a series of discussion on roles for water environmental management among the authorities concerned at JCC, a plan of demarcation of the roles was prepared by the Project. Discussions were held based on lectures on the experiences in Japan and other developing countries. - Roles of the relevant authorities for water environmental management were identified, though the documents on roles for water environmental management are necessary to be approved by the authorities concerned. - Regarding active participation of the citizens in improvement of environmental activities, it is observed that positive water environment management activities such as reestablishment of management system by users in Thongkhangkham Village, campaigns for cleaning canals and desludging septic tanks by local community have been observed. - In addition, it was confirmed that some schools which participated in the environmental education program by the Project had been continuing cleaning activities in collaboration with neighboring communities. (Ex-post Evaluation) The school plastic waste separation and community canal cleaning have still been carried on.	
	Indicator 3: Strategy for Wastewater Treatment in Vientiane Capital", including proposed zoning, sewerage networks, utilization of EU Pond as a candidate site for Wastewater Treatment Plant, and management system with proper legal framework, planning, monitoring and evaluation for water environmental management in Vientiane Capital is prepared after at least one public hearing and endorsed by the competent authority.	Status of the Achievement: partially achieved (partially continued) (Project Completion) - The final draft of "Strategy of Wastewater Management in Vientiane Capital" was discussed in public hearing held on August 16, 2017. - "Strategy of Wastewater Management in Vientiane Capital" was expected to be endorsed by Assembly of VC and confirmed by relevant Ministries. - Though land of EU pond was made concession by the VC, alternative land for Wastewater Treatment Plants were set up in Sikottabong Park and That Luang Marsh and agreed by the VC as well. (Ex-post Evaluation) See the indicator 4, Overall Goal below.	
(Overall Goal) Water environmental management is continuously implemented.	Indicator 1: A collaborative coordinating body/ mechanism recommended in the project is functional continuously, holding regular meeting and making important decisions regarding water environmental management.	Status of achievement: achieved (Ex-post Evaluation) - A water environmental management committee, which was established under the non-interest loan project from the Government of Hungary, has been working as a mechanism to discuss and exchange the information regarding wastewater in Vientiane Capital. They have held regular meetings and made decisions on wastewater management in a timely manner. - In addition, the committee, based on the recommendation from the Government Office, has been promoted to the broader committee, which is comprised of representatives from line ministries and local departments. The main task for this committee has been to discuss the F/S Result, especially consideration of wastewater management regulations and the centralized wastewater development plan.	Questionnaire and face-to-face interview with DPWT of VC
	Indicator 2: The technologies/ models introduced by the project are replicated in another area/ site in Vientiane Capital.	Status of achievement: achieved (Ex-post Evaluation) Status of technologies/models: - Based on the "Standard Designs and Guidelines for the Proper Installation and Maintenance of Decentralized Wastewater Treatment Facilities", DEWAT System has been replicated in 13 slaughterhouses out of total 23 proposed slaughterhouses, and some small-scale noodle factories in Vientiane Capital. - The technical standards and guidelines of on-site treatment have been utilized by DoIC-VC as the tool to control the standard of the factories and the environmental consideration. As mentioned above, small-scale factories, especially the newly-established factories, are inspected utilizing the checklist in the technical standard, and must be equipped with the small-scale DEWAT Systems. - The "Inspection Guideline" have been fully utilized by DoIC-VC and DoNRE-VC in term of water quality inspection and monitoring. Currently, DoIC-VC conducts the factory inspection once a year prior renewal of business license for factories. - Regarding the water quality monitoring, DoNRE-VC has played its important role in providing water quality test service for those factories and slaughterhouses in Vientiane Capital. - Based on the experience of the project, Vientiane Capital Office for Management and Services (VCOMS) (Former Vientiane Urban Development and	Interviews with DPWT; Deputy Director of Department oDoIC l; Site visit in Ban Thongkhankham village (DEWAT system) and an interview with Siphonexay—Thongkhankhame's Village Head.

<table>
<tr><td></td><td></td><td>Administration Agency, VC), after project completion, developed the regulation on fecal sludge management in Vientiane Capital Ref. No. 0522, which was officially approved by Vientiane Capital on May 31, 2018. The regulation has already been disseminated and taken into force.
- DPWT-VC submitted the financial proposal to Department of Planning and Investment of VC for promoting the construction of septic tanks to be applied at Engineering Faculty of National University of Lao (NOUL) in Sokpaluang village by using technology and design developed by the project. This septic tank will be a model standard in near future.</td><td></td></tr>
<tr><td></td><td>Indicator 3:
The number of regular inspection is increased.</td><td>Status of achievement: achieved
(Ex-post Evaluation)
Before the project, no regular inspection was conducted. Under the rapid expansion of communities in VC, DoIC-VC strictly controls the management of the factories, and renewal of business license in order to mitigate the environmentally negative impacts to communities. Therefore, DoIC-VC and DoNRE-V C work together in term of environmental monitoring and water quality inspection. The proper inspection of wastewater treatment is conducted once a year or within three years depend on the duration of business license issued by DoIC-VC; all budget for these inspections remunerated by business/enterprise owners. As another outstanding case of DoIC-VC, one of considerations for issuing manufacture/business license is using DEWAT System based on the project's design guideline.
<table><tr><td>Organization</td><td>Outline of actual practice</td></tr><tr><td>DoIC</td><td>Inspection of wastewater treatment facility and monitoring of environmental conditions, and renewal of business licenses.</td></tr><tr><td>DoNRE</td><td>Factory wastewater inspection and water quality test services</td></tr></table></td><td>Interviews with DoIC of VC</td></tr>
<tr><td></td><td>Indicator 4:
There is clear evidence that "Strategy for Wastewater Treatment in Vientiane Capital" is referred to during important decision-making discussions among policy makers."</td><td>(Ex-post Evaluation) partially achieved
DPWT-VC has revised and improved the draft "Strategy of Wastewater Management in Vientiane Capital". However, the authorization of the said strategy has been suspended due to the change in environmental improvement direction of Vientiane Capital. The Government of Laos got the non-interest loan from the Government of Hungary for a development project for construction of a wastewater treatment plant with DWPT-VC as an implementing agency, and Feasibility Study (F/S) on wastewater management regulation, centralized wastewater development plan and the centralized wastewater treatment plant was conducted and has just endorsed by the Government Office and Vientiane Capital. This non-interest loan project will be implemented mostly in line with the draft "Strategy on Wastewater Management in Vientiane Capital", maximizes the use of data and information analyzed by the project though some information on the action plans in the strategy was reconsidered and redirected.</td><td>Interviews with, DPWT of VC Deputy head</td></tr>
</table>

3 Efficiency

Both project cost and project period exceeded the plan (the ratio against the plan: 133%, 103%). Outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

There has been policy support to sustain the project effects. Under the Department of Water Supply and Sanitation, Ministry of Public Works and Transport (MPWT), "The vision till 2035, strategy for water supply and sanitation development 2021-2030 and development plan 2021-2025" has been formulated and adopted by the Government Office. DoIC-VC formulated the strategy for developing of green manufacture cum-environmental friendly in combination of proper minimize of pollution as well as treatment of released wastewater.

< Institutional/Organizational Aspect>

Though sanitation sector was moved to the new department called the Department of Water Supply in MPWT at national level, the reform has not been reflected to the provincial level yet. So, DPWT-VC, the key counterpart of the project, still carries on its mandate in term of wastewater management with existing human resources. DPWT-VC has been responsible for the construction and maintenance of equipment, facilities, structures, and systems related to sewage treatment. DoNRE-VC has been in charge of water resource development and environmental management and was responsible for water pollution monitoring and environmental education during the project implementation. There has been no change regarding institutional aspect for DoNRE-VC and DoIC-VC.

The number of staff has not been sufficient at DPWT-VC, DoNRE-VC and DoIC-VC. As those counterpart organizations made reshuffle in April 2019 and some of the officials were retired, the replacement of the retired officials has not been recruited. It is the government policy to decrease the number of government official staff. However, DPWC-VC managed to keep their capacity and function as before by their effort.

<Technical Aspect>

According to DoNRE and DWPT of VC, most of the staff have been promoted to higher positions in their respective offices and departments, and they have had sufficient capacity to promote and disseminate the techniques and models developed by the project in their routine works and the management of water environment in Vientiane Capital. In addition, they have been capable to provide the guidance and direction in project implementation toward the sustainable management of the sector.

DoNRE-VC has organized laboratory O&M orientation and conducted on the job training to new staff once a year.

The most of manual/guidelines/material developed under the project have been still utilized and replicated to DPWT-VC development

projects on construction of wastewater treatment system in Vientiane Capital. At DoNRE-VC, all manual/guideline/material developed and introduced by the project were minor adapted and produced official application form for site inspection certify of wastewater release. This application form will be part of wastewater sample analysis in DoNRE's laboratory and issue business license for manufacturers and/or businesses.

<Financial Aspect>

Although the approved budget has been limited at DWPT, DoNRE and DoIC of VC, they have also tried its best effort to manage the limited budget to continue their activities, and for promoting/dissemination of the technologies/models introduced by the project. The main source of budget for these purposes has been business license extension fee collection by DoIC.As for DPWT, they have had a kind of technical support budget for some important activities. As for DoNRE, they are now well-known for small and medium, and industrial factories in term of water quality inspection and it has become a kind of commercial services for DoNRE so that they can also generate the revenue.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agencies. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose at the time of project completion. Counterparts applied skills/knowledge learned, roles of the relevant authorities for water environmental management were identified and active participation of the citizens in water environment improvement continued, and the final draft of "Strategy of Wastewater Management in Vientiane Capital" was discussed in public hearing, though not endorsed by the Assembly of VC nor confirmed by relevant Ministries. The Overall Goal has been partially achieved. A water environmental management committee has been working, the technologies/models introduced under the project have been continuously utilized, more inspections have been conducted. However, the authorization of the "Strategy for Wastewater Treatment in Vientiane Capital" have been on hold. As for the sustainability, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agencies. As for the efficiency, the project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

Most of the outputs were achieved as planned. However, there have been some constraints, caused by institutional reform at the central level, regarding the approval of the strategic plan developed and supported under the project. To realize the importance of the strategic plan on wastewater management in Vientiane Capital and materialize the objectives of the plan, Department of Public Works and Transport of Vientiane Capital and Vientiane Capital Authority shall make their initiatives and resume the approval process once the national sanitation strategy approved by the Government of Laos.

Lessons Learned for JICA:

The project had the coordination problems. As the project had a multi-sectoral structure, it was quite difficult to coordinate and collaborate cross-sectoral in order to follow up some of the activities as well as to call for a stakeholder meeting. Since the project had the counterparts from local organizations in Vientiane Capital and MPWT, Ministry of Natural Resources and Environment (MONRE), Ministry of Industry and Commerce (MOIC) and Ministry of Education and Sports (MOES), the project needed multi-sectoral management, as there were counterparts form from local organizations in Vientiane Capital and MPWT, MONRE, MOIC and MOES. It is necessary to consider carefully regarding the coordination and collaboration mechanism at the time of detail planning survey by taking the structure and relationships of central government office and local government office into account.

On the other hand, regular technical and managerial meetings have been held to update the progress of wastewater management and discuss the constraints and ways forward".

Authorized Regulation on Household Sludge Management in Vientiane Capital initiated and prepared by VCOMS

Visit to DWATS System at Ban Thongkhankham Village

conducted by Viet Nam Office: Dec, 2022

Country Name	**Project for Capacity Development on Integrated Management of Municipal Solid Waste**
Socialist Republic of Viet Nam	

I. Project Outline

Background	In the Socialist Republic of Viet Nam, the amount of solid waste increased sharply, and it was becoming increasingly difficult to find new final disposal sites in large cities because of rapid urbanization and industrialization. About 70 to 80 % of the final disposal sites (at the time of ex-ante evaluation) were inappropriately operated with open dumping, which had become a serious issue. Therefore, it was urgently required to construct engineered landfills and to minimize the waste amount by means of source separation, recycling, and intermediate treatment. The Ministry of Construction (MOC), the authority responsible for solid waste management (SWM), had intended to establish sound ordinary SWM in which separate collection, recycling facilities, and sanitary landfills are harmonized for waste minimization considering the size and characteristics of each city while gaining public understanding and cooperation. Furthermore, MOC planned to build waste treatment complexes for hazardous industrial waste, healthcare waste, and others. However, MOC had yet to realize these plans because of an inadequate legal framework, insufficient institutional arrangements, and lack of technical knowledge and skills.		
Objectives of the Project	In Viet Nam, through enhancing the capacity of MOC on management, policymaking, and support system for local governments to execute the National Strategy on Integrated Solid Waste Management (ISWM), capacity of Hanoi Department of Construction (DOC) on implementation of ISWM and technical support capacity of MOC for preparation of ISWM Master Plan (M/P) through model Province, the project aims to develop the capacity of municipal solid waste management (MSWM) comprehensively in central and local governments, thereby contributing to the establishment of the ISWM system on municipal waste in accordance with the national strategy on ISWM. 1. Overall Goal Integrated solid waste (ISWM) system on municipal solid waste* is established in accordance with the national strategy on ISWM. 2. Project Purpose: Capacity of municipal solid waste management (MSWM) is developed comprehensively in central and local governments. Note: Municipal solid waste includes ordinary waste generated from household, small production, business, and service activities in urban area. The Project does not deal with the industrial waste and medical waste.		
Activities of the Project	1. Project Site: Hanoi City, other related Provinces including Thua Thien Hue (TTH) Province 2. Main Activities: 1) (i) Capacity Development of MOC on management, policymaking, and support system on SWM: to analyze policies and legislations, to collect data and information, to conduct trainings and to draft the revision of National Strategy on ISWM. 2) (ii) Capacity development of Hanoi Department of Construction (DOC): to implement the study of the investment promotion for the construction of target SWM complex and to draw lessons for implementation of Hanoi SWM master plan (M/P). 3) (iii) Capacity development of MOC on technical support to local government: to provide technical assistance for the local government on the implementation of SWM M/P and to formulate guiding reference for development of ISWM M/P. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 15 persons (excluding 6 experts as advisors) 2) Trainees Received: 103 persons 3) Equipment: Office equipment (personal computers, printers, projectors, scanners, etc.) 4) Local expenses Vietnamese Side 1) Staff Allocated: 32 persons 2) Land and facilities: office space for JICA experts 3) Local costs: office rent for JICA experts, costs for workshops and other meetings		
Project Period	(ex-ante) October 2013 – September 2017 (actual) March 2014 – March 2018	Project Cost	(ex-ante) 595 million yen, (actual) 660 million yen
Implementing Agency	Administration of Technical Infrastructure (ATI) under Ministry of Construction (MOC) *Cooperating Agencies: Hanoi Department of Construction (Hanoi DOC), Thua Thien Hue Province (TTH), Urban Environment One Member Limited Company (URENCO)		
Cooperation Agency in Japan	Sustainable System Design Institute Kokusai Kogyo Co., LTD.		

II. Result of the Evaluation

<Constraints on Evaluation>

Due to the effects of COVID 19, data collection was made through questionnaires and online call meeting with related officials of MOC, Hanoi DOC, TTH Province. The direct meetings and site visits were not conducted.

<Special Perspectives Considered in the Ex-Post Evaluation>

[Evaluating the Project Purpose at the time of Project Completion and the Continuation Status of Project Effects at the time of Ex-Post Evaluation]

・There is no numerical target set for the following three indicators to examine the capacity development of implementing agencies: “Staff of MOC

enhances its management capacity comprehensively in terms of the capacity assessment items (indicator 2)," "Staff of Hanoi DOC enhances its capacity comprehensively in terms of the capacity assessment items (Indicator 3)," and "Staff of TTH Province enhances it capacity comprehensively in terms of the capacity assessment items (indicator 4)." In this ex-post evaluation study, it is decided that the achievement level of these indicators is examined by the capacity assessment score on a scale of 1 to 5, 5 being the best. If the score is more than 4, the achievement of indicator is judged as 'achieved.' If the score is more than 2.5 and less than 4, it is judged as 'partially achieved.' If the score is less than 2.5, it is judged as 'not achieved.' This judgmental standard is applied to examine the continuation status of project effects as well.

[Evaluating the Overall Goal]

・The ex-post evaluation is conducted before the target year, so that effects until the time of ex-post evaluation and assumed effects at the target year are analyzed and both of them are considered upon judgment.

1 Relevance

<Consistency with the Development Policy of Viet Nam at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, this project was consistent with the Decree No. 59/2007/ND-CP (issued in April 2007) on SWM which stipulated the source separation of wastes, promotion of the reuse and recycling of waste as well as the roles and responsibilities of related organizations, households, and individuals. In the "National Strategy on ISWM (Decision No. 2149/2009/QD-TTg)" approved in 2009, it was indicated that such goals to promote the SWM were discussed across the ministries and agencies and the roles and responsibilities of related governmental organizations were clarified.

<Consistency with the Development Needs of Viet Nam at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, this project was consistent with Viet Nam's development needs to develop the capacity of MSWM in central and local government as described in "Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

According to Japan's Country Assistance Policy for the Socialist Republic of Viet Nam (2012), the Project was consistent with the "Response to Fragility (Response to the negative impacts brought by economic development)," one of three priority areas for assistance. Especially, it was stated that Japan would support to address emerging environmental issues (urban environment natural environment) and the threats of disaster and climate change, etc., caused by rapid urbanization and industrialization. <Evaluation Result>In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

By the time of project completion, the project partially achieved its purpose, "Capacity of municipal solid waste management is developed comprehensively in central and local governments." In terms of legal framework, six legal documents on MSWM developed or revised through the Project were submitted to the competent agencies by the time of project completion (Indicator 1). As for capacity development[1]in central level, the staff of MOC improved their capacity of the utilization of Guiding References and the data management (Indicator 2). In term of local government, the staff of TTH Province improved their capacity to implement the Master Plan through SW Integral Committees, to develop the required treatment facilities and to properly utilize the data books (Indicator 4). On the other hand, the level of capacity development for staff of Hanoi DOC was lower than expected. Many efforts should have been made to improve the septic tank sludge management and to deal with regular scale incinerator construction (Indicator 3).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

After the project completion, the project effects have partially continued. It was confirmed by the study that one more legal document on MSWM has additionally come into effect. Capacity development of MOC, Hanoi DOC and TTH Province has continued to some degree. ATI-MOC has organized the seminars on solid waste management with incineration method. As for Hanoi DOC, the result of capacity assessment has been slightly improved, especially in terms of domestic solid waste management. As for TTH Province, SW Integral Committees has been renewed and continued the operation. Data books have not been used for people's awareness raising but for training courses of SWM.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

It is observed that the Overall Goal, "Integrated solid waste (ISWM) system on municipal solid waste is established in accordance with the national strategy on ISWM" has been achieved. 4 out of 5 indicators set to examine the achievement level have been achieved. It was confirmed by the study that 4 provinces and one city have developed the "integrated" Master Plan of SWM (Indicator 1). The database on national domestic solid waste management (DSWM) is annually updated based on data sent from 58 provinces and 5 direct-controlled municipalities (Indicator 2). ATI- MOC has annually organized workshops and seminars for all departments of construction in provinces and direct-controlled municipalities (Indicator 3). Legal documents related to construction waste have been reviewed by the Hanoi People's Committee (HPC). As for domestic waste it is expected to be done (Indicator 4). Two treatment facilities for reducing domestic waste were constructed or in the preparation stage for construction in Hanoi City (Indicator 5). It should be noted that the achievement of Overall Goal might be affected by the partial shift of responsibilities on ISWM from MOC to MONRE since the demarcation on responsibilities of waste management is still under the transition phase and will take some time for the new administrative framework to be firmly established.[2]

<Other Impacts at the Time of Ex-Post Evaluation>

Some positive impacts have been observed. MOC expanded the ISWM to the area other than the pilot Cities/Provinces. Several provinces and cities have already issued Implementation plan to realize master plan on solid waste, such as in Quang Tri Province.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

[1]The capacity development of staff was to be examined through the capacity assessment sheet prepared by the Project. However, it was pointed out by the Joint Terminal Evaluation Study Team that the assessment items were not appropriate. The Project revised the assessment items that are individually specific to MOC, Hanoi DOC and TTH Province by focusing the areas of improvement for each organization.

[2]According to the Resolution No. 09/NQ-CP by the Government dated February 3, 2019, MONRE has become the leading agency in charge of SWM. MONRE is subject to cooperate with other related ministries to revise, to supplement legal documents concerned to unify the SWM. Also, in line with the instruction by Prime Minister No. 41/ CT-TTg dated December 1, 2020 on urgent countermeasures of SWM, MOC needs to cooperate with MONRE to formulate technical standards on designing the overall system on waste collection, on selecting proper locations of solid waste treatment facilities.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="4">(Project Purpose)
Capacity of municipal solid waste management (MSWM) is developed comprehensively in central and local governments.</td><td>Indicator 1
At least 80% of the drafts of legal documents on MSWM, developed or revised through the Project, are submitted to the competent agencies by MOC.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
・Six out of eight legal documents on MSWM developed or revised through the Project had been submitted to the competent agencies by MOC and had come into effect.
(Ex-Post Evaluation)
・In total, seven out of eight legal documents have come into effect.</td><td>Questionnaires to MOC</td></tr>
<tr><td>Indicator 2
Staff of MOC enhances its management capacity comprehensively in terms of the capacity assessment items.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
・According to the capacity assessment conducted by the project, it was confirmed that the capacity of the staff of MOC was enhanced on the utilization of the Guiding Reference and on the data management. The grade obtained through the assessment was 4 in the scale of 5.
(Ex-Post Evaluation)
・Grade level is not available. It was confirmed by the questionnaires of MOC, the capacities of MOC staff have been improved to some degree, so that the ATI-MOC have organized seminars on solid waste management by incineration method by utilizing the Guiding References. Data management has been progressed as well.</td><td>Questionnaires to MOC</td></tr>
<tr><td>Indicator 3
Staff of Hanoi DOC enhances its capacity comprehensively in terms of the capacity assessment items.</td><td>Status of the Achievement (Status of the Continuation): not achieved (partially continued)
(Project Completion)
・According to the capacity assessment conducted by the project, it was confirmed that the improvement of capacity of the staff of Hanoi DOC was limited. Some progresses were made to deal with construction waste and to deal with domestic solid waste. However, nothing was done to improve septic tank sludge management. The grade obtained through the assessment was 2 in average in the scale of 5.
(Ex-Post Evaluation)
・Some progresses have been observed and the assessment score has been slightly improved to the grade 3 in average.</td><td>Questionnaires to Hanoi DOC</td></tr>
<tr><td>Indicator 4
Staff of TTH Province enhances it capacity comprehensively in terms of the capacity assessment items.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
・According to the capacity assessment conducted by the project, it was confirmed that the capacity of the staff of TTH Province was enhanced. Their capacity was improved to implement the Master Plan through discussions in SW Integral Committees, to manage the treatment facilities through finances and to utilize data books for people's awareness raising. The grade obtained through the assessment was 4 in the scale of 5.
(Ex-Post Evaluation)
・Grade level is not available. SW Integral Committees has been renewed in December 2020 and continued the operation. Data books have not been used for people's awareness raising but for training courses of SWM.</td><td>Questionnaires to TTH Province</td></tr>
<tr><td rowspan="2">(Overall Goal)
ISWM system on municipal solid waste is established in accordance with the national strategy on ISWM.</td><td>Indicator 1
By March 2022, at least 3 Cities/Provinces develop/update or are developing/updating "Integrated" Master Plan on SWM.</td><td>(Ex-Post Evaluation) achieved
・More than 3 Cities/Provinces have developed the "integrated" M/P on SWM.
<table>
<tr><th>#</th><th>City/Province</th><th>Document</th></tr>
<tr><td>1</td><td>Ho Chi Minh City</td><td>M/P SWM till 2025, vision to 2050, approved by Decision 1485/ QD- TTg dated November 6, 2018,</td></tr>
<tr><td>2</td><td>Khanh Hoa Province</td><td>M/P on SWM in Khanh Hoa till the year 2030, approved by Decision No. 2891/QD-UBND dated October 23, 2020,</td></tr>
<tr><td>3</td><td>Hai Duong Province</td><td>M/P on SWM till 2020, vision to 2030, approved by Decision 958/QD- UBND dated March 27, 2018,</td></tr>
<tr><td>4</td><td>Nam Dinh Province</td><td>M/P on SWM till 2030, approved by Decision 3053/QD-UBND dated December 23, 2016,</td></tr>
<tr><td>5</td><td>Da Nang direct controlled municipality</td><td>M/P on SWM till 2030, vision 2050, approved by Decision 9019/ QD- UBND dated December 28, 2016,</td></tr>
</table></td><td>Questionnaires to MOC</td></tr>
<tr><td>Indicator 2
The database on national DSWM is updated annually.</td><td>(Ex-Post Evaluation) achieved
・It was confirmed by the study that the database on national DSWM is updated annually based on data sent from all 58 provinces and 5 direct controlled municipalities.</td><td>Questionnaires to MOC</td></tr>
</table>

<table>
<tr><td></td><td>Indicator 3
Cities/Provinces are guided to use Guiding References of the Project by activities under the functions and tasks of MOC.</td><td>(Ex-Post Evaluation) achieved
・ATI- MOC has annually organized workshops and seminars, so that Departments of Constructions of all 58 provinces and 5 direct controlled municipalities were guided to use Guiding References.<table><tr><th></th><th>City/Province</th><th>Activities by MOC
CSS (1)/Workshop/Seminars</th></tr><tr><td></td><td>Hanoi, October 2020</td><td>Consultation workshop on National standards on solid waste treatment by incineration</td></tr><tr><td></td><td>Hanoi and Hochiminh city, July 2020</td><td>Workshop on waste- to- energy and greenhouse gas emission reduction for solid waste incineration in Vietnam</td></tr><tr><td></td><td>Hanoi, Danang, Hochiminh city, March 2019</td><td>Workshop on solid waste management and orientation on solid waste treatment technology for Vietnam</td></tr><tr><td></td><td>Hue, Hochiminh city, November 2018</td><td>Workshop on solid waste treatment by incineration</td></tr></table>Note: (1) Co-learning Study Session</td><td>Questionnaires to MOC</td></tr>
<tr><td></td><td>Indicator 4
Legal documents related to domestic waste and construction waste are reviewed*.

*Review means that Hanoi DOC consults HPC annually for the necessity to revise or newly issue the concerned legal documents.</td><td>(Ex-Post Evaluation) partially achieved
・New law on environment protection issued in 2020 contains new policies for domestic solid waste management. Hanoi DOC is expected to consult HPC when the instructions through Decree/Circulars are given to develop the new regulations to be applied in Hanoi City.
・As for construction waste, “the Scheme for Construction Waste Treatment in Hanoi City” was developed and submitted it to HPC for their review. This scheme is under discussions among related agencies of Hanoi City in terms of land arrangement.</td><td>Questionnaires to Hanoi DOC</td></tr>
<tr><td></td><td>Indicator 5
At least two treatment facilities for reducing domestic waste are constructed in Hanoi City by March 2022.</td><td>(Ex-Post Evaluation) achieved
・Two treatment facilities were constructed or in the process of construction to reduce domestic waste. The one is the Soc Son (Nam Son) waste treatment complex, which will officially start the operation by the end of 2021 with a capacity of handling 4,000 tons of dry solid waste each day (this is the information at the time of ex-post evaluation on October 2021). The other is Seraphine Plasma Plant, which was officially approved by HPC in February 2022. Once the ongoing feasibility study is completed and the design is finalized, it is expected that the construction will begin by 4th quarter of 2022.</td><td>Questionnaires to MOC</td></tr>
</table>

3 Efficiency

The project period was as planned, while the project cost exceeded the plan (ratio against plan: 100% and 111%, respectively). The outputs of the project were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The project effects have been supported by law and decisions. Law on environment protection, issued in 2020, reflects the recommendations made by the Project in terms of responsibility of collection and treatment of solid waste. It also devotes one chapter for solid waste management and pollution control. Decision no. 491/ TTG in 2018 approved the master plan of integrated solid waste management to 2025 and vision to 2030.

<Institutional/Organizational Aspect>

As explained above, the partial shift of responsibilities on ISWM has been in progress. MOC is in charge of the construction and operation of waste and hazardous waste treatment facilities, while MONRE is in charge of waste management comprehensively, including domestic solid waste. However, the demarcation of responsibilities of waste management is still not clearly determined. In particular, the roles and the number of staff to be assigned at MONRE are not officially made available, causing some difficulties to proceed with the smooth operation of waste management. It is said that it will take some time for the new administrative framework of ISWM to be established. Currently, ATI-MOC has 6 officials specifically assigned for SWM.

In Hanoi City, under the Decision No. 37/2019/QD-UBND on July 2019 on demarcation and task assignment, Department of Natural Resources and Environment (DONRE) has become mainly in charge of domestic waste, construction waste, industrial waste (except hazardous waste). The responsibility of SWM has been gradually shifted from Hanoi DOC to Hanoi DONRE. The number of staff in charge of SWM is 5 in the Technical Infrastructure Division and 100 in Urban works maintenance unit. In TTH Province, the responsibility of SWM has also been shifted from Hue DOC to Hue DONRE. There is enough staff engaged in SWM.

<Technical Aspect>

Those staff of MOC has maintained their knowledge and skills on SWM through on-the-job training (OJT). The staff of Hanoi DOC, TTH Province have maintained their skills through the OJT, workshops, and seminars organized by MOC and MONRE by utilizing the Project’s outputs, such as training materials and reference documents. Though those workshops and seminars are organized independently, rather than joint work by MONRE and MOC, both agencies have mutually invited each other’s experts as guest speakers.

Materials, such as Guiding References, etc., developed by the Project have continuously been utilized on the worksites, however, the technical level of the newly assigned staff of MONRE, DONREs of Hanoi and TTH Province is unknown. CSS introduced by the Project, in which staff discusses the confronting issues to seek solutions, has not been systematically organized yet mainly because of COVID-19.

<Financial Aspect>

The budget allocation of MOC and MONRE is not available. It was identified by the hearing from officials of MOC during the study that it will be difficult for MOC to generate the funds for the promotion of SWM activities. For Hanoi DOC, the budget for the activities on domestic SWM is secured by HPC. As for TTH Province, the budget for SWM is allocated through the state budget.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

By the project completion, the project partially achieved the Project Purpose, "Capacity of municipal solid waste management (MSWM) is developed comprehensively in central and local governments." The effects of the project have partially continued after the project completion, and the Overall Goal, "ISWM system on municipal solid waste is established in accordance with the national strategy on ISWM" has been achieved. The achievements were supported by the fact that several provinces and cities not targeted by the project have newly developed their own Integrated M/P on SWM and that two treatment facilities for reducing domestic waste have been newly constructed in Hanoi City.

As for the sustainability, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects. As for the efficiency, the project cost exceeded the plan.

Considering all the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

・In order to sustain the project effects produced by the project, it is recommended that the knowledge and skills developed by the project should be smoothly transferred from staff of MOC to those newly assigned staff at MONRE, as well as from DOCs of Hanoi city and TTH Province to DONREs of Hanoi City and TTH Province, respectively.

Lessons Learned for JICA:

The study has revealed that the administrative changes of waste management sector, in which the responsibilities of ISWM have been partially shifted from MOC and MONRE, may affect the technical sustainability of the project effects. In order to cope with such consequences, it is considered that the technical cooperation project should contain the component that makes the technical transfer easier by those at the implementing agency themselves to others, such as through training of trainers and the development of self-learning materials, etc.

Photo

View of leachate treatment pond in Soc Son (Nam Son) waste treatment complex

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Bangladesh Office: March 2022

Country Name	the Project for Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas
People's Republic of Bangladesh	

I. Project Outline

Background	In Bangladesh, since the 1970s, approximately 97% of the population have used tube wells for water source of drinking water from shallow groundwater of less than 70-80m depth. However, according to the survey results published in 2004 by World Bank, 29.3% of the approximately 5 million wells surveyed was contaminated by arsenic exceeding the Bangladeshi standard value was confirmed in. Also, it was revealed that approximately 38,000 people were arsenic poisoned, and approximately 33 million people were potentially drinking arsenic contaminated water. As a result, the total access to safe drinking water was revised downward to 74% though it was estimated to exceed 95% in the early 2000s. Under such circumstances, the Government of Bangladesh set a goal of supplying safe drinking water to all people by the year of 2010/11, and constructed approximately 210,000 of alternative water sources for measures against arsenic with the support of the donors. Of these alternative water sources, 84% were deep wells with a depth of more than 200m. Since those deep wells were utilizing deep aquifer, which is separated by clay layer from shallow aquifers contaminated with arsenic, the arsenic concentration was low and the maintenance was easy, so the operating rate was as high as 90% or more. However, depending on the area, due to the existence of the gravel layer, it was difficult to drill the clay layer that separates the aquifer by the conventional manual drilling method. In addition, it was not possible to install other alternative water sources. For this reason, as of 2010, approximately 5.9 million local residents in the areas with gravel layers had been forced to drink arsenic-contaminated water.			
Objectives of the Project	To improve the technical capacity of the Department of Public Health Engineering (DPHE) staff in deep well drilling in the ten districts of the western Bangladesh where there were difficulties in obtaining safe water in shallow aquifers using existing tube wells due to arsenic contamination as well as in excavating deep wells by using conventional manual drilling method due to the presence of gravel layers, through provision of technical guidance for the introduction of drilling rigs and smooth operation and maintenance, thereby contributing to improvement in accessibility of safe water in the target areas.			
Contents of the Project	1. Project Site: 10 districts of the western Bangladesh (Faridpur, Manikganj, Rajbari, Chuadanga, Jessore, Jhenaidah, Kushtia, Meherpur, Nawabganj, Pabna) and Cox's Bazar District (Kutupalong camp). 2. Japanese side a) Procurement of equipment • Drilling Rig (Truck-mounted drilling rig: 2 units, Truck-mounted air lift/pumping test unit: 2 units) • Vehicle (5-ton cargo truck with crane: 1 unit, 3-ton cargo truck with crane: 3 units, Pick-up truck: 1 unit) • Geographical survey equipment (Resistivity survey and logging equipment and software: 2 units) • Materials and equipment for workshop: 1 set • Well construction materials for technical assistance: 1 set • Arsenic test kit (additional): 10 sets • Portable metal detector (additional): 2 sets • Vehicle endoscope (additional): 2 sets b) Technical Assistance (Soft component) • Technical instruction of drilling plan and management • Technical instruction of geophysical survey 3. Bangladesh side: Preparation of workshop and stockyard for procured equipment			
Project Period	E/N Date	February 20, 2013 July 12, 2016 (1st revision) October 19, 2017 (2nd revision)	Completion Date	March 29, 2018 (Completion of soft component)
	G/A Date	February 20, 2013 March 5, 2014 (1st revision) July 27, 2016 (2nd revision) April 17, 2016 (3rd revision) December 18, 2017 (4th revision) April 30, 2018 (5th revision)		
Project Cost	E/N Grant Limit / G/A Grant Limit: 728 million yen Actual: 686 million yen			
Executing Agency	Department of Public Health Engineering (DPHE), Local Government Division, Ministry of Local Government, Rural Development and Cooperatives			

Contracted Agencies	Main Contractor: Mitsubishi Corporation Main Consultant: Earth System Science Co., Ltd.

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Initially, the project was aimed at supporting DPHE in deep well drilling in the ten target districts of the western Bangladesh. However, in response to the demand of DPHE, JICA and DPHE extended its project scope to Kutupalong camp in Cox's Bazar District for displaced persons from Myanmar as a humanitarian support, and a deep well was developed in Kutupalong camp by utilizing the equipment procured under this grant aid project.
- In the ex-ante evaluation of this project, it was assumed that the ex-post evaluation would be conducted 3 years after the completion of the project (2017). However, since the project was delayed for 4 years completed in March 2018, the target year was set to the third year after the completion of the project (2021) for verification.

1 Relevance

<Consistency with the Development Policy of Bangladesh at the Time of Ex-Ante Evaluation>

The project was consistent with the national development policies of Bangladesh such as "The Sixth 5 Year National Development Plan (2011-2015)", which positions safe water supply and sanitation as one of the priority areas, and "The National Policy for Arsenic Mitigation (2004)", National Policy for Safe Water Supply and Sanitation 1998 and "The National Water Policy (1999)" aiming at provision of safe water to the people.

<Consistency with the Development Needs of Bangladesh at the Time of Ex-Ante Evaluation>

The project was consistent with development needs of Bangladesh such as to improve the technical capacity of DPHE staff in deep well drilling in order to develop arsenic free deep ground water and to provide safe water to the areas where a lot of community people were left out from a safe water supply.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the "Japan's Country Assistance Policy to the People's Republic of Bangladesh" (2012) lists "Overcoming Social Vulnerability" as one of the priority areas for assistance, and states that Japan will support the policy of providing safe water to all citizens, which is consistent with the purpose of this project.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project has achieved its objectives. Regarding the quantitative effect in the ten target districts, the number of deep well drilled through the gravel layer was 25 for production wells and 35 for hand pump wells in 2021 (Indicator 1). The population with access to safe water in the target area was increased from 1,252,172 in 2012 to 1,468,597 in 2021 (Indicator 2). The water supply coverage which allows access to safe water in the target area was improved from 58.60% in 2012 to 63.60% in 2021 (Indicator 3). The above-mentioned quantitative indicators fully met their respective target figures at the time of ex-post evaluation. Regarding the quantitative effect in Kutupalong camp in 2021, the number of deep well drilled through the gravel layer was one, the population with access to safe water in the target area was 30,000, and the water supply coverage which allows access to safe water in the target area was 58.55%. Since this is an additional scope, no baseline and target figures were set at the ex-ante evaluation. However, the project was highly effective in providing safe water to about 30,000 people as the largest water supply facility in the Kutupalong camp, which was achieved through effective collaboration with International Organization for Migration (IOM). As a result, accessibility of safe water has been improved in the ten target districts as well as Kutupalong camp. At the time of ex-post evaluation, it is estimated that total 246,425[1] people are newly able to access to safe water.

As to the expected qualitative effect, the technical capacities of DPHE staff in deep well drilling were improved. At least 20 officials from the Mechanical Electrical Division (MED) of DPHE received the trainings on methodology of drilling deep wells using the equipment procured by the project, and were directly involved in monitoring the activities of contractors in the ten target districts. During deep well drilling, DPHE did not face major technical challenges on drilling and completed the project as expected.

<Impact>

It should be noted that JICA, DPHE and IOM signed a Minutes of Meeting for Shared Recognition on the Project for installation of production deep well cum drilling test and construction of water supply facilities for Camp12, Kutupalong-Balukhali extension sites, Ukiya Upazila, Cox's Bazar District in July 2018. Through collaboration among DPHE, JICA and IOM, this project drilled a well to a depth of about 400m, to which IOM constructed water supply facilities. As a result, a total of 358 water supply outlets were installed in the 9,900-meter-long water supply network, and safe water supply to the evacuees was realized.

Positive impacts on improved health condition, and improved living conditions for the population in the target districts have been observed by the improved access to safe water, according to the interviews and questionnaire with DPHE officials. Although a specific survey was not conducted, it is assumed that people in the targeted districts now can access to better quality of water from deep wells without arsenic and other contamination, which may contribute to positive impact on their health conditions. Thanks to the project, the poor, marginalized people as well as the indigenous and ethnic minority people in the target districts have been equally benefited in getting safe water. In Kutupalong camp, the morbidity rate is minimized, and the incidence of diarrheal diseases remains under control condition by using chlorinated water[2]. Also, from the secondary information such as reduction of complain received in municipality water supply section, it is assumed that the city dwellers had sufficient water supply even during Covid-19 pandemic period. In most of the cases, the deep wells are connected with the city piped networks or fitted with hand pumps (for small diameter wells) so that it can be used as a point source. As people in the target districts are having water nearby, the time for fetching water has been decreased, and people's life and living

[1] As per action plan prepared by DPHE, it is estimated that 25 production wells serves 200,000 people, 35 handpump well serves 16,425 and one deep well in the Kutupalong camp serves 30,000 people. In total, 246,425 people are covered

[2] After the project completion, around 100 of deep wells have been drilled in the camps for water supply.

condition have been improved through piped water supply.

No negative impact on natural environment was observed and no land acquisition and resettlement of people were implemented.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

a) 10 districts

Indicators	Baseline (2012) Baseline Year	Target (2019) 5 Years after Completion	Actual (2018) Completion Year	Actual (2019) 1 Year after Completion	Actual (2020) 2 Years after Completion	Actual (2021) 3 Years after Completion
Indicator 1. Number of deep wells drilled through the gravel layer (number)	0	Production well: 25	2	11	15	25
		Hand pump well: 35	1	18	26	35
Indicator 2. Population who can access to safe water in the target area (person)	1,252,172	1,468,597	1,260,859	1,347,529	1,382,277	1,468,597
Indicator 3. Water supply coverage which allows access to safe water in the target area (%)	58.60	63.60	58.63	60.12	61.70	63.60

Source: HDPH

b) Kutupalong Camp

Indicators	Baseline (2012) Baseline Year	Target (2019) 5 Years after Completion	Actual (2018) Completion Year	Actual (2019) 1 Year after Completion	Actual (2020) 2 Years after Completion	Actual (2021) 3 Years after Completion
Indicator 1. Number of deep wells drilled through the gravel layer (number)			1	1	1	1
Indicator 2. Population who can access to safe water in the target area (person)			0	30,000	30,000	30,000
Indicator 3. Water supply coverage which allows access to safe water in the target area (%)			0	58.55	58.55	58.55

Source: DPHE

3 Efficiency

The project cost was within the plan (ratio against the plan: 94%). However, the project period largely exceeded the plan (ratio against the plan: 186%) because of suspension of the project implementation for several times due to deterioration of safety and security condition in Bangladesh as well as the additional project scope at Kutupalong camp. In addition, a delay in procurement of consultant after the signing of Grant Agreement (GA), especially a delay on official approval process of Development Project Proposal (DPP)[3] by Bangladesh Government side caused a delay in implementation of project activities afterward. The project cost did not increase and remained within the plan despite the extension of the project period by about four years and the addition of an additional scope (Kutupalong Camp) because the spending of extra cost was avoided by halting all activities during suspension of project activities, and the surplus project fund was utilized for the additional scope.

Therefore, efficiency of the project is fair.

4 Sustainability

<Institutional/Organizational Aspect>

After the project completion, the production wells and hand pump wells developed by the equipment procured under the project were handed over to the Local Government Institutions (LGIs) including Pourshava and Union Parishad. Therefore, each of the respective LGIs in eleven districts, which are the original ten target districts and Cox's Bazar district where Kutupalong camp is located, are responsible for operation and maintenance (O&M) of the drilled deep wells. While MED of DPHE is responsible for O&M of the equipment procured by the project such as drilling rigs, cranes and trucks. Also, Groundwater Division (GWD) and Groundwater Circle (GWC) of DPHE are responsible for providing the technical supports and guidance for O&M by LGIs. Regarding the manpower, LGIs have on average 50% shortage of manpower for O&M. For DPHE, there are 8 staffs in MED, 4 staffs in GWD and 2 staffs in GWC, which are insufficient to

[3] To start a project officially by the Government of Bangladesh, Development Project Proposal (DPP) needs to be approved for each project in order to secure sufficient budget and manpower. To get the DPP approved, an implementing agency needs to get approvals from their line ministry, Ministry of Finance and Planning Commission, Ministry of Planning respectively. It normally takes minimum 6 months to 1 year to get an approval on average.

conduct their designated responsible works due to lack of budget. On the other hand, the budget and human resource for DPHE have been increasing for the past few years. At the time of ex-post evaluation, DPHE is revising the organogram where additional (more than existing) manpower has been proposed, and the revised organogram is under process of approval.

<Technical Aspect>

The DPHE staff has the capacity to make a plan and to manage a drilling site based on geophysical survey information. The DPHE staff are skilled to provide proper O&M for the equipment procured by the project and to extend technical support to LGIs for their O&M of deep wells. Once a year, DPHE has organized a basic training on geophysical investigation for their technical staff including hydrogeologist, assistant engineer, master driller, and so on. LGIs maintain deep wells by using the O&M manuals and guidelines.

<Financial Aspect>

LGIs have secured budget for O&M from their revenue earnings. But for DPHE, the budget on O&M for equipment procured by the project has been secured only up to June 2022 when the defect liability period is terminated. Currently, DPHE is requesting the government of Bangladesh to allocate sufficient O&M budget for their O&M activities.

(Unit: Bangladesh Taka (BDT) Lakh)

Item	Actual			Plan
	2018	2019	2020	2021
O&M for equipment procured by the project	15.25	13.75	18.00	15.85

<Current Status of Operation and Maintenance>

Most of the equipment procured by the project, such as truck-mounted drilling rig, cargo truck with crane, pick-up truck, geographical survey equipment, portable metal detector, vehicle endoscope have been maintained and still being used by DPHE. Consumable goods have been purchased by DPHE by their own fund.

<Evaluation Result>

Some minor problems have been observed in terms of the institutional/organizational and financial aspects, therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

The project has achieved the project objectives. The project attained the target of quantitative effect of "the number of deep wells drilled through the gravel layer", "the population who can access to safe water in the target area", and "the water supply coverage which allows access to safe water in the target area" in the original ten target districts as well as in Kutupalong camp in Cox's Bazar district. At the time of ex-post evaluation, total 246,425 people are newly able to access to safe water. As to the qualitative effect, the technical capacity of DPHE staff in deep well drilling was improved. The project has brought about several positive impacts such as improved health condition and improved living conditions in the ten target districts as well as Kutupalong camp. As for efficiency, the project period significantly exceeded the plan.

Regarding sustainability, some minor problems have been observed in terms of the institutional/organizational and financial aspects of the executing agency due to shortage of staff and uncertainty of securing the necessary O&M budget after June 2022. On the other hand, DPHE staff is able to provide proper O&M for the equipment procured by the project and to extend technical support to LGIs for their O&M of deep wells. Also, most of the equipment has been maintained and still being used by DPHE.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- After the revised organogram of DPHE is approved in which additional manpower has been proposed, DPHE should recruit the 100% required manpower. Also, DPHE needs to allocate the sufficient O&M budget required for proper maintenance of the equipment.

Lessons Learned for JICA:

- As the consultant procurement was significantly delayed due to late approval of DPP, JICA should develop realistic project implementation schedule during preparatory stage, taking into consideration of the DPP approval process which normally takes minimum 6 months to 1 year to get an approval on average.
- As per GoB procedure, concerned department could secure manpower, O&M budget and other necessary cost after approval of DPP. Thus, JICA should confirm with the recipient country for DPP approval soon after the GA signing so that necessary manpower and budget of O&M will be secured during the project to ensure sustainability of the project effects.
- To respond to urgent needs for safe water supply in Kutupalong camp, JICA conducted field survey to know the actual situation in the camp and had an in-depth discussion with relevant stakeholders on various occasions. Then, based on the actual demand, JICA, DPHE and IOM signed a Minutes of Meeting for Shared Recognition on the Project for installation of production deep well cum drilling test and construction of water supply facilities. Through collaboration among DPHE, JICA and IOM, this project drilled a well to a depth of about 400m, to which IOM constructed water supply facilities. As a result, a total of 358 water supply outlets were installed in the 9,900-meter-long water supply network, and safe water supply to approximately 30,000 people in the camp was realized. This was possible by taking on the role of fully coordinating all stakeholders by JICA, including recipient governments, other development partners, and donors, without being bound by conventional frameworks. While each stakeholder has its own modalities and constraints, multi-stakeholder partnerships can be a useful tool to overcome organizational constraints and maximize the benefits to the local population.

Drilling at Bera, Pabna

Training on Geo-physical Survey

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bangladesh Office: July 2022

Country Name	**Project for Improving Public Services through Total Quality Management**
People's Republic of Bangladesh	

I. Project Outline

Background	In Bangladesh, the civil servant system has been facing a lot of challenges including excessive centralization, rigid hierarchic decision-making structures, poor transparency, insufficient sense of public service ethics, lack of effective personal management system, etc. The government of Bangladesh tackled those challenges by advancing various public sector reforms. In order to accelerate those movements, the government of Bangladesh requested the government of Japan to implement a technical cooperation project titled "Project for Enhancing Capacity of Public Service Training" (2007-2010). The project introduced the concept of Total Quality Management (TQM)[1] to enhance training for public sector service improvements. Based on the outputs of the project, a Public Service Delivery Policy and Management Advisor was dispatched by JICA for one year from 2010 in order to assist formulation of action-oriented TQM training system at the real work settings. While TQM training was introduced and its implementation system was formulated through those activities, its country-wide implementation was not realized. With that background, the government of Bangladesh requested the government of Japan to support another technical cooperation project aiming at the country-wide extension of the TQM training at the field level.		
Objectives of the Project	Through the development of the mechanism for improving TQM training, development of the mechanism for supporting Small Improvement Plans (SIPs)[2], enhancement of the capacity of the Bangladesh Public Administration Training Centre (BPATC), and establishment of the framework for policy making and institutionalization for promoting TQM training and SIPs, the project aimed at the establishment of mechanism for sustainably promoting Small Improvement Teams (SITs)[3] and SIPs at Upazila[4] level based on TQM training, thereby contributing to the implementation of SIPs based on TQM training and share the experiences among Upazilas nation-wide.		
	1. Overall Goal: SIPs are implemented based on TQM training and their experiences are shared among Upazilas nation-wide. 2. Project Purpose: The mechanism for sustainably promoting SITs and SIPs at Upazila level based on TQM training is established.		
Activities of the Project	1. Project Site: 64 Upazilas in 64 districts 2. Main Activities: 1) Development of the mechanism for sustainable improvement and extension of TQM training by BPATC and partner institutions (PIs)[5], 2) Development of the mechanism for supporting SIPs at Upazila level, 3) Enhancement of the BPATC's capacity of analysing and accumulating case information on SIP, and 4) Establishment of the framework for contributing to policy making and institutionalization for promoting TQM training and SIP. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 7 persons 2) Trainees received in Japan: 12 persons 3) Equipment: vehicles, PCs, printers, video cameras, projectors, etc. Bangladeshi Side 1) Staff Allocated: 12 persons 2) Land and Facilities: project office 3) Local cost: cost for utility of offices (electricity, water and telephone)		
Project Period	(ex-ante) February 2012 - February 2017 (actual) February 2012 - April 2017	Project Cost	(ex-ante) 500 million yen (actual) 594 million yen
Implementing Agency	Bangladesh Public Administration Training Centre (BPATC)		
Cooperation Agency in Japan	PADECO Co., Ltd.		

II. Result of the Evaluation

<Constraints on Evaluation>

- The ex-post evaluation was conducted by the questionnaire to and online interviews with BPTAC officials without field surveys visiting Upazilas due to the incidence of COVID 19.

1 Relevance

[1] Total Quality Management (TQM) is a Japanese style management method aiming at effective and efficient organization operations through continuous and self-motivated implementation of Kaizen. (Source: web site of JICA)

[2] Small Improvement Plans (SIPs) are small-scale projects to improve work environment and work procedures applying Kaizen activities. They were expected to be implemented by districts and Upazilas to institutionalize TQM/Kaizen in their workplaces. The concept of SIP was developed and introduced by the project.

[3] Small Improvement Teams (SITs) are teams organized in Upazilas to implement SIPs.

[4] Upazilas are sub-districts. Administrative hierarchy in Bangladesh is composed of division, district, Upazila, and union.

[5] Partner institutions (PIs) are five training institutions jointly implemented project activities. They are the Bangladesh Academy for Rural Development (BARD), the National Academy for Education Management (NAEM), the National Academy for Planning and Development (NAPD), the National Institute of Local Government (NILG), and the Rural Development Academy (RDA).

<Consistency with the Development Policy of Bangladesh at the Time of Ex-Ante Evaluation>

The project was consistent with the development policies of Bangladesh at the time of ex-ante evaluation. In the "National Strategy for Accelerated Poverty Reduction II FY 2009-11" (PRSP II), capacity building of the governmental organizations for the improvement of public service delivery was declared as one of the policy strategies for poverty reduction in the country. In the long-term development plan "Perspective Plan: 2010-2021" (Vision 2021) targeting the achievement of the goals in 2021 which will be 50 years after the independence, the chapter 2 titled as "Economic Growth and Corruption-free Good Governance" discussed the necessity of civil-service reforms. In the "Sixth Five Year Plan FY2011-FY2015," the last chapter of 9 titled as "Implementing the Plan: the Challenges of Good Governance, Administrative Capacity, and Monitoring and Evaluation" referred to the needs of administrative reforms and institutional reinforcement including the reform of civil-service systems.

<Consistency with the Development Needs of Bangladesh at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Bangladesh at the time of ex-ante evaluation. Recognizing the challenges in the civil service sector of Bangladesh stated above, from the late 1990s, the public sector reforms were addressed as urgent issues in various policy documents including PRSPs. The Bangladesh government had tackled those challenges by advancing various public sector reforms including the formulation of the policy for administration training systems, the improvement of performance evaluation system, and other various reforms. However, change of the civil servants' mind-set and improvement of service delivery which were most required had remained as issues to be tackled. Thus, the "Project for Enhancing Capacity of Public Service Training" (2007-2010) established the TQM training system in BPATC for the central authorities' administrators. After the project, BPATC and the Ministry of Public Administration (MOPA) have recognized the necessity to widely disseminate the effects of TQM training to the level of Upazila and implemented pilot projects in six Upazilas in six districts. Based on this experience, country-wide extension of TQM training at the field level has been expected by BPATC and MOPA.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy for Bangladesh at the time of ex-ante evaluation. In the "Country Assistance Program for Bangladesh" (May 2006), "governance" was listed as one of the Priority Goals and Sectors, and it was aimed to improve governance at the central, sectoral and local levels. It was planned to reform the civil service system at the central level and to establish effective local administration systems with a view to improving service provision methods.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved at the time of project completion. SIPs were implemented in 25 National Building Departments (NBDs)[6] in the 27 target districts where TQM training conducted (Indicator 1). Case study sessions by Kaizen[7] practitioners were continually held in the Foundation Training Courses (FTCs)[8] implemented by BPATC, and some NBDs including the Department of Women's Affairs, Department of Social Services, Department of Youth Development, Department of Agriculture, Directorate of Registration, and Directorate of Health conducted Kaizen sessions in their training programs (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been partially continued at the time of ex-post evaluation. Although the filed survey could not be conducted due to incidence of COVID-19, it was confirmed that some Upazilas continued to implement SIPs. However, SIPs have not been implemented in Upazilas in a systematic manner and the number of Upazila continuing SIPs and their activities cannot be verified because directives and budget to implement SIPs have not been issued by the central government (e.g., supervisory ministries and HQs of line departments) and technical manpower to implement SIPs has been insufficient due to transfer of the officials trained by the project. BPATC keeps introducing TQM and SIP experiences and cases in its FTCs. PIs and NBDs have not introduced SIP experiences and cases in their training courses after the completion of the project also because no directive and budget has been issued by the central government and insufficient knowledge and experience caused by the transfer of officials.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal was partially achieved at the time of ex-post evaluation. As stated above, interviews with BPATC officials reveal that some Upazilas keep conducting SIPs. However, the data of the number of those Upazilas is not available as the field survey could not be conducted. Therefore, the situation of country-wide extension of SIP cannot be verified (Indicator 1). Kaizen Convention was held in 2017 and 2018 when the budget was available but not after 2019 because the budget has not been allocated for it (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

Some positive impacts were confirmed at the time of Ex-post Evaluation. Although no data are available, according to the observation of BPATC officials, a considerable number of officials participated in the TQM training have applied what they learned especially 5S[9] in their workplaces. They apply the concept and practice of 5S to make their work environment neat and clean, standardize the formats and procedures of paper works, reduce unnecessary and unproductive works, and for other various physical and functional work environment improvement. No negative impact on natural, social and economic environment has been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

[6] National Building Departments (NBDs) are departments in Upazilas responsible for the management of public service delivery at field level. Branch offices of the 24 state-level government departments are located in NBDs and deliver specific thematic-related public services directly to the residents.

[7] Kaizen refers to a Japanese word which means "improvement" or "change for the better." Kaizen is a process to address problems recognized by the field staff in continuous small steps under the initiative of field staff at worksite. (Source: web site of JICA)

[8] Foundation Training Course (FTC) is the basic training program on administration and development conducted by BPATC. FTC is a compulsory training for all new entrants to the Bangladesh civil services.

[9] 5S is a slogan taken from the initials of "sort, set, shine, standardize, sustain" aiming at positive transformation of staff's awareness and attitude about improvement of work process and work environment. (Source: web site of JICA)

Aim	Indicators	Results	Source
Project Purpose: The mechanism for sustainably promoting Small Improvement Teams (SITs) and SIPs at Upazila level based on TQM training is established.	Indicator 1: SIPs are implemented and promoted in Upazilas in the target districts (at least 20 districts where TQM training is conducted.)	Status of the Achievement (Status of the Continuation): Achieved (not verified) (Project Completion) One Year One Project (OYOP) for SIP started in 2014/15 in the target districts where TQM courses conducted, and 25 NBDs in 27 districts implemented OYOP in 2016/17. (Ex-post Evaluation) SIPs have not been implemented in Upazilas in a systematic manner because directives and budget to implement SIPs have not been issued by the central government and technical manpower to implement SIPs has been insufficient due to transfer of the officials trained by the project. Although it is confirmed that some Upazilas continue to implement SIPs applying the experiences and knowledge gained through the project, those SIPs activities have not been monitored and followed up. Therefore, the number of Upazilas continuing SIPs is not available.	Project Completion Report, Questionnaire to and interview with BPATC
	Indicator 2: BPATC, PIs and line-departments utilize SIP experiences/cases in their core courses.	Status of the Achievement (Status of the Continuation): Achieved (partially continued) (Project Completion) Case study sessions by Kaizen practitioners were continually held in FTCs by BPATC. Some NBDs including the Department of Women's Affairs, Department of Social Services, Department of Youth Development, Department of Agriculture, Directorate of Registration, and Directorate of Health conducted Kaizen sessions in their training programs. (Ex-post Evaluation) BPATC keeps introducing TQM and SIP experiences and cases in FTCs. However, PIs and line departments have not introduced SIP experiences and cases in their training courses also because no directives and budget have been issued by the central government and insufficient knowledge and experience caused by the transfer of the officials trained by the project.	Project Completion Report, Questionnaire to and interview with BPATC
Overall Goal: Small Improvement Plans (SIPs) are implemented based on TQM training and their experiences are shared among Upazilas nation-wide.	Indicator 1: At least one SIP each year is implemented in Upazilas nation-wide.	(Ex-post Evaluation) Not verified As stated above in Indicator 1 for the Project Purpose, some Upazilas keep conducting SIP activities. However, since those activities have not been monitored, the number of Upazilas conducting SIPs is not available. Therefore, the situation of country-wide extension of SIP cannot be verified.	Questionnaire to and interview with BPATC
	Indicator 2: Kaizen Convention is conducted annually to share SIP good cases.	(Ex-post Evaluation) Partially achieved Kaizen Convention was held in 2017 and 2018 with the Bangladeshi side project budget. However, it has not been held after 2019 because the budget has not been allocated from current budget after completion of the project budget.	Questionnaire to and interview with BPATC

3 Efficiency

The project period and cost exceeded the original plan (the ratio against the plan was 105% and 118% respectively). The project site was extended from 58 Upazilas to 64 Upazilas (110%) after the commencement of the project. However, the increase in the number of project site did not require the identical rate of increase of project period and cost because most project activities were conducted at central level and field-level activities differed from Upazila to Upazila. The outputs were produced as originally planned by the end of the project period. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

In the "Eighth Five Year Plan: 2020-2025," the first strategic key area for improving governance and institutions is public sector capacity improvement. One of the measures to improve public sector capacity is adequate training for civil servants. The Plan states that the government ensures that every official should get a minimum number of hours/days of the training which is included in the Annual Performance Agreement (APA)[10]. APA of MOPA for 2021 includes simplification of at least one service delivery process of the department/organization and implementation of SIP for innovation of work method, work environment, and service delivery as ones of the

[10] Annual Performance Agreement (APA) is a record of understanding, which is made between the Cabinet Secretary and the Secretaries of all 52 Ministries/Divisions in the presence of Prime Minister.

mandatory tasks.

<Institutional/Organizational Aspect>

There has been no significant institutional/organizational change took place in BPATC, PIs, and Upazilas during and after the project period. BPATC has 96 officials (grade 9 and above) and more than 150 lecturers. According to the interview survey on BPATC, the number of staff members of BPATC and PIs has been constantly increasing and sufficient for their business including TQM training. Besides, BPATC is planning to impart training on TQM, Kaizen, and 5S to the officials of Upazila level through four regional training centers (RPATCs) located Dhaka, Chattogram, Rajshahi and Khulna. However, the manpower of Upazilas has been insufficient and it is a bottleneck in the extension of TQM at Upazila level.

<Technical Aspect>

Knowledge and skills with formats, guidelines and manuals provided by the project have been utilized by BPATC for its training programs. However, PIs and Upazilas have not utilized them because they ceased to conduct SIP, TQM training and other activities initiated by the project.

<Financial Aspect>

BPATC has been allocated with the budget from the government to conduct FTCs and the Advanced Course of Administration and Development (ACAD) which include TQM training programs. However, PIs and Upazilas have not received budget or any external fund to conduct SIPs and TQM training.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agencies. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The Project Purpose was achieved by implementing SIPs in 24 districts and utilizing the SIPs' experiences/cases in the training courses conducted by BPATC, PIs and line departments. After the project completion, although the field survey could not be conducted due to the incident of COVID-19, it was confirmed that some Upazilas continue SIP by their own initiatives. However, these are not systematically implemented due to lack of directives and budget from the central government (Ministries and HQs of each line department). Overall Goal was partially achieved because Kaizen Convention was held twice after the completion of the project. However, it's difficult to expect its continuous implementation due to insufficient budget. As for sustainability, problems have been observed in terms of the institutional/organizational, technical and financial aspects of PIs and Upazilas. As for efficiency, both the project period and cost exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- The project established the mechanism for promoting SITs and SIPs at Upazila level focusing mainly on the capacity building of BPATC. However, after the completion of the project, SIPs and other TQM activities have not been implemented by Upazilas due to lack of proper instructions by the central governments (e.g., issuance of letters and proper allocation of budget) as well as the transfer of the skilled officials trained by the project. Therefore, it is recommended that1) MOPA instructs concerned Ministries/Divisions to promote SITs and SIPs to the department/directorates under their jurisdictions, allocate budget to Upazilas offices, and 2) BPATC provides necessary knowledge and skills to Upazilas to restart TQM activities including Kaizen and SIPs.

Lessons Learned for JICA:

- The project targeted country-wide extension of SITs and SIPs at Upazila level and improved the capacity of BPATC as a central training institution for supporting Upazilas, and Upazilas implemented SIPs during the project period. However, after the completion of the project, Upazilas have ceased their TQM activities due to the lack proper instructions by the central governments, insufficient funds and technical manpower caused by the transfer of officials trained by the project. From this experience, if a project is aiming at country-wide extension of project effects, it should take into account the available budget and personnel transfers and continue an assistance until the confirmation that the project effects to sustain nation-wide, and if necessary, the project should agree the required institutional setup with plan and budget in order for the project activities to be sustained after the project implementation period.

Internal Ex-Post Evaluation for Technical Assistance under Finance and Investment Account

conducted by India Office: January, 2023

Country Name	**Capacity Development Project for Non Revenue Water Reduction in Jaipur**
Republic of India	

I. Project Outline

Background	The Public Health Engineering Department (PHED), in charge of the water supply business in Jaipur city, had been facing issues of intermittent water supply, low-cost recovery rates as well as high non-revenue water (NRW) ratio because of water leakage and malfunction and insufficiency of water meters, etc. With the assistance of the Japanese ODA Loan, namely "Bisalpur Jaipur Water Supply Project (signed March 2004)," water transmission and supply facilities from the Bisalpur Dam were constructed. This made it possible to improve the ground water reliance rate of Jaipur city, which is associated with increase in water supply hours. In 2011, the population with access to safe water including through water tanks and wells reached approximately 3 million. However, the number of populations with domestic water supply service connections was only approximately 2.2 million. In order to cope with management issues in water sectors, JICA continued the assistance to conduct the detailed analysis and to facilitate the sector reform, by "Special Assistance for Project Implementation (SAPI) for Jaipur Water Supply Project (2004)" and technical assistance by experts (2011-2013). To improve the water supply service, PHED implemented the pilot project of 24-hour water supply in some areas in Jaipur city, by installation of bulk meters, procurement of water meters, as well as development of Geographic Information System (GIS) and customer information data and achieved increase in tariff revenues and 24-hour water supply as well as reduction of the NRW ratio. However, the countermeasure was limited to leakage appearing on the ground surface since PHED did not have sufficient techniques for detecting underground water leakage.		
Objectives of the Project	In Jaipur city, through improvement of planning capacity for NRW countermeasures, development of technical and operational capacity and operationalizing the internal trainings on NRW reductions, the project aims to strengthen the PHED staff's capacity to reduce NRW, thereby contributing to the reduction of the NRW ratio in target city. 1. Overall Goal: The NRW ratio in Jaipur city is reduced. 2. Project Purpose: PHED staff's capacity to reduce NRW in Jaipur city is strengthened.		
Activities of the Project	1. Project Site: Jaipur city, the state of Rajasthan *Pilot areas[1]: (1) Project target areas: Mansarovar, District Metering Area (DMA) 1&2 in Adarsh Nagar (2) Technical support activity areas: Adarsh Nagar (excluding DMA1&2), Banipark, Chitrakoot 2. Main Activities: (1) Improvement of planning capacity for NRW countermeasures by development of annual program for NRW reduction in the pilot areas and formulation of execution plan for the Jaipur city based on the practices of pilot areas (2) Development of technical and operational capacity through NRW reduction activities in pilot areas, preparing the Standard Operating Procedures (SOPs) in on-the-job trainings (3) Operation of internal trainings on NRW reduction based on the practices in the pilot areas 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 12 persons (Short-term) 2) Trainees received: 25 persons 3) Equipment: Equipment for leak detection survey and training activities, such as Sonic leak detectors, Ultrasonic flowmeter, Self-recording water pressure gauge, Metal detector, Portable engine generator, GIS software, PC, and copier, etc. 4) Local expenses Indian Side: 1) Staff allocated: 37 persons (Accumulated number: 51 persons) 2) Land and facilities: Office space for JICA experts, meeting rooms, a training room and training yard facilities 3) Equipment: Water meter, valve, etc. 4) Local costs: construction of training yard and training room, and isolation of the pilot areas (including installation of boxes for flow meters)		
Project Period	(ex-ante) July 2013 – January 2017 (actual) August 2013 – January 2017	Project Cost	(ex-ante) 409 million yen, (actual) 291 million yen
Implementing Agency	Public Health Engineering Department (PHED), Government of Rajasthan (GOR)		
Cooperation Agency in Japan	CTI Engineering International Co., Ltd. Yokohama Water Co., Ltd.		

II. Result of the Evaluation

<Constraints on Evaluation>

・Due to the effects of COVID-19, data collection was made through questionnaire and interviews with staff of PHED including branch offices and headquarters. The site visit and the interview with users were not conducted.

< Special Perspectives Considered in the Ex-Post Evaluation >

[Evaluating the continuation status of the Project Purpose]

[1] Pilot areas include (1) project target areas in which the pilot project was implemented with combined efforts of counterparts and JICA experts and (2) technical support activity areas in which PHED planned and implemented the project activities with its own initiatives, JICA experts provided technical advisory supports to PHED within the project period. For the achievement of the Project Purpose, achievements of project target areas are considered.

・The indicator 1 for the Project Purpose, "A draft execution plan for NRW reduction is approved by the Administrative Department of PHED" is not used to examine the continuation status of the Project Purpose since this indicator was applicable only at the project completion.

[Evaluating other impacts]

・In this ex-post evaluation study, the achievement at the time of ex-post evaluation of Super Goal, "The NRW ratio in Jaipur city is reduced to 20%" was treated as a reference.

・As a technical assistance under finance and investment account project, this project aimed to maximize the benefits generated through related projects. Therefore, the ex-post evaluation study examines the synergy effects with Japanese assistances as described in "Background" above.

1 Relevance

<Consistency with the Development Policy of India at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, this project was consistent with "Twelfth Five Year Plan (2012-2017)," in which the water sector was considered as one of priority areas, aiming to achieve the total urban coverage by the fiscal year of 2017. This agenda also included the target to achieve a 24-hour continuous and equitable water supply, cost recovery for water companies and promotion of public-private partnership (PPP).

<Consistency with the Development Needs of India at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, this project was consistent with India's development needs to strengthen the capacity to reduce NRW as described in "Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with "Japan's Country Assistance Program for India (May 2006)" which set "the improvement of poverty and environmental issues" as one of priority areas, which included "Environmental issues" as the sector's priority target and "Assistance for Water Supply and Sewage Systems" as a sub-sector target. It was stated that when implementing this assistance, Japan was aiming to actively provide the intellectual cooperation to ensure the improvement of policies and systems including decentralization to ensure the adequate operation and management system, organizational management capacity building and effective utilization of water resources (water conservation and water leakage countermeasures).

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

By the time of project completion, the project achieved its purpose, "PHED staff's capacity to reduce NRW in Jaipur city is strengthened." As presented in the table below, four indicators set to examine the achievement of the Project Purpose showed the satisfactory performance. A draft Execution Plan for NRW Reduction in Jaipur was prepared by January 2017 and approved in February 2017 by PHED Minister (Indicator 1). NRW ratios in the pilot areas were reduced compared to the initial values (Indicator 2), and internal trainings were held more than twice during the project period (Indicator 3). NRW reduction activities were implemented based on annual program for NRW reduction (Indicator 4).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

After the project completion, the project effects have partially continued. It was confirmed by the study that implementation of NRW reduction activities and internal trainings have been continued except the period affected by COVID-19. However, NRW ratios that were once reduced have become reinstated. There are two major contributing factors. One is the drastic increase of household connections which made it difficult to take proper control of the measurement of water consumption amount due to the rapid expansion of management work. The number of household connections increased 15 times in Mansarovar (from 2014 to 2020), 3 times in Adarsh Nagar DMA1 during the same period and 5.1 times in Adarsh Nagar DMA2 (from 2015 to 2020). Another factor is the effects of COVID-19, in 2020 and 2021 which entailed difficulty of equipment replacement and lack of man-power resources. It is expected that the activities will be resumed once the effects of COVID-19 are diminished.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

It is observed that the Overall Goal, i.e. "The NRW ratio in Jaipur city is reduced." has been partially achieved. It was observed that most of the NRW reduction activities under the Execution Plan have been in general implemented (Indicator 1). In this connection, the coverage of NRW reduction activities has been expanded such that new NRW zones were developed at eight supply centers under AMRUT Project[2]. As for Indicator 2, "NRW ratio in Jaipur city is accurately calculated," it was examined by two aspects. NRW ratios in Jaipur city have been calculated according to the procedures described in SOPs developed by the project in both project target areas and technical support activity areas. However, the number of flow meters, which were mandatory to properly measure the NRW ratios, have only been installed in about 22% of tube wells connected to the distribution network in the whole Jaipur city. It can be said that the area covered by the project is only a part of the city of Jaipur, and its effect was limited. Therefore, it is difficult to judge that "NRW ratio in Jaipur city is accurately calculated."

<Other Impacts at the time of Ex-post Evaluation>

According to the achievement at the time of ex-post evaluation of Super Goal "NRW ratio in Jaipur city is reduced to 20%[3]," the NRW ratio has shown a slight improvement from 42.19% (2012) to 38.34% (2021). It is anticipated that the replacement program of flow meters under smart city program to be initiated by state government will improve the situation. It was observed that the project has also contributed to supporting the outcome of the Japanese ODA Loan, "Bisalpur Jaipur Water Supply Project (2004 -2011) (signed in March 2004)," in which NRW reduction was identified as one of the crucial issues in terms of the efficient use of safe water and its administration.

Therefore, the effectiveness/impact of the project is fair.

[2]AMRUT Project is known as "Atal Mission For Rejuvenation And Urban Transformation" facilitated by the Government of India.

[3]Though not specified in the ex-ante evaluation sheet, the target year of Super Goal is estimated 3 to 5 years after the ex-post evaluation.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="4">(Project Purpose)
PHED staff's capacity to reduce NRW in Jaipur city is strengthened.</td><td>Indicator 1
A draft execution plan for NRW reduction is approved by the Administrative Department of PHED.</td><td>Status of the Achievement: achieved
(Project Completion)
・A draft Execution Plan for NRW Reduction in Jaipur was prepared by January 2017 and approved in February 2017 by PHED Minister.</td><td>Hearings from PHED</td></tr>
<tr><td>Indicator 2
NRW ratios are reduced in the pilot areas compared to the initial value.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
・In all three project target areas, the NRW ratios were reduced compared to the initial values as shown below.
(Ex-post Evaluation)
・In Mansarovar, the NRW ratio has been reinstated from 10.5% to around 20%, but maintained some improvement compared to the baseline of 52.8%. In Adarsh Nagar, the NRW ratios have been nearly back to the baseline values. Two factors attributable to the results are, the drastic increase of household connections and the effect of COVID-19.
<table>
<tr><th>Area Name</th><th>Baseline (1)
2014/2015</th><th>Terminal Evaluation (1)
2015/2016</th><th>Target year
2020</th><th>Ex-post evaluation
2021</th></tr>
<tr><td rowspan="2">Mansarovar</td><td>52.8%
(May 2014)</td><td>10.5%
(Apr. 2015)</td><td>19.8%
(Apr. 2020)</td><td>21.1%
(Apr. 2021)</td></tr>
<tr><td colspan="4">The number of household connections increased from 139 in 2014 to 2,093 in 2020 (about 15 times).</td></tr>
<tr><td rowspan="2">Adarsh Nagar DMA1</td><td>22.6%
(Nov. 2014)</td><td>13.3%
(Feb. 2015)</td><td>20.7%
(Apr. 2020)</td><td>20.7%
(Apr. 2021)</td></tr>
<tr><td colspan="4">The number of household connections increased from 230 in 2014 to 700 in 2020 (about 3 times).</td></tr>
<tr><td rowspan="2">Adarsh Nagar DMA2</td><td>21.8%
(May 2015)</td><td>10.2%
(Averaged % from Apr. 2016 to Jul. 2016)</td><td>21.3%
(Apr. 2020)</td><td>21.3%
(Apr. 2021)</td></tr>
<tr><td colspan="4">The number of household connections increased from 794 in 2015 to 4,041 in 2020 (about 5.1 times).</td></tr>
</table>
Note: (1) The timing of measurement varied. The data is from the Terminal Evaluation Report.</td><td>MIS-generated data provided by PHED</td></tr>
<tr><td>Indicator 3
Internal trainings are held more than twice during the project period.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
・First trial internal training was held on 5th to 9th December, 2016. From the experience of first trial, the improved training of second series was held on 15th to 19th December 2016.
(Ex-post Evaluation)
・The internal trainings have been continued after the project as shown below. In 2020, PHED's activities were limited due to the effect of COVID-19. It is expected that the activity is to be resumed once the situation is improved.

Internal training conducted for the staff of PHED Jaipur after the project
<table>
<tr><th>Year</th><th>Topics of the training</th><th>Training period</th><th>Number of participants</th><th>Training results</th></tr>
<tr><td>2017</td><td rowspan="3">DMA Isolation, Equipment Use NRW Calculation</td><td>3-4 days</td><td>20</td><td rowspan="3">Effective. It is expected that more days should be spent on each training.</td></tr>
<tr><td>2018</td><td>3-4 days</td><td>32</td></tr>
<tr><td>2019</td><td>3-4 days</td><td>27</td></tr>
<tr><td>2020</td><td colspan="4">Not conducted due to COVID-19</td></tr>
</table></td><td>MIS-generated data provided by PHED
Hearings from PHED</td></tr>
<tr><td>Indicator 4
NRW reduction activities are implemented based on annual program for NRW reduction.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
・As for pilot areas, NRW reduction activities were implemented based on the annual programs for NRW reduction Action Team of PHED.
(Ex-post Evaluation)
・It was confirmed by the study that in all three project target areas, NRW reduction activities, such as isolation, customer identification, water meter replacement as well as other countermeasures had been implemented according to the annual programs for NRW reduction. In 2020 and 2021, due to COVID-19, some activities have been affected.</td><td>MIS-generated data provided by PHED</td></tr>
</table>

<table>
<tr>
<td rowspan="2">(Overall Goal)
The NRW ratio in Jaipur city is reduced.</td>
<td>Indicator 1
NRW reduction activities are conducted in accordance with the Execution Plan for NRW reduction.</td>
<td>(Ex-post Evaluation) achieved
・Although there are some delays and change of schemes in the Execution Plan due to the effects of COVID-19, most of the activities have been in general implemented.

(1) Action Plan I: April 2017 – March 2020
<table>
<tr><th>Type</th><th>Planned Activities</th><th>Progress</th></tr>
<tr><td rowspan="5">Infrastructural Improvement</td><td>Investigation for DMA isolation flow meters of clear water reservoir & service reservoir and tube well condition</td><td>Work executed under the area in Adarsh Nagar</td></tr>
<tr><td>DMA isolation in Division and Sub-Division Area</td><td>Subdivision divided in supply zones</td></tr>
<tr><td>Repair/installation of flow meters in clear water reservoir & service reservoir and part of tube well</td><td>Done under AMRUT Project</td></tr>
<tr><td>Preparation, replace/install service meter (priority area)</td><td>45,590 replaced under AMRUT Project</td></tr>
<tr><td>Feasibility Study for rehabilitating/extending aged distribution pipeline</td><td>In progress</td></tr>
<tr><td rowspan="8">Organizational & Institutional Improvement</td><td>Establishment of NRW Cell</td><td>Established</td></tr>
<tr><td>Strengthen of Division Office</td><td>In progress</td></tr>
<tr><td>Preparation of correct pipeline drawings</td><td>Completed</td></tr>
<tr><td>Establishment of DMA operation</td><td>8 supply centers were added.</td></tr>
<tr><td>Management of unbilled authorized consumption</td><td>In progress</td></tr>
<tr><td>Management of apparent real losses</td><td>In progress</td></tr>
<tr><td>Preparation of equipment/capacity for detection of real losses</td><td>Deferred due to COVID-19</td></tr>
<tr><td>Preparation of localized standard/manual of Operation and Maintenance (O&M)</td><td>Circulars/orders for O&M issued</td></tr>
<tr><td>Improved skill of pipe repair and installation (set internal training)</td><td>Not done</td></tr>
</table>
(2) Action Plan II: April 2020 – March 2025
<table>
<tr><th>Type</th><th>Planned Activities</th><th>Progress up to April 2021</th></tr>
<tr><td rowspan="4">Infrastructural Improvement</td><td>DMA isolation in distribution zone</td><td>8 new supply centers identified, work in progress</td></tr>
<tr><td>Repair/installation of flow meters in remaining tube wells</td><td>In progress</td></tr>
<tr><td>Preparation for replacement/installation of service meter (remained area)</td><td>In progress</td></tr>
<tr><td>Detailed Project Report, tender, implementation for the rehabilitation/extension of aged distribution pipeline in priority area</td><td>Pipe replacement done regularly</td></tr>
<tr><td rowspan="4">Organizational & Institutional Improvement</td><td>Preparation of correct pipeline drawings (continue)</td><td>In progress</td></tr>
<tr><td>Management of apparent & real Loss (continue)</td><td>Outsourced</td></tr>
<tr><td>Management of real loss (detection & countermeasure)</td><td>In progress</td></tr>
<tr><td>Update of internal meeting</td><td>Completed</td></tr>
</table>
</td>
<td>Information provided by PHED through the survey</td>
</tr>
<tr>
<td>Indicator 2
NRW ratio in Jaipur city is accurately calculated.[4]</td>
<td>(Ex-post Evaluation) not achieved
・It was confirmed by the study that the method of calculation of NRW ratio given in SOP developed by the project has been followed in all pilot areas. However, the number of properly functioning flow meters, which were mandatory to accurately measure the NRW ratios, are set for only 21.5% of total number of tube wells connected to the distribution network.
<table>
<tr><th>Items</th><th>2016</th><th>2020</th><th>change</th></tr>
<tr><td>Total number of tube wells connected to the distribution network</td><td>1,800</td><td>2,533</td><td>141%</td></tr>
<tr><td>Tube wells with functioning flow meters</td><td>300</td><td>545</td><td>182%</td></tr>
<tr><td>% of functioning flow meters against total number of tube wells connected to the distribution network</td><td>16.7%</td><td>21.5%</td><td>4.8 points</td></tr>
</table>
</td>
<td>MIS-generated data provided by PHED and Hearings from PHED</td>
</tr>
</table>

[4] For NRW ratio to be calculated accurately, it is necessary to set the flow meters to the tube wells connecting to the distribution network.

3 Efficiency

Both of project period and project cost were within the plan (ratio against plan: 100% and 71%, respectively). The low ratio against the planned project cost is because the scope of pilot activities was decreased due to PHED's delay in procurement of water meters. The pilot area was limited and the remaining areas were treated as the technical support activity areas where PHED independently carried out activities and the support from Japanese experts was limited to giving technical advices. The Outputs of the project were produced as planned.

Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Jal Jeevan Mission (JJM), a central government initiative was launched in 2019 aiming to achieve 100% household connections in entire India by 2024. It is said that the central government subsidizes at most 50% of the cost for water supply projects implemented by the state government.

< Institutional/Organizational Aspect>

PHED headquarter is under the Government of Rajasthan (GOR) and assumes the overall responsibilities to provide water and sewage services in collaboration with cities and local communities in the State. The total number of engineers[5] was 2,114 and other staff 37,022 in 2013[6]. In 2016, PHED headquarters created the NRW cell as the inter-department entity to promote the NRW reduction activities and has made it integrated into the department in charge of the operation and maintenance (O&M). The NRW cell has 3 tiers of staff, such as Chief Engineers (CE), overseeing urban monitoring, Additional Chief Engineers (ACE) and Regional Officers (RO) overseeing monitoring in district level and Executive Engineer (EE) of the divisional level. No segregated funding is available for the cell, thus it is either funded by the state or independently sponsored depending on the case. IT cell, which manages GIS map, has been established and activities have been centralized at PHED HQ. At the time of ex-post evaluation, it is observed that the status of NRW cell as the inter-departmental entity has made it difficult for each staff to engage in its operation with full commitment. As described in the above, national policies including smart city program and JJM stipulate the importance of NRW reduction. Although NRW reduction is just one of the components of the policies, it might be effective to appoint officers dedicated to NRW reduction.

PHED Jaipur is in charge of overall water management for Jaipur city. ACE is heading the PHED of Jaipur region with 2 SEs who supervise City Circle and District Circle respectively. Under SEs there are EEs who are in charge of sub-division. At the time of ex-post evaluation, it is observed that the number of staff is not sufficient to proceed the Execution Plan, so that recruitment of junior level engineer is in process and outsourcing the O&M related works is under consideration.

<Technical Aspect>

Internal trainings have continuously been conducted except the period affected by COVID-19 in 2020. Staffs of PHED Jaipur have sustained the knowledge and skills and have transferred their expertise to others by cascading effects. SOPs, various manuals and materials developed by the project have been continuously utilized and have been reviewed and revised at some intervals. Operation and maintenance of water leakage detector have been managed properly except the period affected by the COVID-19. It is expected that those activities affected by COVID-19 will be resumed accordingly.

<Financial Aspect>

It was observed that the NRW reduction activity is one of the key areas of the government policy, thus certain amount of budget has been continuously allocated under the big scheme including AMRUT Project or Urban JJM. The independent fund is not prepared by the state government, but it is a part of the upgradation of the regular operation and maintenance measures. Hence, there will be no concerns over budget allocation or its shortage.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational, technical aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

By the project completion, the project achieved the Project Purpose, "PHED staff's capacity to reduce NRW in Jaipur city is strengthened." The effects of the project have partially continued after the project completion, and the Overall Goal, "The NRW ratio in Jaipur city is reduced" has been partially achieved. Major contributing factors are the drastic increase in household connections and the effects of COVID-19 in 2020 and 2021. In addition, the insufficiency of functional flow meters has made it difficult to accurately measure the NRW ratios.

As for the sustainability, some problems have been observed in terms of the institutional/organizational, technical aspects. As for the efficiency, both the project cost and the project period were within the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency: PHED

・It is recommended that by fiscal year 2023, in all urban cities in Rajasthan state, in order to strengthen the expertise for NRW reduction, the NRW Cell should be reorganized with new personnel allocation plan. Currently, it is functioned as the inter-departmental entity, however due to comparatively less commitment by each staff towards the NRW cell, it is recommended to deploy the intensively engaged units.

Lessons Learned for JICA:

・In order to examine the achievement of the project targeting to reduce the NRW ratio, it should be considered to use the set of indicators such as Water Losses, Apparent Losses, Real Losses etc., as the NRW ratio can be easily influenced by external factors. In this project, the

5 Engineers from upper level includes, Chief Engineer (CE), Additional Chief Engineer (ACE), Superintending Engineer (SE), Executive Engineer (EE), Assistant Engineer (AE) and Junior Engineer (JE).

6 The number of engineer and other staff at the time of ex-post evaluation is not available.

overall amount of water provided in city should have been tracked as the amount has great influence on its NRW ratio. In Adarsh Nagar, after the project completion, the NRW ratio has almost reverted back to what was started. This can be largely attributed, apart from the influence of COVID-19, to the expanding number of household connections which entailed difficulty of measuring the appropriate water consumption amount. In this project, the effectiveness and sustainability of the intervention would have been justified more clearly if some other indicators to examine the extent of NRW reduction had been originally factored in.

Picture

Training equipment provided by the project has been well maintained and utilized in the internal trainings.

Practices for engineers of PHED Jaipur have been conducted in the training yard.

Internal Ex-Post Evaluation for Development Planning Project

conducted by Nepal Office: June, 2022

Country Name	**The Project on Urban Transport Improvement for Kathmandu Valley**
Nepal	

I. Project Outline

Background	In Kathmandu, Nepal, along with the population increase, the number of registered vehicles, including motorcycles, was increasing, resulting into traffic congestion in the city. Although the government of Nepal (GON) was striving to avoid traffic congestion through improvement of the road network, the traffic infrastructure was still insufficient to cope with the ever-increasing traffic volume. In addition, the overall orientation of GON on the development of the whole Kathmandu Valley was not very clearly defined. JICA conducted the Master Plan study in 1993 and this contributed to the improvement of traffic condition in Kathmandu Valley. However, the updated Urban Transport Master Plan was necessary as a consequence of rapid urbanization and increased traffic volume caused by rapid population growth.	
Objectives of the Project	This project aimed at development of the Master Plan for comprehensive urban transport of the Kathmandu Valley and the Pre-Feasibility Studies for selected prioritized project(s), thereby contributing to improvement of urban transport and sound development of the Kathmandu Valley. 1. Expected Goals through the proposed plan[1]: Sound development of the Kathmandu Valley which improves the quality of life of the citizens and the environment will be achieved.	
Activities of the Project	1. Project Site: Kathmandu Valley, which covers 5 municipalities of Kathmandu, Lalitpur, Bhaktapur, Thimi and Kirtipur and vicinity area of 3 districts of Kathmandu, Lalitpur and Bhaktapur. 2. Main Activities: Conduct of complement traffic surveys, Study on future traffic demand forecast, Establishment of urban transport master plan, Formulation of Implementation Plan and Pre-Feasibility Studies for selected prioritized project(s), Seminar and workshops for consensus building and capacity development 3. Inputs (to carry out above activities)	
	Japanese Side 1) Mission members: 16 persons 2) Trainees Received: 8 persons	Nepalese Side 1) Staff Allocated: 20 persons
Project Period	(ex-ante) June 2014 – November 2015 Project Cost (ex-ante) 250 million yen, (actual) 339 million yen (actual) June 2014 – May 2017	
Implementing Agency	Department of Roads (DOR), Ministry of Physical Infrastructure and Transport (MOPIT) Kathmandu Valley Development Authority (KVDA)	
Cooperation Agency in Japan	Eight-Japan Engineering Consultants Inc. Nippon Koei Co., Ltd. Tamano Consultants Co., Ltd.	

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

・In judgement in ex-post evaluation, the influence of the great earthquake in April 2015, which was one of the worst natural disasters in Nepal and caused considerable physical and human damages, was taken into consideration as unexpected external conditions. Consideration was also given to the fact that the project conducted the emergency rehabilitation of KB Road (between Lokanthali and Kausaltar) as an additional component after the earthquake.

1 Relevance

<Consistency with the Development Policy of Nepal at the Time of Ex-Ante Evaluation>

In the National Transport Policy formulated in 2001 by the Ministry of Physical Planning and Works (MOPPW, now MOPIT), it was stated that a long-, medium- and short-term master plan should be compiled on transport infrastructure to be developed in urban areas, with which development works would be implemented. In the Vision Paper (2007) by MOPPW, it was stipulated that junction improvement, road upgrading and network expansion should be launched in order to relieve traffic congestion.

<Consistency with the Development Needs of Nepal at the Time of Ex-Ante Evaluation>

The GON had not formulated a plan for the development of the Kathmandu Valley with clear and consistent vision and the lack of the comprehensive plan led to the urban sprawl without adequate transport infrastructure and the extended areas vulnerable to natural disasters such as earthquake.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

In "Country Assistance Policy for Nepal" (2012), one of the three priority areas was assistance to development of social infrastructure and social system toward sustainable and balanced economic growth. In the priority area, assistance in transport infrastructure is included.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Objectives at the Time of Project Completion>

[1] The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

The development study project was successfully carried out and the development of the Master Plan and the Pre-Feasibility Study (on T-M flyover[2]) was completed and compiled in documents by the end of the project. The documents described detailed information on proposed projects as well as the results of the strategic environmental assessment of the proposed projects were compiled as follows: (Volume I) Present Conditions, (Volume II) Master Plan and Pilot Project, (Volume III) Appendices. The Master Plan and the Pre-Feasibility Study were accepted by implementing agencies as a planning document for reference in planning new projects. During the implementation of the project, capacity building was carried out for DOR, KVDA, organizations under the Ministry of Urban Development (MOUD), and municipalities through the development of the Master Plan and also by actual OJT for their respective road construction projects.

<Utilization Status of the Proposed Plan at the Time of Ex-post Evaluation>

The project plans proposed in the Master Plan and the Pre-Feasibility Study have been partially utilized at the time of ex-post evaluation. As to the Indicator 1, the Master Plan and the Pre-Feasibility Study Report were not officially endorsed by the cabinet. Although the plan was proposed for approval by the DOR to the MOPIT, MOPIT high level authorities did not submit it to the Cabinet for approval as they found that the Master Plan was dynamic and needed to be changed over time. However, project plans recommended by the Master Plan were respected, and the MOPIT, DOR, Department of Transport Management (DOTM), KVDA and related agencies are planning to implement the selected programs/projects[3]. Moreover, the essence of the recommendations of the Master Plan was applied on the Five-Year National Plan Approach Paper (2019/20-2023/24). Since the completion of the project, the priority of the GON has shifted partly because of the earthquake in 2015 and partly because of the traffic condition change in Kathmandu caused by the improvement of River Corridors and the Ring Road South. Regarding the traffic condition in Kathmandu, the Ring Road South was constructed by the DOR with the support of the Chinese Government, which resulted in the diversion of bulk of traffic. At first, the DOR was positive to implement T-M flyover. However, after considerable discussion between JICA and DOR, the T-M flyover project's feasibility was in question. In response to GON request, JICA again conducted the Data Collection Survey for the Traffic Improvement in Kathmandu valley in 2019. The Data Collection Survey recommended that the T-M flyover need not be constructed at this time and, instead of the construction of T-M flyover, only traffic management with increasing the number of lanes in the intersections in Tripureshwor, Thapathali and Maitighar (comprising the intersection which would bring the same impact as T-M Flyover) was recommended. Regarding the Indicator 2, although the progress is slower than expected as described before, some of the important projects recommended by the Master Plan were approved and are currently in the implementing stage. In the Master Plan, 17 items are identified to be implemented in specific target period (short-term (-2020) and middle term (2021-2025)). Out of the 17 items, specific actions have already been taken and in progress for 9 items[4], in spite of the policy change of the implementing agencies. Some budgets have been allocated for Suryabinayak Dhulikhel Road and Koteshwar Junction Improvement Roads. Similarly, the DOR has initiated the improvement of the road bypassing the Koteshwor Junction by connecting Lalitpur with Thimi (after Jadibuti towards Bhaktapur) on own budget. Apart from that, the different GON agencies are involved in the construction of the River Corridors and other important priority projects on their own budget or from the support of donors.

<Status of Achievement for Expected Goals through the Proposed Plan at the Time of Ex-post Evaluation>

Expected Goals through the proposed plan is partially achieved at the time of ex-post evaluation. As to the Indicator 1, there are some improvements in traffic conditions, according to interview with persons in charge at the implementing agencies. This is because of the construction and improvement of River Corridors, improvement of the Ring Road South from Kalanki to Koteshwor, improvement of Koteshwor Junction, diversion road improvement, traffic management at some of the intersections, widening of the existing roads, etc. This has some impact on the mitigation of traffic congestion as new roads are introduced, existing road capacity has improved and the traffic management is strengthened including installation of traffic signals by own fund. As per the traffic accidents, although the total number of accidents has increased from 5,530 in 2017 to 10,030 in 2020, the fatality decreased from 182 in 2017 to 153 in 2020. It is considered that the number of serious accidents has been decreasing due to improved roads, although the total number of accidents are increasing as the traffic volume has increased after the road improvement. The main reason of decrease in the fatal accident in spite of the increase in the number of accidents is the traffic awareness campaign by different agencies, improvement of road crossing by construction of pedestrian bridges, using the traffic gun for monitoring the speeding vehicle in some limited roads, etc. In regard to the Indicator 2, signs of sound development of Kathmandu Valley have been recognized to some extent. Formulation of Physical Development Plan of Kathmandu Valley Development Plan is under process. Two cities (Bhaktapur and Changunarayan, Gundu-Balkot and Tokha) out of three new cities after municipal merger have already formulated a plan for urban development. However, the implementation and the budget for the plan has not been confirmed yet partly because of the lack of manpower, for example, lack of planners at KVDA. Not much progress for the disaster management has been observed due to lack of expertise. Regarding the Indicator 3, the impact of capacity building has been recognized to some extent. For example, DOR improved some portion of the road by self-planning, and MOUD improved the River Corridors by self-planning. Some capacity building for coordination and planning has been done by having interaction meetings and information sharing, especially by personal basis and individual initiation. Notable changes are; realization of the importance of infrastructures like underpass and flyovers despite high cost, realization of need of signalized system and installing the traffic signals by own fund in numerous intersections.

<Other Impacts at the Time of Ex-post Evaluation>

The project was classified as Category B based on the JICA Guidelines for Environmental and Social Considerations (April, 2010). At the time of ex-post evaluation, no negative impact caused by the project has been observed. As to the impact of the proposed projects, strategic environment assessment was conducted during the project and the results were compiled in the Master Plan. According to the results of the strategic environment assessment, some of the projects proposed in the Master Plan and the Pre-Feasibility Study Report were defined as Category B but none of them were defined as Category A. At the time of ex-post evaluation, no actual construction work of the propose projects has been launched

[2] Flyover between Tripreshwor and Maitighar

[3] The Master Plan itself need not be approved by the Cabinet to implement the selected programs/projects.

[4] Based on the priority change of GON after the project, 9 on-going items formerly described in the Master Plan were reorganized in the projects as presented in the table below.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is fair.

Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th></th></tr>
<tr><td rowspan="2">(Utilization Status of the Proposed Plan)
The Master Plan and the results of Pre-Feasibility Study are approved and launched by the Government of Nepal (GON).</td><td>Indicator 1
The Comprehensive Urban Transport Master Plan is approved by GON and its contents are reflected into related legal plans and utilized for the formulation of the related legal plans.</td><td>(Ex-post Evaluation) partially achieved
・The Master Plan and the Pre-Feasibility Study Report were not officially endorsed by the Cabinet. The MOPIT high level authorities did not submit them to the Cabinet for approval as they found that the Master Plan was dynamic and needed to be changed over time. Since project completion, the priority of the GON has shifted because the traffic condition in Kathmandu has changed. However, the implementing agencies and related agencies are planning to implement the selected programs/projects and the essence of the recommendations of the Master Plan was applied on the Five-Year National Plan Approach Paper (2019/20-2023/24).
・As the T-M flyover project's feasibility was in question, JICA again conducted the Data Collection Survey for the Traffic Improvement in Kathmandu valley in 2019. The Data Collection Survey recommended that the T-M flyover need not be constructed at this time.</td><td>source：Five-Year Plan Approach Paper (2019/20-2023/24), Interview with MOPIT, DOR and KVDA</td></tr>
<tr><td>Indicator 2
The policies, sectoral plans and the projects proposed by the Comprehensive Urban Transport Master Plan are launched.</td><td>(Ex-post Evaluation) partially achieved
・Some of the important projects recommended by the Master Plan were approved and are currently in the implementing stage. As the table below indicates, nine items out of 17 to be implemented in short- and middle-term in the Master Plan are in progress.
<table>
<tr><td>Suryabinayak Dhulikhel Road and Koteshwar Junction Roads</td><td>DOR has been allocated some budgets for improvement.</td></tr>
<tr><td>Road bypassing the Koteshwor Junction</td><td>DOR initiated improvement on its own budget.</td></tr>
<tr><td>River Corridors and some other important priority projects</td><td>Different GON agencies are involved in the construction on their own budget or from the support of donors.</td></tr>
<tr><td>T-M flyover (Pre-Feasibility Study)</td><td>The Data Collection Survey conducted by JICA in 2019 recommended that the T-M Flyover need not be constructed.</td></tr>
</table></td><td>source：Red Book 2078 (2021/22), Interview with MOPIT,DOR and KVDA</td></tr>
<tr><td rowspan="2">(Expected Goals through the Proposed Plan)
Sound development of the Kathmandu Valley which improves the quality of life of the citizens and the environment will be achieved.</td><td>Indicator 1
Improvement of urban transport (reduced traffic congestion, improved utilization of public transport and the quality of services, decrease in traffic accident, etc.)</td><td>(Ex-post Evaluation) partially achieved
・Some improvements in traffic conditions have been observed.
-Traffic congestion is mitigated as new roads are introduced, existing road capacity has improved and the traffic management is strengthened including installation of traffic signals by own fund.
-Although the total number of accidents has increased from 5,530 in 2017 to 10,030 in 2020, the fatality decreased from 182 in 2017 to 153 in 2020. It is considered that the number of serious accident has been decreasing due to improved roads, although the total number of accidents are increasing as the traffic volume has increased after the road improvement. The main reason of decrease in the fatal accident in spite of the increase in the number of accidents is the traffic awareness campaign by different agencies, improvement of road crossing by construction of pedestrian bridges, using the traffic gun for monitoring the speeding vehicle in some limited roads, etc.</td><td>source：Interview with MOPIT, DOR, KVDA, MOUD, Traffic Police, Observation by JICA Nepal Office</td></tr>
<tr><td>Indicator 2
Sound development of the Kathmandu Valley (formulation and approval of land use plan, implementation of promotion and regulations of land use, development of urban facilities, improvement of disaster management (improvement of disaster-prone areas, development of evacuation routes, strengthening of emergency transport</td><td>(Ex-post Evaluation) partially achieved
・Signs of sound development of Kathmandu Valley have been recognized to some extent.
-Formulation of Physical Development Plan of Kathmandu Valley is under process. Two cities (Bhaktapur and Changunarayan, Gundu-Balkot and Tokha) out of three new cities after municipal merger have already planned for urban development. However, the implementation and the budget for the plan has not been confirmed yet.
-Not much progress for the disaster management has been observed due to lack of expertise.</td><td>source：Interview with KVDA</td></tr>
</table>

	network, etc.))		
	Indicator 3 Strengthening of the capabilities of relevant agencies on the comprehensive planning/coordination of the urban transport and urban development in the Kathmandu Valley	(Ex-post Evaluation) partially achieved ・The impact of capacity building has been recognized to some extent. -DOR improved some portion of the road by self-planning. -MOUD improved the River Corridors by self-planning. ・Some capacity building for coordination and planning has been done, with notable changes as follows. -Realization of the importance of infrastructures like underpass and flyovers despite high cost. -Realization of need of signalized system and installing the traffic signals by own fund in numerous intersections.	source：Interview with MOPIT, DOR and KVTA

3 Efficiency

Both the project cost and the project period exceeded the plan (ratio against the plan: 136% and 194%, respectively). The outputs of the project were produced as planned. Because of the earthquake occurred in 2015, it required more time to finalize the planned hazard analysis than expected. In addition, the project conducted the emergency rehabilitation of KB Road after the earthquake and it was found that there was a risk to be collapsed if the stronger earthquake hit the Kathmandu valley in the future. Because of this, it was decided to conduct a survey and preliminary design for the reinforcement of the road rehabilitation. Taking this fact into consideration, the efficiency of the project is fair (also refer to "Special Perspectives Considered").

4 Sustainability

<Policy Aspect>

The Five-Year National Plan (2019/20-2023/24) states that the transport sector has an important role to play in accelerating the socio-economic development of the country, facilitating trade, business, and services in addition to enhancing unhindered access for the general public. One of the objectives of the Plan is to ensure smooth traffic movement through appropriate measures for protection maintenance and road safety.

< Institutional/Organizational Aspect>

At MOPIT, there was a minor organizational reform after project completion but the organization is functioning without major problem. The proposed project plans and the related recommendations presented by the Master Plan were taken into account for planning and preparation of new projects as a regular activity at MOPIT. The number of staff has not increased and the current staff needs to work for as many activities as they did before JICA supported Master Plan study. Therefore, this has affected the dissemination of the recommendations of the Master Plan to other organizations such as KVTA, DOTM and municipalities. However, this has not hampered for their day-to-day activities. At KVDA, according to interview, they are in shortage of expertise staff such as urban planners and disaster management experts. Although they have been carrying out their day-to-day work, it may be a problem if some specific additional work is assigned as they have limited time.

<Technical Aspect>

At MOPIT, the staff has developed necessary skills and knowledge to continuously disseminate and conduct the activities related to the project plans proposed by the project through the interactions with the development study team during the project as well as through JICA's other support like trainings and the Data Collection Survey conducted in 2019. At KVTA, there is shortage of technical staff as mentioned above.

<Financial Aspect>

Although there is no budget specifically allocated to dissemination of the proposed project plans and the related recommendations of the Master Plan, some budget has been allocated as per regular projects for some of the proposed projects as described in the above Effectiveness/Impact.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The objective of the project was achieved by the time of project completion as planned, by submitting the Master Plan and the Pre-Feasibility Study Report. The Master Plan and the Pre-Feasibility Study Report were not officially endorsed by the GON as the priority of the GON has shifted due to the change of the traffic conditions in Kathmandu partly due to the earthquake in 2015. However, some of the important projects recommended by the Master Plan were approved and are currently in the implementing stage and some improvements in traffic conditions, such as mitigation of traffic congestion, have been observed. Therefore, the effectiveness/impact is fair. On sustainability, further strengthening of manpower and technical capacity is required at MOPIT and KVDA and more budget allocation is necessary, but sustainability in policy aspect is ensured, therefore, the sustainability of related agencies is fair. Regarding efficiency, the project was affected by the earthquake in 2015, and the both project cost and project period exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

・The implementing agencies should efficiently share the result of the Master Plan among all the stakeholders within the implementing agencies as well as related stakeholders in other organizations to realize its intended objective efficiently. The Master Plan should be updated according to the target year and reflected in the planning and policy documents concretely.

・It is also important to align the Master Plan formulation schedule with the timing of the formulation and renewal of plans and policy documents. Moreover, clarifying the positioning of the Master Plan and how to input it to the planning and policy documents should be important as well.

Lessons Learned for JICA:

・Regarding the formulation of new projects proposed in the Master Plan, the response of JICA to the recommendation of the Master Plan was slower than expected due to the lengthy internal discussion among the various departments within JICA HQs. and Nepal Office. This was because the Master Plan did not capture traffic condition changes in Kathmandu caused by the improvement of River Corridors and the Ring Road South and the influence of the earthquake in 2015. Therefore, the Data Collection Survey was conducted to address the fast changing condition of the traffic scenario in Kathmandu Valley and depicted a different scenario. To avoid this, it would be necessary that the new project formulation process should be shortened as much as possible and that JICA's technical monitoring capacity should be strengthened during the development study itself.

・To share the Master Plan efficiently with the implementation agency, it is also important that the personnel at the implementing agencies has sufficient technical capacity. Therefore, it will be effective to formulate the project plan including technical capacity development of the implementing agencies based on the capacity assessment in the planning stage.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Nepal Office: April, 2022

Country Name	**The Project for Strengthening the Capacity of Court for Expeditious and Reliable Dispute Settlement**
Nepal	

I. Project Outline

Background	In Nepal, a comprehensive peace agreement was signed between the government and the Maoists in November 2006 after the ten-year conflict. As a part of democratic nation-building, judiciary was expected to become more efficient and effective. Moreover, court-referred mediation, which was expected to become an easy means of dispute settlement as well as an alternative to court, was not used actively. Because of the inadequate capacity of court mediators, the number of disputes settled by court-referred mediation was too scarce to reduce the workload of the courts.		
Objectives of the Project	In Nepal, through development and approval of the Case Management Guideline by the Supreme Court, dissemination of the Case Management Guideline and other related information for implementation at the courts nationwide, development of the Court-Referred Mediation Guideline and Information Materials for court mediators, and wide dissemination of the Court-Referred Mediation Guideline and Information Materials for court mediators as well as other related information, the project aimed at establishment of foundation for improving court's functions on dispute settlement, thereby contributing to promotion of expeditious and reliable dispute settlement in order to protect rights of people. 1. Overall Goal: Expeditious and reliable dispute settlement is promoted through improving court's functions in order to protect rights of people. 2. Project Purpose: Foundation for improving court's functions for promoting expeditious and reliable dispute settlement is established.		
Activities of the Project	1. Project Site: Kathmandu, area of the Model Courts* *Dang District Court (DC), Kavre DC, Dhanusha DC 2. Main Activities: (1) Baseline surveys on current practices of case management system, Development of Case Management Guideline, Hearing of opinions on the Case Management Guideline at the Model Courts, Finalization of the Case Management Guideline and submission to the Supreme Court for approval, etc. (2) Implementation of trainings and seminars for judges, court officials and legal professionals to disseminate the Case Management Guideline and other information related to the case management, etc. (3) Baseline survey on current practices of court-referred mediation, Development of Court-Referred Mediation Guideline for judges and court officials, Hearing of opinions on the Court-Referred Mediation Guideline at the Model Courts, Development of Information Materials for court mediators, etc. (4) Implementation of seminars on the Court-Referred Mediation Guideline for judges and court officials, Implementation of trainings for court mediators based on the Information Materials, Establishment of Mediation Center to the Model Courts and implementation of workshop to review the overall Model Court activities, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 8 persons 2) Trainees Received: 102 persons[1] 3) Local expenses Nepalese Side 1) Staff Allocated: 24 persons[2] 2) Office space (from September 2013 to April 2015*) *Until the great earthquake occurred in April 2015.		
Project Period	(ex-ante) September 2013 – March 2017 (actual) September 2013 – March 2018	Project Cost	(ex-ante) 197 million yen, (actual) 270 million yen
Implementing Agency	Supreme Court, Dang District Court, Kavre District Court, Dhanusha District Court		
Cooperation Agency in Japan	International Cooperation Department, Research and Training Institute, Ministry of Justice		

II. Result of the Evaluation

<Constraints on Evaluation>

・In this Ex-Post Evaluation, an evaluation judgment was made primarily by analyzing information acquired by sending and collecting questionnaires, and through telephone and e-mail interviews with persons concerned due to the impact of COVID-19.

<Special Perspectives Considered in the Ex-Post Evaluation>

・As to the continuation status of Indicator 1 of the Project Purpose, the current status of utilization of materials developed by the project was examined.

・The continuation status of Indicator 2 of the Project Purpose is almost the same as Indicator 2 of the Overall Goal. Therefore, the continuation status of Indicator 2 of the Project Purpose was assessed as a part of assessment of the achievement of Indicator 2 of the Overall Goal.

1 Relevance

<Consistency with the Development Policy of Nepal at the Time of Ex-Ante Evaluation>

The Supreme Court started the implementation of the Second Five-Year Strategic Plan of Judiciary (2009/10-2013/14) to put democratic nation-building on track and promote it peacefully.

<Consistency with the Development Needs of Nepal at the Time of Ex-Ante Evaluation>

[1] Including 10 persons in one course held before the commencement of the project as Kick-Off Seminar. During the project, six courses were held and there were 10 to 20 participants in each course.

[2] The project members were reshuffled several times during the project period but the number of the project members at one time was 24 in general.

The judiciary faced criticism for being ineffective in providing justice in a timely manner. A study conducted in June 2012 by the JICA legal support advisor showed that the rate of case disposal was 40% of the annual received cases. Around 40% of the total disposed cases took more than three years to dispose. Moreover, court-referred mediation was not used actively. The frequency of the use of court-referred mediation varied greatly depending on the district.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

In "Country Assistance Policy for Nepal" (2012), one of the three priority areas was the consolidation of peace and steady transition to a democratic state, which included support for legal reform.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

The Project Purpose was partially achieved by the project completion. In regard to Indicator 1, the Case Management Guideline (English and Nepalese) was approved by the Supreme Court in April 2017 and was printed and 5,000 copies were distributed to 75 districts nationwide as well as relevant agencies in July 2017. The Court-Referred Mediation Guideline was not developed as was initially planned but it was agreed during the terminal evaluation that the preliminary draft of the Court-Referred Mediation Guideline would be used as the Basic Concept Document at the Supreme Court. Three materials were developed as Information Materials. They are: the Mediation Basic Concept Note, the Materials for Mediation Trainers and the Basic Concept Document on Court-Referred Mediation. As to Indicator 2, since training materials such as the Materials for Mediation Trainers were developed and the capacity of those involved in the project was improved, the programme for Master Training of Trainers (MToT) was prepared although MToT programme was not actually conducted. Regarding Indicator 3, the judges and court officials who participated in the Japan Seminars and other sharing seminars were much more aware of promoting expeditious and reliable dispute settlement[3], although the target of Indicator is not clearly defined and it was difficult to measure the level of awareness. Regarding Indicator 4, the results of interview and questionnaire conducted by the terminal evaluation indicated that the judges and the court officials who took part in the Japan Seminars and other sharing seminars were much aware of the importance of promoting court-referred mediation, although the target of Indicator was not clearly defined and it was difficult to measure the level of awareness.

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

The project effects have partially continued to the time of ex-post evaluation. Regarding Indicator 1, the Case Management Guideline and the Information Materials for the Court-Referred Mediation have been utilized, although not as fully as expected. In Nepal, the new codes were introduced in September 2017 and set a departure in existing legal framework, affecting the relevancy of the Guideline. However, the theoretical aspects mentioned in the Guideline are still relevant and have been utilized in various occasions. The Guideline is yet to be revised based on the new codes. The Information Materials for Court-Referred Mediation, comprising three parts, have been still utilized as mediation has been considered as one of the best tools to settle disputes permanently. Indicator 2 has been partially continued (for the detail, refer to Indicator 2 of the Overall Goal). As to Indicator 3, all the judges and court officials are continuously aware of promoting expeditious and reliable dispute settlement through various means, as shown in the Indicators in the Overall Goal below. The high court and district court judges and judicial officials along with other concerned stakeholders are following the calendar of each case through the implementation of Differentiated Case Management (DCM) system. Regarding Indicator 4, judges and court officials are aware of mediation as an effective means to settle dispute expeditiously, reliably and permanently. Mediation is considered as the best way of settling the disputes therefore, it has been incorporated in the codes, court rules and the Strategic Plan of Judiciary.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

The Overall Goal has been partially achieved. Due to changes in the legal provision, a part of the Case Management Guideline has become inapplicable to the current legal situation, as described above. However, judges and court officials still use the Guideline in order to understand the concept and various aspects of case management (Indicator 1). Training focused on Case Management Guideline has not been conducted because the Case Management Guideline was not revised as per the new codes enacted. (Indicator 2). However, the awareness on Case Management Guideline has been continued in other training program such as DCM and by distribution of the Case Management Guideline throughout the courts in Nepal. The time to dispose cases in court has been reduced (Indicator 3). At all the three Model Courts, the percentage of cases disposed within one year has been increased in general, although it is almost at the same level at Dang DC and Kavre DC during fiscal year from 2019/20 to 2020/21[4]. The average number of cases disposed by a judge is increasing in general (Indicator 4). At Dang DC, the disposal rate in fiscal 2019/20 was reduced in comparison to the previous year, because of the lockdown imposed due to the impact of COVID-19. The number of pending cases has not been reduced because of lockdown imposed throughout the country due to COVID-19 (Indicator 5). There is no clear tendency of improvement in the number of cases referred to mediation or in success rate. One of the reasons is lockdown due to COVID-19 (Indicator 6).

<Other Impacts at the Time of Ex-Post Evaluation>

Mediation Committee of Supreme Court issued a notice in 2016 to promote the use of judicial mediation, based on the report of the training in Japan. Furthermore, Supreme Court Regulations revised in 2016 include the introduction of prior consultation procedures, which can be evaluated as a result of the training in Japan. No negative impact has been observed. The Mediation Centers were constructed within the premises of the Model Courts, therefore, there was no land acquisition.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project	Indicator 1: Case	Status of the Achievement (Status of the Continuation): achieved (partially continued)	source：JICA

[3] In the project, a large number of personnel were dispatched to Japan, compared to other similar projects. Taking the results of the project into account, it is considered that training a large number of personnel was effective in the project, to develop capacity of the implementing agency as a whole.

[4] It may be due to the impact of COVID-19.

<table>
<tr><td rowspan="5">Purpose)
Foundation for improving court's functions for promoting expeditious and reliable dispute settlement is established.</td><td>Management Guideline and Information Materials for Court-Referred Mediation are prepared.</td><td>(Project Completion)
- The Case Management Guideline (English and Nepalese) was approved by the Supreme Court in April 2017 and 5,000 copies were distributed to 75 districts nationwide as well as relevant agencies in July 2017. The Court-Referred Mediation Guideline was not developed but it was agreed that the preliminary draft of the Court-Referred Mediation Guideline would be used as the Basic Concept Document at the Supreme Court, and three materials were developed as Information Materials.
(Ex-Post Evaluation)
- Case Management Guideline and Information Materials for the Court-Referred Mediation have been utilized, although not as fully as expected. In Nepal, the new codes were introduced in September 2017, affecting the relevancy of the Guideline. However, the theoretical aspects mentioned in the Guideline are still relevant and have been utilized in various occasions. The Information Materials for mediation have been still utilized as mediation has been considered as one of the best tools to settle disputes permanently.</td><td>document, Supreme Court information</td></tr>
<tr><td>Indicator 2: The Programme for Master Training of Trainers (MToT) is prepared and conducted to disseminate the Case Management Guideline.</td><td>Status of the Achievement (Status of the Continuation): partially achieved (partially continued)
(Project Completion)
- As training materials were developed and the capacity of those involved in the project was improved, the programme for MToT was prepared, although MToT programme was not actually conducted.
(Ex-Post Evaluation)
*Refer to Indicator 2 of the Overall Goal.</td><td>source : JICA document</td></tr>
<tr><td>Indicator 3: The awareness of judges and court officials for promoting expeditious and reliable dispute settlement is enhanced.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- The judges and court officials who participated in the Japan Seminars and other sharing seminars were much more aware of promoting expeditious and reliable dispute settlement.
(Ex-Post Evaluation)
- All the judges and court officials are continuously aware of promoting expeditious and reliable dispute settlement through various means.</td><td>source : JICA document, Supreme Court information</td></tr>
<tr><td>Indicator 4: Judges and court officials' awareness on mediation to settle disputes expeditiously and reliably is increased.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- The judges and the court officials who took part in the Japan Seminars and other sharing seminars were much aware of the importance of promoting court-referred mediation.
(Ex-Post Evaluation)
- Judges and court officials are aware of mediation as an effective means to settle dispute expeditiously, reliably and permanently.</td><td>source : JICA document, Supreme Court information</td></tr>
<tr><td rowspan="3">(Overall Goal)
Expeditious and reliable dispute settlement is promoted through improving court's functions in order to protect rights of people.</td><td>Indicator 1: All the courts in Nepal utilize improved Case Management Guideline.</td><td>(Ex-Post Evaluation) partially achieved
- Due to changes in the legal provision, a part of the Case Management Guidelines has become inapplicable to the current legal situation. However, judges and court officials still use the Guideline in order to understand the concept and various aspects of case management.</td><td>source : Supreme Court information</td></tr>
<tr><td>Indicator 2: Training programs are conducted to raise awareness on the Case Management Guideline of judges and court officials nationwide.</td><td>(Ex-Post Evaluation) partially achieved
- Training focused on Case Management Guidelines was not conducted. However, the awareness on Case Management Guidelines has been continued in other training program such as DCM and by distribution of the Case Management Guideline throughout the courts in Nepal.</td><td>source : Supreme Court information</td></tr>
<tr><td>Indicator 3: Time to dispose cases in courts is reduced.</td><td>(Ex-Post Evaluation) achieved
- The time to disposed cases in court has been reduced.
<table>
<tr><th rowspan="2">DC</th><th rowspan="2">Fiscal year</th><th rowspan="2">Total No. of disposed cases</th><th colspan="4">No. of cases disposed in time frame</th></tr>
<tr><th>Within 1 year</th><th>1 year to 18 months</th><th>More than 18 months</th><th>% of "within 1 year"</th></tr>
<tr><td rowspan="3">Dang DC</td><td>2018/19</td><td>2,010</td><td>1,306</td><td>332</td><td>372</td><td>65.0</td></tr>
<tr><td>2019/20</td><td>1,189</td><td>985</td><td>152</td><td>52</td><td>82.8</td></tr>
<tr><td>2020/21</td><td>1,790</td><td>1,477</td><td>204</td><td>109</td><td>82.5</td></tr>
<tr><td rowspan="3">Kavre DC</td><td>2018/19</td><td>892</td><td>526</td><td>165</td><td>201</td><td>59.0</td></tr>
<tr><td>2019/20</td><td>909</td><td>654</td><td>122</td><td>133</td><td>71.9</td></tr>
<tr><td>2020/21</td><td>1,197</td><td>862</td><td>131</td><td>204</td><td>72.0</td></tr>
<tr><td rowspan="3">Dhanusha DC</td><td>2018/19</td><td>2,312</td><td>1,168</td><td>614</td><td>530</td><td>50.5</td></tr>
<tr><td>2019/20</td><td>3,590</td><td>2,145</td><td>420</td><td>1,025</td><td>59.7</td></tr>
<tr><td>2020/21</td><td>3,455</td><td>2,299</td><td>336</td><td>820</td><td>66.5</td></tr>
</table></td><td>source : Case Management System of Supreme Court</td></tr>
</table>

Indicator 4: The number of cases which a judge disposed in a year is increased.

(Ex-Post Evaluation) partially achieved
- The average No. of cases disposed by a judge is increasing in general.

DC	Fiscal year	Total No. of cases disposed	No. of judges	Average No. of cases per judge
Dang DC	2018/19	2,010	3	670
	2019/20	1,189	3	396
	2020/21	1,790	3	596
Kavre DC	2018/19	892	3	297
	2019/20	909	3	303
	2020/21	1,197	3	399
Dhanusha DC	2018/19	2,312	9	257
	2019/20	3,590	9	399
	2020/21	3,455	9	384

source : Case Management System of Supreme Court

Indicator 5: The number of pending cases is reduced.

(Ex-Post Evaluation) not achieved
- No. of pending cases has not been reduced.

DC	Fiscal year	No. of pending cases
Dang DC	2018/19	1,082
	2019/20	1,452
	2020/21	1,782
Kavre DC	2018/19	881
	2019/20	982
	2020/21	1,222
Dhanusha DC	2018/19	4,097
	2019/20	3,383
	2020/21	4,884

source : Case Management System of Supreme Court

Indicator 6: The success rate of Court-referred Mediation is increased.

(Ex-Post Evaluation) not achieved
- There is no clear tendency of improvement in the number of cases referred to mediation or in success rate.

DC	Fiscal year	No. of cases referred to mediation	No. of cases where parties successfully reached agreement	Success Rate (%)
Dang DC	2018/19	394	75	19%
	2019/20	376	53	16%
	2020/21	510	88	17%
Kavre DC	2018/19	235	64	27%
	2019/20	214	29	14%
	2020/21	138	36	26%
Dhanusha DC	2018/19	81	06	7%
	2019/20	276	44	16%
	2020/21	127	13	10%

source : Case Management System of Supreme Court

3 Efficiency

Both the project cost and the project period exceeded the plan (ratio against the plan: 137% and 128%, respectively). The project period was extended because it took a long time to have a common understanding on the scope of the activities for case management as the scope of case management tackled by the project was not clearly agreed between the Nepalese and Japanese sides at the planning stage[5]. The project activities were also delayed partially due to the earthquake in 2015.The outputs of the project were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

One of the goals of the Strategic Plan of Judiciary (2019 - 2024) is to achieve speedy and qualitative dispute settlement. Within this goal, each court has to take appropriate measures to make their case management efficient and effective so that backlog of cases will be reduced and timely disposition of cases can be achieved. Other goals of the Strategic Plan are enhancing access to justice, improving good judicial governance, increasing the efficiency of court management and achieving public faith and trust.

<Institutional/Organizational Aspect>

The basic organizational structure of court system has not been changed since project completion, that is, Supreme Court - High Court (called Appellate Court during the project) - the District Court. The total number of employees working at DCs is 2,133 at the time of ex-post evaluation. There are 26 employees at Dang, 34 at Kavre, and 44 at Dhanusha DCs respectively. This number doesn't include judges, drivers and other support staff. Generally, the number of employees is static and the number of cases is increasing in these days. Consequently, the number of employees should be increased to make it compatible with the increased number of cases. With the use of IT and software, trained staff members are able to handle the workload of courts. Therefore, DCs are focusing on using maximum IT/software in the court's work, while regularly conducting capacity enhancement training for employees working in the courts.

<Technical Aspect>

The judges and court officials have necessary skill and knowledge to settle dispute. However, it is also necessary to be acquainted with further skill and knowledge through training, observation visit or experience sharing in the field of law and justice. Moreover, it is also necessary to know about the best practices from different jurisdictions. Approximately 78-80% participants in the Japan Seminars are still

[5] In addition, it took a considerable time to design and construct the Mediation Centers.

engaged in case management and mediation process, utilizing the results of the training in Japan. Around 20-22% of participants left the service due to retirement age[6]. Basic mediation training is regularly organized by the Mediation Council, Mediation committee of Supreme Court and other courts and other NGOs throughout the country. Similarly, advance level of mediation training is conducted to enhance the knowledge and skills of mediators working in the dispute settlement. The Mediation Centers constructed by the project have been utilized to facilitate the mediation process of the parties at all the three Model Courts. The Mediation Centers have also been utilized as a waiting room so that parties can read and understand the benefits of mediation and other relevant knowledge on mediation.

<Financial Aspect>

In order to implement the various activities mentioned in the Strategic Plan, resources are secured through the regular budget. However, to fully realize the Strategic Plan, more budget is necessary and resource constraint is always a big challenge for implementing a reform agenda. The cost for maintenance and operation of Mediation Center is funded through regular budget of courts. Separate maintenance budget only for Mediation Center is not allocated in practice in DCs. As transportation cost, Rs. 500 is provided to mediators for each discussion.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose of establishment of foundation for improving court's functions as the Case Management Guideline and Information Materials for Court-Referred Mediation were developed and those who participated in Japan Seminars improved their awareness towards expeditious and reliable dispute settlement as well as court-referred mediation, although MToT programme was not conducted. At the time of the ex-post evaluation, although the Case Management Guideline has not been utilized as expected because of the change of legal framework, the awareness of judges and court officials has been maintained. Therefore, the project effects have been partially continued. The Overall Goal of promotion of expeditious and reliable dispute has been partially achieved as the time to dispose cases in courts and the average number of cases disposed by a judge have been improved in general, although the number of pending cases has not clearly decreased. Sustainability is high in terms of the policy and technical aspects, but slight problems have been observed in institutional/organizational and financial aspects in terms of insufficient number of human resources, including trained ones and in terms of insufficient budget. In the efficiency, both the project cost and the project period exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is desirable to review and develop the Case Management Guideline and the Court-Referred Mediation Guideline as per the provision of new codes and to disseminate them with appropriate trainings. Therefore, it is recommended that the Supreme Court conducts review of Case Management Guideline and drafting of Court-Referred Mediation Guideline in next year's activity of the Supreme Court by allocating necessary budget and human resource.

Lessons Learned for JICA:

- As a result of the project, the Supreme Court has started building Mediation Centers in all its new court buildings at district level. Combination of human resource development and infrastructure project (Mediation Center) was a good example to achieve the project purpose. To construct the facilities to be appropriately utilized and in a timely manner, there should be necessary human resource assigned to the project who has appropriate knowledge and skill in infrastructure.
- In the project, a substantial number of senior judges and court officials were dispatched to Japan for learning. This created a critical mass in the judiciary sector who were exposed to Japanese legal system and had a influence in the policy level as well in the day-to-day operation in the office work space. A large-scale training in Japan is effective to produce effects in policy and day-to-day operation, if appropriately implemented.
- The project was delayed partly because it was difficult to reach a common understanding and consensus among project team. To avoid this, it is desirable to appropriately organize the project implementing structure with consideration to the hierarchy of those involved on the counterpart country side as well as clearly defined leadership and other roles on the Japanese side.
- In Nepal, the new codes were introduced in September 2017, affecting the sustainability of the Guideline. In the project involving formulation of guidelines, it would be useful to consider the possibility of the change of law and policy in advance and to develop the guideline contents so that they are applicable even if law and policy are changed. Also, it is important to formulate projects with prospect to revising the guideline contents by implementing agencies themselves while considering the possibility of law and policy changes.

[6] Based on the information from the Supreme Court, with reference to the lists regarding the Note Verbal of the Ministry of Foreign Affairs.

	
Mediation Center constructed by the project at Kavre District Court	People utilizing the Mediation Center at Dhanusha District Court

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Nepal Office: March, 2023

Country Name	**[Phase 1] The Support for Improvement of Primary School Management**
Nepal	**[Phase 2] Support for Improvement of Primary School Management (SISM) Phase- 2**

I. Project Outline

Background	Based on the Education for All (EFA) program (2004-2009), the Government of Nepal (GON) promoted the access to the quality basic education through community participation. GON introduced a new system to request all the primary schools to organize a school management committee (SMC) to prepare School Improvement Plans (SIPs) and to manage the school according to the SIP. However, problem analysis was not properly conducted and appropriate budget allocation for school improvement based on education data and plan was not fully in place. Phase 1 of this project was implemented to improve the school management capacity of SMC and to strengthen the support for school management by District Education Office (DEO) in Dhading and Rasuwa Districts. The project achieved effects such as improvement of community of awareness and nationwide distribution of training guidelines. In addition, Department of Education (DOE) developed the SIP Formulation Guidebook during the follow-up of SISM 1. Most schools prepared the SIP but did not fully implement the planned activities.
Objectives of the Project	**[Phase 1]** In Nepal, through improvement of the capacity of SMC to manage school by community participation, improvement of DEO/DDC/VDC to technically and financially support school-based management, and nationwide development of policy options to suggest measures to be taken by MOE/DOE to achieve minimum education quality, the project aimed at improvement of school management with community participation and government support in the target area, thereby contributing to improvement of the enrollment rate and dropout rate of primary school in the target area. *DDC: District Development Committee VDC: Village Development Committee MOE: Ministry of Education 1. Overall Goal: The enrollment rate and dropout rate of primary school in the target area are improved. 2. Project Purpose: School management is improved with community participation and with government support in the target area. **[Phase 2]** In Nepal, through development of refined model to make effective use of SIP process, validation of effective and practical model for training and monitoring mechanism/contents in the target (testing) area, strengthening of capacity of central and local education authorities to support school management though SIP process, and emergency support of providing teaching and learning materials for all of the community schools located in the three earthquake-affected districts (Sindhuli, Ramecchhap, Okhaldhunga), the project aimed at nationwide management of schools through SIP process, thereby contributing to maintenance of the technical and financial mechanism for enhancing school management through SIP process at the national and district levels. 1. Overall Goal: The technical and financial mechanism for enhancing school management through SIP process is maintained at the national and district levels. 2. Project Purpose: Schools are managed through SIP process nationwide for improving access to and quality of basic education.
Activities of the Project	1. Project Site: **[Phase 1]** Dhading and Rasuwa districts **[Phase 2]** Target (testing) districts for validation: Solukhumbu, Doti, Jumla and Rupandehi districts Districts for dissemination: 75 districts Follow-up districts: Dhading and Rasuwa districts 2. Main Activities: **[Phase 1]** (1) Awareness raising on school management among community, Facilitation of the participatory process of SIP development and implementation, Facilitation of school/SMC to take measures to enroll out-of-school children and to reduce dropouts, etc. (2) Support of DEO to clarify problems and to support disadvantaged schools, Support for VDC to incorporate village-side education in village plans, Strengthening of the network of stakeholders in education, etc. (3) Analysis of the disparities among schools in target areas, Examination of possible measures to improve schools, Provision of policy suggestions to MOE/DOE, etc. **[Phase 2]** (1) Revision of SIP Formulation Guidebook, Analysis of capacity gaps of institutions and their human resources, Development of training and monitoring tools/formats on SIP/school management, Development and revision of refined model for school management, etc. (2) Support conducting training/orientation to SMCs in the target area, Support monitoring and follow-up on the progress of SIP formulation/implementation, Holding workshops for validating the refined model and consolidating recommendations, etc. (3) Support conducting trainings for staff at central and local levels, Support development and finalization of a

	medium-term SIP implementation strategy, etc. (4) Needs assessment of the districts, Procurement of items and delivery to the target districts, Resource Centers (RCs) and schools, Conducting an orientation workshop for Resource Persons (RPs) on curriculum and teachers' guide, etc. 3. Inputs (to carry out above activities) **[Phase 1]** Japanese Side 1) Experts: 8 persons 2) Trainees received: 13 persons (in Japan), 6 persons (in Indonesia) 3) Equipment: Vehicle, motorbike, office equipment, etc. 4) Local cost Nepalese Side 1) Staff allocated: 20 persons 2) Project Office 3) Local cost (cost for training courses, utility cost for office space, etc.) **[Phase 2]** Japanese Side 1) Experts: 11 persons 2) Trainees received: 20 persons (in Japan) 3) Equipment: Vehicle, office equipment, etc. 4) Local cost Nepalese Side 1) Staff allocated: 23 persons 2) Project Office 3) Local cost (cost for SIP activities, etc.)
Project Period	**[Phase 1]** (ex-ante) February 2008 – February 2011 (actual) February 2008 – February 2011 **[Phase 2]** (ex-ante) May 2013 – January 2017 (actual) May 2013 – July 2018
Project Cost	**[Phase 1]** (ex-ante) 279 million yen, (actual) 270 million yen **[Phase 2]** (ex-ante) 403 million yen, (actual) 611 million yen
Implementing Agency	**[Phase 1] [Phase 2]** Department of Education (DOE), Ministry of Education (MOE)* *Ministry of Education and Sports (MOES) at the time of signing of R/D. It was reorganized into MOE in 2008. After project completion, MOE was reorganized again into the Ministry of Education, Sports and Technology (MOEST) and DOE into the Center for Education and Human Resource Development (CEHRD). At district level, DEO was reorganized into Education Development and Coordination Unit (EDCU). Following the reorganization, RCs were abolished.
Cooperation Agency in Japan	**[Phase 1] [Phase 2]** International Development Center of Japan

II. Result of the Evaluation

<Constraints on Evaluation>

・In this Ex-Post Evaluation, an evaluation judgment was made primarily by analyzing information acquired by sending and collecting questionnaires, and through telephone and e-mail interviews with persons concerned due to the impact of COVID-19.

<Special Perspectives Considered in the Ex-Post Evaluation>

・We evaluated the two phases together in the following way: for Relevance, evidence was confirmed for each phase, based on which the two phases were evaluated as combined; for Effectiveness/Impact, the status of achievement of the project objectives was judged for each phase, based on which the two phases were evaluated as combined; for Efficiency, each phase was evaluated, based on which the two phases were evaluated as combined; for Sustainability, the two phases were evaluated as combined.

・In both phases, end-line survey was conducted to collect data, especially for quantitative indicators. However, due to the resource limitation of the ex-post evaluation, it was difficult to collect data in the same scale and accuracy as the end-line survey. Therefore, for some indicators, qualitative information is utilized through questionnaire and telephone/e-mail interview.

・For the Indicators 1-1 to 1-3 of the Project Purpose of the Phase 1 project, quantitative targets were not defined. Therefore, the judgement of the terminal evaluation was adopted in the evaluation of the achievement status. As to the continuation status, judgement was made based on the completion rate of activities indicated in each target.

・The Indicator 1-4 of the Project Purpose of the Phase 1 project (increase of the completion rate of activities) could not be assessed at the terminal evaluation because the comparison data before the project was not available. Therefore, the continuous status of this Indicator was not assessed.

・Regarding the Phase 2 Project, although the project period was extended, the achievement status at the project completion was not stated in the Project Completion Report. Therefore, the results of the terminal evaluation are adopted as achievement status at the project completion.

・In judgement in ex-post evaluation, the influence of the great earthquake in April 2015, which was one of the worst natural disasters in Nepal and caused considerable physical and human damages, was taken into consideration as unexpected external conditions. Also, in evaluation judgement of continuation status, the influence of COVID-19 pandemic was taken into consideration.

1 Relevance

<Consistency with the Development Policy of Nepal at the Time of Ex-Ante Evaluation>

[Phase 1] [Phase 2] At the time of ex-ante evaluation, both Phase 1 and Phase 2 projects were consistent with the development policies as follows. The achievement of the targets defined in the EFA program was the priority of GON. Following the EFA program, GON formulated and implemented the School Sector Reform Program (SSRP) (2009-2014) to improve school management based on SIP prepared by SMC. GON was also committed to reform agenda including capacity development and put priority on decentralization of education administration and school management through community participation.

<Consistency with the Development Needs of Nepal at the Time of Ex-Ante Evaluation>

[Phase 1] [Phase 2] At the time of ex-ante evaluation, both Phase 1 and Phase 2 projects were consistent with the development needs as follows. Each SMC was expected to prepare a SIP and to manage the school according to the SIP. In spite of GON's efforts to promote the decentralization and the school-based management, disparity among schools and communities was increased due to the capacity at the school and the community levels, which impeded the improvement in the enrollment and the dropout rates of the primary schools. In addition, rapid

expansion of basic education caused new challenges such as lack of teachers and low quality of education.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

[Phase 1] At the ex-ante evaluation in 2007, in the Japanese assistance towards Nepal, the priority was placed on assistance for poverty alleviation at district level and assistance for democratization and peace-building. As a part of poverty alleviation, assistance to develop social foundations was included[1].

[Phase 2] In the Country Assistance Policy for Nepal (2012), one of the three priority areas in the Japanese assistance towards Nepal was establishment of peace and stable development toward democratic nation, including capacity development of local government as well as response to the needs of community especially those socially disadvantaged.

<Evaluation Result>

[Both phases] In light of the above, the relevance of Phase 1 and Phase 2 projects as combined is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

[Phase 1] The Project Purpose was achieved by the project completion. The pilot schools achieved completion rate of activities in SIP and conducted audits and other school management events to a satisfactory level and the parents and community members were satisfied with school management. Therefore, it is judged that the school management activities were actively implemented with community participation.

The status of the completion rate of activities planned in SIP was satisfactory[2] (Indicator 1-1 to 1-3). As to non-budgetary activities, according to end-line survey, although the number of pilot schools which completed 100% of the non-budgetary activities was limited, more than half of the 90 pilot schools (Dhading and Rasuwa in total) completed more than 80% of the non-budgetary activities and 85 (94.4%) of the pilot schools completed more than 50% of the pilot activities. As to low-budgetary activities, more than 34% of the pilot schools (31 out of 90 schools) completed more than 80% of the low budgetary activities and more than 70% (64 schools) of the pilot schools completed more than 50% of the pilot activities. As to budgetary activities, more than 22% of the 90 pilot schools completed more than 80% of the budgetary activities, while more than 70% of the pilot schools completed more than 50% of the pilot activities. In regards to the increase of the completion rate, although the comparison was not possible due to the lack of the pre-SISM records, more schools had access to funds of VDC and DDC compared to the fiscal year 2007/08[3], as shown by Indicator 6. Therefore, it was likely that the schools were able to complete budgetary activities more than before (Indicator 1-4).

The average satisfaction level of parents and community members regarding school management was 3.54 by 5-level rating, according to the end-line survey (Indicator 2). The amount (converted into NRs) contributed to school activities by parents and community members, in the form of cash, labor and in kind, in pilot VDCs in 2009/10 increased from the previous year by 358.7% (Indicator 3). As per legal provision, 58 pilot schools (64.5%) shared the financial audit report with the SMCs, while 64 pilot schools (71.1%) shared the social audit report with the SMCs (Indicator 4). Regarding events, 119 events related to school management including training and workshops were conducted in the pilot VDCs in 2007/08 while 507 events took place in 2009/10, which was 326% increase (Indicator 5-1). DOE conducted various training and workshops related to the teacher's professional development program, for the new curriculum dissemination and capacity development of the SMCs (Indicator 5-2). According to the end-line survey, the number of the pilot schools which received funds from VDC and DDC increased during the period from 62 in 2007/08 to 77 in 2009/10. (Indicator 6).

[Phase 2] The Project Purpose was partially achieved by the project completion. School management through SIP was introduced nationwide and a majority of sample schools updated SIP as expected, although the achievement rate of SIP activities, especially budgetary activities, did not reach the target at some sample schools.

Among the target districts and schools of the Phase 2 project, at the terminal evaluation, the percentage of schools that updated the annual action plan of SIP was increased from 43% in 2013/14 to 71% in 2016/17 (Indicator 1). As to the completion of SIP activities, according to the results of the end-line survey, 86 out of 100 sample schools planned the budgetary activities in SIP, of which 30 schools (35%) completed 50% of these planned activities. Regarding non-budgetary activities, 74 schools planned these activities in SIP, and 28 schools (38%) completed 80% of the planned non-budgetary activities. The implementation rate of both non-budgetary activities and budgetary activities did not reach 60% (Indicator 2). Significant improvements were observed in teachers', parents', and SMCs' perspectives of planning and implementing SIP activities to reduce dropout and out-of-school children, although the target value was not specified. This implied that teachers, parents, and SMCs were gradually recognizing the SIP as an effective and useful tool to reduce dropout students and out-of-school children (Indicator 3).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

[Phase 1] The project effects have continued to the time of ex-post evaluation[4]. Activities related to school management such as activities in SIP and audits are continuously implemented with community participation in general.

Regarding activities in their latest school year SIP, according to interview, in Dhading district, 75% activities are non-budgetary and out of those 90% are completed on average. Around 20% activities are low budgetary and out of those 50% are completed on average. Around 5% activities are budgetary activities and out of those around 25% are completed on average. In Rasuwa district, according to interview, 70% activities are non-budgetary and out of those 80% are completed on average. Around 20% activities are low budgetary and out of those 50% are completed on average. Around 10% activities are budgetary activities and out of those around 20% are completed on average (Indicator 1-1 to 1-3).

Parents are satisfied with school management, according to interview[5]. In Dhading, parents take collective decision with teachers and SMC members and they meet regularly and support to develop a child-friendly school environment. In Rasuwa, parents, teachers, students,

[1] Source: Ministry of Foreign Affairs, "ODA Country Data Collection in 2007"

[2] Before the project, even though activities were planned, many of them had not been implemented. Taking this fact into consideration, it was agreed that the results of the completion rate at the terminal evaluation were satisfactory (source: Terminal Evaluation Report).

[3] The Nepalese fiscal year is from mid-July to mid-July next year.

[4] It should be noted that the continuation status of the Project Purpose of the Phase 1 project may be benefited by the follow-up activities by the Phase 2 Project.

[5] The survey of satisfaction level was conducted as a part of endline survey of the terminal evaluation and the survey is not stipulated as standard activities of SIP, therefore, no survey of satisfaction level has been conducted since project completion.

and SMC members jointly develop a child-friendly school environment and conduct school-level planning (Indicator 2). Although the actual amount of contribution is not clear, parents and community members are supporting temporary teachers in case schools need more teachers. They also support to build school infrastructure (in labor). These facts show that the same level of the activities have been continuously conducted since project completion (Indicator 3). Regarding audit, all surveyed schools mentioned that they have received a grant for financial and social audits and both financial and social audits were continuously done from the beginning of the project until 2019 (before COVID-19 pandemic) and 100% of pilot schools shared the social and financial audit report in the parents' meeting or in SMC's meeting, according to interview. They are planning to conduct audits once COVID situation improves. (Indicator 4). Although the number of events is not clear, most of the local government support preparation of SIP as well as implementation of some activities such as orientation for SMC's members and teachers training (Indicator 5-1, 5-2). The local government has continuously provided funds for SIP planning and implementation, classroom maintenance, and salary of temporary teachers if needed at schools as well as funds for provision of school furniture and scholarship for poor and talent students, although quantitative survey has not been conducted on the number of schools receiving increased funds, for the previous quantitative survey was conducted as a part of the Terminal Evaluation (Indicator 6).

[Phase 2] The project effects have partially continued to the time of ex-post evaluation. Activities related to school management through SIP are continuously implemented although budgetary activities in SIP are not implemented as expected.

In regards to updating SIP, 100% schools prepared SIP in 2015 and updated annual action plan based on SIP Formulation Guidebook. Annual action plans are updated from 2018 to 2019 but only 5% schools update five- year SIP for 2020 and annual SIP for 2021 due to the impact of COVID-19. They are planning to update after pandemic, when schools are opened (Indicator 1). As to implementation of SIP activities, among six districts surveyed (4 Target (testing) districts and 2 Follow-up districts), 74.2% of non-budgetary activities are implemented while 47.5% of budgetary activities are implemented, according to interview (Indicator 2). A variety of activities to improve access and quality of basic education are planned and implemented. Examples are; Home visits of student by teachers and SMC's member, Appointment of temporary teachers, Creation of child friendly environment in classroom by teachers, Activities related to children's learning such as singing a song related to the topic or playing some game, Provision of lunch for children of 1-5 class, Provision of sanitary pads and medicine for girls, Provision of student hostel (Indicator 3).

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

[Phase 1] The Overall Goal has not been achieved. There is no clear improvement in enrollment and dropout.

In regards to the net enrollment rate (Indicator 1), the precise data of net enrollment rate in Dhading and Rasuwa was not obtained as the data for the total number of children of the enrollment age at district level was not available. Therefore, it is not verifiable. The total number of enrolled children in public schools is decreasing[6]. As to the dropout rate (Indicator 2), no clear and steady tendency has been observed since project completion, therefore, it is not verifiable. The enrollment and dropout have been affected by the earthquake in 2015 and by COVID-19. In addition, it is considered that there was a gap between the indicators of the Overall Goal (net enrollment rate and dropout rate) and project activities (improvement of school management) as there are other factors involved in the net enrollment rate and the dropout rate, for example, family environment of children[7].

[Phase 2] The Overall Goal has been achieved. The block grants for formulation and updating SIP are secured, SIP promotion team has been established, and SIP is incorporated into the National Centre for Educational Development (NCED) training.

According to Annual Strategic Implementation Plan (ASIP)/Annual Work Plan and Budget (AWPB) data, 90% of school made SIP and some block grants are allocated through ASIP/AWPB for SIP formulation/updating (Indicator 1). The formulation/update of SIP is mentioned in Program Implementation Manual (PIM) and government support for SIP has been continued, for example, support grant for basic school for capacity development of community and SMC, parental education, and extra-curricular activities (Indicator 2). Every school has SMC and the duty of SMC is designated as promotion of SIP formulation and implementation, while the ultimate responsibility for SIP is placed at municipality and school. Based on the request, municipality and EDCU facilitate the preparation of SIP (Indicator 3). The role and responsibility of EDCU (DEO before) and Local Education Units under each local government in implementing SIP are specified. EDCU and concerned organizations (i.e., local governments) provide suggestions during the formulation of SIP if the school needed. In addition, EDCU and concerned organization clarify the needs to be addressed (Indicator 4). In regards to orientation by EDCU, according to interview during ex-post evaluation, 10% of SMC members got orientation from EDCU and concerned organizations while 90% of SMC members got orientation from only school principal (Indicator 5). According to the Head Teacher Capacity Building Training Curriculum (Ministry of Education /then National Center for Educational Development, February, 2017), SIP is incorporated in the leadership capacity development training curriculum and leadership capacity development training. Other resource materials are; supplementary training materials (STM) for annual implementation plan preparation for disaster risk reduction, School Self-Assessment (SSA) checklist, materials for SIP appraisal school level workshop for SIP formulation. They are uploaded in the CEHRD website and being utilized by the as needed. It is described that SIP is planned and implemented for better school, better teaching, and better learning (Indicator 6).

<Other Impacts at the Time of Ex-Post Evaluation>

[Both phases] Through questionnaire and telephone interview, it was reported that women's participation in SMC has been promoted. The government instructed that at least 33% of SMC members should be women and now every SMC has women's participation. No negative impact has been observed.

<Evaluation Result>

[Both phases] In summary, in phase 1, out of 10 indicators of the Project Purpose, 9 were achieved and 7 are continued although the indicators of the Overall Goal were not verifiable. In phase 2, out of 3 indicators of the Project Purpose, 1 was achieved and 2 are continued, while 5 indicators out of 6 indicators of the Overall Goal were achieved. It means that the majority of Indicators were achieved/are continued. In evaluation, consideration was given to the fact that there were influence of the earthquake. Therefore, the effectiveness/impact of Phase 1 and Phase 2 projects as combined is high.

[Phase 1] Achievement of Project Purpose and Overall Goal

[6] At some schools surveyed during the ex-post evaluation, the number of enrolled students was increasing.

[7] In the Phase 2 project, the net enrollment rate and the dropout rate were defined as indicators for the Super Goal.

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="6">(Project Purpose)
School management is improved with community participation and with government support in the target area.</td><td>Indicator 1-1:
Number of the target schools which get the 100% of the completion rate (%) of the non-budgetary activities in their latest school year SIPs.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
Completion rate of the non-budgetary activities (total schools surveyed: 90 pilot schools)
100% completion: 7.8% (7 out of 90 pilot schools)
More than 80 % completion: 54.4% (49 out of 90 pilot schools)
More than 50% completion: 94.4% (85 out of 90 pilot schools)
(Ex-Post Evaluation)
Average achievement rate of the planned no-budgetary activities (based on interview)
<table><tr><th>Dhading</th><th>Rasuwa</th></tr><tr><td>90%</td><td>80%</td></tr></table></td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 1-2:
Number of the target schools which get the 80% and above average completion rate (%) of the low budgetary activities in their latest school year SIPs.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
Completion rate of the low budgetary activities (total schools surveyed: 90 pilot schools)
More than 80 % completion: 34.4% (31 out of 90 pilot schools)
More than 50% completion: 71.1% (64 out of 90 pilot schools)
(Ex-Post Evaluation)
Average achievement rate of the planned low budgetary activities (based on interview)
<table><tr><th>Dhading</th><th>Rasuwa</th></tr><tr><td>50%</td><td>50%</td></tr></table></td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 1-3:
Number of the target schools which get the 30% and above average completion rate (%) of the budgetary activities in their latest school year SIPs.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
Completion rate of the budgetary activities (total schools surveyed: 90 pilot schools)
More than 80% completion: 22.2% (20 out of 90 pilot schools)
More than 50% completion: 71.1% (64 out of 90 pilot schools)
(Ex-Post Evaluation)
Average achievement rate of the planned budgetary activities (based on interview)
<table><tr><th>Dhading</th><th>Rasuwa</th></tr><tr><td>25%</td><td>20%</td></tr></table></td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 1-4:
Completion rate of the budgetary activities is to increase comparing to the before-SISM situation.</td><td>Status of the Achievement: partially achieved
(Project Completion)
- Comparison was not possible because of the lack of the baseline data, but more schools had access to funds of VDC and DDC compared to 2007/08, as shown in the Indicator 6, therefore, it was likely that the schools were able to complete budgetary activities more than before.</td><td>source: Terminal Evaluation Report</td></tr>
<tr><td>Indicator 2: The average of the satisfaction level of parents and community members with school management of the schools is to become “3.5” and above by 5-level rating.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- The end-line survey shows that the average satisfaction level regarding school management was 3.54 by 5-level rating.
(Ex-Post Evaluation)
- Parents are satisfied with school management, according to interview. In Dhading, parents take collective decision with teachers and SMC members and they meet regularly and support to develop a child-friendly school environment. In Rasuwa, parents, teachers, students, and SMC members jointly develop a child-friendly school environment and conduct school-level planning.</td><td>source: Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 3: The amount (converted into NRs) contributed to school activities by parents and community members in the latest school year at the timing of the end-line survey is to increase 20% from</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- In the pilot VDCs, a total of NRs. 16,597,752 was provided for school activities in the form of cash, labor and in kind by the community members in 2009/10, which was 358.7% increase from the previous year.
(Ex-Post Evaluation)
- Parents and community member are supporting temporary teachers in case schools need more teachers. They also support to build school infrastructure (in labor). These facts show that the same level of the activities have been continuously conducted since project completion.</td><td>source: Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
</table>

<table>
<tr><td></td><td>the year 2065 (2008/09) in the target schools.</td><td></td><td></td></tr>
<tr><td></td><td>Indicator 4: As per legal provision, 75% and above of the target schools are to share the financial audit reports and the social audit reports of the latest school year with the SMCs.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
No. of pilot schools sharing audit (90 pilot schools surveyed)
<table><tr><td></td><td>Schools that shared report</td></tr><tr><td>Financial audit</td><td>58 (64.5%)</td></tr><tr><td>Social audit</td><td>64 (71.1%)</td></tr></table>(Ex-Post Evaluation)
No. of pilot schools sharing audit (based on interview)
<table><tr><td></td><td>Schools that shared report</td></tr><tr><td>Financial audit</td><td>100%</td></tr><tr><td>Social audit</td><td>100%</td></tr></table>-All surveyed schools mentioned that they have received a grant for financial and social audits. Both audits were continuously done from the beginning of the project until 2019 (before COVID-19 pandemic) and 100% of pilot schools shared the social and financial audit report in the parents' meeting or in SMC's meeting. They are planning to conduct audits once COVID-19 situation improves.</td><td>source: Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td></td><td>Indicator 5-1: No. of events, related to the school management, supported by the local government is to increase comparing to the before-SISM situation.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
No. of events
<table><tr><td>Year 2007/08</td><td>Year 2009/10</td><td>Increase</td></tr><tr><td>119</td><td>507</td><td>326%</td></tr></table>(Ex-Post Evaluation)
- Although the number of events is not clear, most of the local government support preparation of SIP as well as implementation of some activities.</td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td></td><td>Indicator 5-2: The contents and the areas of the support.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- DOE conducted various training and workshops related to the Teacher's Professional Development program, for the new curriculum dissemination and capacity development of the SMCs.
(Ex-Post Evaluation)
- The local government support planning and implementing of the SIP, orientation for SMC's members, and teachers' training</td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td></td><td>Indicator 6: Increase in the accessing to the VDC/DDC funds by the target schools.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- According to end-line survey, the number of the pilot schools which received funds from VDC and DDC increased from 62 in 2007/08 to 77 in 2009/10.
(Ex-Post Evaluation)
- The local government has continuously provided funds for SIP planning and implementation, classroom maintenance, and salary of temporary teachers if needed at schools as well as funds for provision of school furniture and scholarship for poor and talent students, although quantitative survey has not been conducted on the number of schools receiving increased funds.</td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>(Overall Goal) The enrollment rate and dropout rate of primary school in the target area are improved.</td><td>Indicator 1: Increase in the net enrollment rate in primary education in the target area.</td><td>(Ex-Post Evaluation) not verifiable
- The precise data of net enrollment rate in Dhading and Rasuwa was not available. The number of children enrolled in public schools is decreasing.
No. of children enrolled (1-5 class in public schools of target districts)
<table><tr><td colspan="2">Year</td><td>2011/12 (project completion)</td><td>2014/15 (target year)</td><td>2018/19</td><td>2019/20</td></tr><tr><td rowspan="3">Dhading</td><td>Boys</td><td>29,816</td><td>24,361</td><td>18,920</td><td>15,410</td></tr><tr><td>Girls</td><td>31,940</td><td>25,615</td><td>19,139</td><td>15,574</td></tr><tr><td>Total</td><td>61,756</td><td>49,976</td><td>38,059</td><td>30,984</td></tr><tr><td rowspan="3">Rasuwa</td><td>Boys</td><td>3,756</td><td>2,638</td><td>2,065</td><td>1,857</td></tr><tr><td>Girls</td><td>3,999</td><td>3,014</td><td>2,241</td><td>1,960</td></tr><tr><td>Total</td><td>7,755</td><td>5,652</td><td>4,306</td><td>3,817</td></tr></table></td><td>source : CEHRD Flash Report, Questionnaire survey and telephone interview with EDCU chief, Education Chief of Municipality, principals and SMC members.</td></tr>
</table>

	Indicator 2: Improvement of the dropout rate in primary education in the target area.	(Ex-Post Evaluation) not verifiable Dropout rate (%) (1-5 class in public schools of target districts)	source：Interview with CEHRD, CEHRD Flash Report, Questionnaire survey and telephone interview with EDCU chief, Education Chief of Municipality, principals and SMC members.

Year		2011/12	2014/15	2018/19	2019/20
Dhading	Boys	6.1	1.6	4.0	3.6
	Girls	5.4	0.7	3.4	2.8
	Total	5.8	1.2	3.7	3.2
Rasuwa	Boys	8.4	8.2	3.6	10.6
	Girls	7.1	8.1	3.3	10.6
	Total	7.7	8.2	3.4	10.6

[Phase 2] Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="3">(Project Purpose)
Schools are managed through SIP process nationwide for improving access to and quality of basic education.</td><td>Indicator 1: At least 80% of the sample schools update 2073 (2016/17) annual action plan of SIP based on the updated SIP Formulation Guidebook.
*target (testing) area: Solukhumbu, Doti, Jumla and Rupandehi</td><td>Status of the Achievement (Status of the Continuation): partially achieved (continued)
(Project Completion)
- At the terminal evaluation, the percentage of schools that updated the annual action plan of SIP was increased from 43% in 2013/14 to 71% in 2016/17.
(Ex-Post Evaluation)
- 100% schools prepared SIP in 2015 and updated annual action plan based on SIP Formulation Guidebook. Annual action plans are updated from 2018 to 2019 but only 5% schools update five- year SIP for 2020 and annual SIP for 2021 due to the impact of COVID-19.</td><td>source：Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 2: At least 60% of the sample SMCs implement the planned activities of 2072 (2015/16) annual action plan of SIP*.
*80% of the planned non-budgetary activities and 50% of the planned budgetary activities</td><td>Status of the Achievement (Status of the Continuation): partially achieved (partially continued)
(Project Completion)
- According to the results of the end-line survey, 86 out of 100 sample schools planned the budgetary activities in SIP, of which 30 schools (35%) completed 50% of these planned activities. Regarding non-budgetary activities, 74 schools planned these activities in SIP, and 28 schools (38%) completed 80% of the planned non-budgetary activities.
(Ex-Post Evaluation)
- Among 26 schools in six districts surveyed (4 Target (testing) districts and 2 Follow-up districts), 74.2% of non-budgetary activities are implemented while 47.5 % of budgetary and low budgetary activities are implemented, according to interview.

Implementation rate of SIP activities
<table><tr><th>%</th><th>Non budgetary</th><th>Budgetary</th><th>Low Budgetary</th></tr><tr><td>Dhading</td><td>90</td><td>26</td><td>50</td></tr><tr><td>Rasuwa</td><td>80</td><td>20</td><td>50</td></tr><tr><td>Solukhumbu</td><td>80</td><td>50</td><td>-</td></tr><tr><td>Doti</td><td>57.5</td><td>50</td><td>-</td></tr><tr><td>Jumla</td><td>65</td><td>50</td><td>-</td></tr><tr><td>Rupandehi</td><td>72.5</td><td>50</td><td>-</td></tr><tr><td rowspan="2">Average*</td><td rowspan="2">74.2</td><td>41</td><td>-</td></tr><tr><td colspan="2">47.5**</td></tr></table>*Average of the value of each district
**Calculated based on the ratio between budgetary and low-budgetary activities in Dhading and Rasuwa
Dhading low budgetary: 20%, budgetary: 5%→low:bud=4:1
Rasuwa low bugetary: 20%,budgetary:10%→low:bud=2:1
(Refer to "Continuation Status" of Phase 1)</td><td>source：Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 3: Activities* related to improvement of access and quality of basic education are planned and implemented in SIP.
*They include: 1)</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- Although the target value was not specified, significant improvements were observed in teachers', parents', and SMCs' perspectives of planning and implementing SIP activities to reduce dropout and out-of-school children.
(Ex-Post Evaluation)</td><td>source：Terminal Evaluation Report, Questionnaire and telephone interview with</td></tr>
</table>

	reducing drop-out, 2) reducing out-of-school children, 3) increasing learning achievement, and 4) non-budgetary activities.	- Activities planned and implemented: Home visits of student by teachers and SMC's member, Appointment of temporary teachers, Creation of child friendly environment in classroom by teachers, Activities related to children's learning such as singing a song related to the topic or playing some game, Provision of lunch for children of 1-5 class, Provision of sanitary pads and medicine for girls, Provision of student hostel.	principals and SMC members
(Overall Goal) The technical and financial mechanism for enhancing school management through SIP process is maintained at the national and district levels.	Indicator 1: The budget for formulation/update and implementation of SIP is specifically included in the ASIP/AWPB.	(Ex-Post Evaluation) achieved - 90% of school made SIP and, also, some block grants are allocated through ASIP/AWPB for SIP formulation/updating.	source : ASIP/AWPB data
	Indicator 2: The formulation/update of SIP is specified in the PIM.	(Ex-Post Evaluation) achieved - The formulation/update of SIP is mentioned in PIM and government support for SIP has been continued, for example, support grand for basic school for capacity development of community and SMC, parental education, and extra-curricular activities.	source : PIM documents
	Indicator 3: The designated team for promoting SIP formulation and implementation is in place.	(Ex-Post Evaluation) achieved - Every school has SMC and the duty of SMC is designated as promotion of SIP formulation and implementation. The ultimate responsibility for SIP is placed at municipality and school. Based on the request, municipality and EDCU facilitate the preparation of SIP.	source: Questionnaire and telephone interview with principals and SMC members
	Indicator 4: The role and responsibility of DEOs and RCs for implementing SIP are specified.	(Ex-Post Evaluation) achieved - The role and responsibility of EDCU (DEO before) and Local Education Units under each local government for implementing SIP are specified. EDCU and concerned organizations (i.e., local governments) provide suggestions during the formulation of SIP if the school needs. In addition, EDCU and concerned organization clarify the needs to be addressed.	source: Questionnaire and telephone interview with EDCU Chief, Municipality Education Chief, principals
	Indicator 5: All DEOs conduct SIP orientation for newly appointed SMC members at least once after the completion of the project.	(Ex-Post Evaluation) not achieved - 10% of SMC members got orientation from EDCU and concerned organizations. 90% of SMC members got orientation from only school principal, according to interview during ex-post evaluation.	source: Questionnaire and telephone interview with principals and SMC members
	Indicator 6: The content of SIP formulation/update is incorporated in the NCED's training.	(Ex-Post Evaluation) achieved - According to Head Teacher Capacity Building Training Curriculum (Ministry of Education /then National Center for Educational Development, February, 2017) documents, SIP is incorporated in the leadership capacity development training curriculum and leadership capacity development training. Other resource materials are; supplementary training materials (STM) for annual implementation plan preparation for disaster risk reduction, School Self-Assessment (SSA) checklist, materials for SIP appraisal school level workshop for SIP formulation. They are uploaded in the CEHRD website and being utilized by the as needed It is described that SIP is planned and implemented for better school, better teaching, and better learning.	source : Documents on capacity development and training

3 Efficiency

[Phase 1] Both the project cost and the project period were within the plan (ratio against the plan: 97% and 100%, respectively). The outputs of the project were produced as planned. Therefore, the efficiency of the project is high.

[Phase 2] Both the project cost and the project period exceeded the plan (ratio against the plan: 152% and 138%, respectively). The outputs of the project were produced as planned. The project cost exceeded due to addition of extra activities related to emergency support after the 2015 earthquake. The project period was extended in July 2015 to respond to the needs for emergency support after the earthquake, and then, extended again in June 2017 upon request from GON during the terminal evaluation, due to the activity delay caused by budget constraints and government reorganization as well as by the prolonged impacts of the earthquake. The outputs were produced as planned. Taking into consideration the influence of the earthquake, the efficiency of the project is fair

[Both phases] Therefore, the efficiency of Phase 1 and Phase 2 projects as combined is fair (See "Special Perspectives Considered ").

4 Sustainability

<Policy Aspect>

[Both phases] In the Fifteenth Plan (2019/20 – 2023/24), ensuring of free and compulsory basic education is listed as one of strategies and involvement of stakeholders at all levels including district and community levels is mentioned. The School Sector Development Plan (2016/17-2022/23) mentions the importance of the effective implementation of SIP, describing that school will prepare SIP for implementation education program and this is obligation. In addition, SIP Formulation Guidebook is mentioned in CEHRD documents and website.

<Institutional/Organizational Aspect>

[Both phases] The staff at district and local government are carrying out their daily duties, including planning and implementation of SIP, without major problem. Although there are not sufficient staff members assigned to district and school levels to promote the school management and to effectively follow up the project activities, according to interview with CEHRD ex-counterparts and ex-staff of the

project, the number of staff is increasing at province, district, and local government levels. Previously, in the district, there were 15-17 staff members on average to support for school management. However, now there are over 20 education staff members in the local government in each district and even more in some districts. Furthermore, federal restructuring has created positive effects to promote school management through more decentralization and devolution of power and additional resources to local governments and schools.

<Technical Aspect>

[Both phases] Government officials and principals have skills to implement and support SMC activities without major problem, although activities are affected by COVID-19. The trainings are being organized at central, district and local government levels. At central level, there are different types of training for principals and teachers for skill development such as NCED training package. At district level, there are opportunities for whole district principals to share their own experiences and knowledge with others. When project was implemented, there were trainings for teachers and SMC members. After the project, several trainings were conducted, however, the number of the training is not enough because it was difficult to conduct the training in the time of shifting federal system and COVID-19. In the curriculum for Head Teachers Leadership and Capacity Building, 3 sessions are sanctioned on SIP formulation, appraisal, and monitoring matters. At community level, parents meeting and SMC's meeting are held to share each other knowledge. The SIP materials provided by the project are continuously used.

<Financial Aspect>

[Both Phases] ASIP/AWPB for the fiscal year 2021/22 allocates the budget for grants for school operation and management which includes activities for SIP. The budget for the SIP activities is allocated mainly by local governments. For SIP training, monitoring, and formulation, CEHRD provides NRs.15,000-20,000 per year to each basic and secondary school respectively. The budget for SIP is also utilized for capacity development of community and SMC members, parental education, and extra-curricular activities. Since the completion rate of budgetary activities is low compared to non-budgetary activities, as described above, securing budget at school level may be a concern in implementing activities planned in SIP. Even though the SIP budget had been secured at the central level, it was not allocated as planned at the local government level smoothly.

<Evaluation Result>

[Both phases] In light of the above, slight problems have been observed in terms of the technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

Phase 1 project achieved the Project Purpose (improvement of school management) by the time of project completion. The effects of the Phase 1 project such as completion rate of SIP activities and parents' satisfaction have continued to the time of ex-post evaluation, but the Overall Goal (enrollment rate and dropout rate) has not been achieved partly because the indicators were defined a bit far from project activities. Phase 2 project partially achieved the Project Purpose (school management through nationwide SIP process) and the effects of the Phase 2 project, such as updating of SIP and implementation of SIP activities, have been partially continued. The Overall Goal of the Phase 2 project (mechanism for enhancing school management) has been achieved as SIP is incorporated into leadership training and SIP promotion team is in place.

Regarding the sustainability for both phases, some problems were observed in the technical and financial aspects mainly due to lack of training and budget. As for the efficiency, both project cost and project period were within plan in the Phase 1 project, while both project cost and project period exceeded the plan in the Phase 2 projects, partly due to the influence of the earthquake.

Considering all of the above points, this project (Phase 1 and Phase 2 as combined) is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- SIP can be used as important tool/basis for any kind of support to schools for enhancing synergy effects and avoiding any possible duplications of activities. To promote SIP, GON should take stronger measures in order that SIP should be more clearly and specifically described in government documents at all three levels including Municipal Education Plans as a crucial means to enhance coordinated engagements with local governments for improved school performance. For example, measures such as securing resources and improving linkages among the plans for better results in school management and student's learning achievement should be taken.
- Field survey revealed relatively low level of achievement of implementation of budgetary and even low-budgetary activities of SIP due to lack of necessary budget at school level. It seems that this confusion was caused among the stakeholders by the unclear roles of the three tiers of government in the timing of the shift to federalism, and consequently the SIP budget that had been secured at the central level was not allocated as planned at the local government level smoothly. Therefore, as mentioned in SSDP and School Education Sector Plan (SESP), federal (central), provincial, and local governments should continuously conduct monitoring of the future needs of additional resources and to use the SIP as an important funding tool for the school.
- It is recommended that CEHRD make a clear guideline for improving capacity and leadership of school principals through training in order to facilitate effective implementation of SIP and guide teachers for improving students' learning outcomes at schools.
- It is desirable that the local governments conduct capacity development of SMCs, especially in prioritizing, planning, and being accountable for activity implementation to improve quality of education and learning environment.

Lessons Learned for JICA:

- SIP is important tool to plan and implement activities at school level but only strengthening of SIP is not sufficient to immediately improve enrollment rate and dropout rate. In that sense, the indicators for the Overall Goal in the Phase 1 project might be too ambitious. To evaluate the effects of the project, it is important to define appropriate and realistic indicators in planning stage. Indicators closely related to project activities and showing the expansion and sustainability of the project activities would be preferable, for example, indicators related to legal arrangement of government, and monitoring system of implementing agencies. Indicators such as those in the phase 2 project might be some examples.
- As to response to a major natural disaster during project implementation, preparing a disaster mitigation plan during the project formulation time should be considered especially in disaster prone areas in Nepal and other counties.
-In regards to response to a major policy change during the project implementation, formulation of a project with necessary flexibility is important to adopt the changed structure of the system.

- The project has created positive effects to revitalize the SIP practices nationwide and enhanced the awareness of its effectiveness at different levels such as schools, local government, and district and federal agencies. As a result, SIP remains an important tool for the on-going national policies and national education plan/programs. Some examples of advantage of SIP process are a common platform provided for the school level stakeholders to sit together and discuss the problem, and clarification of the need of the schools that foster the ownership in the entire plan for the smooth implementation. So, the project shows that SIP is effective to contribute to improving the student's academic performances in the situation where good understanding of head teacher and SMC members is fostered. Important factors for promotion of SIP are: orientation for newly appointed SMC members about the SIP, awareness of school-level stakeholders on own problems, so that they identify and implement activities with their own initiatives and available resources, as well as with minimum financial support from the relevant agencies. Moreover, regular and periodic follow-up meeting/discussion for the planning and implementation of SIP and monitoring of SIP activities by the local levels (local governments and EDCU) are also important factors to sustain the SIP initiative.

EDCU officer conducting SIP orientation to principals and SMC members

A group photo after the SIP orientation

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Nepal Office: March, 2023

Country Name	**[Phase 1] The Support for Improvement of Primary School Management**
Nepal	**[Phase 2] Support for Improvement of Primary School Management (SISM) Phase- 2**

I. Project Outline

Background	Based on the Education for All (EFA) program (2004-2009), the Government of Nepal (GON) promoted the access to the quality basic education through community participation. GON introduced a new system to request all the primary schools to organize a school management committee (SMC) to prepare School Improvement Plans (SIPs) and to manage the school according to the SIP. However, problem analysis was not properly conducted and appropriate budget allocation for school improvement based on education data and plan was not fully in place. Phase 1 of this project was implemented to improve the school management capacity of SMC and to strengthen the support for school management by District Education Office (DEO) in Dhading and Rasuwa Districts. The project achieved effects such as improvement of community of awareness and nationwide distribution of training guidelines. In addition, Department of Education (DOE) developed the SIP Formulation Guidebook during the follow-up of SISM 1. Most schools prepared the SIP but did not fully implement the planned activities.
Objectives of the Project	**[Phase 1]** In Nepal, through improvement of the capacity of SMC to manage school by community participation, improvement of DEO/DDC/VDC to technically and financially support school-based management, and nationwide development of policy options to suggest measures to be taken by MOE/DOE to achieve minimum education quality, the project aimed at improvement of school management with community participation and government support in the target area, thereby contributing to improvement of the enrollment rate and dropout rate of primary school in the target area. *DDC: District Development Committee VDC: Village Development Committee MOE: Ministry of Education 1. Overall Goal: The enrollment rate and dropout rate of primary school in the target area are improved. 2. Project Purpose: School management is improved with community participation and with government support in the target area. **[Phase 2]** In Nepal, through development of refined model to make effective use of SIP process, validation of effective and practical model for training and monitoring mechanism/contents in the target (testing) area, strengthening of capacity of central and local education authorities to support school management though SIP process, and emergency support of providing teaching and learning materials for all of the community schools located in the three earthquake-affected districts (Sindhuli, Ramecchhap, Okhaldhunga), the project aimed at nationwide management of schools through SIP process, thereby contributing to maintenance of the technical and financial mechanism for enhancing school management through SIP process at the national and district levels. 1. Overall Goal: The technical and financial mechanism for enhancing school management through SIP process is maintained at the national and district levels. 2. Project Purpose: Schools are managed through SIP process nationwide for improving access to and quality of basic education.
Activities of the Project	1. Project Site: **[Phase 1]** Dhading and Rasuwa districts **[Phase 2]** Target (testing) districts for validation: Solukhumbu, Doti, Jumla and Rupandehi districts Districts for dissemination: 75 districts Follow-up districts: Dhading and Rasuwa districts 2. Main Activities: **[Phase 1]** (1) Awareness raising on school management among community, Facilitation of the participatory process of SIP development and implementation, Facilitation of school/SMC to take measures to enroll out-of-school children and to reduce dropouts, etc. (2) Support of DEO to clarify problems and to support disadvantaged schools, Support for VDC to incorporate village-side education in village plans, Strengthening of the network of stakeholders in education, etc. (3) Analysis of the disparities among schools in target areas, Examination of possible measures to improve schools, Provision of policy suggestions to MOE/DOE, etc. **[Phase 2]** (1) Revision of SIP Formulation Guidebook, Analysis of capacity gaps of institutions and their human resources, Development of training and monitoring tools/formats on SIP/school management, Development and revision of refined model for school management, etc. (2) Support conducting training/orientation to SMCs in the target area, Support monitoring and follow-up on the progress of SIP formulation/implementation, Holding workshops for validating the refined model and consolidating recommendations, etc. (3) Support conducting trainings for staff at central and local levels, Support development and finalization of a

	medium-term SIP implementation strategy, etc. (4) Needs assessment of the districts, Procurement of items and delivery to the target districts, Resource Centers (RCs) and schools, Conducting an orientation workshop for Resource Persons (RPs) on curriculum and teachers' guide, etc. 3. Inputs (to carry out above activities) **[Phase 1]** Japanese Side 1) Experts: 8 persons 2) Trainees received: 13 persons (in Japan), 6 persons (in Indonesia) 3) Equipment: Vehicle, motorbike, office equipment, etc. 4) Local cost Nepalese Side 1) Staff allocated: 20 persons 2) Project Office 3) Local cost (cost for training courses, utility cost for office space, etc.) **[Phase 2]** Japanese Side 1) Experts: 11 persons 2) Trainees received: 20 persons (in Japan) 3) Equipment: Vehicle, office equipment, etc. 4) Local cost Nepalese Side 1) Staff allocated: 23 persons 2) Project Office 3) Local cost (cost for SIP activities, etc.)
Project Period	**[Phase 1]** (ex-ante) February 2008 – February 2011 (actual) February 2008 – February 2011 **[Phase 2]** (ex-ante) May 2013 – January 2017 (actual) May 2013 – July 2018
Project Cost	**[Phase 1]** (ex-ante) 279 million yen, (actual) 270 million yen **[Phase 2]** (ex-ante) 403 million yen, (actual) 611 million yen
Implementing Agency	**[Phase 1] [Phase 2]** Department of Education (DOE), Ministry of Education (MOE)* *Ministry of Education and Sports (MOES) at the time of signing of R/D. It was reorganized into MOE in 2008. After project completion, MOE was reorganized again into the Ministry of Education, Sports and Technology (MOEST) and DOE into the Center for Education and Human Resource Development (CEHRD). At district level, DEO was reorganized into Education Development and Coordination Unit (EDCU). Following the reorganization, RCs were abolished.
Cooperation Agency in Japan	**[Phase 1] [Phase 2]** International Development Center of Japan

II. Result of the Evaluation

<Constraints on Evaluation>

・In this Ex-Post Evaluation, an evaluation judgment was made primarily by analyzing information acquired by sending and collecting questionnaires, and through telephone and e-mail interviews with persons concerned due to the impact of COVID-19.

<Special Perspectives Considered in the Ex-Post Evaluation>

・We evaluated the two phases together in the following way: for Relevance, evidence was confirmed for each phase, based on which the two phases were evaluated as combined; for Effectiveness/Impact, the status of achievement of the project objectives was judged for each phase, based on which the two phases were evaluated as combined; for Efficiency, each phase was evaluated, based on which the two phases were evaluated as combined; for Sustainability, the two phases were evaluated as combined.

・In both phases, end-line survey was conducted to collect data, especially for quantitative indicators. However, due to the resource limitation of the ex-post evaluation, it was difficult to collect data in the same scale and accuracy as the end-line survey. Therefore, for some indicators, qualitative information is utilized through questionnaire and telephone/e-mail interview.

・For the Indicators 1-1 to 1-3 of the Project Purpose of the Phase 1 project, quantitative targets were not defined. Therefore, the judgement of the terminal evaluation was adopted in the evaluation of the achievement status. As to the continuation status, judgement was made based on the completion rate of activities indicated in each target.

・The Indicator 1-4 of the Project Purpose of the Phase 1 project (increase of the completion rate of activities) could not be assessed at the terminal evaluation because the comparison data before the project was not available. Therefore, the continuous status of this Indicator was not assessed.

・Regarding the Phase 2 Project, although the project period was extended, the achievement status at the project completion was not stated in the Project Completion Report. Therefore, the results of the terminal evaluation are adopted as achievement status at the project completion.

・In judgement in ex-post evaluation, the influence of the great earthquake in April 2015, which was one of the worst natural disasters in Nepal and caused considerable physical and human damages, was taken into consideration as unexpected external conditions. Also, in evaluation judgement of continuation status, the influence of COVID-19 pandemic was taken into consideration.

1 Relevance

<Consistency with the Development Policy of Nepal at the Time of Ex-Ante Evaluation>

[Phase 1] [Phase 2] At the time of ex-ante evaluation, both Phase 1 and Phase 2 projects were consistent with the development policies as follows. The achievement of the targets defined in the EFA program was the priority of GON. Following the EFA program, GON formulated and implemented the School Sector Reform Program (SSRP) (2009-2014) to improve school management based on SIP prepared by SMC. GON was also committed to reform agenda including capacity development and put priority on decentralization of education administration and school management through community participation.

<Consistency with the Development Needs of Nepal at the Time of Ex-Ante Evaluation>

[Phase 1] [Phase 2] At the time of ex-ante evaluation, both Phase 1 and Phase 2 projects were consistent with the development needs as follows. Each SMC was expected to prepare a SIP and to manage the school according to the SIP. In spite of GON's efforts to promote the decentralization and the school-based management, disparity among schools and communities was increased due to the capacity at the school and the community levels, which impeded the improvement in the enrollment and the dropout rates of the primary schools. In addition, rapid

expansion of basic education caused new challenges such as lack of teachers and low quality of education.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

[Phase 1] At the ex-ante evaluation in 2007, in the Japanese assistance towards Nepal, the priority was placed on assistance for poverty alleviation at district level and assistance for democratization and peace-building. As a part of poverty alleviation, assistance to develop social foundations was included[1].

[Phase 2] In the Country Assistance Policy for Nepal (2012), one of the three priority areas in the Japanese assistance towards Nepal was establishment of peace and stable development toward democratic nation, including capacity development of local government as well as response to the needs of community especially those socially disadvantaged.

<Evaluation Result>

[Both phases] In light of the above, the relevance of Phase 1 and Phase 2 projects as combined is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

[Phase 1] The Project Purpose was achieved by the project completion. The pilot schools achieved completion rate of activities in SIP and conducted audits and other school management events to a satisfactory level and the parents and community members were satisfied with school management. Therefore, it is judged that the school management activities were actively implemented with community participation.

The status of the completion rate of activities planned in SIP was satisfactory[2] (Indicator 1-1 to 1-3). As to non-budgetary activities, according to end-line survey, although the number of pilot schools which completed 100% of the non-budgetary activities was limited, more than half of the 90 pilot schools (Dhading and Rasuwa in total) completed more than 80% of the non-budgetary activities and 85 (94.4%) of the pilot schools completed more than 50% of the pilot activities. As to low-budgetary activities, more than 34% of the pilot schools (31 out of 90 schools) completed more than 80% of the low budgetary activities and more than 70% (64 schools) of the pilot schools completed more than 50% of the pilot activities. As to budgetary activities, more than 22% of the 90 pilot schools completed more than 80% of the budgetary activities, while more than 70% of the pilot schools completed more than 50% of the pilot activities. In regards to the increase of the completion rate, although the comparison was not possible due to the lack of the pre-SISM records, more schools had access to funds of VDC and DDC compared to the fiscal year 2007/08[3], as shown by Indicator 6. Therefore, it was likely that the schools were able to complete budgetary activities more than before (Indicator 1-4).

The average satisfaction level of parents and community members regarding school management was 3.54 by 5-level rating, according to the end-line survey (Indicator 2). The amount (converted into NRs) contributed to school activities by parents and community members, in the form of cash, labor and in kind, in pilot VDCs in 2009/10 increased from the previous year by 358.7% (Indicator 3). As per legal provision, 58 pilot schools (64.5%) shared the financial audit report with the SMCs, while 64 pilot schools (71.1%) shared the social audit report with the SMCs (Indicator 4). Regarding events, 119 events related to school management including training and workshops were conducted in the pilot VDCs in 2007/08 while 507 events took place in 2009/10, which was 326% increase (Indicator 5-1). DOE conducted various training and workshops related to the teacher's professional development program, for the new curriculum dissemination and capacity development of the SMCs (Indicator 5-2). According to the end-line survey, the number of the pilot schools which received funds from VDC and DDC increased during the period from 62 in 2007/08 to 77 in 2009/10. (Indicator 6).

[Phase 2] The Project Purpose was partially achieved by the project completion. School management through SIP was introduced nationwide and a majority of sample schools updated SIP as expected, although the achievement rate of SIP activities, especially budgetary activities, did not reach the target at some sample schools.

Among the target districts and schools of the Phase 2 project, at the terminal evaluation, the percentage of schools that updated the annual action plan of SIP was increased from 43% in 2013/14 to 71% in 2016/17 (Indicator 1). As to the completion of SIP activities, according to the results of the end-line survey, 86 out of 100 sample schools planned the budgetary activities in SIP, of which 30 schools (35%) completed 50% of these planned activities. Regarding non-budgetary activities, 74 schools planned these activities in SIP, and 28 schools (38%) completed 80% of the planned non-budgetary activities. The implementation rate of both non-budgetary activities and budgetary activities did not reach 60% (Indicator 2). Significant improvements were observed in teachers', parents', and SMCs' perspectives of planning and implementing SIP activities to reduce dropout and out-of-school children, although the target value was not specified. This implied that teachers, parents, and SMCs were gradually recognizing the SIP as an effective and useful tool to reduce dropout students and out-of-school children (Indicator 3).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

[Phase 1] The project effects have continued to the time of ex-post evaluation[4]. Activities related to school management such as activities in SIP and audits are continuously implemented with community participation in general.

Regarding activities in their latest school year SIP, according to interview, in Dhading district, 75% activities are non-budgetary and out of those 90% are completed on average. Around 20% activities are low budgetary and out of those 50% are completed on average. Around 5% activities are budgetary activities and out of those around 25% are completed on average. In Rasuwa district, according to interview, 70% activities are non-budgetary and out of those 80% are completed on average. Around 20% activities are low budgetary and out of those 50% are completed on average. Around 10% activities are budgetary activities and out of those around 20% are completed on average (Indicator 1-1 to 1-3).

Parents are satisfied with school management, according to interview[5]. In Dhading, parents take collective decision with teachers and SMC members and they meet regularly and support to develop a child-friendly school environment. In Rasuwa, parents, teachers, students,

[1] Source: Ministry of Foreign Affairs, "ODA Country Data Collection in 2007"

[2] Before the project, even though activities were planned, many of them had not been implemented. Taking this fact into consideration, it was agreed that the results of the completion rate at the terminal evaluation were satisfactory (source: Terminal Evaluation Report).

[3] The Nepalese fiscal year is from mid-July to mid-July next year.

[4] It should be noted that the continuation status of the Project Purpose of the Phase 1 project may be benefited by the follow-up activities by the Phase 2 Project.

[5] The survey of satisfaction level was conducted as a part of endline survey of the terminal evaluation and the survey is not stipulated as standard activities of SIP, therefore, no survey of satisfaction level has been conducted since project completion.

and SMC members jointly develop a child-friendly school environment and conduct school-level planning (Indicator 2). Although the actual amount of contribution is not clear, parents and community members are supporting temporary teachers in case schools need more teachers. They also support to build school infrastructure (in labor). These facts show that the same level of the activities have been continuously conducted since project completion (Indicator 3). Regarding audit, all surveyed schools mentioned that they have received a grant for financial and social audits and both financial and social audits were continuously done from the beginning of the project until 2019 (before COVID-19 pandemic) and 100% of pilot schools shared the social and financial audit report in the parents' meeting or in SMC's meeting, according to interview. They are planning to conduct audits once COVID situation improves. (Indicator 4). Although the number of events is not clear, most of the local government support preparation of SIP as well as implementation of some activities such as orientation for SMC's members and teachers training (Indicator 5-1, 5-2). The local government has continuously provided funds for SIP planning and implementation, classroom maintenance, and salary of temporary teachers if needed at schools as well as funds for provision of school furniture and scholarship for poor and talent students, although quantitative survey has not been conducted on the number of schools receiving increased funds, for the previous quantitative survey was conducted as a part of the Terminal Evaluation (Indicator 6).

[Phase 2] The project effects have partially continued to the time of ex-post evaluation. Activities related to school management through SIP are continuously implemented although budgetary activities in SIP are not implemented as expected.

In regards to updating SIP, 100% schools prepared SIP in 2015 and updated annual action plan based on SIP Formulation Guidebook. Annual action plans are updated from 2018 to 2019 but only 5% schools update five- year SIP for 2020 and annual SIP for 2021 due to the impact of COVID-19. They are planning to update after pandemic, when schools are opened (Indicator 1). As to implementation of SIP activities, among six districts surveyed (4 Target (testing) districts and 2 Follow-up districts), 74.2% of non-budgetary activities are implemented while 47.5% of budgetary activities are implemented, according to interview (Indicator 2). A variety of activities to improve access and quality of basic education are planned and implemented. Examples are; Home visits of student by teachers and SMC's member, Appointment of temporary teachers, Creation of child friendly environment in classroom by teachers, Activities related to children's learning such as singing a song related to the topic or playing some game, Provision of lunch for children of 1-5 class, Provision of sanitary pads and medicine for girls, Provision of student hostel (Indicator 3).

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

[Phase 1] The Overall Goal has not been achieved. There is no clear improvement in enrollment and dropout.

In regards to the net enrollment rate (Indicator 1), the precise data of net enrollment rate in Dhading and Rasuwa was not obtained as the data for the total number of children of the enrollment age at district level was not available. Therefore, it is not verifiable. The total number of enrolled children in public schools is decreasing[6]. As to the dropout rate (Indicator 2), no clear and steady tendency has been observed since project completion, therefore, it is not verifiable. The enrollment and dropout have been affected by the earthquake in 2015 and by COVID-19. In addition, it is considered that there was a gap between the indicators of the Overall Goal (net enrollment rate and dropout rate) and project activities (improvement of school management) as there are other factors involved in the net enrollment rate and the dropout rate, for example, family environment of children[7].

[Phase 2] The Overall Goal has been achieved. The block grants for formulation and updating SIP are secured, SIP promotion team has been established, and SIP is incorporated into the National Centre for Educational Development (NCED) training.

According to Annual Strategic Implementation Plan (ASIP)/Annual Work Plan and Budget (AWPB) data, 90% of school made SIP and some block grants are allocated through ASIP/AWPB for SIP formulation/updating (Indicator 1). The formulation/update of SIP is mentioned in Program Implementation Manual (PIM) and government support for SIP has been continued, for example, support grant for basic school for capacity development of community and SMC, parental education, and extra-curricular activities (Indicator 2). Every school has SMC and the duty of SMC is designated as promotion of SIP formulation and implementation, while the ultimate responsibility for SIP is placed at municipality and school. Based on the request, municipality and EDCU facilitate the preparation of SIP (Indicator 3). The role and responsibility of EDCU (DEO before) and Local Education Units under each local government in implementing SIP are specified. EDCU and concerned organizations (i.e., local governments) provide suggestions during the formulation of SIP if the school needed. In addition, EDCU and concerned organization clarify the needs to be addressed (Indicator 4). In regards to orientation by EDCU, according to interview during ex-post evaluation, 10% of SMC members got orientation from EDCU and concerned organizations while 90% of SMC members got orientation from only school principal (Indicator 5). According to the Head Teacher Capacity Building Training Curriculum (Ministry of Education /then National Center for Educational Development, February, 2017), SIP is incorporated in the leadership capacity development training curriculum and leadership capacity development training. Other resource materials are; supplementary training materials (STM) for annual implementation plan preparation for disaster risk reduction, School Self-Assessment (SSA) checklist, materials for SIP appraisal school level workshop for SIP formulation. They are uploaded in the CEHRD website and being utilized by the as needed. It is described that SIP is planned and implemented for better school, better teaching, and better learning (Indicator 6).

<Other Impacts at the Time of Ex-Post Evaluation>

[Both phases] Through questionnaire and telephone interview, it was reported that women's participation in SMC has been promoted. The government instructed that at least 33% of SMC members should be women and now every SMC has women's participation. No negative impact has been observed.

<Evaluation Result>

[Both phases] In summary, in phase 1, out of 10 indicators of the Project Purpose, 9 were achieved and 7 are continued although the indicators of the Overall Goal were not verifiable. In phase 2, out of 3 indicators of the Project Purpose, 1 was achieved and 2 are continued, while 5 indicators out of 6 indicators of the Overall Goal were achieved. It means that the majority of Indicators were achieved/are continued. In evaluation, consideration was given to the fact that there were influence of the earthquake. Therefore, the effectiveness/impact of Phase 1 and Phase 2 projects as combined is high.

[Phase 1] Achievement of Project Purpose and Overall Goal

[6] At some schools surveyed during the ex-post evaluation, the number of enrolled students was increasing.

[7] In the Phase 2 project, the net enrollment rate and the dropout rate were defined as indicators for the Super Goal.

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="6">(Project Purpose)
School management is improved with community participation and with government support in the target area.</td><td>Indicator 1-1:
Number of the target schools which get the 100% of the completion rate (%) of the non-budgetary activities in their latest school year SIPs.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
Completion rate of the non-budgetary activities (total schools surveyed: 90 pilot schools)
100% completion: 7.8% (7 out of 90 pilot schools)
More than 80 % completion: 54.4% (49 out of 90 pilot schools)
More than 50% completion: 94.4% (85 out of 90 pilot schools)
(Ex-Post Evaluation)
Average achievement rate of the planned no-budgetary activities (based on interview)
<table><tr><th>Dhading</th><th>Rasuwa</th></tr><tr><td>90%</td><td>80%</td></tr></table></td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 1-2:
Number of the target schools which get the 80% and above average completion rate (%) of the low budgetary activities in their latest school year SIPs.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
Completion rate of the low budgetary activities (total schools surveyed: 90 pilot schools)
More than 80 % completion: 34.4% (31 out of 90 pilot schools)
More than 50% completion: 71.1% (64 out of 90 pilot schools)
(Ex-Post Evaluation)
Average achievement rate of the planned low budgetary activities (based on interview)
<table><tr><th>Dhading</th><th>Rasuwa</th></tr><tr><td>50%</td><td>50%</td></tr></table></td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 1-3:
Number of the target schools which get the 30% and above average completion rate (%) of the budgetary activities in their latest school year SIPs.</td><td>Status of the Achievement (Status of the Continuation): achieved (partially continued)
(Project Completion)
Completion rate of the budgetary activities (total schools surveyed: 90 pilot schools)
More than 80% completion: 22.2% (20 out of 90 pilot schools)
More than 50% completion: 71.1% (64 out of 90 pilot schools)
(Ex-Post Evaluation)
Average achievement rate of the planned budgetary activities (based on interview)
<table><tr><th>Dhading</th><th>Rasuwa</th></tr><tr><td>25%</td><td>20%</td></tr></table></td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 1-4:
Completion rate of the budgetary activities is to increase comparing to the before-SISM situation.</td><td>Status of the Achievement: partially achieved
(Project Completion)
- Comparison was not possible because of the lack of the baseline data, but more schools had access to funds of VDC and DDC compared to 2007/08, as shown in the Indicator 6, therefore, it was likely that the schools were able to complete budgetary activities more than before.</td><td>source: Terminal Evaluation Report</td></tr>
<tr><td>Indicator 2: The average of the satisfaction level of parents and community members with school management of the schools is to become “3.5” and above by 5-level rating.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- The end-line survey shows that the average satisfaction level regarding school management was 3.54 by 5-level rating.
(Ex-Post Evaluation)
- Parents are satisfied with school management, according to interview. In Dhading, parents take collective decision with teachers and SMC members and they meet regularly and support to develop a child-friendly school environment. In Rasuwa, parents, teachers, students, and SMC members jointly develop a child-friendly school environment and conduct school-level planning.</td><td>source: Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 3: The amount (converted into NRs) contributed to school activities by parents and community members in the latest school year at the timing of the end-line survey is to increase 20% from</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- In the pilot VDCs, a total of NRs. 16,597,752 was provided for school activities in the form of cash, labor and in kind by the community members in 2009/10, which was 358.7% increase from the previous year.
(Ex-Post Evaluation)
- Parents and community member are supporting temporary teachers in case schools need more teachers. They also support to build school infrastructure (in labor). These facts show that the same level of the activities have been continuously conducted since project completion.</td><td>source: Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
</table>

<table>
<tr><td></td><td>the year 2065 (2008/09) in the target schools.</td><td></td><td></td></tr>
<tr><td></td><td>Indicator 4: As per legal provision, 75% and above of the target schools are to share the financial audit reports and the social audit reports of the latest school year with the SMCs.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
No. of pilot schools sharing audit (90 pilot schools surveyed)
<table><tr><td></td><td>Schools that shared report</td></tr><tr><td>Financial audit</td><td>58 (64.5%)</td></tr><tr><td>Social audit</td><td>64 (71.1%)</td></tr></table>(Ex-Post Evaluation)
No. of pilot schools sharing audit (based on interview)
<table><tr><td></td><td>Schools that shared report</td></tr><tr><td>Financial audit</td><td>100%</td></tr><tr><td>Social audit</td><td>100%</td></tr></table>-All surveyed schools mentioned that they have received a grant for financial and social audits. Both audits were continuously done from the beginning of the project until 2019 (before COVID-19 pandemic) and 100% of pilot schools shared the social and financial audit report in the parents' meeting or in SMC's meeting. They are planning to conduct audits once COVID-19 situation improves.</td><td>source: Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td></td><td>Indicator 5-1: No. of events, related to the school management, supported by the local government is to increase comparing to the before-SISM situation.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
No. of events
<table><tr><td>Year 2007/08</td><td>Year 2009/10</td><td>Increase</td></tr><tr><td>119</td><td>507</td><td>326%</td></tr></table>(Ex-Post Evaluation)
- Although the number of events is not clear, most of the local government support preparation of SIP as well as implementation of some activities.</td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td></td><td>Indicator 5-2: The contents and the areas of the support.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- DOE conducted various training and workshops related to the Teacher's Professional Development program, for the new curriculum dissemination and capacity development of the SMCs.
(Ex-Post Evaluation)
- The local government support planning and implementing of the SIP, orientation for SMC's members, and teachers' training</td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td></td><td>Indicator 6: Increase in the accessing to the VDC/DDC funds by the target schools.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- According to end-line survey, the number of the pilot schools which received funds from VDC and DDC increased from 62 in 2007/08 to 77 in 2009/10.
(Ex-Post Evaluation)
- The local government has continuously provided funds for SIP planning and implementation, classroom maintenance, and salary of temporary teachers if needed at schools as well as funds for provision of school furniture and scholarship for poor and talent students, although quantitative survey has not been conducted on the number of schools receiving increased funds.</td><td>source : Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>(Overall Goal) The enrollment rate and dropout rate of primary school in the target area are improved.</td><td>Indicator 1: Increase in the net enrollment rate in primary education in the target area.</td><td>(Ex-Post Evaluation) not verifiable
- The precise data of net enrollment rate in Dhading and Rasuwa was not available. The number of children enrolled in public schools is decreasing.
No. of children enrolled (1-5 class in public schools of target districts)
<table><tr><td colspan="2">Year</td><td>2011/12 (project completion)</td><td>2014/15 (target year)</td><td>2018/19</td><td>2019/20</td></tr><tr><td rowspan="3">Dhading</td><td>Boys</td><td>29,816</td><td>24,361</td><td>18,920</td><td>15,410</td></tr><tr><td>Girls</td><td>31,940</td><td>25,615</td><td>19,139</td><td>15,574</td></tr><tr><td>Total</td><td>61,756</td><td>49,976</td><td>38,059</td><td>30,984</td></tr><tr><td rowspan="3">Rasuwa</td><td>Boys</td><td>3,756</td><td>2,638</td><td>2,065</td><td>1,857</td></tr><tr><td>Girls</td><td>3,999</td><td>3,014</td><td>2,241</td><td>1,960</td></tr><tr><td>Total</td><td>7,755</td><td>5,652</td><td>4,306</td><td>3,817</td></tr></table></td><td>source : CEHRD Flash Report, Questionnaire survey and telephone interview with EDCU chief, Education Chief of Municipality, principals and SMC members.</td></tr>
</table>

	Indicator 2: Improvement of the dropout rate in primary education in the target area.	(Ex-Post Evaluation) not verifiable Dropout rate (%) (1-5 class in public schools of target districts)	source：Interview with CEHRD, CEHRD Flash Report, Questionnaire survey and telephone interview with EDCU chief, Education Chief of Municipality, principals and SMC members.

Year		2011/12	2014/15	2018/19	2019/20
Dhading	Boys	6.1	1.6	4.0	3.6
	Girls	5.4	0.7	3.4	2.8
	Total	5.8	1.2	3.7	3.2
Rasuwa	Boys	8.4	8.2	3.6	10.6
	Girls	7.1	8.1	3.3	10.6
	Total	7.7	8.2	3.4	10.6

[Phase 2] Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="3">(Project Purpose)
Schools are managed through SIP process nationwide for improving access to and quality of basic education.</td><td>Indicator 1: At least 80% of the sample schools update 2073 (2016/17) annual action plan of SIP based on the updated SIP Formulation Guidebook.
*target (testing) area: Solukhumbu, Doti, Jumla and Rupandehi</td><td>Status of the Achievement (Status of the Continuation): partially achieved (continued)
(Project Completion)
- At the terminal evaluation, the percentage of schools that updated the annual action plan of SIP was increased from 43% in 2013/14 to 71% in 2016/17.
(Ex-Post Evaluation)
- 100% schools prepared SIP in 2015 and updated annual action plan based on SIP Formulation Guidebook. Annual action plans are updated from 2018 to 2019 but only 5% schools update five- year SIP for 2020 and annual SIP for 2021 due to the impact of COVID-19.</td><td>source：Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 2: At least 60% of the sample SMCs implement the planned activities of 2072 (2015/16) annual action plan of SIP*.
*80% of the planned non-budgetary activities and 50% of the planned budgetary activities</td><td>Status of the Achievement (Status of the Continuation): partially achieved (partially continued)
(Project Completion)
- According to the results of the end-line survey, 86 out of 100 sample schools planned the budgetary activities in SIP, of which 30 schools (35%) completed 50% of these planned activities. Regarding non-budgetary activities, 74 schools planned these activities in SIP, and 28 schools (38%) completed 80% of the planned non-budgetary activities.
(Ex-Post Evaluation)
- Among 26 schools in six districts surveyed (4 Target (testing) districts and 2 Follow-up districts), 74.2% of non-budgetary activities are implemented while 47.5 % of budgetary and low budgetary activities are implemented, according to interview.

Implementation rate of SIP activities
<table><tr><th>%</th><th>Non budgetary</th><th>Budgetary</th><th>Low Budgetary</th></tr><tr><td>Dhading</td><td>90</td><td>26</td><td>50</td></tr><tr><td>Rasuwa</td><td>80</td><td>20</td><td>50</td></tr><tr><td>Solukhumbu</td><td>80</td><td>50</td><td>-</td></tr><tr><td>Doti</td><td>57.5</td><td>50</td><td>-</td></tr><tr><td>Jumla</td><td>65</td><td>50</td><td>-</td></tr><tr><td>Rupandehi</td><td>72.5</td><td>50</td><td>-</td></tr><tr><td rowspan="2">Average*</td><td rowspan="2">74.2</td><td>41</td><td>-</td></tr><tr><td colspan="2">47.5**</td></tr></table>*Average of the value of each district
**Calculated based on the ratio between budgetary and low-budgetary activities in Dhading and Rasuwa
Dhading low budgetary: 20%, budgetary: 5%→low:bud=4:1
Rasuwa low bugetary: 20%,budgetary:10%→low:bud=2:1
(Refer to "Continuation Status" of Phase 1)</td><td>source：Terminal Evaluation Report, Questionnaire and telephone interview with principals and SMC members</td></tr>
<tr><td>Indicator 3: Activities* related to improvement of access and quality of basic education are planned and implemented in SIP.
*They include: 1)</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
- Although the target value was not specified, significant improvements were observed in teachers', parents', and SMCs' perspectives of planning and implementing SIP activities to reduce dropout and out-of-school children.
(Ex-Post Evaluation)</td><td>source：Terminal Evaluation Report, Questionnaire and telephone interview with</td></tr>
</table>

	reducing drop-out, 2) reducing out-of-school children, 3) increasing learning achievement, and 4) non-budgetary activities.	- Activities planned and implemented: Home visits of student by teachers and SMC's member, Appointment of temporary teachers, Creation of child friendly environment in classroom by teachers, Activities related to children's learning such as singing a song related to the topic or playing some game, Provision of lunch for children of 1-5 class, Provision of sanitary pads and medicine for girls, Provision of student hostel.	principals and SMC members
(Overall Goal) The technical and financial mechanism for enhancing school management through SIP process is maintained at the national and district levels.	Indicator 1: The budget for formulation/update and implementation of SIP is specifically included in the ASIP/AWPB.	(Ex-Post Evaluation) achieved - 90% of school made SIP and, also, some block grants are allocated through ASIP/AWPB for SIP formulation/updating.	source : ASIP/AWPB data
	Indicator 2: The formulation/update of SIP is specified in the PIM.	(Ex-Post Evaluation) achieved - The formulation/update of SIP is mentioned in PIM and government support for SIP has been continued, for example, support grand for basic school for capacity development of community and SMC, parental education, and extra-curricular activities.	source : PIM documents
	Indicator 3: The designated team for promoting SIP formulation and implementation is in place.	(Ex-Post Evaluation) achieved - Every school has SMC and the duty of SMC is designated as promotion of SIP formulation and implementation. The ultimate responsibility for SIP is placed at municipality and school. Based on the request, municipality and EDCU facilitate the preparation of SIP.	source: Questionnaire and telephone interview with principals and SMC members
	Indicator 4: The role and responsibility of DEOs and RCs for implementing SIP are specified.	(Ex-Post Evaluation) achieved - The role and responsibility of EDCU (DEO before) and Local Education Units under each local government for implementing SIP are specified. EDCU and concerned organizations (i.e., local governments) provide suggestions during the formulation of SIP if the school needs. In addition, EDCU and concerned organization clarify the needs to be addressed.	source: Questionnaire and telephone interview with EDCU Chief, Municipality Education Chief, principals
	Indicator 5: All DEOs conduct SIP orientation for newly appointed SMC members at least once after the completion of the project.	(Ex-Post Evaluation) not achieved - 10% of SMC members got orientation from EDCU and concerned organizations. 90% of SMC members got orientation from only school principal, according to interview during ex-post evaluation.	source: Questionnaire and telephone interview with principals and SMC members
	Indicator 6: The content of SIP formulation/update is incorporated in the NCED's training.	(Ex-Post Evaluation) achieved - According to Head Teacher Capacity Building Training Curriculum (Ministry of Education /then National Center for Educational Development, February, 2017) documents, SIP is incorporated in the leadership capacity development training curriculum and leadership capacity development training. Other resource materials are; supplementary training materials (STM) for annual implementation plan preparation for disaster risk reduction, School Self-Assessment (SSA) checklist, materials for SIP appraisal school level workshop for SIP formulation. They are uploaded in the CEHRD website and being utilized by the as needed It is described that SIP is planned and implemented for better school, better teaching, and better learning.	source : Documents on capacity development and training

3 Efficiency

[Phase 1] Both the project cost and the project period were within the plan (ratio against the plan: 97% and 100%, respectively). The outputs of the project were produced as planned. Therefore, the efficiency of the project is high.

[Phase 2] Both the project cost and the project period exceeded the plan (ratio against the plan: 152% and 138%, respectively). The outputs of the project were produced as planned. The project cost exceeded due to addition of extra activities related to emergency support after the 2015 earthquake. The project period was extended in July 2015 to respond to the needs for emergency support after the earthquake, and then, extended again in June 2017 upon request from GON during the terminal evaluation, due to the activity delay caused by budget constraints and government reorganization as well as by the prolonged impacts of the earthquake. The outputs were produced as planned. Taking into consideration the influence of the earthquake, the efficiency of the project is fair

[Both phases] Therefore, the efficiency of Phase 1 and Phase 2 projects as combined is fair (See "Special Perspectives Considered ").

4 Sustainability

<Policy Aspect>

[Both phases] In the Fifteenth Plan (2019/20 – 2023/24), ensuring of free and compulsory basic education is listed as one of strategies and involvement of stakeholders at all levels including district and community levels is mentioned. The School Sector Development Plan (2016/17-2022/23) mentions the importance of the effective implementation of SIP, describing that school will prepare SIP for implementation education program and this is obligation. In addition, SIP Formulation Guidebook is mentioned in CEHRD documents and website.

<Institutional/Organizational Aspect>

[Both phases] The staff at district and local government are carrying out their daily duties, including planning and implementation of SIP, without major problem. Although there are not sufficient staff members assigned to district and school levels to promote the school management and to effectively follow up the project activities, according to interview with CEHRD ex-counterparts and ex-staff of the

project, the number of staff is increasing at province, district, and local government levels. Previously, in the district, there were 15-17 staff members on average to support for school management. However, now there are over 20 education staff members in the local government in each district and even more in some districts. Furthermore, federal restructuring has created positive effects to promote school management through more decentralization and devolution of power and additional resources to local governments and schools.

<Technical Aspect>

[Both phases] Government officials and principals have skills to implement and support SMC activities without major problem, although activities are affected by COVID-19. The trainings are being organized at central, district and local government levels. At central level, there are different types of training for principals and teachers for skill development such as NCED training package. At district level, there are opportunities for whole district principals to share their own experiences and knowledge with others. When project was implemented, there were trainings for teachers and SMC members. After the project, several trainings were conducted, however, the number of the training is not enough because it was difficult to conduct the training in the time of shifting federal system and COVID-19. In the curriculum for Head Teachers Leadership and Capacity Building, 3 sessions are sanctioned on SIP formulation, appraisal, and monitoring matters. At community level, parents meeting and SMC's meeting are held to share each other knowledge. The SIP materials provided by the project are continuously used.

<Financial Aspect>

[Both Phases] ASIP/AWPB for the fiscal year 2021/22 allocates the budget for grants for school operation and management which includes activities for SIP. The budget for the SIP activities is allocated mainly by local governments. For SIP training, monitoring, and formulation, CEHRD provides NRs.15,000-20,000 per year to each basic and secondary school respectively. The budget for SIP is also utilized for capacity development of community and SMC members, parental education, and extra-curricular activities. Since the completion rate of budgetary activities is low compared to non-budgetary activities, as described above, securing budget at school level may be a concern in implementing activities planned in SIP. Even though the SIP budget had been secured at the central level, it was not allocated as planned at the local government level smoothly.

<Evaluation Result>

[Both phases] In light of the above, slight problems have been observed in terms of the technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

Phase 1 project achieved the Project Purpose (improvement of school management) by the time of project completion. The effects of the Phase 1 project such as completion rate of SIP activities and parents' satisfaction have continued to the time of ex-post evaluation, but the Overall Goal (enrollment rate and dropout rate) has not been achieved partly because the indicators were defined a bit far from project activities. Phase 2 project partially achieved the Project Purpose (school management through nationwide SIP process) and the effects of the Phase 2 project, such as updating of SIP and implementation of SIP activities, have been partially continued. The Overall Goal of the Phase 2 project (mechanism for enhancing school management) has been achieved as SIP is incorporated into leadership training and SIP promotion team is in place.

Regarding the sustainability for both phases, some problems were observed in the technical and financial aspects mainly due to lack of training and budget. As for the efficiency, both project cost and project period were within plan in the Phase 1 project, while both project cost and project period exceeded the plan in the Phase 2 projects, partly due to the influence of the earthquake.

Considering all of the above points, this project (Phase 1 and Phase 2 as combined) is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- SIP can be used as important tool/basis for any kind of support to schools for enhancing synergy effects and avoiding any possible duplications of activities. To promote SIP, GON should take stronger measures in order that SIP should be more clearly and specifically described in government documents at all three levels including Municipal Education Plans as a crucial means to enhance coordinated engagements with local governments for improved school performance. For example, measures such as securing resources and improving linkages among the plans for better results in school management and student's learning achievement should be taken.
- Field survey revealed relatively low level of achievement of implementation of budgetary and even low-budgetary activities of SIP due to lack of necessary budget at school level. It seems that this confusion was caused among the stakeholders by the unclear roles of the three tiers of government in the timing of the shift to federalism, and consequently the SIP budget that had been secured at the central level was not allocated as planned at the local government level smoothly. Therefore, as mentioned in SSDP and School Education Sector Plan (SESP), federal (central), provincial, and local governments should continuously conduct monitoring of the future needs of additional resources and to use the SIP as an important funding tool for the school.
- It is recommended that CEHRD make a clear guideline for improving capacity and leadership of school principals through training in order to facilitate effective implementation of SIP and guide teachers for improving students' learning outcomes at schools.
- It is desirable that the local governments conduct capacity development of SMCs, especially in prioritizing, planning, and being accountable for activity implementation to improve quality of education and learning environment.

Lessons Learned for JICA:

- SIP is important tool to plan and implement activities at school level but only strengthening of SIP is not sufficient to immediately improve enrollment rate and dropout rate. In that sense, the indicators for the Overall Goal in the Phase 1 project might be too ambitious. To evaluate the effects of the project, it is important to define appropriate and realistic indicators in planning stage. Indicators closely related to project activities and showing the expansion and sustainability of the project activities would be preferable, for example, indicators related to legal arrangement of government, and monitoring system of implementing agencies. Indicators such as those in the phase 2 project might be some examples.
- As to response to a major natural disaster during project implementation, preparing a disaster mitigation plan during the project formulation time should be considered especially in disaster prone areas in Nepal and other counties.
-In regards to response to a major policy change during the project implementation, formulation of a project with necessary flexibility is important to adopt the changed structure of the system.

- The project has created positive effects to revitalize the SIP practices nationwide and enhanced the awareness of its effectiveness at different levels such as schools, local government, and district and federal agencies. As a result, SIP remains an important tool for the on-going national policies and national education plan/programs. Some examples of advantage of SIP process are a common platform provided for the school level stakeholders to sit together and discuss the problem, and clarification of the need of the schools that foster the ownership in the entire plan for the smooth implementation. So, the project shows that SIP is effective to contribute to improving the student's academic performances in the situation where good understanding of head teacher and SMC members is fostered. Important factors for promotion of SIP are: orientation for newly appointed SMC members about the SIP, awareness of school-level stakeholders on own problems, so that they identify and implement activities with their own initiatives and available resources, as well as with minimum financial support from the relevant agencies. Moreover, regular and periodic follow-up meeting/discussion for the planning and implementation of SIP and monitoring of SIP activities by the local levels (local governments and EDCU) are also important factors to sustain the SIP initiative.

EDCU officer conducting SIP orientation to principals and SMC members

A group photo after the SIP orientation

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Sri Lanka Office: April 2022

Country Name	
Democratic Socialist Republic of Sri Lanka	**Project for Improving of Meteorological Observation, Weather Forecasting and Dissemination**

I. Project Outline

Background	The Democratic Socialist Republic of Sri Lanka experiences natural disasters such as floods, cyclones, landslides, whirlwinds and lightning almost every year which cause damage to social and economic infrastructure and economic loss. The government strengthened its natural disaster prevention system and enacted the Disaster Management Act (2005) which established a comprehensive legal framework for disaster prevention. The Act focuses on disaster preparedness including control and mitigation of loss and damage, changing from previous disaster management policies focusing on post-disaster response. The government established the National Council for Disaster Management and the Ministry of Disaster Management (currently Disaster Management Division of the State Ministry of National Security, Home Affairs and Disaster Management). The Department of Meteorology (DOM) is under the Disaster Management Division and responsible for grasping meteorological phenomena accurately and providing forecasts and warnings to the relevant organizations. As the conventional forecasting was limited to subjective analysis, the challenge was to improve forecasting based on objective materials.		
Objectives of the Project	The project aimed to disseminate more accurate and timely meteorological information to the public and the disaster related organizations by the improvement of maintenance and calibration of meteorological observation equipment, transmission and reception of meteorological data, weather forecasting using obtained meteorological data, warning, and dissemination of meteorological information, thereby contributing to the effective utilization of weather information by the public and the disaster related organizations. 1. Overall Goal: Weather information disseminated from the DOM is well utilized by the public and the disaster related organizations. 2. Project Purpose: More accurate and timely meteorological information is disseminated to the public and the disaster related organizations.		
Activities of the Project	1. Project site: Whole area of Sri Lanka 2. Main activities: To review the current situation, to provide necessary equipment, to develop manuals and to conduct training for the improvement of maintenance and calibration of meteorological observation equipment, transmission and reception of meteorological data, weather forecasting using obtained meteorological data, warning and provision of meteorological information. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 19 persons 2) Trainees received: 8 persons 3) Equipment: Equipment for meteorological observation and weather forecasting Sri Lankan Side 1) Staff allocated: 27 persons 2) Project office and utilities 3) Operation cost		
Project Period	(ex-ante) July 2014-June 2017 (actual) September 2014-August 2017	Project Cost	(ex-ante) 324 million yen (actual) 302 million yen
Implementing Agency	Department of Meteorology (DOM)		
Cooperation Agency in Japan	International Meteorological Consultant Inc., Japan Weather Association		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Sri Lanka at the Time of Ex-Ante Evaluation >

This project was consistent with Sri Lanka's Disaster Management Act (2005) which established a comprehensive legal framework for disaster prevention. The Act focuses on disaster preparedness, changing from previous disaster management policies focusing on post-incident response. Other related policies are: The Roadmap for Disaster Risk Management (2006-2016), National Policy on Disaster Management (2010), Sri Lanka National Disaster Management Plan (2013-2017), National Emergency Operations Plan (NEOP) (2013) and Comprehensive Disaster Management Programme (2014-2018).

<Consistency with the Development Needs of Sri Lanka at the Time of Ex-Ante Evaluation >

This project was consistent with the needs for capacity development in provision of accurate and timely meteorological information as mentioned in "Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

Japan's Country Assistance Policy for Sri Lanka (2012) prioritized social infrastructure development for the mitigation of vulnerability.

<Appropriateness of Project Design/Approach>

The project was designed based on the use of Very Small Aperture Terminal (VSAT) communication satellite service, but VSAT stopped due to budgetary constraints. The project decided to use Internet Protocol-Virtual Private Network (IP-VPN) instead, but it did not work as expected because its coverage was limited. These drawbacks came out after the project started using the technology and it would have been difficult to foresee them. Therefore, there was no particular problem in project design and approach.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

The Project Purpose, "More accurate and timely meteorological information is disseminated to the public and the disaster related organizations" was partially achieved at the time of project completion. Through the procurement of standard instruments and calibration devices and the implementation of training courses, the traceability of pressure and temperature was established during the project (Indicator 1). Weekly forecasts guidance was conducted in 2017 on a trial basis at Colombo and Ratnapura (Indicator 4). Rainfall forecast guidance 12, 24 and 36 hours ahead at Colombo and Ratnapura and short-range weather forecast guidance (every 12 and 24 hours) for precipitation for Colombo were operating, and accuracy of short-term forecast was improved (Indicator 3). The missing rate of real-time observation data transfer from observation stations was 100% because the Very Small Aperture Terminal (VSAT) communication satellite that the DOM was using stopped the service in January 2016 due to budgetary constraints (Indicator 2).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

The project effects have not been continued till the time of ex-post evaluation. Traceability of meteorology instruments is sufficiently ensured all over the country (Indicator 1). However, due to the underperformance of Internet Protocol-Virtual Private Network (IP-VPN) system that replaced the VSAT service, real-time observation data of Automatic Weather System (AWS) data at the stations are not transferred to Colombo (Indicator 2). As DOM uses European Centre for Medium-Range Weather Forecasts (ECMWF) since July 2017 and they are less reliable, the accuracy of rainfall forecast is not high (Indicator 3). Weekly forecast also based on ECMWF is published for whole Sri Lanka on the DOM website (Indicator 4). While the project supported strengthening of capacity in numerical weather prediction using DOM's own data, it is not performed.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

The Overall Goal, "Weather information disseminated from the DOM is well utilized by the public and the disaster related organizations" is not verifiable. DOM regularly issues information to other agencies and it is assumed that they are utilized for disaster mitigation, but there is no mechanism or system to ascertain on how they are being used (Indicator 1). Community uses information from DOM to prepare hazard maps and evacuation plans, but DOM does not have information on the number of communities or examples of tools developed by the community (Indicator 2).

<Other Impacts at the Time of Ex-Post Evaluation>

No negative impacts have been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is low.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) More accurate and timely meteorological information is disseminated to the public and the disaster related organizations.	Indicator 1 Traceability of meteorology instruments (Availability of national standards/frequency of inspection)	Status of the Achievement (Status of the Continuation): Achieved (Continued) (Project Completion) Through the procurement of standard instruments and calibration devices and the implementation of training courses, the traceability of pressure and temperature was established during the project. "Guidelines to meteorological instrument calibration" and "Manuals for meteorological instrument calibration" were developed and the procedures of the calibration of pressure and temperature were well defined and standardized. DOM started operation of the new instrument calibration. (Ex-post evaluation) Traceability of meteorology instruments is sufficiently ensured all over the country with equipment purchased by the government and those donated by JICA. Procedures follow the guidelines developed under the project, while a complete calibration manual has not yet been prepared. The instruments are usually inspected twice or three times per year, but it was not the case since 2020 due to COVID-19.	source: JICA documents, questionnaire and interviews of DOM
	Indicator 2 Number of missing observation data	Status of the Achievement (Status of the Continuation): Not achieved (not continued) (Project Completion) The missing rate of real-time observation data transfer from 36 observation stations was 100% because the VSAT communication satellite that the DOM was using stopped the service in January 2016 due to budgetary constraints. After completion of the transition from VSAT to IP-VPN system, it was expected that the missing rate of real−time observation data transfer would be less than 10%. (Ex-post evaluation) IP-VPN did not work as expected because of the limited mobile network coverage and the service provider's lack of technical capacity to expand it. The project team did their best to provide technical support in expanding the service area, but the provider could not achieve the nationwide coverage during the contract period. Therefore, real-time observation data are not transferred from all the 36 observation stations as expected at the time of planning. Recognizing the difficulty in reaching the remotest areas within the country through IP-VPN, DOM has recently decided to shift to another system, General Packet Radio Service Modem (GPRS) for communication.	source: JICA documents, questionnaire and interviews of DOM

	Indicator 3 Accuracy of rainfall forecast in the selected stations	Status of the Achievement (Status of the Continuation): Partially achieved (not continued) (Project Completion) To improve the accuracy of rainfall forecast, rainfall forecast guidance 12, 24 and 36 hours ahead at Colombo and Ratnapura using the Grid Point Value of DOM's numerical prediction model (Weather Research and Forecasting: WRF) was complete and semi-automatic Linux Program for Short-Range (every 12 and 24 hours) Weather Forecast Guidance for Precipitation with the WRF Grid Point Vale was operating for Colombo. DOM was able to make a regression equation for the short-range forecast of precipitation in different seasons. Accuracy of short-term forecast improved comparing to the method without seasonal division. Further improvement of accuracy was expected. (Ex-Post Evaluation) Automatic Weather System (AWS) data are not fully transferred to Colombo due to underperformance of IP-VPN. DOM uses ECMWF high resolution data for rainfall forecast since 2017 which are less reliable during inter-monsoon period as local effects are highly dominant. While the project supported strengthening of capacity in numerical weather prediction using DOM's own data, it is not fully utilized.	source: JICA documents, questionnaire and interviews of DOM
	Indicator 4 Number of selected stations where weekly forecast is enabled in trial basis[1]	Status of the Achievement (Status of the Continuation): Achieved (Not continued) (Project Completion) Weekly forecasts guidance was conducted from January to July 2017 on a trial basis at two stations (Colombo and Ratnapura). (Ex-Post Evaluation) The methods used under the project (Model Output Statistics (MOS) used in the trial) are no longer used. Weekly forecast is published for whole Sri Lanka by using data ECMWF since July 2017 on the DOM website, but not based on DOM's own information. Weekly forecast is published at Colombo, Mattala International Airport and Katunayake International Airport stations.	source: JICA documents, questionnaire and interviews of DOM
(Overall Goal) Weather information disseminated from the DOM is well utilized by the public and the disaster related organizations.	Indicator 1 Number of the civil work projects for disaster mitigation that fully or partly utilize the improved meteorological information from DOM	(Ex-Post Evaluation) Not verifiable DOM regularly issues information to other agencies (Department of Irrigation, Department of Agriculture, Department of Fisheries, Disaster Management Centre (DMC), Water Board, Ceylon Electricity Board, Road development authority, National Building Research Organization, etc.), but there is no mechanism or system to ascertain on how the information is being used. However, according to inquiries to National Meteorological Centre (NMC) and discussions with other agencies, meteorological information from DOM has been well utilized for disaster mitigation as DOM's forecasting had improved. Examples to show how the information is used are not available. Number of the civil work projects is not available.	source: JICA documents, questionnaire and interviews of DOM
	Indicator 2 Number of the community level early warning system, hazard maps or evacuation plans that fully or partly utilize the improved meteorological information from DOM	(Ex-Post Evaluation) Not verifiable Community uses information from DOM to prepare hazard maps and evacuation plans. Response of the community for weather forecasts and early warnings issued by DOM is gradually increasing. People's attitudes to weather forecasts are also changing. DOM does not have information on the number of communities or examples of tools developed by the community (Disaster Management Center (DMC) might have).	source: JICA documents, questionnaire and interviews of DOM

3 Efficiency

The project cost and the project period were within the plan (93% and 100% respectively). There was no change in the planned outputs. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

There is no considerable change in disaster management policies of Sri Lanka, which focus on disaster preparedness. DOM's mission in disaster preparedness is clear.

<Institutional/Organizational Aspect>

There is no significant change in organizational structure of DOM up to now. DOM is on the process of restructuring (modernization) to improve services supported by the Climate Resilience Multiphase Programmatic Approach Project of World Bank (2019-2024, US$310 million)[2]. One of the objectives of the World Bank project is to enhance the capacity of the government to deliver improved weather and climate forecasting and early warning, and DOM is among the target organizations along with the Disaster Management Center, Irrigation Department, and National Building Research Organization.

[1] Project Purpose Indicator 4 in Japanese PDM is "選定された地上気象観測所における試行ベースの週間予報の実施数" which means "number of weekly forecast on trial basis at the selected stations." It is not the same as the English PDM that counts the "number of stations".

[2] https://projects.worldbank.org/en/projects-operations/project-detail/P160005

DOM needs more staff for weather forecasting: only eight are available among 12 posts. Staff have not been allocated for the newly created Marine and Numerical Weather Prediction unit.
<Technical Aspect>
Standard Operating Procedures (SOP) and manuals developed under the JICA project, particularly the instruments-related manuals and journals are utilized. DOM maintains instruments following JICA experts' advices. DOM improved graphical format for bad weather warnings which started during the project.
Since the project completion, eight staff with M.Sc. in meteorology related fields were newly recruited. They have knowledge but need to be improved.
<Financial Aspect>
DOM has budget from the government for its operation, but has no additional budget for continuation of some project components such as VSAT communication and spare parts such as battery pack, etc.
<Evaluation Result>
In light of the above, some problems have been observed in institutional/organizational, technical and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose, "More accurate and timely meteorological information is disseminated to the public and the disaster related organizations" at the time of project completion, but the effects did not continue as expected mainly due to the technical limitations concerning data transmission. Overall Goal "Weather information disseminated from the DOM is well utilized by the public and the disaster related organizations" is not verifiable as the information is provided and utilized but there is no mechanism to grasp how they are utilized. There are some problems in institutional/organizational, technical and financial aspects of sustainability. As for efficiency, both the project cost and project period were within the plan.
Considering all of the above points, this project is evaluated to be unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:
1. Due to the non-function of VSAT and IP-VPN communication, data transfer process from all stations to Colombo office has been disabled and it hinders the operation of the stations. It is recommended that DOM should continue to pursue an alternative option for AWS and achieve nationwide data transfer as soon as possible.

Lessons Learned for JICA:
DOM discontinued its use of VSAT in 2016 because they could not cover the hefty operation expenses for satellite services. DOM's decision to replace it with IP-VPN and the project team's support for the decision are considered valid, as it was the most viable technological option available at the time. However, unlike satellite services, mobile communications network had its coverage limitations in Sri Lanka, and it would have been difficult for IP-VPN to achieve the nationwide data transfer from all the 36 observation stations as expected at the time of planning with VSAT. Given the nature of IP-VPN, the project team could have considered adjusting the indicators and goals accordingly, in order to make the numbers more realistic and achievable.

V-SAT of Aralaganvila Station

AWS of Mannar Station

Antenna of Polonnaruwa Station

Rain gauge of Polonnaruwa Station

Antenna of Ratnapura Station

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Sri Lanka Office: August, 2022

Country Name	**The Project for Enhancement of Production System of Certified Vegetable Seed in Sri Lanka**
Democratic Socialist Republic of Sri Lanka	

I. Project Outline

Background	The mid- and long-term national development plan of Sri Lanka ("Mahinda Chintana, Vision for a New Sri Lanka" (2010)) emphasized importance of improvement of self-sufficient rate of vegetables and other field crops and pointed out that shortage of quality seeds and planting materials remained a major issue in increasing production and productivity. However, only 4-35% of the total vegetable seed requirement was supplied as quality certified seeds certified by Department of Agriculture (DOA)/Ministry of Agriculture due to limitation of seed growers' capacity, poor processing and certifications system, under-developed seed distribution. (Figures at the time of ex-ante evaluation.)		
Objectives of the Project	The project aimed to improve production system for certified vegetable seed in the target areas in Sri Lanka through (i) improving planning capacity of Seed and Planting Materials Development Center (SPMDC) for seed production and distribution, (ii) improving vegetable seed production techniques in both public and private sectors, and (iii) improving vegetable seed quality control techniques in both public and private sectors, thereby increasing quantity of vegetable seeds* in the market up to minimum standards stipulated by DOA.** *DOA certified seeds (produced by DOA and the private sector) and self-certified seeds of the private sector. **Recommended seed certification standards for seed and planting materials issued by Seed Certification Service (SCS) in 2009. 1. Overall Goal: Quantity of vegetable seeds in the market up to minimum standards stipulated by DOA is increased. 2. Project Purpose: Production system for certified vegetable seed is improved in the target areas.		
Activities of the Project	1. Project site: Kundasale Government Seed Farm (GSF), Aluttarama GSF, Mahailuppallarna GSF and Nikaweratiya SPMDC Regional Office, and their surrounding areas. 2. Main activities: Regular meetings and joint workshops between the government and private sectors, a market survey in the project site, a nation-wide seed-related database establishment, training on quality seed production for the government and private sectors, development of a technical manual on quality seed production, development of a technical manual and teaching materials on seed testing, training on seed quality control for the government and private sectors, training for seed producers to prepare quality seed lots, a survey on seed quality available in the market, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: (long-term) 4 persons, (short-term) 7 persons 2) Trainees received: 51 persons (37 in Japan and 14 in Thailand) 3) Equipment: Equipment for seed production, seed testing and research, seed processing, etc. 4) Local cost Sri Lanka Side 1) Staff allocated: 45 persons 2) Building and facilities: Provision of project office and classrooms for training, construction of building of Seed Health Testing Unit (SHTU), provision of necessary equipment and facility for operation of the database system, renovation of the building for installation of seed processing machines, etc. 3) Local cost		
Project Period	(ex-ante) March 2012-February 2017 (actual) May 2012-May 2017	Project Cost	(ex-ante) 365 million yen (actual) 356 million yen
Implementing Agency	Department of Agriculture (DOA)* *The core organizations consisted of (i) SPMDC together with its regional offices, GSFs, and Seed Sales Centers (SSCs), and (ii) Seed Certification Service (SCS) under Seed Certification and Plant Protection Centre (SCPPC) together with its regional offices, Seed Testing Laboratories (STLs), and SHTU established under the project[1].		
Cooperation Agency in Japan	Ministry of Agriculture, Forestry, and Fishery		

II. Result of the Evaluation< Special Perspectives Considered in the Ex-Post Evaluation >

- The quantitative data for the Project Purpose Indicators 1, 2, and 3 were collected through beneficiary surveys during the project implementation. As it was difficult to conduct similar surveys to confirm their continuation status due to time and human resource constraints in the internal ex-post evaluation, which was a simplified evaluation, qualitative data was collected by asking opinion of the key informants.
- "More than X" appeared in the Project Purpose Indicators 2 and 3 was interpreted to be "at least X" based on the expression of the corresponding parts in the existing Japanese documents related to the project, including Terminal Evaluation Summary.
- Target area for the Overall Goal was the same as the Project Purpose as "the Overall Goal…aims at improvement of entire market in the project area" according to the Terminal Evaluation Summary of the project.
- Achievement status of Overall Goal Indicator 1was confirmed through comparison of the results in 2015 Yala[2] period and 2018 Yala period (around

[1] Some of the project activities were carried out in collaboration with Horticultural Crop Research and Development Institute (HORDI), Extension &Training Centre (ETC), and Socio Economics & Planning Centre (SEPC).

[2] In Sri Lanka, there are 2 farming seasons a year, called Yala and Maha.

April-August 2018), which fell in about 1 year and a few months after the project completion, based on the recommendation of the terminal evaluation of the project. Regarding achievement status of the Overall Goal Indicator 2, the supply rate of the vegetable basic seeds was confirmed in terms of weight and number of varieties, following the perspective of the terminal evaluation. Target year for Indicator 2 was set to be 2020 (more specifically, 2020/21 Maha period) as the ex-post evaluation was planned 3 years after the completion of the project according to the Ex-ante Evaluation Sheet.

1 Relevance

<Consistency with the Development Policy of Sri Lanka at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, the project was consistent with the national development plan of Sri Lanka ("Mahinda Chintana, Vision for a New Sri Lanka" (2010)) as described in the "Background".

<Consistency with the Development Needs of Sri Lanka at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, the project was consistent with the development needs of Sri Lanka for enhancement of the production system of the certified vegetable seed as described in the "Background".

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the project was consistent with Japan's Country Assistance Program for Sri Lanka (April 2004), prioritizing assistance to development of agriculture and fisheries as measures for poverty alleviation through improvement of social and economic Infrastructure.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

The Project Purpose was partially achieved at the time of project completion (judged based on the achievement status of the 5 indicators: "achieved", "not verifiable", partially achieved", "partially achieved" and "partially achieved"). The number of the participants of the Joint Public Private (JPP) Seminars initiated by the project, who expressed that information sharing between public and private sectors, was increased from 17 persons (85% of the participants) in 2015 to 27 persons (96% of the participants) in 2017 (Indicator 1). The seed-related database was developed in March 2016, but the rate of the DOA officials who expressed that the database made their data processing work efficient could not be confirmed as the response rate of the questionnaire survey in April 2017 was extremely low[3] (Indicator 2). More than 60% of the contract farmers who had attended the seed production training applied at least one technique introduced in the training (the nursery tray and pot technique) according to the interview survey to the trained farmers in 2015, but quantitative information was not available after 2015. For reference, the SPMDC regional offices responsible for the 4 project sites made positive reports on application status of the introduced techniques by the trained contract farmers at the final Joint Coordination Committee (JCC) of the project in 2017, indicating a similar trend as in 2015, although there were no reports showing the concrete data (Indicator 3). SCS/SCPPC conducted in-service and induction training on seed certification by using the seedling evaluation manual and the teaching materials introduced by the project in 2014 and 2015, but not in 2016 and 2017 (Indicator 4). Actions were taken for 5 out of the 8 items in the short-term plan of the Seed Quality Action Plan developed under the project[4](Indicator 5).

<Continuation Status of Project Effects at the Time of Ex-post Evaluation>

The project effects partially continued at the time of ex-post evaluation. At SCS, the seed testing process improved by the project was continuously implemented at STLs and the seed health testing of bacteria, virus and fungi continued at SHTU established under the project[5]. The action plan for improvement of quality control developed under the project was also utilized[6]. The JPP Seminars and the meetings of the Seed Industry Development and Coordinating Committee (SIDCC), established as an outcome of the JPP seminars during the project implementation, were not regularly conducted as expected mainly due to some external reasons (i.e., the Easter attack in 2019 and the COVID-19 pandemic in 2020 and 2021). The level of information sharing between the public and private sectors enhanced through the project was maintained, however, because communication continued as needed owing to a very good linkage created through the project, which was sustained after the project completion. According to the Agricultural Instructors of the GSFs in the 2 project sites visited by the ex-post evaluators, all the introduced techniques except for re-potting, were useful for the trained contract farmers in all the 4 project sites and they were using them in their respective farms. This was also confirmed by informal discussions with 3 trained contract farmers in one of the project sites. The seed-related database did not contribute to improvement of efficiency of data-processing work of the DOA officials because the database was not functioning as expected. It was mainly because the access to the database became very slow when many users were in the system, especially in the rural areas where internet connection was very poor; rural users could not feed the data easily due to less signal strength in the internet facilities in their offices or lack of internet facilities in some offices[7]; the database was not user-friendly and appropriate enough for the rural users; and it was very difficult to transfer the work pattern of staff from fully manually adopted practices to the internet based system within a short period of time. The seed-related database was not used to formulate seed production plans for basic seeds as planned for the same reasons. Regarding in-service and induction training on the seed certification, SCPCC conducted in-service training in 2018, using the seedling evaluation manual and teaching materials of the project. SCPCC planned

[3] Questionnaires were distributed to 350 users through email, but only 5 responded. It is noted that, as of April 2017, not all the user organizations were entering the data. The data entry rate was 55%, 52%, and 55% respectively at SPMDC-regional offices, GSFs and SCS-regional offices and it was only 12% at SSCs. In addition, only 18 out of 27 GSFs and 8 out of 23 SCCs had personal computers and internet facilities, which were necessary to use the database, while most of SPMDC-regional offices and SCS-regional offices had them.

[4] As per the Seed Quality Action Plan, actions of the short-term plan were to start by December 2016, actions of the mid-term plan were to be taken by December 2017, and actions of the long-term plan were to be taken after January 2018. For reference, plans were being developed for the other 3 items of the short-term plan by the project completion.

[5] According to SCS, annual vegetable sample testing increased to above 2,000 samples.

[6] For example, some technologies for hybrid seed quality improvement for capsicum, Chilli was developed. A quality control system for poly tunnels was also developed.

[7] The terminal evaluation team had recommended DOA to ensure installment of necessary IT equipment and facilities for the database. The necessary equipment/facilities were installed at most of the database user organizations but DOA prioritized seed production and introduction of techniques for seed production systems with available allocations than focusing on installation of expensive equipment/facilities to all the database users.

to conduct in-service and induction training on the same topic after 2018, but those plans were not materialized due to the external reasons (the Easter attack in 2019 and the COVID-19 pandemic in 2020 and 2021). As for the Seed Quality Action Plan, actions for 8 items of the short-term plan and 4 out of 6 items of the mid -term plan were either completed or being implemented. For reference, plans were being formulated for the remaining 2 items of the mid-term plan and both 2 items of the long-term plan.

<Status of Achievement for Overall Goal at the Time of Ex-post Evaluation>

The Overall Goal was partially achieved (judged based on the achievement status of the 2 indicators: "partially achieved" and "partially achieved").

SCS confirmed that, compared to 2015 Yala (the base year), the percentage of the vegetable seeds available in the market which was up to the minimum standards stipulated by the DOA (i.e., certified vegetable seeds) was increased in 2018 Yala (the target year) and the similar trend continued after that. According to SCS, the percentage of the certified vegetable seeds, produced by GSFs, contract farmers and a very few private companies, had been very small before the project but it was increased drastically after the project completion. Although the exactly calculate data was not available, SCS estimated the percentage was increased from less than 30% in 2015 Yala to more than 50% in 2018 Yala and continued to be more than 50% after that. SCS considered that the estimate was reasonable because, compared to 2015, the total production of the certified vegetable seeds in the country[8] more than doubled in 2018 and more than tripled in 2020 (contribution of the GSFs and the contracted farmers especially increased).[9] The significant increase was promoted by utilization of the outputs of the project such as the seed production manual, enhanced capacity of SPMDC to train seed producers, technologies and laboratory equipment introduced for identification of seed born pathogen and diseases at SCS/SCPPC, etc. Implementation of the Seed Act, which was enforced after the project completion, also encouraged informal seed producers to become the certified seed producers. SCS considered the estimated degree of increase in the target year was appropriate as the one in 3 years after the completion (Indicator 1).

The ratio of the requested basic seeds by the private sector seed producers which was supplied (i.e., the supply rate) by Nikawaratya SPMDC Regional Office was 54%[10] in 2020/21 Maha (target: over 90%[11]). The supply rate was over 90% in 2017 Yala and 2017/18 Maha, but it went down below 90% after that due to several external factors. Nikawaratya SPMDC Regional Office explained that amount of the seed production depended on rainfall, climatic conditions, pest and disease attacks as well as the farmers' choices of the varieties. Even though SPMDC had plans/estimates for the production, the actual amount varied mainly with the above parameters. Less mobility, input and input distribution as well as the farmers' negative perceptions on the selling risks during the COVID-19 pandemic were some other reasons for less production. The basic seed requested by the private sector producers were continuously supplied in the other 3 project sites as well. The credible data on the supply rate was not available, but there was no information that the situation was significantly different in the other 3 project sites (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

According to the AI of the GSF in Aluttarama, contract farmers who had undergone training program conducted by the GSF, using the seed production manual developed under the project, increased their income significantly because of the higher price received to the seed they produced. Based on the observations of these farmers' success, there was a trend of other farmers also to go for seed production. These statements were confirmed by the informal discussion with the 3 trained farmers and field observations in Aluttarama. Negative impacts were not observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Production system for certified vegetable seed is improved in the target areas.	Indicator 1: Number of respondents of both public and private sectors who expressed that information sharing between both sectors is increased.	Status of the Achievement (Status of the Continuation): achieved (continued) (Project Completion) -The number of the participants of the JPP seminars who expressed that information sharing between public and private sectors was increased from 17 persons (85% of the participants) in 2015 to 27 persons (96% of the participants) in 2017. (Ex-post Evaluation) - Although the JPP seminars and the meetings of the SIDCC, established as an outcome of the JPP seminars, were not regularly conducted due to the Easter attack in 2018 and the COVID-19 pandemic in 2020 and 2021, level of information sharing between the public and private sectors enhanced through the project was maintained because communication continued as needed owning to a very good linkage created through the project.	Terminal Evaluation Report (TER), Project Completion Report (PCR), interview survey to Aluttarama and Kundasale SPMDC regional offices and SCS.
	Indicator 2: More than 80% of DOA officials express that Seed related database make their data processing work efficient. (For interpretation of "more than X", see <Special	Status of the Achievement (Status of the Continuation): not verifiable (not continued) (Project Completion) -The sufficient information to verify the achievement status was not obtained. The questionnaire was distributed to 350 DOA officials using the database, but only 5 replied. (Ex-post Evaluation) -The seed-related database did not make the data processing work of the DOA officials efficient because it was not used by them. The database system was not functioning as	TER, PCR, interview survey to SPMDC, SCPPC and SCS.

[8] The project sites are the major vegetable seed producing areas in Sri Lanka. Therefore, even the data is for the whole country, it is considered to significantly represent the production from the project sites.

[9] The total amount of the certified vegetable seeds produced by GSFs, contract farmers, and private companies increased from 40 metric ton (MT) in 2015 to 81 MT in 2018 and 195 MT in 2020. For reference, the total production by GSFs and contract farmers increased from 24 MT in 2015 to 74 MT in 2018 and 142 MT in 2020.

[10] Average of 48% in terms of weight and 60% in terms of number of varieties.

[11] The target figure of the Overall Goal Indicator 2 (for details, see description of the Overall Goal Indicator 2 in the table "Achievement of Project Purpose and Overall Goal" below.

<table>
<tr><td></td><td>Perspectives Considered in the Ex-Post Evaluation>.)</td><td>expected mainly because the access became very slow when many users were in the system; rural users could not feed the data easily due to less signal strength in the internet facilities in their offices or lack of internet facilities in some offices; the database was not user-friendly and appropriate enough for the rural users; and it was very difficult to transfer the work pattern of staff from fully manually adopted practices to the internet based system within a short period of time.</td><td></td></tr>
<tr><td></td><td>Indicator 3: More than 60% of contract farmers who attended seed production trainings apply techniques introduced by the project*
*Use more than one of the techniques introduced by the project.
(For interpretation of “more than X”, see <Special Perspectives Considered in the Ex-post Evaluation>.)</td><td>Status of the Achievement (Status of the Continuation): partially achieved (continued)
(Project Completion)
-More than 60% of the contract farmers who had attended the seed production training applied at least one technique in 2015, but quantitative information was not available after 2015. At the final JCC in 2017, the relevant SPMDC regional offices made positive reports on application status of the introduced techniques by the trained farmers, but there were no reports showing the concrete data.
(Ex-post Evaluation)
-All the introduced techniques except for re-potting were useful for the trained contract farmers in all of the project sites and the trained farmers were using them in their respective farms.</td><td>TER, PCR, informal discussions with AIs of Aluttarama and Kundasale GSFs,
field observation and informal discussions with 3 trained contract farmers in Aluttarama.</td></tr>
<tr><td></td><td>Indicator 4: SCPPC continuously conduct in-service and induction trainings on seed certification using seedling evaluation manual and teaching materials introduced by the project.</td><td>Status of the Achievement (Status of the Continuation): partially achieved (continued)
(Project Completion)
-SCPPC conducted in-service and induction training on seed certification in 2014 and 2015, using the seedling evaluation manual and teaching materials introduced by the project, but not in 2016 and 2017.
(Ex-post Evaluation)
-SCPPC conducted in-service training on seed-certification in 2018. It planned to conduct in-service and induction training on the same topic after 2018, but those plans were not materialized due to the Easter attack in 2019 and the COVID-19 pandemic in 2020 and 2021. They would have been conducted without the Easter Attack and the COVID-19 pandemic.</td><td>TER, interview survey to SCPPC and SCS.</td></tr>
<tr><td></td><td>Indicator 5: Actions are taken in accordance with the action plan developed based on the results of the survey on seed quality available in the market (Seed Quality Survey).</td><td>Status of the Achievement (Status of the Continuation): partially achieved (continued)
(Project Completion)
-Actions were taken for 5 out of the 8 items in the short-term plan in the Seed Quality Action Plan developed under the project.
(Ex-post Evaluation)
-Eight items of the short-term plan and 4 out of 6 items of the mid-term plan were either completed or being implemented. For reference, plans were being formulated for the remaining 2 items of the mid-term plan and both 2 items of the long-term plan.</td><td>TER, interview survey to SPMDC and SCS.</td></tr>
<tr><td>(Overall Goal)

Quantity of vegetable seeds in the market, up to minimum standards stipulated by DOA, is increased.</td><td>Indicator 1: The percentage of vegetable seeds available in the market, which is up to the minimum standards stipulated by DOA, is increased*.
*See <Special Perspectives Considered in the Ex-post Evaluation >.</td><td>(Ex-post Evaluation) partially achieved.
-According to SCS, the percentage of the certified vegetable seeds in the market was drastically increased after the project completion mainly due to significant increase of production of the certified vegetable seeds, especially by GSFs and contract farmers; and to implementation of the Seed Act, which encouraged informal seed producers to become the certified seed producers. Although the exactly calculate data was not available, SCS estimated the percentage of the certified vegetable seeds in the market was increased from less than 30% in 2015 (base year) to more than 50% in the target year (2018) and continued to be more than 50% after that. SCS considered the degree of increase in the target year was appropriate as the one in 3 years after the completion.</td><td>Questionnaire and interview survey to SCS.</td></tr>
<tr><td></td><td>Indicator 2: Over 90% of the requested basic seeds by the private sector seed producers is supplied by SPMDC*.
*See <Special Perspectives Considered in the Ex-post Evaluation >.</td><td>(Ex-post Evaluation) partially achieved
< The ratio of the requested basic seeds by the private sector seed producers which was supplied by Nikawaratya SPMDC Regional Office>
<table><tr><th>Season</th><th>In terms of weight</th><th>In terms of number of varieties</th><th>Average</th></tr><tr><td>(ref) 2016 Yala in 4 project sites</td><td>83%</td><td>73%</td><td>78%</td></tr><tr><td>(ref) 2016/17 Maha in 4 project sites</td><td>66%</td><td>74%</td><td>70%</td></tr><tr><td>2017 Yala</td><td>91%</td><td>186%</td><td>138%</td></tr><tr><td>2017/18 Maha</td><td>98%</td><td>92%</td><td>95%</td></tr><tr><td>2018 Yala</td><td>66%</td><td>86%</td><td>76%</td></tr><tr><td>2018/19 Maha</td><td>41 %</td><td>75%</td><td>58%</td></tr><tr><td>2019 Yala</td><td>43 %</td><td>70%</td><td>57%</td></tr><tr><td>2019/20 Maha</td><td>32%</td><td>64%</td><td>48%</td></tr><tr><td>2020 Yala</td><td>43%</td><td>64%</td><td>53%</td></tr><tr><td>2020/21 Maha</td><td>48%</td><td>60%</td><td>54%</td></tr></table>- The basic seed requested by the private sector were continuously supplied in the other 3 project sites as well. Credible data on the supply rate was not available, but there was no information that the situation was significantly different in the other 3 project sites.</td><td>TER, questionnaire and interview survey to Nikawatya SPMDC Regional Office.</td></tr>
</table>

3 Efficiency

Both the project period and the project cost were within the plan (ratio against the plan: 100% and 98%). The outputs were produced as planned. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The National Policy Framework Vistas of Prosperity and Splendour up to 2030 set forth "expansion of agriculture production by providing good seed and planting materials" as a strategy for agriculture. In addition, the draft of National Agriculture Policy (2021), which focused on 2020-2023, includes "allocation of adequate budget to carry out operations of seed certification process" and "timely supply of imports and /or production of quality inputs including seeds and planting material, at affordable prices" as policy actions.

<Institutional/Organizational Aspect>

Organizational structure of the implementing agencies to promote certified seed production remained unchanged and functioning. The management posts for the regional offices of SPMDC and SCS were not fully filled because, after 2013, there was no recruitment of the management officers through the Sri Lanka Agriculture Service due to internal legal issues of DOA. In addition, there were certain vacancies for extension officers under the regional offices of SPMDC and SCS mainly because some of them preferred working in the headquarters or urban areas. However, the existing minimum management and extension officers under both SPMDC and SCS in the target areas were contributing significantly to cover the duties of other vacant officers and keeping up with all the relevant demands from the seed producers. Good coordination with other relevant organizations such as HORDI, ETC, and SPEC also continued.

<Technical Aspect>

Both SPMDC and SCPPC, including SCS, still had the staff trained in country, Japan and Thailand under this project on different aspects of the techniques or procedures introduced by the project. From time to time, these organizations conducted experience sharing sessions and formal training sessions for the existing staff and on-the-job training for the new staff to sustain the knowledge and skills acquired through the project. Manuals and guidelines developed under the project were utilized in their operations and training[12].

<Financial Aspect>

SPMDC and SCPPC, including SCS, secured enough budget allocations to continue their functions in the certified vegetable seed production from Ministry of Agriculture except for the budget for installing the IT infrastructure facilities for the seed-related database at all the users. In addition, SCS was able to utilize the budget allocated under the Seed Act for the market survey and other related activities.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational aspect of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose of improving production system for certified vegetable seed in the target areas in Sri Lanka due to lack of sufficient data to verify the rate of the DOA officials who expressed that the seed-related database made their data processing work efficient, partial delay of actions according to the Seed Quality Action Plan etc... The effects of the project partially continued mainly due to discontinuation of the regular JPP seminars initiated under the project and non-utilization of the seed-related database by the DOA officials. The Overall Goal of increasing quantity of vegetable seeds in the market, up to minimum standards stipulated by DOA was partially achieved because the percentage of the certified vegetable seeds in the market was estimated to be increased in the project sites but the calculated data was not available; and the supply rate of the basic seeds was 60% of the target at one of the project sites while there was no information to show that the situation was significantly different at the other 3 project sites. As for the sustainability, slight problems have been observed in terms of the institutional/organizational aspect (i.e., existence of vacant posts for the extension staff) but no major problems have been observed in terms of the policy, technical, and financial aspects. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

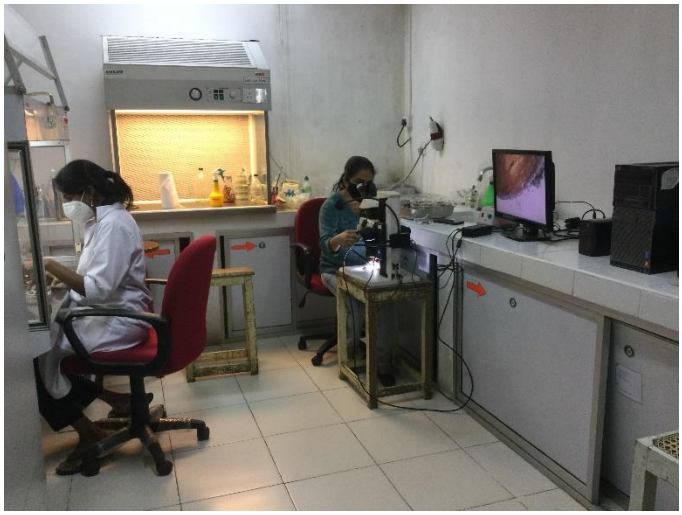
Recommendations for Implementing Agency:

- It is recommended that DOA take required measures immediately to modify the seed-related database (i) to match with the current level of internet connectivity to enable the database to function for multiple users at any time and (ii) to make it easier to add data and generate report which can be used for seed production and distribution planning.

Lessons Learned for JICA:

-For a project related to seed production, it would be useful to conduct proper analysis of the existing situation, obtain enough level of inputs from the implementing agencies, and understand the ground realities in the seed farmers and seedling evaluators, then developing manuals/guidelines as in the case of this project in order to secure continuous utilization after the project completion.

[12] These manuals and guidelines were prepared after appropriate study and analysis of the situation of techniques, process and procedures in the implementing agencies.



Seed Health Testing Unit: SCS staff work on identification of seed born pathogens.

Farmer field: Contract Farmer in Aluththarama area prepared his land for seed farming using the learnt techniques from the project.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Indonesia Office: December, 2022

Country Name	**Project for Enhancement of Nursing Competency through In-Service Training**
Republic of Indonesia	

I. Project Outline

Background	In Indonesia, the health status had improved as shown in infant mortality in tandem with economic growth and enhanced health service delivery. However, various issues were raised; widening gaps between urban and rural areas, the transition of disease structure, anticipated aging society, declining family involvement in health care, heightened role of the private sector in health service provision and education for health personnel. As such, it needed a structure to address those emerging issues to be resolved. As the role of nurses is unquestionably significant, the Government of Indonesia aimed to enhance nursing competency through the introduction of a nursing registration renewal system and the reinforcement of in-service training. In addition, as globalization progressed and human resources in the health sector became increasingly internationalized, Indonesia also urgently needed to train nurses who met international standards. Nonetheless, it was deemed that the in-service training for nursing was compartmentalized by narrowly defined discipline and career training was not systematically implemented.		
Objectives of the Project	Through the introduction of a career development ladder system and four in-service training courses, strengthening of the in-service training program of target subjects, and dissemination of the results of the project, the project aimed at strengthening the in-service training system for enhancement of nursing competency in target areas, thereby contributing to the dissemination of the in-service training system in other areas in Indonesia. 1. Overall Goal: the in-service training system for the enhancement of nursing competency is disseminated in other areas in Indonesia. 2. Project Purpose: the in-service training system for the enhancement of nursing competency is strengthened in target areas.		
Activities of the Project	1. Project Site: Special Capital Region of Jakarta (DKI Jakarta), Provinces of West Java, East Java, North Sumatra, and South Sulawesi 9 hospitals: Fatmawati, Persahabatan, Hasan Sadikin (RSHS), Haji Adam Malik, Dr. Sutomo, Petrokimia Gresik, Hasanuddin University Hospital (RS UNHAS), Dr. Wahidin Sudiro Husodo, North Sumatra University Hospital (RS USU). 5 universities: University of Indonesia (UI), Padjajaran University (UNPAD), Airlangga University (UNAIR), North Sumatera University (USU), Hassanuddin University (UNHAS) 2. Main Activities: 1) Introduction of the Career Ladder System (CLS)[1] in 9 hospitals, 2) strengthening of the in-service training program of 4 target subjects in 5 universities, 3) dissemination of the results to other institutions. 3. Inputs (to carry out the above activities) Japanese Side 1) Experts: 41 persons 2) Trainees received: 131 persons 3) Equipment: training kits for critical care, geriatric nursing, Emergo Train System, etc. 4) Local cost: costs for holding meetings, etc. Indonesian Side 1) Staff allocated: 93 persons 2) Facilities: Offices for the experts in Ministry of Health (MOH) and 5 universities 3) Local cost: Administrative and operational expenses		
Project Period	(ex-ante) July 2012 – June 2017 (actual) Oct 2012 – Oct 2017	Project Cost	(ex-ante) 506 million yen, (actual) 416 million yen
Implementing Agency	Directorate General of Human Resources for Health (DGHR), the Ministry of Health (Due to the administrative reform of MoH in 2015, the responsible unit for the project, the Directorate- General for Health Services formerly known as BUK was restructured as the Board for Development and Empowerment of Human Resources for Health (BPPSDMK). Thereafter, the BPPSDMK was restructured into the DGHR in 2022)		
Cooperation Agency in Japan	None		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

The necessity of supplemental data/information to examine the effectiveness

- According to the terminal evaluation report, due to several reliability issues in the performance of the baseline and end-line surveys such as inadequate data interpretation and poor survey conditions, the results of the surveys could not be used to comprehend the outcome of the intervention. It was thus imperative to check how implementing/relevant agencies have assessed the perceived progress as an achievement in light of the Project Purpose. As such, the status at the time of project completion had to be examined through the survey at the time of the ex-post evaluation.
- Prior to the terminal evaluation, the mid-term review team suggested the indicators be revised to adequately measure the Project Purpose and Output achievement levels. As such, it was recommended to modify the project design to better serve project management to compatibly achieve the multiple objectives. However, despite the recommendation, a substantial discussion was not taken place on befitting indicators. As a result, the Project Purpose was not methodically evaluated in the terminal evaluation. Inevitably, it was impossible to definitively confirm the achievement level of the project at the time of project completion. Therefore, supplementary information through focus group discussions was indispensable for the ex-post evaluation, particularly concerning the workings of the CLS for the long-term benefit of nurses.

[1] The CLS for nurses generically provides a set of professional development tools to reward nurses based on the competence of the nurse through stages. As such, it is designed to encourage retention, increase competency, improve care quality, and have a positive impact on the job satisfaction of nurses.

1 Relevance

<Consistency with the Development Policy of Indonesia at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Indonesia at the time of the ex-ante evaluation. The MoH addressed the importance of developing human resources in the "Healthy Indonesia Program 2010" and the "Strategic Plan of the Ministry of Health" (2010-2014). It was considered important to provide education and training systemically to promote career development for health care workers as well as to enhance the professionalism of health personnel. Furthermore, the ministerial Ordinance issued in 2011 stipulated that all health personnel must pass the National Competency Test and that the Competency Certificate must be renewed every five years. For the renewal, it has become mandatory to obtain 25 credits by participating in continuing education since 2012.

<Consistency with the Development Needs of Indonesia at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Indonesia at the time of the ex-ante evaluation. Since the 25-credit acquisition system was officially introduced in 2012 in order to enhance continuing education for renewal of the certificate, the curriculum, contents, and instructional methods began to be developed. Since the early 90s, the Indonesian National Nursing Association (PPNI) has proposed to introduce a viable system for career development, aiming to enhance the nursing capacity by targeting junior to senior and/or management positions, along with upgrading each area of expertise. Despite much needed, the system was not officially introduced, and for this reason, continuing education was not systematically implemented.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the "Country Assistance Policy for Indonesia" (2012) in which "human resource development in higher education for furthering economic growth" was addressed as one of the priority areas/issues.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved by the project completion. Specific indicators to check the effectiveness of CLS have not been defined. As an alternative measure, each hospital developed the standard operation procedure (SOP) for CLS and harmonized it with existing credential procedure(indicator1). As for the four curriculums for the in-service training courses, Geriatric Nursing was certificated as a National Standard by MoH, while other curricula were in the process of being verified for national verification.(Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been continued since project completion. According to focus group discussions, it was confirmed that, despite some remaining issues to be solved such as an inconsistent evaluation process of CLS, the CLS has functioned as a common career development platform to provide opportunities and options and to enhance the competency of clinical nurses. As for the 4 curriculums of in-service training courses, the target universities have continued the trainings oriented to clinical-based education in collaboration with partner hospitals. Regarding each status of accreditation of the curriculums[2], the Indonesian Emergency and Disaster Nurses Association (HIPGABI) has supported the accreditation process of the curriculums of emergency nursing and disaster nursing at 3 different skill levels. The curriculum of critical care nursing has been accredited as well but for the full-fledged application, it has been under deliberation by the Indonesian Critical Care Nurses Association (HIPERCCI). As for the curriculum of geriatric nursing, the Indonesian Geriatric Nurses Association (IPEGERI) has accredited the basic level. It was reported that the accreditation process for the intermediate level has been finished but the training for trainers has not yet been implemented.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal had been achieved at the time of ex-post evaluation. According to the survey result, the number of hospitals that introduced the CLS was 13 vis-a-vis the target number of 9 (Indicator 1). Furthermore, the number of training institutions that adopted the four training curriculums was 9 vis-a-vis the target number of 9 (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

No other positive and negative impact or ramifications were confirmed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) The in-service training system for the enhancement of nursing competency is strengthened in target areas.	Indicator 1 A list of evaluation results of the effectiveness of the Ladder System.	Status of the Achievement: Partially achieved (continued) Although the institutionalization of the national guideline for CLS had been established, the harmonization of the guideline with the credential procedures of each hospital was still in progress, and therefore, the indicator at the project completion was partially achieved. (Project Completion) • Given the irreversible situation, the following survey items were examined to track down the status of the CLS in the matching time frame. ➢ The national guideline of the CLS for Clinical Nurse was officially issued as a Health Minister decree No. 40 in 2017. ➢ Each hospital developed SOP of the CLS primarily to harmonize the existing Credential procedure. (Ex-post Evaluation) • Despite some inevasible challenges, the significance of the CLS was amply understood by nurses (N=383) in the surveyed hospitals: to incentivize them to develop a career path underpinned by engaging in self-assessment and career mapping, then it would provide the avenues to reach individual goals. Also, nurses have generally perceived that the managerial side has made intelligible efforts to harmonize it with the process of credentials assessment to enhance individual competence and overall service quality.	Terminal Evaluation Report Questionnaire responses from MoH and PPNI Site survey & focus group discussions held in hospitals

[2] The accreditation process of curriculums structurally requires approval from PPNI. To prepare for official endorsement, PPNI requests each sub-association to deliberate it and provide their justifications prior to the approval.

		• Moreover, it was confirmed that hospitals supported the CLS; providing training where they had identified needs based on the given status of competency, internalizing the assessment mechanism in collaboration with the PPNI, and if necessary, peer reviews. It can be inferred that target hospitals have realized the merits of the system to rationalize the remuneration of nursing based on the defined level embedded in the CLS. • Nonetheless, there were several common issues in the workings of CLS as follows: a) Standardization of assessment methods and assessors' arrangement ➢ Necessity to comprehensively set forth and regulate the CLS in terms of assessment methods and suitable assessors' arrangements areas. b) Customization of the CLS ➢ Necessity of expertise in giving proper guidance to operationalize the CLS to accommodate each hospital's specific conditions and specialized areas. c) Data/information management by the Hospital Management Information System (SIM-RS) of each hospital and supervised by MoH ➢ Necessity to integrate the CLS into the SIM-RS to optimize the process of credential assessment with all the service information/data in an intra-network of the hospital. d) Reference framework for systematic leveling for the CLS ➢ Needs for a framework for leveling: the process of establishing the relative value of nursing jobs, responsibilities and their corresponding pay ranges, irrespective of public or private affiliation of the hospitals.	
	Indicator 2 The number of in-service training courses provided by target universities that are qualified as part of the required "25 credits" (target: at least 10).	Status of the Achievement: Partially achieved (continued) Although this indicator was evaluated as inappropriate at time of the terminal evaluation, quantitative measurement of this indicator was not possible because no alternative plan was proposed and agreed upon at the time of the project completion. Since it was not possible to check it retrospectively, the following survey items were verified in order to understand the status of in-service training courses for adjustment period. (Project Completion) • The following survey items were examined to track down the status of in-service training courses in the matching time frame. ➢ The curriculums of 4 selected subjects (emergency nursing, disaster nursing, critical care, and geriatric nursing) were introduced in the 5 target universities during project implementation. ➢ It conducted the ToT to produce trainers of in-service training courses during project implementation. ➢ Draft curriculums were all verified and subsequently finalized during project implementation; however, the accreditation process was not completed by the time of project completion in 2017. (Ex-post Evaluation) • All 5 target universities have continued the in-service training oriented to clinical-based education in collaboration with respective partner hospitals. The survey has revealed that the number of derived training courses (including separated courses by level) is 29 in total. The breakdown numbers in each university are as follows. ➢ University of Indonesia: (although duly introduced, details are unknown) ➢ Padjajaran University: Emergency nursing (2) Disaster nursing (5) Critical care (2), Geriatric nursing (1) ➢ Airlangga University: Emergency nursing (2), Critical care (3), Geriatric nursing (1) ➢ North Sumatera University: Emergency nursing (1), Disaster nursing (1), Critical care (4), Geriatric nursing (1) ➢ Hassanuddin University: Emergency nursing (3), Disaster nursing (2), Critical care (1), Geriatric nursing (--) • The recent notable developments of the 4 curriculums are as follows. a) Emergency nursing ➢ All modules and curriculums for basic, intermediate, and advanced courses have been accredited and approved by the HIPGABI. b) Disaster nursing: ➢ Partly integrated into advanced that of emergency nursing above, yet the module for an advanced course has been separately developed and accredited in 2018. c) Critical care: ➢ Same as above. Yet, a curriculum put forth by HIPERCCI has preceded the curriculum developed by the project as HIPERCCI has not yet approved it due to some issues, notably the required duration of the training. There was a procedural need to discuss the general contents of the version developed by the project with all stakeholders. d) Geriatric nursing[3]: ➢ The basic and intermediate courses were completed in accreditation. Although a standard module for the intermediate level has been finished, the TOT is not yet started. In addition, the advanced course has not yet progressed. IPEGERI has actively explored ways to establish a track record in clinical application.	Terminal Evaluation Report Questionnaire responses from target universities and hospitals

[3] As IPEGERI was established in the recent year 2019, the accreditation might have been pending until then. However, IPEGERI immediately engaged in compiling the curriculum for the basic and intermediate level. It has also initiated a series of networking and stocktaking activities in the field of gerontology.

(Overall Goal) The in-service training system for the enhancement of nursing competency is disseminated in other areas in Indonesia.	Indicator 1 The number of hospitals within and outside target areas that introduce the Ladder System. (Target: at least 9 institutions)	Status of the Achievement: Achieved (Ex-post Evaluation) • In addition to 5 institutions in the targeted areas, 8 institutions outside of the targeted areas (13 institutions in total) have implemented CLS. • Hospitals that introduced the system benefited from its introduction, such as enhancement of nursing competence and wellbeing. Some of the target hospitals have spearheaded the initiative in their respective provinces, RS UNHAS voluntarily introduced the CLS to 44 hospitals in South Sulawesi, Southeast Sulawesi, West Sulawesi, North Sulawesi, and Bali. And RS USU encouraged 8 hospitals in North Sumatera and Aceh to emulate it. Although some of the non-target hospitals remain rudimentary to fully exploit the system, RSCM, Dr. Kariadi Hospital, and RSJ Prof. Dr. Soerojo have methodically applied the CLS across other specialized fields of medicine with the E-credentialing system to fulfill the mission. • In addition, RSJ Prof. Dr. Soerojo's management policy must have been instrumental in streamlining a set of user-friendly standards along with the OSCE (Obstructive Structured Clinical Examination) method, in tune with the concomitant development of IT applications. Dr. Kariadi Hospital has tried to implement the CLS not only for clinical nurses, but also seek wider applications such as for the managerial nurses. Yet, across a broad spectrum, the discernible hurdle in the introduction might be how they should practically link or harmonize it to the remuneration system to ensure the financial viability of each hospital and to retain human resources capacitated within. Table 1: The Number of Hospitals that Introduced the Career Ladder System	Questionnaire responses from Hospital.

No	Hospitals	Province	Cumulative No. of Nurses	Year of introduction
1	RSHS	West Java	1,200	2015
2	Dr. Soetomo	East Java	1,429 (Since 2017)	2013
3	Petrokimia Gresik	East Java	195 (As of 2020)	2014
4	RS UNHAS	South Sulawesi	352	2017-2018
5	RS USU	North Sumatera	97	2016
6	Bethesda	DI Yogyakarta	502	2009
7	Dr. Sardjito	DI Yogyakarta	1070	2013
8	RSCM	DKI Jakarta	1917 (As of 2016)	2013
9	Kemayoran	DKI Jakarta	98	2017
10	Tebet	DKI Jakarta	69	2022
11	Duren Sawit	DKI Jakarta	198	2015
12	RSJ Prof. Dr. Soerojo	Central Java	395	2013
13	Dr. Kariadi	Central Java	1,651	2014

Indicator 2 The number of training institutions within and outside target areas that adopt training curriculums improved by the project. (Target: at least 9 institutions)	Status of the Achievement: Achieved (Ex-post Evaluation) • As stated above, the certification process was smooth in getting approval from the association, there were no outstanding issues in adopting 4 training curriculums in 5 target universities and outside of the four (4) target universities • Regarding the states of non-target universities, it needs to consider a structural basis in context. Conventionally, any university with a nursing degree course is supposed to use the curriculum developed by AIPNI with the approval of the Ministry of Education, Culture, Research, and Technology, not the MoH. • Therefore, 5 target universities must have voluntarily integrated the said curriculums into existing ones based on the perceived upside of change. Health Polytechnics are, on the other hand, placed under MoH and they use the curriculum developed by AIPVIKI (Association of Vocational Nursing Education Institutions) authorized by MoH. Thus, it explains that Health Polytechnic would have had better access to the curriculum developed by the project. Table 2: A List of Training Institutions Which Adopted the Four Training Curriculum (Emergency nursing/ Disaster nursing/ Critical care/ Geriatric nursing)	Questionnaire responses from MoH and PPNI

No.	Institution	Province	Cumulative No. of Students
1	North Sumatera university	North Sumatera	501
2	Padjajaran University	West Java	526
3	Airlangga University	East Java	521
4	University of Indonesia	West Java	575
5	Hasanuddin University	South Sulawesi	493
6	Health Polytechnic II	DKI Jakarta	234
7	Health Polytechnic III	DKI Jakarta	240 (2018-2020 only)
8	Bandung Health Polytechnic	West Java	297
9	Diponegoro University	Central Java	439

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 82%), the project period was slightly exceeded (ratio against the plan: 101%). The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

MoH has issued a series of regulations pertinent to the advancement of the healthcare system and quality of nursing service after project completion: "Minister of Health Decree No. 40" in 2017 on "Clinical Nurse Professional Career Level Development", the "Minister of Health Decision Letter No. HK.01.07/MENKES/425/2020" on "Professional Standards in Nursing" specified competency standards as well as professional code of ethics", and the Minister of Health Decree No. 04 in 2022 on "Functional Nursing Job in the Public Hospital." To respond to Decree No.40, some hospitals have readily formulated managerial policy and developed necessary guidelines and SOP for steady implementation of the introduced system. Also, as the faculty policy, some surveyed universities have supported the improvement of clinical-based education and studies through hands-on experiences gained by strong partnerships with hospitals.

< Institutional/Organizational Aspect>

The roles and responsibilities of MoH to oversee the healthcare system and the quality of nursing service have not been changed. However, regarding the DGHR, it was a relatively new unit derived from organizational reform after project completion in 2022. That may suggest difficulties in directing and monitoring required to complete the system development and possible brain drain of skilled counterpart personnel along with the dissolution of BUK, the former counterpart of the project. On another note, although the Centre for Training of Human Resources for Health (PUSLAT) was formerly in charge of the curriculum accreditation, after the reform, the Directorate for Quality Improvement of Health Workers (PUSKAT MUTU) has been responsible for all accreditations. It may have adversely affected the processing of curriculum accreditation procedures during the transition period. Regarding the hospitals and the universities, as each is seen as a foothold for further improvement, it was confirmed that trained staff members have generally been placed to engage in the activities, especially to lead the CLS process.

<Technical Aspect>

According to the survey results, PPNI has taken up a significant role in methodically promoting the competency of nurses through developing standards of professional conduct and the provision of continuous learning opportunities. Under the umbrella of PPNI, sub-associations of specialized fields of nursing: HIPGABI, HIPERCCI, and IPEGERI, have engaged in making respective training curriculums to warrant the quality. As for the hospitals, those involved have been amply motivated to sustain the knowledge and skills as the CLS has created a win-win situation for both sides of hospitals and universities. Participating nurses have found rewarding opportunities in hands-on training and periodic assessment in clinical practice. They have also collaborated with PPNI in nursing to have discussions to assess the outcome of the CLS in order to provide continuous updates by international standards. On the other hand, although there are varying degrees of opportunity and support in gaining clinical experience, university faculty members have studied and conducted research through training and seminars for nurses in the fields of clinical nursing.

<Financial Aspect>

According to the survey result, it was explained by MoH that the national budget may not be allocated to continue the monitoring and evaluation after 2020 in the same way as committed in the Record of Discussion of the project. Due to a vacancy in a senior decision-maker (director level) on budgeting in MoH as of March 2022, the amount budget was not clearly confirmed. On the other hand, most hospitals have labored to appropriate money for the CLS implementation in hope of balancing out the anticipatory investment eventually by generic quality enhancement in nursing. At universities, like others, they have managed to keep the expenses for the in-service training courses within a set budget based on the annual work plan of faculty. Some universities may not have afforded to extend the in-service training outside of the institution as there were no paying arrangements to remunerate for their outreach activity.

<Evaluation Result>

In light of the above, Slight problems have been observed in terms of the Institutional/Organizational and financial aspects of the implementing agency. Therefore, the sustainability of the effects through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose and achieved the Overall Goal. It was deemed that the introduction of the CLS and in-service training curriculums have substantively enhanced the overall competency of clinical nurses as it has been well underway to become an integrated system. As for sustainability, despite financial uncertainty such as an insufficient budget allocation in some institutions, the improvement has been unswervingly driven by hospitals and universities under the auspices of MoH. As for efficiency, the project period slightly exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

(1) Further improvement for applicability and dissemination of the CLS in all hospitals

- Based on the achievement of the CLS implementation for clinical nurses, it is recommended to further examine the enabling factors and to proactively apply CLS to other professional nurses in both public and private hospitals in all provinces of Indonesia, as well as to improve CLS for dissemination. For the efficient dissemination on its own merits, MoH needs to take an ICT-based open-innovation approach; the e-portal would ensure accessibility for all-encompassing stakeholders to learn from both success and failure based on well-documented experiences of the CLS in the pilot hospitals. To orchestrate wide application and harmonization, such a functional approach may be eventually efficient for a reality check and identification of latent challenges in practice in terms of adept regulatory actions ensuing the Minister of Health Decree No.4 in 2022.

(2) Further improvement of the curriculums of in-service training courses

- MoH should steer and facilitate harmonization of the in-service training curriculums in tandem with the concerned sub-associations and PPNI, most urgently with HIPERCCI for the field of Critical Care at this juncture in time. Updating the in-service training curriculums is needed in order to be substantially connected to the local situation and social demand, not to mention being fully complied with the Government's regulations. It is recommended that MoH should explore the outcome and remaining issues of the project constructively and fully collaborate with resourceful networks formed during and after project implementation.

(3) Approaches to securing financial resources for CLS

- Even in the situations where the national budget was not allocated as planned, some universities have been able to secure their budgets through self-helps efforts, for example, by reallocating the remuneration system for outreach activities to the budget for CLS.

It is recommended that MoH provide opportunities for the universities without the budget for CLS to share information on the experience and methods of the universities that have been able to secure the budget.

Lessons Learned for JICA:

(4) Collection of detailed information and its reflection in the framework of the project

- The project scope covered activities beyond of the jurisdiction of MoH activities. The curriculum of critical care submitted by the project has been virtually omitted as unapproved, since HIPERCCI, the linchpin in the formal approval process, was not properly consulted during project implementation. Once such a critical issue became clear and considered beyond the control of the counterpart, it should have immediately engaged related professional organizations to iron out differences. It is thus imperative to exhaustively collect pertinent information from various stakeholders, acting as a strategic network hub, especially regarding the structural arrangement of the authorization process before or during project implementation.

(5) Dissemination of the outcomes

- Disseminating the lessons learned from the project could have contributed to deepening the understanding of the outcome in non-pilot yet, potentially interested hospitals and universities. As prescribed in the Overall Goal, dissemination was presumed, but it was not deliberately strategized to carry out at the least cost incurred after project completion. In retrospect, project outputs would have been disseminated further if they could share the best practices to showcase that the benefits would be generic for growth-oriented parties in non-project areas as well. As a first step of the dissemination strategy, it could have set up expert committees or discussion groups steered by MoH in conjunction with the plenary conference of the key association (e.g. the Annual Working Meeting hosted by PPNI).

Learning Activity for Bachelor Student of Geriatric Care Unit in UNPAD using Aging simulator

Clinical Competence Assessment for Intensive Care Unit Nurses from PK 2 to PK 3 in RSHS

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Fiji Office: March, 2023

Country Name	**the Project for the Rehabilitation of the Medium Wave Radio Transmission**
Republic of Fiji	

I. Project Outline

Background	In Fiji, an island nation composed of more than 330 islands, radio broadcasting was an effective means of conveying information to the people surely and rapidly. Medium wave (MW) radio, provided by Fijian Broadcasting Company (FBC), however, was unstable and extremely limited in coverage because sufficient transmission output could not be secured due to age-deterioration of transmitters installed in 2000 and repairing of broken-down parts on a stopgap basis. In addition, the MW antenna installed in 1953 needed immediate renewal due to aging, wear and tear. Frequency Modulation (FM) broadcasting was continued, but its transmission range was narrower than that of MW radio broadcasting due to its structure, which was limited to Viti Levu, the largest island in the country where the capital Suva was located, and urban areas of Vanua Levu. As the MW radio broadcasting was the only radio broadcasting in Fiji, which could convey disaster information to remote islands, its rehabilitation was urgently needed.					
Objectives of the Project	This project aimed to rehabilitate MW radio transmission in Fiji by procuring and installing MW radio broadcasting equipment such as MW antenna, transmitters, etc. and constructing a radio transmitter house of FBC, thereby contributing to reliable and rapid conveyance of disaster information, etc. to the people in the country.					
Contents of the Project	1. Project Site: Naulu Rewa (about 10 km north-east from central Suva) 2. Japanese side: Provision of grant necessary for procurement and installment of MW radio broadcasting equipment (1 lot of MW antenna system, 1 lot of MW transmitter (558 kHz), 1 lot of MW transmitter (990 kHz), 1 lot of change-over switch and dummy load, 1 lot of power supply equipment, 2 sets of air conditioners, 4 sets of ISDN codecs, 1 lot of maintenance equipment and tools, 1 lot of spare parts and consumables, and construction of a radio transmitter house (56.0 m^2) at FBC Naulu Transmission Station[1]. 3. Fiji side: Provision of temporary storage area for the procured equipment, removal of the existing antenna, implementation of test broadcasts, etc.					
Project Period	E/N Date	August 31, 2015	Completion Date (ex-ante)	May 2017	Completion Date (actual)	August 14, 2017 (Date of hand over)
	G/A Date	August 31, 2015				
Project Cost	E/N Grant Limit / G/A Grant Limit: 865 million yen			Actual Grant Amount: 862 million yen		
Executing Agency	Fijian Broadcasting Corporation (FBC) *; Ministry of Economy as the Project Responsible Agency[2] *The name of FBC was changed to Fijian Broadcasting Corporation after the project completion in 2017.					
Contracted Agencies	Main Contractors: NBK Corporation Main Consultant: Yachiyo Engineering Co., LTD.					

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

・ The target area of the assumed impact mentioned in the Ex-ante Evaluation Sheet (i.e., "Contribution to reliable and rapid conveyance of disaster information, etc. to the people in Fiji") excluded Rotuma Island according to the Minutes of Discussions of the project.

1 Relevance

<Consistency with the Development Policy of Fiji at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the project was consistent with the Roadmap for Democracy and Sustainable Socio-Economic Development (2010-2014) of the Government of Fiji, which recognized information and telecommunication as well as disaster reduction and disaster management as in important policies and set forth universal access to information and improvement of community response capacity in dealing with disasters and risks.

<Consistency with the Development Needs of Fiji at the Time of Ex-Ante Evaluation >

At the time of ex-ante evaluation, the project was consistent with development needs of Fiji for rehabilitation of the MW radio transmission as described in "Background". In addition, it was consistent with the organizational needs of the FBC, which was commissioned by the government to implement emergency broadcasts in the event of natural disasters such as cyclones, tsunami, flooding, etc.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the project was consistent with the Japanese ODA policy toward Fiji, which included assistance to strengthen the capacity to cope with natural disaster[3].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project achieved its objective of rehabilitation of MW radio transmission in Fiji. As for quantitative effects, all the major equipment

[1] Construction of the transmitter house was included in the installation work of the transmitters.

[2] At the time of ex-ante evaluation, the Ministry of Public Enterprise, which had jurisdiction over FBC and other public enterprises, was assigned as the Project Responsible Agency. The Ministry was abolished before the project completion in 2017 and FBC fell under the jurisdiction of the Ministry of Economy, Civil Service, and Communication.

[3] ODA country data collection (2014).

procured and the transmitter house constructed under the project were maintained in good condition and utilized as originally intended. The number of audible population increased from 780 thousand people to 883 thousand people (target: 880 thousand people) (Indicator 1), the broadcasting interruption time decreased from 100 hours/year to 8 hours/year (target: 8 hours/year) (Indicator 2), and the power consumption decreased from approximately 55 kWh to approximately 34 kWh (target: approximately 38kWh) (Indicator 3). With respect to qualitative effects, the broadcasting quality of the MW radio was improved as a result of the project because the signal quality was improved. Provision of the MW radio broadcasting service, including disaster information, became stable because the rehabilitated MW radio broadcasting system was very stable in contrast to the system before as sufficient transmission output was secured. FBC recorded no breakdowns from 2018 onwards with the procured equipment, which also led to good uptime of the service.

<Impact>

As assumed at the time of ex-ante evaluation, the MW radio transmission rehabilitated through this project contributed to reliable and rapid conveyance of disaster information, etc. to the people in the country (except for Rotuma Island). The rehabilitated MW radio broadcasting system acted as a reliable backup for the (FM) radio broadcasting system for the blanket coverage to the whole country (except Rotuma Island) during the tropical cyclones when remote FM stations were damaged[4]. News transmitted through the rehabilitated MW radio broadcasting system, including disaster information and any health-related information such as COVID-19 situation, were conveyed to the general public rapidly because they were announced on hourly basis. Other positive impact was also observed. The MW broadcasting was the only lifeline for information for the maritime areas, where there is no FM coverage available. So, with the rehabilitation of the MW radio transmission, the general public in these areas were better informed of any disasters, public health, education and agriculture related activities. They were also able to receive timely updates on the current affairs as well.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Baseline 2014 Baseline Year	Target 2020 3 years after Completion	Actual 2018 1 year after Completion	Actual 2019 2 years after Completion	Actual 2020 3 years after Completion	Source:
Indicator 1: Number of audible population (thousand people) (*1)	780	880 (*2)	883	883	883	FBC and Census (2017)
Indicator 2: Broadcasting interruption time (hours/year)	100 (*3)	8 (*4)	8	8	8	FBC
Indicator 3: Power consumption (kWh)(*5)	Approx. 55	Approx. 38 (*6)	Approx. 34	Approx. 34	Approx. 34	FBC

*1: Number of audible listeners is calculated based on the estimated population of coverage area.

*2: Estimated population of entire area of Fiji excluding Rotuma Island.

*3: Interruption due to problems with the existing broadcasting equipment.

*4: Interruption due to minimum necessary stoppages for maintenance work

*5: Power consumption is calculated assuming that output is 10kW.

*6: It was estimated that electricity saving ratio would be about 30% through adopting the energy saving transmitters to be procured by the project.

3 Efficiency

While the project cost was within the plan, the project period[5] slightly exceeded the plan (ratio against plan: 100% and 104% respectively). The reason why the actual period slightly exceeded the planned period could not be identified. Meanwhile, the outputs of the project were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional/Organizational Aspect>

The 5-Year Development Plan (2017-2021) and the 20-Year National Development Plan (2017-2036) launched in 2017 set forth "inclusive socio-economic development" and its strategy was designed "to empower every Fijian and to widen the reach of programmes, services and networks of infrastructure". At FBC, operation and maintenance (O&M) of the procured equipment and the constructed transmitter house fell under Director of Technical Operations. In total, 2 technicians were allocated (an experienced technician, who had received the on-the-job training (OJT) in O&M of the procured equipment and the constructed transmitter house by the Japanese supplier of the procured equipment under the project[6], and a junior technician). Although the trained experienced technician felt the needs for some more staff, the minimum necessary number of staff was secured because the procured equipment and the installed transmitter house were kept in good condition. It is noted that FBC was planning to outsource the maintenance of all TV and radio equipment, including the transmitter houses to WALESI[7] from mid-2022 in order to establish the stable and O&M system and, for that, it will request necessary budget to the Ministry of Economy. As mentioned in footnote 6, WALESI had 3 former FBC technicians trained under the project. In addition, FBC is planning to provide intensive training for WALESI technicians by the Japanese supplier after the outsourcing contract is completed so that proper maintenance of the procured equipment and the constructed transmitter house would be ensured. FBC is planning to outsource the maintenance of all the whole MW radio broadcasting system inclusive of the transmitter house, antenna system, antenna tuning unit and all relevant equipment. Once these are in place, FBC will have to continuously operate this equipment as this is the only

[4] The recent example was the Tropical Cyclone Yasa in 2020. FBC relied on the MW transmission rehabilitated through the project to keep the northern parts of the country covered while damages to the FM stations were rectified.

[5] The signing month of the contract with the consultant for the detailed design (DD) was used as the starting point. The signing month of the G/A was not used for the starting point because the planned period mentioned in the Ex-ante Evaluation Sheet (23 months) did not include the period between the signing of the G/A and procurement of the consultant for the DD according to the Preparatory Survey Report.

[6] Although 4 FBC technicians received the OJT by the Japanese supplier under the project, 3 of them transferred jobs to WALESI, a government-owned TV company, after the project completion in 2017.

[7] For reference, WALESI had already been contracted by FBC for maintenance of the TV equipment.

communication channel available for the remote maritime islands and also used a backup of FM broadcasting during natural disasters and emergency situation.

<Technical Aspect>

FBC technicians acquired necessary skills and knowledge to conduct proper O&M of the equipment procured and the transmitter house installed under the project. All the manuals provided under the project are kept well and referred to, when needed. The trained experienced technician who remained with FBC was able to conduct proper O&M and the junior technician learnt from the trained experienced technician through the OJT. In addition, FBC had contacted the Japanese supplier to provide OJT by the marker to enable the other 3 technicians to learn and conduct proper O&M of the procured equipment and the constructed transmitter house.

The OJT planned for 2021 was not materialized due to the travel restrictions posed by the COVID-19 pandemic and is planned for 2022 once travel restrictions is eased.

FBC was planning to make the OJT by the Japanese supplier regular one. In the case that the FBC's plan to contract out maintenance of all TV and radio equipment to WALESI is materialized, proper maintenance of the procured equipment and the constructed transmitter house is also expected to be ensured as explained in <Institutional/Organizational Aspect>.

<Financial Aspect>

Necessary budget for O&M of the procured equipment and the installed transmitter house was secured from the budget of FBC, including Public Service Broadcasting fees allocated by the Ministry of Economy. FBC also set aside 400,000 Fijian Dollars annually for renewal of the procured equipment after 8 years.

<Current Status of Operation and Maintenance>

Regular maintenance activities were conducted as planned and necessary spare parts and consumables were properly procured in a timely manner.

<Evaluation Result>

No major problems have been observed in the institutional/organizational, technical, financial aspects and current status of the operation and maintenance system. Therefore, sustainability of the project effects is high.

5 Summary of the Evaluation

The project achieved its objective of rehabilitation of MW radio transmission in Fiji and the assumed impact of contribution to reliable and rapid conveyance of disaster information, etc. to the people in Fiji was observed. Regarding the sustainability, no major problems have been observed in the institutional/organizational, technical, financial aspects and current status of the operation and maintenance system. As for the efficiency, the project period slightly exceeded the plan. Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- Currently, all procured equipment is working well and maintained properly by FBC; however, FBC has only 2 staff members responsible for O&M and in the case of unlikely event that FBC loses their staff, it may not be able to continue proper maintenance. FBC's future plan to outsource the equipment maintenance to WALESI from mid-2022 is a practical and effective way to prepare for the staff shortage and to establish efficient and robust system to continue maintenance over the long term. In order to ensure that this plan is implemented, FBC is recommended to secure the necessary budget by mid-2022 and will implement as planned.

Lessons Learned for JICA:

- Even after the completion of this project, a good relationship was established between FBC and the Japanese supplier of the procured equipment and FBC made regular orders for after-sales services and training in O&M. In a grant aid project in which Japanese equipment is to be installed, it is effective that JICA would clarify the service requirements after the completion of the project at the preparatory survey and include them in the design specifications. It will contribute to the executing agency being able to receive appropriate service including both charged and non-charged even after the completion of the project.

MW Radio Broadcasting Equipment procured under the project

Outside of MW Transmitter House constructed under the project.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Malaysia Office: April, 2022

Country Name	**Project on Sustainable Development for Biodiversity and Ecosystems Conservation in Sabah**
Malaysia	

I. Project Outline

Background	Sabah State is one of the few places on earth still blessed with mega-biodiversity, which is not only vital to the sustainable socio-economic development of the State but also a treasure for all humankind. Conservation of its biodiversity and ecosystems is of utmost importance. JICA supported the Malaysian Federal and Sabah State Governments through the Programme for Bornean Biodiversity and Ecosystems Conservation (BBEC) Phase 1 and 2 as technical cooperation projects. The Programme Purpose of BBEC/Phase 1 (February 2002–January 2007) was "Comprehensive and sustainable approach for conservation is established," while BBEC/Phase 2 (October 2007–September 2012) aimed "A system for biodiversity and ecosystem conservation in Sabah is strengthened and Sabah State becomes capable of extending knowledge and skills on biodiversity conservation to other states of Malaysia and foreign countries." The authorities concerned of the Government of Malaysia had set the implementation of the Sabah Biodiversity Strategy (SBS), prepared under BBEC/Phase 2, as a next step to be taken and requested the Government of Japan for this project, which is known as SDBEC.		
Objectives of the Project	Through 1) strengthening management system of biodiversity and ecosystem conservation in Sabah, 2) sharing Sabah's experiences in biodiversity and ecosystem conservation nationally and internationally, the project aimed at promoting biodiversity and ecosystem conservation for sustainable development in Sabah, thereby contributing to making Sabah become known as the Asian Centre of Excellence for biodiversity conservation and sustainable development nationally and internationally. 1. Overall Goal: Sabah is known as the Asian Centre of Excellence for biodiversity conservation and sustainable development nationally and internationally. 2. Project Purpose: Biodiversity and ecosystem conservation for sustainable development in Sabah is promoted with national and international recognition.		
Activities of the Project	1. Project Site: State of Sabah, especially (i) Core and Buffer Zones of Lower Kinabatangan and Segama Wetlands (LKSW) – Ramsar Site – and its River Basin and (ii) Core, Buffer and Transition Zones of Croker Range Biosphere Reserve (CRBR) under the UNESCO Man and Biosphere (MAB) Programme.[1] 2. Main Activities: (1) Supporting necessary revision of the SBS, developing a monitoring system for the SBS, preparing the CRBR management plan, collaborating with other programmes and donor agencies; piloting livelihood improvement in Tudan Village and Sintuong-Tuong/Kiporing Village in the Buffer Zone of CRBR, organizing training in Communication, Education and Public Awareness (CEPA), etc. (2) Compiling Sabah's experience into documents, undertaking studies on sustainable financing mechanisms for biodiversity, participating in/hosting national and international conferences, sharing experience to policy formulation processes at the national level, supporting organizations for publicity and media strategy, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 38 persons 2) Trainees Received: 66 persons 3) Equipment: PCs, Portable GPS, Spectrophotometer, Laboratory equipment for soil analysis 4) Local Cost: Construction of the Tudan community hall etc. Malaysian Side 1) Staff Allocated: Staff from 15 different agencies 2) Land and facilities: Project office, telephone line, and other office maintenance 3) Local Cost: International workshop-related Cost etc.		
Project Period	(ex-ante) February 2013 – January 2017 (actual) July 2013 – June 2017	Project Cost	(ex-ante) 236 million yen, (actual) 208 million yen
Implementing Agency	Sabah State Government Agencies: Natural Resources Office (NRO), Sabah Biodiversity Center (SaBC), Sabah Forestry Department (SFD), Sabah Parks (SP), Sabah Wildlife Department (SWD), Environment Protection Department (EPD), Department of Irrigation and Drainage (DID), etc. Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah (ITBC-UMS)		
Cooperation Agency in Japan	Ministry of Environment		

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to the COVID-19 pandemic, it was difficult to collect information from some of the implementing agencies. The field survey was not possible for the same reason. Therefore, this evaluation is based on the limited information provided by some of the implementing agencies, which managed to cooperate with the study under difficult circumstances.

<Special Perspectives Considered in the Ex-Post Evaluation>

- Series of third country training programmes (TCTPs), namely, "Integrated Biodiversity" (FY2013–2015) and "Integrated Biodiversity and Ecosystem Conservation" (FY2016–2019) were implemented, and a JICA Partnership Project (JPP), "Establish Local ESD Activity Bases for Sustainable Biodiversity Conservation and Ecosystem Services" (2019–2022) is undergoing in the Sabah State. The counterpart agencies/personnel of this project (SDBEC) have been continuously engaged in the above-mentioned programmes and project. Also, the terminal evaluation team's

[1] The BBES Phase 1 and 2 supported the registration of these areas under international initiatives. LKSW was registered as a Ramsar Convention site in 2008, and CRBR was to be declared as a Biosphere Reserve under the UNESCO MAB Programme at the time of ex-ante evaluation of this project.

recommendations for SDBEC have been followed up in the TCTPs and the JPP. Therefore, they may have contributed to the outcomes and impacts of this project.

1 Relevance

<Consistency with the Development Policy of Malaysia at the Time of Ex-Ante Evaluation>

This project was consistent with development policy at both the Federal and State levels at the time of ex-ante evaluation. At the Federal level, the 10th Malaysia Plan (2011–2015) set out "valorization of our environmental endowments" as one of the "10 big ideas." The plan also identified the "five drivers" to transform the nation into a high-income economy, and one of them was "creating an environment that improves the quality of life." Under this driving force, the "seven focuses" were identified. One of them was "to ensure that modern Malaysians fulfill their responsibilities to future generations through the wise management and conservation of existing resources." At the State level, the Direction of Sabah State Development and Advancement (development plan of the state) (2003) stipulates that certain areas should be reserved for the conservation of natural resources to support healthy ecosystems with introducing the concept of zoning.

<Consistency with the Development Needs of Malaysia at the Time of Ex-Ante Evaluation>

This project was consistent with the needs for conserving Sabah's biodiversity and ecosystems, such as through the implementation of the SBS as mentioned in "Background" above. Also, after the BBEC Phase 1 and 2, more emphasis was given to sustainable development to accomplish conservation.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

This project was consistent with Japan's ODA policy. One of the priority areas for ODA policy to Malaysia at the time of ex-ante evaluation was to "Support balanced development toward becoming a developed country" that included environmental conservation.[2]

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

The project achieved its Project Purpose by the time of project completion. The SBS, prepared under the BBEC Phase 2 and approved by the Sabah State Cabinet in December 2014, was revised with the support of this project and launched in October 2016. The project's activities contributed to the SBS implementation through the pilot projects[3] (Indicator 1). Although the State Government's official endorsement of the CRBR management plan prepared by this project was delayed due to institutional issues, the pilot projects were virtually deemed to be part of the implementation of the CRBR management plan, which was an element of the SBS. The progress of the SBS implementation was monitored and reported to the Sabah Biodiversity Council (Indicator 2). As the project proactively disseminated Sabah's experience and knowledge on biodiversity and ecosystem conservation through domestic and international conferences etc., some are referred to as good practices in National Policy on Biological Diversity in Malaysia (2016–2025) (Indicator 3). Two additional sites were registered under international initiatives of biodiversity conservation – (i) CRBR as a Biosphere Reserve (BR) for the UNESCO MAB Programme (June 2014) and (ii) Kota Kinabalu Wetland as a Ramsar Convention site (October 2016) (Indicator 4).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

The project effects have continued to the time of ex-post evaluation. SaBC has monitored the SBS progress annually, and the reports were presented to the Sabah Biodiversity Council. SaBC acts as the secretariat and monitoring body, and the Council acts as the steering committee. The CRBR management plan has yet to be endorsed by the State Government: the plan requires approval by the State Cabinet, but it is difficult to reach approval because of the jurisdiction of multiple agencies. Nevertheless, the annual plan of the CRBR management plan, which only requires approval by the steering committee, has been approved, implemented, and monitored regularly. UMS has been involved in CEPA. In the former pilot project sites, livelihood activities have continued with support from the Department of Agriculture and ITBC-UMS. The NRO, ITBC-UMS, and other government agencies, together with NGOs, continued to organize the TCTP up to 2019. The TCTP was financially supported by the Malaysian Technical Cooperation Programme (MTCP) under the Ministry of Foreign Affairs, Malaysia, and JICA. In addition, there has been significant progress on financing mechanisms that the project studied: the concept of Payment for Ecosystem Services (PES) and Conservation Finance was approved by the Sabah State Cabinet in 2018, and a way to the introduction and regulation of the ecosystem conservation fee has been opened through the drafting of an enactment known as the Ecosystem Conservation Authority Enactment 2020 for the purpose of and in relation to the sustainable financing or funding of conservation, management, protection and rehabilitation of the ecosystem and natural resources.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

The Overall Goal has been achieved at the time of ex-post evaluation. At least 635 researchers visited Sabah for studies on biodiversity conservation and sustainable development from 2017 to 2020 (Indicator 1). More than six visitors visited Sabah for media coverage on biodiversity conservation and sustainable development from 2019 to 2021 (Indicator 2). More than six articles were published in international scientific journals regarding Sabah's experiences/initiatives on sustainable development and biodiversity conservation from 2018 to 2021 (Indicator 3). Sabah's contribution to the achievement of the Aichi Target (included in the Strategic Plan for Biodiversity 2011–2020 adopted at the Tenth Meeting of the Conference of the Parties (COP10) to the Convention on Biological Diversity (CBD)) was evidenced in the Sixth National Report of Malaysia to the CBD in 2019 (Indicator 4).

<Other Impacts at the Time of Ex-Post Evaluation>

Negative impacts were not observed. As a positive impact, SaBC mentioned women empowerment: through the pilot project in Tudan Village, women from the village were involved in the capacity development activities. Currently, several of the women are leading several activities and the village management committee. Also, one of the main counterpart Prof. Charles S. Vairappan, Professor of Natural Products Chemistry at the Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, received the Foreign Minister's Commendation in recognition of his contribution in promoting education and research between Japan and Malaysia including activities through this project.

[2] Ministry of Foreign Affairs, "ODA Country Data Collection" (2012).

[3] The pilot projects aimed to balance conservation and sustainable development through incentive creation and livelihood improvement in communities adjacent to the protected areas and included activities such as compost and biochar making, bee-keeping and mulberry cultivation and processing.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="4">(Project Purpose)
Biodiversity and ecosystem conservation for sustainable development in Sabah is promoted with national and international recognition.</td><td>Indicator 1
The project activities contribute to SBS Implementation.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
The SBS was revised with the support of this project and launched in October 2016. The project's activities contributed to the SBS implementation through pilot projects.
(Ex-Post Evaluation)
The SBS has been implemented.</td><td>source: Terminal Evaluation Report, Questionnaire with SaBC</td></tr>
<tr><td>Indicator 2
Indicator 2: The progress of SBS is monitored in the formalized way and reported to the Biodiversity Council/Chief Minister.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
The revised SBS includes a monitoring system. The progress of the SBS implementation was monitored and reported to the Sabah Biodiversity Council.
(Ex-Post Evaluation)
SaBC has monitored the SBS progress annually, and the reports were presented to the Sabah Biodiversity Council.</td><td>source: Terminal Evaluation Report, Questionnaire with SaBC</td></tr>
<tr><td>Indicator 3
Sabah's experience and knowledge on biodiversity and ecosystem conservation are referred as good practices nationally and internationally.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
The National Policy on Biological Diversity in Malaysia (2016–2025) refers to the SBS as a good practice of gazetting protected areas and the Tagal (traditional fisheries resource management in Sabah) as a good practice of using fishery resources sustainably while conserving biodiversity.
(Ex-Post Evaluation)
See the Overall Goal Indicators 1 and 2.</td><td>source: Terminal Evaluation Report, Questionnaire with SaBC</td></tr>
<tr><td>Indicator 4
At least 1 additional site is registered under international initiatives on biodiversity conservation and/or existing site(s) is expanded.</td><td>Status of the Achievement (Status of the Continuation): achieved (continued)
(Project Completion)
Two additional sites. (i) CRBR was declared as a BR for the UNESCO MAB programme in June 2014. (ii) Kota Kinabalu Wetland was registered as a Ramsar Convention site in October 2016.
(Ex-Post Evaluation)
These registration statuses have not changed up to the time of the ex-post evaluation.</td><td>source: Terminal Evaluation Report, Questionnaire with SaBC</td></tr>
<tr><td rowspan="3">(Overall Goal)
Sabah is known as the Asian Centre of Excellence for biodiversity conservation and sustainable development nationally and internationally.</td><td>Indicator 1
At least 20 researchers visit Sabah for studies on biodiversity conservation and sustainable development in 5 years.</td><td>(Ex-Post Evaluation) achieved
<table>
<tr><th></th><th>2017</th><th>2018</th><th>2019</th><th>2020</th></tr>
<tr><td>No. of international researchers newly visited Sabah for study</td><td>172</td><td>173</td><td>200</td><td>90</td></tr>
<tr><td>Theme of studies</td><td colspan="4">Ecology (tropical, wildlife, marine, terrestrial), Taxonomy, Wildlife Management, Wildlife Monitoring, Conservation Genetics</td></tr>
</table></td><td>source: Questionnaire with SaBC, Government of Malaysia</td></tr>
<tr><td>Indicator 2
At least 5 visitors visit Sabah for media coverage on biodiversity conservation and sustainable development in 5 years.</td><td>(Ex-Post Evaluation) achieved
<table>
<tr><th>Name of the media</th><th>Date</th><th>Volume/pages/</th><th>Topic, outline</th></tr>
<tr><td>Daily Express (local newspaper)</td><td>December 22, 2019</td><td>1</td><td>Sabah's Conservation rated 'satisfactory'</td></tr>
<tr><td>The Star Online</td><td>June 19, 2018</td><td>1</td><td>Time to protect biodiversity</td></tr>
<tr><td>Judi Dench's Wild Borneo Adventure Airing Tonight</td><td>July 2, 2019</td><td>TV (2-part series)</td><td>Judi Dench's Wild Borneo Adventure Airing Tonight Judi Dench's Wild Borneo Adventure Airing Tonight</td></tr>
<tr><td>New Strait Times</td><td>August 20, 2021</td><td>1</td><td>Conservation and Covid-19 issues main focus in strengthening US-Sabah ties</td></tr>
<tr><td>New Strait Times</td><td>April 8, 2021</td><td>1</td><td>Degraded forest reserves in Sabah can be restored through tree-planting</td></tr>
<tr><td>TV1 RTM</td><td>May 26, 2021</td><td>Episode 7 (S8) in Rona Sabah</td><td>'Herba Hutan Asal Bukit Mahawis' dalam Rona Sabah (Sabah Indigenous Herbs Garden in Timbou, Tambunan District, Sabah).</td></tr>
</table></td><td>source: Questionnaire with SaBC and ITBC-UMS</td></tr>
<tr><td>Indicator 3
At least 5 articles are published at international scientific journals regarding Sabah's experiences/initiatives on sustainable development</td><td>(Ex-Post Evaluation) achieved
Many articles including the following were published.
<table>
<tr><th>Name of the article</th><th>Year</th><th>Name of the journal</th></tr>
<tr><td>Sustainable development and environmental stewardship: the Heart of Borneo paradox and its implications on green economic transformation in Asia (a chapter in Routledge Handbook of Sustainable Development in Asia)</td><td>2018</td><td>Taylor & Francis</td></tr>
</table></td><td>source: Questionnaire with SaBC</td></tr>
</table>

	and biodiversity conservation in 5 years.	Exploring Tourists' Knowledge, Perceptions and Willingness to Pay on Biodiversity Conservation: Insights from Kinabalu Park, Borneo	2021	IOP Science Conference Series	
		The Practice of Biodiversity -related Indigenous Knowledge in Kota Belud, Sabah: A Preliminary Study	2019	Pertanika Journal of Social Science and Humanities	
		Integrating Sunda clouded leopard (Neofelis diardi) conservation into development and restoration planning in Sabah (Borneo)	2019	Science Direct	
		The Impact of Environmental Education (EE) on the Society's Awareness, Responsibility, and Attitude towards the Development of a Lifelong Attitude of Pro-Conservation Behaviour in Kota Kinabalu, Sabah	2021	IOP Conference Series	
	Indicator 4 Visible evidence is observed in the report to be prepared by the Malaysian Government regarding Sabah's contribution to the achievement of Aichi Target.	(Ex-Post Evaluation) achieved The Sixth National Report of Malaysia to the CBD (December 2019) mentions the contribution of Sabah on multiple pages.			source: Questionnaire with SaBC and the mentioned report

3 Efficiency

The project cost and the project period were within the plan (the ratio against the plan: 88% and 100%, respectively). The outputs of the project were produced as planned. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Conservation of biodiversity and ecosystem in Sabah have been supported by the National and State Governments as evidenced in the 12th Malaysia Plan (2021–2025) (under "Socio-Economic Development in Sabah and Sarawak") and Sabah's Strategic Long Term Action Plan (2016–2035) (under "Sabah as a Smart Green State: Towards Green Industry and Services"). Also, the concept of PES and Conservation Finance was approved by the State Cabinet in 2018. Furthermore, the Department of Agriculture (DOA)'s certification of good agriculture practices such as myGAP (for good agricultural practices) (2001–) and myOrganic (for organic farming) (2007–) promotes conservation of resources and biodiversity.

<Institutional/Organizational Aspect>

There have not been any big changes in the organizational structure/setting to promote conservation of biodiversity and ecosystems, i.e., SaBC (under NRO) as the secretariat for the SBS and the Sabah Biodiversity Council as the Steering Committee. The DOA and ITBC-UMS are also continuously involved in capacity development in sustainable development and awareness (CEPA), respectively. Regarding staffing, SaBC stated that the number of staff is not enough to continue necessary activities. SaBC is in the process of increasing the number of staff, although it is challenging as the appointment of new staff need to go through the approval of the Ministry of Finance and the Sabah Public Service Commission.

<Technical Aspect>

According to SaBC, the technical level has been sustained with necessary skills through continuous training.

<Financial Aspect>

According to SaBC, the Federal Government and the State Government have allocated the necessary budget according to the Malaysia Plan and the State Government's Action Plan, respectively. Also, through the MTCP, the Federal Government allocated a budget to implement the TCTP 2019 through a cost-sharing basis with JICA. ITBC-UMS has secured its funding from the Ministry of Higher Education and financial assistance from private funding bodies.

<Evaluation Result>

In light of the above, a slight problem has been observed in terms of the institutional aspects of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose by the end of the implementation period as the biodiversity and ecosystem conservation in view of sustainable development was promoted in Sabah through the implementation support of the SBS, the pilot livelihood projects, and sharing of their experiences and knowledge. After project completion, the project effects have continued through the implementation of the SBS with various activities, including livelihood improvement and CEPA in the target areas. The Overall Goal has been achieved as Sabah has been known for biodiversity conservation and sustainable development in both academic and press. As for sustainability, a slight understaffing problem was found in the institutional/organizational aspect, but all the other aspects were in adequate condition.
Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

Counterpart agencies are recommended to continue cooperating to keep Sabah known as the Asian Centre of Excellence for biodiversity conservation and sustainable development nationally and internationally.

Lessons Learned for JICA:

- It was found that one of the main counterpart Prof. Charles S. Vairappan, Professor of Natural Products Chemistry at the Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, received the Foreign Minister's Commendation in recognition of his

contribution in promoting education and research between Japan and Malaysia. Such a good practice was made possible by continuously keeping good relationship utilizing JICA schemes.

- While making an environment project successful is generally challenging due to its nature of involving various stakeholders, this project has achieved the expected outcomes, which might have largely attributed to the long-term cooperation between JICA and Malaysia in Sabah.

Skeleton of Borneo Elephant was reconstructed in the project. It is used for an environmental education after the project.

Plantation activities for reversing oil palm farm to natural forestry by “Establish Local ESD Activity Bases for Sustainable Biodiversity Conservation and Ecosystem Services”

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Saint Lucia Office: December 2022

Country Name	the Project for Improvement of Fishery Equipment and Machinery in Grenada
Grenada	

I. Project Outline

Background	The fisheries industry is an important industry in Grenada besides tourism and agriculture. However, the reduction of coastal marine resources due to overfishing in the entire Caribbean region, including Grenada, became an issue. The Caribbean Community (CARICOM) established the Caribbean Regional Fisheries Mechanism (CRFM) in March 2003, and CRFM began activities aimed at managing fisheries resources throughout the region. For sustainable use of fishery resources, it was important to introduce resource-management fisheries to reduce fishing pressure in coastal areas and to distribute fishery products to the maximum without loss. However, another issue in Grenada was the aging of main fishery equipment, such as refrigerating equipment, most of which had been developed under the past Japanese grant aid projects, and this problem would lead to distribution losses due to the deterioration of freshness of landed fish.					
Objectives of the Project	This project aimed to improve fishery product distribution and fishery management in Grenada by upgrading and replacing equipment and machinery at three existing fishery complexes, installing submerged fish aggregating devices (FADs), and installing equipment for information processing and marine environment measurement, thereby contributing to the sustainable use of fishery resources.					
Contents of the Project	1. Project Site: Melville Street, Grenville, Gouyave, and Offshore (Caribbean side and Atlantic side). 2. Japanese side: Provision of grant necessary for the procurement of (a) refrigerating system including ice plant and cold storage (2 locations with the conversion of specified chlorofluorocarbon (CFC) refrigerants to ammonia refrigerants[1]), (b) compressor and supplemental oil tanks for the existing ice plant (1 location), (c) submerged FADs (3 offshore locations), (d) PCs and a server (4 locations including Fisheries Division), and (e) equipment for fisheries environmental monitoring (1 set). 3. Grenada side: Removal and storage of cylinders filled with waste refrigerant, dismantling of existing equipment/materials to the outside, etc.					
Project Period	E/N Date	September 25, 2014	Completion Date (ex-ante)	December 2015	Completion Date (actual)	September 22, 2016 (Completion of installation of equipment)
	G/A Date	September 25, 2014				
Project Cost	E/N Grant Limit / G/A Grant Limit: 484 million yen, Actual Grant Amount: 403 million yen					
Executing Agency	Ministry of Agriculture, Lands, Forestry, Fisheries and the Environment (MALFFE)					
Contracted Agencies	Main Contractor(s): Marubeni Protechs Corporation Main Consultant(s): System Science Consultants Inc.					

II. Result of the Evaluation

<Constraints on Evaluation>

・ Due to the Covid-19, both Grenada and Japanese sides faced the difficulty in usual communication filling out the questionnaire as well as carrying out the site visits. Following travel restrictions, quarantine measures and work from home policy, it took extra months to complete the survey. As a result, JICA St. Lucia Office contracted the CRFM to support the office in implementing a smooth evaluation process. This evaluation report is a result reflecting such constraints and limited site visits.

<Special Perspectives Considered in the Ex-Post Evaluation>

・ This evaluation excluded Indicator 1, "ice/fish ratio," from the ground for judging effectiveness since it might not accurately represent the effect of using the cooling equipment procured by the project as fish catches fluctuate due to external factors.[2] Therefore, we used "ice production volume" as the alternative indicator for ice/fish ratio. In this project, sales of ice is originally expected as part of the qualitative effect, but we collected quantitative data.[3]

1 Relevance

<Consistency with the Development Policy of Grenada at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the project was consistent with the Fisheries & Aquaculture Policies for Grenada: 2012 with its target year of 2020. Its basic vision is stated as "the sustainable stewardship and conservation of aquatic resources." Among its issues, the modernization of technology, investment in the fish distribution infrastructure, and proper management of resources are stated.

<Consistency with the Development Needs of Grenada at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, there was a need to improve fish distribution and fishery management promotion, as mentioned in "Background" above.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

In the Assistance Policy to Grenada (April 2014), the fisheries sector is stated as one of the important assistance fields (midterm target) and is commented to continue the cooperation for its sustainable development and management of fisheries.

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[1] In accordance with the Montreal Protocol on Substances that Deplete the Ozone Layer, which aims to phase-out or to reduce the production and consumption of CFC and hydrochlorofluorocarbon (HCFC) and substitute with hydrofluorocarbon (HFC) such as R404a or natural refrigerants such as ammonia.

[2] The preparatory survey report for the Project for Improvement of Fishery Equipment and Machinery in Antigua and Barbuda (2015). It is found that the ice/fish ratio in Grenada has the same problem as Antigua and Barbuda.

[3] The use of ice production or ice sales as an alternative indicator to ice/fish ratio was confirmed as reasonable by a JICA fishery expert in the ex-post evaluation of the Project for Improvement of Fishery Equipment and Machinery in Saint Lucia (2021).

<Evaluation Result>
In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project's objective, namely, "to improve fish distribution and to promote fishery management," was partially achieved in the target year (2019) as the two quantitative indicators were partially achieved, and the qualitative effects manifested to some extent.

Regarding the improvement of fish distribution, the refrigerating equipment procured under this project was in operation in all target fisheries complexes in the target year, but the operation has become less frequent over time due to troubles with ammonia machines, and the one at Melville Street Fisheries Complex has not operated since September 2018. The Fisheries Division of the MALFFE, the executing agency, considers that ammonia as the refrigerant has the maintenance difficulties; technicians were hesitant and not sufficiently equipped to work or maintain the ammonia machines,[4] and to compound the problem, there were two technicians trained to maintain the units islandwide when the project was implemented (the number of trained refrigeration technicians currently has been reduced to one person). Accordingly, the ice production volume (Alternative to Indicator 1) was 55% of the target value in 2019 and less in 2020. Under this situation, a certain level of fishery product freshness has been achieved because ice is available to some extent, but the systems have not provided the quantity of ice required (therefore, ice is also purchased from private fish processors).

Regarding the promotion of fishery management, two of the three submerged FADs deployed by this project have been in use. The one around Victoria on the northwest side, where the water is very deep, was lost and never found (the FADs did not have a marker head). The registered number of fishers operating at the point of the submerged FADs as their fishing ground (Indicator 2) increased and reached the target for the two FADs (333 fishers, simply assuming two-thirds of 500, the target for the three FADs). According to the Fisheries Division, there is a need for approximately five additional submerged FADs to be deployed to meet the target of 500 since, despite the idea at the time of the ex-ante evaluation of this project, 500 fishers fishing around three FADs is now considered unsustainable as they could lead to overfishing and conflicts. At the time of the ex-post evaluation, fishers throughout Grenada are engaged in FAD fishing on the east coast of Grenada, where the two submerged FADs are located. Indeed, the deployment and promotion of FADs by this grant aid project and a technical cooperation project, the Caribbean Fisheries Co-Management Project (CARIFICO project, 2013-2018), have been effective and successful. FAD fishing has transformed the fishing industry. Fishing has become a lucrative business; fishers spend less time searching for fishing grounds, fuel consumption is reduced, and by extension, fishing has become more sustainable and profitable. The Fisheries Division acknowledged that JICA experts had done an excellent job promoting the use of FADs technology sustainability. FAD regulations have been developed both formally and informally for the management of the resources.

The effects of the equipment for fishery statistics and marine environment monitoring were not fully observed. Although computers have been used, some equipment, e.g., the server and the environment monitoring equipment, have not been used due to logistical and technical issues within the Fisheries Division and limited human resources. The server was never installed because the onshore facilities in the parishes do not have internet. One computer is in Grenville, but the location of the others could not be verified since staff have left the Division or are deceased. The environment equipment was sent to the Produce Chemistry Laboratory of the MALFFE for storage, and its use could not be verified. Additionally, there is no human resource to deal with environmental sampling at the time of the ex-post evaluation. There is no biologist, and there is no lab space within the Fisheries Division.

<Impact>

The expected impact of this project, namely, "contribution to the sustainable fishery development," has manifested to some extent. As mentioned above, the deployment of the submerged FADs, coupled with the institutional development supported by the JICA CARIFICO Project, have enhanced fishers' awareness of fishery resources management and improved their socio-economic status and livelihoods. No adverse impacts were observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicators	Baseline 2015 Baseline Year	Target 2019 3 Years after Completion	Actual 2017 1 Year after Completion	Actual 2018 2 Years after Completion	Actual 2019 3 Years after Completion	Actual 2020 4 Years after Completion	
Indicator 1: Ice/fish ratio	2.1−3.5	2.1−3.5 or higher	N.A.	N.A.	N.A.	N.A.	source: Ex-ante Evaluation Sheet
Alternative to Indicator a: Ice production volume (t/day) (Note)	10	10 or higher	10	9.5	5.5	3.5	source: Fisheries Division
Indicator 2: Registered number of fishers operating at the point of submerged FAD as their fishing ground (persons/year)	0	500	100	200	350	N.A.	source: Ex-ante Evaluation Sheet, Fisheries Division

Note: The target value for the Alternative to Indicator 1 follows the idea in Indicator 1, where the target value is defined as being above the baseline value.

3 Efficiency

While the project cost was within the plan, the project period exceeded the plan (ratio against the plan: 83% and 156%, respectively). The project implementation was delayed due to a delay in the conclusion of the Banking Agreement, a delay in the installation of the refrigerating equipment due to insufficient capacity of some engineers (subsequently resolved with guidance from the manufacturer, etc.), and rechecking

[4] Ammonia refrigerants differ from freon refrigerants in maintenance and management methods. In particular, if ammonia leakage occurs due to mishandling during drain venting, etc., its toxicity (corrosiveness and odor) may lead to accidents, so adequate handling techniques are required. It should be noted that no ammonia leaks or other problems have occurred to date due to the handling of ammonia equipment.

of all welding points due to some refrigerant leaks. The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional/Organizational Aspect>

There is an organizational structure for operation and maintenance (O&M) of each of the equipment procured by this project. As is planned, Fisheries Division is responsible for O&M of the refrigerating equipment at fisheries complexes and the equipment for fishery statistics. For the submerged FADs, Grenville FAD Fishers Organization (GFFO), a fishers' organization established based on the co-management approach with the Fisheries Division and fishers, is responsible for O&M. The marine environment monitoring equipment is under the responsibility of Produce Chemistry Laboratory of the MALFFE. An issue is the availability of skilled personnel; according to the Fisheries Division, there are a number of vacant posts to be filled or replaced, and the O&M has been affected directly due to a decline in staff replacement and recruitment.

<Technical Aspect>

For the refrigerating equipment, as already mentioned, there is an issue of insufficient knowledge on the use and maintenance of ammonia equipment (introduced by this project) while the situation varies by site. At Grenville Fisheries Complex, the technician has been able to maintain the facilities (although facing regular breakdowns); at Melville Street Fisheries Complex, the technician could not diagnose issues surrounding the ammonia units, and the equipment has not been operated; at Gouyave Fisheries Complex, the refrigeration system still uses R404a since the existing equipment had been still in good condition at the time of the ex-ante evaluation; therefore, there is no problem in the technical aspect of O&M (although the operation is limited due to availability of spare parts). At the time of the ex-post evaluation, there is no training offered on ammonia systems. Also, the Fisheries Division commented that its skills and capacity for marine environment monitoring were not sufficient (the Fisheries Division have not engaged in environmental monitoring activities and use of equipment due to a lack of human resource).

<Financial Aspect>

The budget for all fish markets (fisheries complexes), including the maintenance budget for ice machines and chill rooms, is $ 90,000.00 XCD (the budget for O&M is not available for individual fisheries complexes). While a certain amount of budget seems to be allocated for facilities that are in operation, the Fisheries Division considers that the amount is not sufficient. It also pointed out that there are too many different makers of machines/equipment, which makes it very costly to maintain, especially in terms of the purchase of spare parts.

<Current Status of Operation and Maintenance>

At the time of this survey, some facilities were facing maintenance issues, as already mentioned. In particular, the ammonia equipment has not performed to its optimum production. The equipment in Grenville is in operation although there are regular breakdowns and the water pumps are leaking water constantly. In Gouyave, not all refrigeration units are working. Leakage of refrigerant and corrosion of some parts are reported. Even maintenance is given, sourcing of spare parts is an issue. The equipment in Melville Street has only worked for a few months and has been shut down for several years. In terms of plans for these facilities, it is expected that some small refrigeration units that produce ice at 1t/day be received under grant aid by the Ministry of Foreign Affairs of Japan. However, these are not sustainable for commercial purposes. They are approximately 16 machines – 3 for Melville Street, 3 for Grenville, 1- for Carriacou, and 3/2 for Gouyave.

Regarding the submerged FADs, the remaining two are in good condition. As for the computers, they are used for multiple disciplines. However, the PCs are not linked up to the server currently. Therefore, data cannot be transferred from the fish markets to the head office electronically as intended. Also, internet service was not available at the fish markets.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects and the current status of the operation and maintenance system. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project partially achieved the objective of improving fish distribution and promoting fishery management as the ice production and offshore FAD fishing did not reach the target due to problems with some equipment. Nevertheless, the increase in FAD fishers utilizing the FADs is a noteworthy achievement. Regarding sustainability, some problems were found in the institutional/organizational, technical, and financial aspects and the status of some equipment mainly due to insufficient staffing, skills, and budget for O&M. For efficiency, the project period exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to the Executing Agency:

- Ice production using the ammonia ice machines did not produce the expected outcomes due to a lack of appropriately trained technicians and financial difficulty in sourcing spare parts. However, given the recognition that the replacement of this equipment and the choice of appropriate refrigerants going forward would require substantial human, technical and financial resources, the Government of Grenada is expected to continue its efforts to secure such resources. In the meantime, the Government should provide training opportunities for technicians in the maintenance of ammonia equipment. Technical support from St. Lucia which has ammonia equipment in operation could be an option for such training opportunities.
- Water environment sanitation data demanded by countries importing marine products has not been developed due to the lack of trained personnel. The Fisheries Division is recommended to recruit staff and provision of training in the use of the environmental monitoring equipment in order to provide appropriate sanitation data.
- The Fisheries Division and its branch offices in Melville Street, Grenville, and Gouyave have not become better able to expedite fisheries statistics due to a lack of server installation and unavailability of the internet at market locations. The Fisheries Division is recommended to install the server procured under this project and provide appropriate internet services at market locations in order to expedite fisheries statistics.
- There is a need for approximately five additional submerged FADs to be deployed to meet the target of 500 fishers since the Fisheries Division does not promote overcrowding of the FAD. The Fisheries Division is recommended to seek resource mobilization through donor funding/project to support the construction and deployment of additional FADs to mitigate overcrowding of the current FADs and promote fishers' awareness of fishery resources management.

- The Fisheries Division is encouraged to continue to adopt the co-management approach on the development of FAD fisheries between fishers and the Fisheries Division for the sustainable use of fishery resources through FADs, including those procured under this project.

Lessons Learned for JICA:

- The deployment and promotion of FADs have been the effective and successful among projects executed in Grenada by JICA. The socio-economic status and livelihoods of FAD fishers have been improved, and fishers have become more aware of fisheries resource management through the development of FAD regulations. When introducing FAD fishing, the installation of FADs could go with the introduction of the collaborative co-management approach regarding the development of FAD fisheries with fishers and the Fisheries Division.
- This evaluation found an insufficient use of and maintenance of some equipment (e.g., PCs and the server) to expedite fisheries statistics. In order to improve for higher usability, it is recommended to consider including other related uses of the equipment beyond the existing scope of work. For example, equipment such as PCs and the Server can be used not only for managing fisheries but also for managing the distribution of fishery products. Thus, in future development of a similar project, this may be included in the scope of the project under the distribution of fishery products to enhance responsible traceability and effective fishery management. In addition, at the time of outline design, it is necessary to confirm the prospects for operation and maintenance of the PCs and servers, including the internet connection at the locations where they will be installed.
- Ice production has been reduced due to a lack of appropriately trained technicians and financial difficulty in sourcing spare parts. The ammonia ice machines were considered to be difficult to handle considering the current technical level in Grenada. As special techniques are required to handle ammonia refrigerant that has toxicity, technicians were hesitant and not sufficiently equipped to work or maintain the ammonia machines, and to compound the problem, there was a limited number of two trained technicians to maintain the units island-wide. The number of trained refrigeration technicians currently has been reduced to one person. While the obligations of the recipient country to maintain and use properly and effectively the equipment provided under the project are clearly stated, due to financial constraints, countries cannot always allocate the necessary personnel and operational and maintenance budget to ensure effective collaboration and upkeep. The ease of procuring spare parts and frequency of replacement needs to be taken into account when developing obligations for grant aid, given the varying environmental conditions, costs, and shipping. Also, the human and financial constraints of developing countries need to be taken into account.

Tower and pump of the evaporative condenser, chill room, and ice maker at Melville Street Fisheries Complex

Compressor system, ice maker with drums, and control panels at Grenville Fisheries Complex

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Bolivia Office: March, 2022

Country Name	Project for Introduction of Clean Energy by Solar Electricity Generation System （el Proyecto para Introducción de Energía Limpia por Sistema de Generación de Electricidad Solar）
Plurinational State of Bolivia	

I. Project Outline

Background	In Bolivia, over 59% of the electric power output was generated by thermal power and 39% by hydropower in 2013. The rest of the power output (2%) was generated by biomass. In the same year, the total power generation capacity reached 1,682.3 MW in the national interconnected system and independent systems: thermal power accounted for 1,188.5 MW and hydropower accounted for 493.8 MW. The Government of Bolivia considered the promotion of research work and the introduction of renewable energies in order to enhance national independence in energy for which it requested assistance to the Government of Japan.					
Objectives of the Project	To increase power generation capacity, diversify power sources, and raise awareness of people of Bolivia for utilization of renewable energy by procurement of photovoltaic (PV) system and related equipment in the Viru Viru International Airport and the Major University of San Andrés (Universidad Mayor de San Andrés: UMSA) as well as technical assistance for capacity building of technical personnel, and thereby contributing to the demonstration of Japan's initiatives for promoting collaborative efforts by both developed and developing countries against climate change.					
Contents of the Project	1. Project Site: La Paz City and Santa Cruz City 2. Japanese side (1) PV generation systems (UMSA: 50kW, Viru Viru International Airport: 315kW) (PV modules, power conditioner, transformer, data recording devices, power display board, and others) and PV system spare parts and maintenance tools (2) Technical assistance (soft component): Training on basic knowledge, technical characteristics, preventive inspection, operation, and maintenance (O&M) including the emergency response of grid-connected PV system 3. Bolivian side: Land acquisition and preparation, other expenses related to the procurement of equipment and contracted agent which was not covered by grant aid and its interests					
Project Period	E/N Date	March 19, 2010	Completion Date (ex-ante)	February 2015	Completion Date (actual)	July 21, 2017
	G/A Date	August 31, 2010 March 20, 2012 (Amendment 1) January 9, 2013 (Amendment 2) November 8, 2013 (Amendment 3)				
Project Cost	E/N Grant Limit / G/A Grant Limit: 440 million yen　　Actual Grant Amount: 440 million yen					
Implementing Agency	Major University of San Andrés (UMSA), Administration of Airports and Auxiliary Services to the Air Navigation (AASANA)[1]					
Contracted Agencies	Main Contractor: Marubeni Protechs Corporation Main Consultant: Nippon Koei Co., Ltd. Agent: Crown Agents Ltd.					

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- The project was extended for two years and completed in 2017. For verification of qualitative effects, target figures were set as objectives three years after completion in the ex-ante evaluation. Therefore, the actual achievement in 2020 was compared for with these target figures in the ex-post evaluation.

1 Relevance

<Consistency with the Development Policy of Bolivia at the Time of Ex-Ante Evaluation>

In the "National Development Plan" (2006-2011), one of the main policies was to introduce renewable energy, including solar energy, and to conduct research and development in order to establish energy independence as a nation. In addition, one of the medium-term goals (2011-2015) was to increase the supply of electricity through the development of renewable energy. Bolivia ratified the 3rd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) and Kyoto Protocol. Thus, the project was consistent with the development policy of Bolivia at the time of ex-ante evaluation.

<Consistency with the Development Needs of Bolivia at the Time of Ex-Ante Evaluation>

At the time of ex-ante evaluation, the power outputs were generated by thermal power, hydropower, and biomass in Bolivia, and there was a need for the introduction of renewable energy including solar power in order to enhance the national independence in energy.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

One of the priority areas was productivity improvement through regional development. Promotion of infrastructure development was emphasized for the country's sustainable economic growth, especially electricity and roads[2]. In addition, the project was implemented under a scheme of "Program Grant Aid for Environment and Climate Change", which the government of Japan newly introduced in 2008 in order to support developing countries with the willingness to contribute to the mitigation of climate change but with lack of capacity and fund to balance between their economic growth and greenhouse gas reduction." Thus, it was consistent with Japan's ODA policy at the time of ex-ante evaluation.

[1] Se anunció en diciembre de 2021 que AASANA sería desmantelada dentro de dos años por la decisión del gobierno (Decreto Supremo 4630) y que su propiedad sería asumida por una nueva entidad.

[2] Ministry of Foreign Affairs, "ODA Databook" (2013).

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project objectives, namely increase in power generation capacity and reduction of CO_2 emission at UMSA and AASANA have been partially achieved. As quantitative effects, power generation at the transmission end mostly reached the target value at only UMSA three years after the project completion (Indicator 1). In 2018, the PV systems of both plants were disconnected for five months, due to pending requirements between the regulatory authority and distribution companies. Since 2019, power generation has been mostly as planned at UMSA. AASANA has outsourced the O&M work of the PV plant to the electric power company named ENDE Guaracachi since 2019. In 2020, unforeseen disconnection occurred during the period of the COVID-19 pandemic, as there were restrictions on access to the facility at AASANA. Furthermore, since there has been no economic benefit from connecting to the grid of the Rural Cooperative of Electrification (Cooperativa Rural de Electrificación: CRE), it has been difficult for ENDE Guaracachi to sustain has not had enough motivation for the operation of the PV plant. ENDE Guaracachi has requested to utilize more space near the PV plant to expand the facility and increase power generation capacity to 5 MWp[3]. The estimated reduction of CO_2 emission achieved the target value at only UMSA (Indicator 2). As supplemental information, power generation has contributed to the reduction in electricity consumption by 18% compared to before the project at UMSA. On the other hand, the PV system of AASANA has not been connected to any airport facility but just to the air-conditioning equipment of the PV plant not for sales, and thus AASANA has recognized only little benefit of the PV system for them.

As qualitative effects, firstly, UMSA has operated and maintained the PV system as expected. UMSA cleaned the system and evaluated its functions in 2018 and 2019, and prepared the maintenance plan and some technical documents for 2020 and afterward. Also, the Institute of Investigation on Electric Engineering (IIIE) has carried out monthly activities to report to the Electric Engineering Department of regarding the power generation. ENDE Guaracachi has performed periodic inspections of the PV plant to verify its operation, cleaning of panels, maintenance of air conditioning equipment and green areas. ENDE Guaracachi has kept a monthly record of power consumption and production. Secondly, UMSA conducted various activities to explain to the public about the effectiveness of the PV plant and its contribution to the environment, such as i) training on PV power with the grid connection system for technicians of the electric power sector, university and institutions in 2017 in collaboration with the Vice Ministry of Electricity and Alternative Energies (Viceministerio de Electricidad y Energías Alternativas: VMEEA) and the German Corporation for International Cooperation (GIZ), ii) seminars for students of various courses of the Electric Engineering Department in 2020 and 2021, and iii) seminars for teachers and students of Virgen de Copacabana School (secondary school) in 2021. Also, AASANA conducted training on PV energy with the grid connection system for technicians of the electric sector in 2017 in collaboration with VMEEA and GIZ and received students of two high schools (Doming Savio and Isabel Saavedra) and two other organizations to explain the PV system and its advantages in 2018. However, such explanatory sessions have not been carried out to the public at AASANA, because it is not included in the agreement with ENDE Guaracacchi

<Impact>

In 2017, the Partners' Group in the energy sector was created to promote coordination, communication, and exchange between the Government of Bolivia and international donors on issues related to the renewable energy and electricity policy. JICA has assumed the leadership of this group since February 2020. Thus, it can be said that Japan's initiative for promoting measures against climate change has been demonstrated through the implementation of the project.

Several other positive impacts have been reported by UMSA. Firstly, thanks to the UMSA and AASANA's PV plants which have worked as Pilot Plants of the solar electricity generation system, the Government of Bolivia enacted Supreme Decree No. 4477 in 2021 on distributed generation to encourage electricity generation for self-consumption through grid-connected renewable sources especially PV energy. The enactment of the decree, as well as a decrease in the price of the PV panels and accessories, has motivated more and more individuals and companies to install the PV system and distribute power generation. This has resulted in the need for training for individuals, companies, and academic institutions. IIIE of UMSA has been working on the development of a diploma course on PV system engineering, and it has been planned that the case of O&M of UMSA's grid-connected PV system would be included in the course modules. Secondly, taking advantage of the installation of the PV plant, UMSA has worked on projects so that undergraduate students of the Electrical Engineering Program could graduate as electrical engineers. Thirdly, as the PV plant has been established on the campus, more female students have come to get interested in alternative energies, especially photovoltaic solar energy than before.

There have been no negative impacts by the project including those on the natural environment.

<Evaluation Result>

In light of the above, the project objectives have been partially achieved. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

		Baseline (2013) Baseline Year	Target (2018) 3 year after Completion	Actual (2018) 1 year after Completion	Actual (2019) 2 year after Completion	Actual (2020) 3 year after Completion	Source
1. Power generation volume at transmission end (MWh/year)	AASANA	0	374	158	275	162	AASANA
	UMSA	0	80	52	77	78	UMSA
	Total	0	454	210	352	240	
2. Estimated reduction of CO_2 emission (ton/year)*1	AASANA	0	228	96	168	99	AASANA
	UMSA	0	48	31	47	48	UMSA
	Total	0	277	127	215	146	

*1: The estimated reduction of CO_2 emission at AASANA and UMSA was calculated by multiplying the generation output by the emission reduction unit. The unit used in the ex-ante evaluation was 0.61. The same unit was used in the ex-pot evaluation.

3 Efficiency

[3] According to the agreement exchanged between AASANA and ENDE, AASANA will provide ENDE with 15 hectares of land for 30 years as a free deposit under the Supreme Court decision, and then ENDE will transfer the land to ENDE Guaracachi, which will build and operate a power plant to supply the population of Santa Cruz and the country.

Although the project cost was as planned (ratio against the plan: 100%), the project period exceeded the plan (ratio against the plan: 211%). This is because much time was needed for the bidding process and customs clearance which required many documents. Also, there was a change of authority and counterpart personnel during the project implementation period, and thus it took time to explain them about the project and get approval for activity implementation. On the other hand, the outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional/Organizational Aspect>

UMSA has sustained the organizational structure for O&M of the PV system. It has appointed the personnel responsible for the operation, maintenance, and materials and maintenance tools, supervised by the director of IIIE. The personnel in charge of O&M of the PV plant have been a research professor and a research assistant. They have monthly used 64 hours for O&M work in 2020 and 2021, which has been hindering their research work. For the PV system at AASANA, ENDE Guaracachi has assigned a manager and an electrical engineer, and they have considered that the number of personnel has been sufficient for O&M of the PV plant. However, as explained earlier, ENDE Guaracachi has not been enough motivated for operating a small plant without financial return, and there has not been a certainty to continue the agreement, according to ENDE Guaracachi and AASANA.

<Technical Aspect>

At UMSA there was training for the personnel for O&M of the PV system in 2018, but since 2019 no training has been conducted. However, the assigned personnel have known electric engineering and thus been capable of O&M of the PV system. Also, the manual developed by the project has been referred to for preparing the maintenance plan and developing the undergraduate Electrical Engineering Program. UMSA has planned to utilize the data and information that they have collected for future training. ENDE Guaracachi has trained its personnel with the information provided by AASANA. Besides, ENDE Guaracachi has a training system per its policy and procedure. As ENDE Guaracachi has operated bigger power plants, there has been no problem for their O&M of the PV system at AASANA.

<Financial Aspect>

Although UMSA has secured more budgets than planned, they have not been sufficient. Most of the budgets have been for remuneration of O&M for the researcher and research assistant and salary of the security guard which had not been expected at the preparatory survey. UMSA has desired to include the budget after 2022 for hiring exclusive personnel for O&M. AASANA did not assign any budget for O&M of the PV plan because they do not have mandate for the operation of PV plant. However, since the agreement with AASANA, ENDE Guaracachi has annually budgeted an amount dedicated to the plant O&M. Besides, it has insured all the components of the plant for a value of 300,000 US dollars.

Budget for O&M of the PV system at UMSA (USD)

	2018	2019	2020	2021
Equipment maintenance	0	0	0	0
Employment	772	784	1,313	1,313
Management and others	459	459	459	459
Total	1,231	1,243	1,772	1,772

Source: UMSA.

Budget for O&M of the PV system at ENDE Guaracachi (US$)

	2018	2019	2020	2021
Equipment maintenance	NA	NA	30,000	30,000

Source: ENDE Guaracachi

<Current Status of Operation and Maintenance>

All of the equipment and spare parts procured by the project have been in a good condition and functioning at UMSA. All the devices have been readjusted every quarter to check if any of them needs to be replaced. Spare parts and consumables can be purchased in Bolivia but normally it takes at least one month. At AASANA, three PV modules and air-conditioning equipment were stolen in 2018. After this incident, AASANA assigned a guard until ENDE Guaracachi started the operation. Spare parts, measurement and adjustment devices have been stored at AASANA's warehouse and not been transferred to ENDE Guaracachi yet.

<Evaluation Result>

Some minor problems have been observed in terms of the institutional/organizational aspect, financial aspect, and current status of operation and maintenance. Therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

The project objectives have been partially achieved. In other words, power generation capacity and reduction of CO_2 emission have reached the target at one plant but not the other. Regarding sustainability, there have been issues related to the assignment of the personnel exclusively dedicated personnel at one plant and also the agreement for outsourcing O&M of the PV system at the other plant. As to efficiency, the project cost was as planned but the project period exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- It is recommended to UMSA to secure a budget and assign personnel exclusively responsible for O&M of the PV system, by adding them in the annual operational plan and/or collecting some fee from the seminars for private sector on PV energy with the grid connection system,
- It is recommended to AASANA to clarify its O&M strategy of the plant, and permit ENDE Guaracachi to use the maintenance spare parts and data measurement and adjustment devices procured by the project.
- In order to make higher effectiveness of the PV plant and to raise awareness of the public on the use of renewable energies, it is recommended to AASANA to fix the power generation monitor which has been installed in the VIRU VIRU airport and device the monitor location and display methods for further awareness raising.

Lessons Learned for JICA:

- In the project, power generation at the transmission end has been far below the target at AASANA. Although the sales of the generated power was not included in the project objectives, AASANA and the current O&M company for operation of the PV plant have not been much motivated by the little economic benefit from connecting to the grid due to the small capacity of the PV systems.. If the sales of the generated power is expected after the project completion, necessary conditions are the registration required for the grid-connection and contract of O&M and sales. In projects for electricity generation in which the implementing agency does not have the mandate of electricity generation and sales, it is necessary to confirm that the implementing agency has a strong initiative for the project especially in terms of budget security and that there is a legal framework which allows the electricity generation, distribution

and selling. These should be conditions before the project commencement, not external conditions for the operation of the constructed facility. If there are concerns about these conditions, they should be identified as risks at the project formulation stage and have common understanding with the implementing agency and continue discussion for solution.

Solar panel installed at UMSA.

Solar panel installed at AASANA.

Internal Ex-Post Evaluation for Development Planning Project

conducted by Bolivia Office: June 2022

Country Name	Urban Transport Improvement Master Plan Project for Santa Cruz de la Sierra Metropolitan Area
The Plurinational State of Bolivia	

I. Project Outline

Background	The Santa Cruz Metropolitan Area is the second largest urban area and economic center of Bolivia. The population of the area was 1.75 million (2012) and increasing in rapid pace. The economic growth rates showed a good economic performance of the Department of Santa Cruz. Due to the increase in its population and vehicles, the Santa Cruz Metropolitan Area faced various transport issues, such as traffic congestions, insufficient service of public transport and traffic accidents. Also, the limited capacity of urban drainage caused submersion on the road which made traffic condition worse. The Metropolitan Area was low density on the whole. Low-rise buildings were dominant even in the central business district, as the urban area was expanding to outskirts where newly developed as residential areas. The urban sprawl was proceeding in the backdrop that land use management did not function well. This fact made it difficult to create effective transport system.		
Objectives of the Project	By strengthening the capacity of the implementing agency through developing the transport improvement master plan for Santa Cruz Metropolitan Area, the project contributes to transport improvement in the metropolitan area.		
	Expected Goals through the proposed plan[1]: 1) Traffic conditions in the Santa Cruz metropolitan area are improved. 2) The capacity of the implementing agency to implement the Master Plan is strengthened.		
Activities of the Project	1. Project site: Santa Cruz Metropolitan Area (Municipalities of Santa Cruz de la Sierra, Cotoca, Warnes, El Torno, La Guardia, and Porongo). 2. Main activities: Traffic surveys including the household interview survey, formulation of the Transport Improvement Master Plan (M/P) for the Metropolitan and the Central Area with Strategic Environment Assessment (SEA), analysis and proposal of drainage system, proposal on the revision of the land use plan, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Mission members: 10 persons 2) Trainees in Japan: 9persons Bolivian Side 1) Staff allocated: 24persons		
Project Period	(ex-ante) February 2016 to July 2017 (actual) February 2016 to December 2017	Project Cost	(ex-ante) 305 million yen, (actual) 277 million yen
Implementing Agency	Secretariat of Public Works and Land Use of the Department of Santa Cruz (SOPOT)		
Cooperation Agency in Japan	Nippon Koei Co., Ltd., Tamano Consultants Co., Ltd., Oriental Consultants Global Co., Ltd., Nippon Koei LAC Co., Ltd.		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Bolivia at the time of Ex-Ante Evaluation>

The project was consistent with the development policy of Bolivia at the time of ex-ante evaluation, as the "Department Development Plan of Santa Cruz 2025" (2014) has the following strategic areas: (1) emphasis on autonomy and democracy; (2) equality, livability, and security; (3) promotion of the transformation of the industrial structure; (4) planning, order, and sustainability; and (5) emphasis on citizen participation and solidarity.

<Consistency with the Development Needs of Bolivia at the time of Ex-Ante Evaluation>

The population of the Santa Cruz Metropolitan Area was 1.75 million (2012) and increasing in rapid pace. Due to the increase in its population and vehicles, the area faced various transport issues, such as traffic congestions, insufficient service of public transport and traffic accidents. The project was consistent with the development needs of Bolivia for development of the transport improvement master plan for improving the traffic conditions.

<Consistency with Japan's ODA Policy at the time of Ex-Ante Evaluation>

One of the priority areas in the "Country Assistance Policy for Plurinational State of Bolivia" (2012) was improving productivity through rural development, under which one of the programs was for transport network improvement. Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Objectives at the time of Project Completion>

The objectives of the project were achieved by the project completion. By the time of project completion, the "Transport Improvement Master Plan (M/P) for 2035" was formulated, which consisted of the Transport Master Plan for Metropolitan Area and the Transport Master Plan for the Central Area. The Transport Direction under SOPOT and its engineers were trained on the drainage system, demand forecast, and so on.

<Utilization Status of the Proposed Plan at the time of Ex-post Evaluation>

[1] The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

The proposed plan has been partially utilized at the time of ex-post evaluation. The formulated transport master plan was approved as the plan of Santa Cruz Department in January 2020. Among the 37 projects proposed for 2035 in the master plan, 19 projects have been in the phase of the design, implementation and completion. These have been budgeted by the Autonomous Department Government of Santa Cruz (GADSC), some target municipalities and private developers. Projects implemented have included "Bus Rapid Transport (BRT) System Development for Santa Cruz Municipality," "Road Safety Audit," "Traffic Signals for Traffic Safety," "Improvement at Intersection with Traffic Sign and Markings "Signal Control System Upgrading," and "Change Roundabouts to Traffic Signal-Controlled Intersections," and so on. Since the time of project completion, GAMSC has had opportunities to exchange information and receive advices on urban transport development from experts of Brazil and Colombia through coordination of JICA Bolivia Office. In August 2018, a Colombia expert on urban planning was invited to Santa Cruz by GAMSC, and he explained the Colombian experience in urban planning laws and land use planning and made an advice for political prioritization. In September 2018, a Brazilian team including one office from the Municipality of Curitiba and two experts on urban transport with financial support from the Brazilian Cooperation Agency (ABC). After observation of the situation in Santa Cruz, the team made recommendations for promoting urban transport development from the legal, institutional and technical aspects. In October 2018, seven officers and technicians were dispatched to Curitiba, Brazil by JICA to learn the process for introducing the BRT system, including administrative procedure, public comments, actual operation of the plan. These opportunities have accelerated the implementation of BRT system. At the time of ex-post evaluation, GAMSC was coordinating with the Colombian Government for bilateral cooperation on preservation and utilization of the old city center.

Based on the developed master plan, among the six target municipalities, only one municipality (Santa Cruz) has formulated the municipal transport plan and three municipalities (La Guardia, Porongo and El Torno) have planned the development of the plan. It was presumed that other municipalities have not developed the municipal plan because there are lots of troubles when there begins a new period with a different political team. The presumption is because usually last administration in charge do not leave information to the new one. Also the new one rejects what was done by the last administration even though it had been well executed. In addition, they had not known that they were expected to develop the municipal plan based on the department transport master plan formulated by the project because the authorities have been new after the election in 2021.

As supplemental information, some of the actions proposed by the project for implementing the master plan have been carried out. For example, as the institutional arrangement, the coordination body has been in the process of establishment in GADSC. For the public transport development, the Municipal Secretary of Urban Mobility (SEMURB) of the Autonomous Municipal Government of Santa Cruz de la Sierra (GAMSC) has completed the diagnostic study in the central area, and GADSC has conducted the feasibility study of BRT system. For the traffic management, GAMSC has developed an application for accident registration with support from the Emory University and the Georgia Institute of Technology.

<Status of Achievement for Expected Goals through the Proposed Plan at the time of Ex-post Evaluation>

The Expected Goal has been partially achieved. Traffic conditions have been partially improved in Santa Cruz Metropolitan Area. According to GADSC, the travel time in the area has been reduced and users' comfortability have been improved due to the improved accessibility in the rainy season, although they could not be verified with quantitative data in the ex-post evaluation. In addition, GAMSC answered that there was improvement in the public transport regulations (for controlling routes and service hours), and the sidewalks for pedestrians along the BRT corridor were improved by the implemented mass transit system ("Common Universal Design Guidelines and Improvement of Sidewalks"). The Municipal Government of Porongo also answered that road congestions were improved as results of the improved road signs and control system. On the other hand, target municipalities which have not developed their master plan did not recognize improved traffic conditions.

Regarding the capacity development of target municipalities to implement the master plan, there has been improvement in the Municipalities of Santa Cruz and Porongo. In GAMSC, they have developed "Municipal Transport Plan" on their own capacity. In Porongo, it has established the Traffic and Transport Division with a technical staff and assigned the budget for implementing the transport plan. However, no such improvement could not be confirmed in other target municipalities which could not develop the municipal transport plan.

<Other Impact at the time of Ex-post Evaluation>

Some positive impacts have been reported in the ex-post evaluation. First, related to gender, in the project of "BRT System Development for Santa Cruz Municipality" women's participation in economic activities has been promoted by improving the security as a certain percentage of female bus drivers and female security guards at the bus stops has been promoted. These efforts have made women more comfortable, who have been vulnerable to gender harassment and violence. Second, the usability has been improved for persons with disability by "Common Universal Design Guidelines and Improvement of Sidewalks". The sidewalks have been improved with the universal design, with slopes for wheelchair users and braille block on the sidewalk for blind persons. Third, As one of the activities for "Program for the Connection of Communities", the Municipality of Porongo has provided a free public transport service for school students who commute from the rural areas.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is fair.

Utilization of the Proposed Plan

Aim	Indicators	Results	Source
(Status of achievement of the Outputs)	1. The transport master plan for Santa Cruz Metropolitan Area for 2035 is formulated.	Status of achievement: Achieved. (Project Completion) ● The Transport Improvement Master Plan (M/P) was formulated. It consisted of the following two components. The target year of M/P was 2035. The plans for the intermediate years of 2020 and 2025 were prepared as short-term and medium-term plans. 1) Transport Master Plan for Metropolitan Area 2) Transport Master Plan for the Central Area	Final Report.
	2. Capacity is developed to implement the master plan.	Status of achievement: Achieved. (Project Completion) ● The Transport Direction under the SOPOT worked with the JICA Study Team for organizing the workshops, forums, and arrangement of	Final Report.

		various meetings and data collection. Although the Transport Direction was not mentioned in the implementation structure in the R/D, it plays an important role as the Project Management Office. ● A workshop focusing on the drainage system in Santa Cruz de la Sierra was held on August 2nd, 2016 at the Direction of Drainage of the municipality of Santa Cruz, where 24 engineers participated. ● The Project used Cube Voyager for the demand forecast modeling. A training course of the demand forecast was conducted using the software.	
(Utilization Status of the Proposed Plan) 1. The formulated transport master plan is approved as the plan for Santa Cruz Metropolitan Area. 2. Target municipalities formulate necessary plans for each.	1.1 The formulated transport master plan is approved as the plan of Santa Cruz Department.	Status of achievement: Achieved (Ex-post evaluation) ● The formulated transport master plan was approved in January 2020 (Department Law No. 187 of January 31, 2020).	GADSC.
	1.2 Budgets are allocated for the proposed plan.	Status of achievement: Achieved (Ex-post evaluation) ● Some project have been budgeted and started or completed. Six other projects have been in the design stage. Projects started (completed in part): 1) Development of Road Network in La Guardia (private developer) 2) Program of the Connection of Communities (Porongo) 3) Okinawa–Warnes Road Connection III (Government of Japan and the Development Bank of Latin America (CAF)) 4) BRT System Development for Santa Cruz Municipality (GAMSC and CAF) 5) Common Universal Design Guidelines and Improvement of Sidewalks (GAMSC and CAF) Projects completed: 1) Development Road Network in Porongo (Porongo) 2) Pavement of Local Roads (GADSC, Porongo and Warnes) 3) Road Safety Audit (GAMSC) 4) Traffic Signals for Traffic Safety (GAMSC and CAF) 5) Improvement at Intersection with Traffic Sign and Markings (GAMSC) 6) Signal Control System Upgrading (GAMSC) 7) Change Roundabouts to Traffic Signal-Controlled Intersections (GAMSC) 8) Introduce Regulations and Build Facilities for the Loading and Unloading of Goods Around the Markets (GAMSC) Projects in design: 1) Traffic Accident Database (GAMSC) 2) Parking Facility Development Policy (GAMSC) 3) On-street Parking Management (GAMSC) 4) Development of New Parking Facility (GAMSC) 5) Mobility Management/Shift Traffic Demands from Peak Hours (GAMSC) 6) Reversible Traffic Lanes (GAMSC)	GAMSC.
	2. Based on the project outputs, target municipalities formulate and revise each urban plan and urban transport plan.	Status of achievement: Not achieved (Ex-post evaluation) ● Among the six target municipalities, one (Santa Cruz) has formulated the transport plan (Transport Municipal Program) and three (La Guardia, Porongo and El Torno) have planned the development of the plan.	Target municipalities.
(Expected Goals through the proposed plan) 1. Traffic conditions are improved in Santa Cruz Metropolitan Area. 2. Capacity of the related organizations (target municipalities) is improved to implement the master plan.	1. Traffic conditions are improved in Santa Cruz Metropolitan Area.	Status of achievement: Partially achieved (Ex-post evaluation) ● Although data were not available, the travel time has been reduced due to the improved accessibility in the rainy seasons. ● Citizen's mobility has become more comfortable due to the improved sidewalks for pedestrians and developed the mass transit system through the First Ring Road BRT corridor. ● Road congestion has been reduced due to the improved control system and bridge between Porongo and Santa Cruz.	ADSC, Santa Cruz Municipality, Porongo Municipality.
	2. Capacity of the related organizations is improved to implement the master plan.	Status of achievement: Achieved (Ex-post evaluation) ● Capacity of Santa Cruz Municipality has been improved as it formulated the municipal transport plan by itself and allocated budgets to BRT development. ● Capacity of Porongo Municipality has been improved as the Traffic and Transport Division was newly established with a technical staff and budgets.	Santa Cruz Municipality, Porongo Municipality.
3 Efficiency			

Although the project cost was within the plan (ratio against the plan: 91%), the project period exceeded the plan (ratio against the plan: 128%). The project period was extended because it took more time than expected to carry out the traffic survey. Outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

In the Department Law of Creation and Regulation of the Metropolitan Area "Santa Cruz Metrópoli" (Department Law No.187, January 31st 2020), the objective of establishing the metropolitan area and introduction of the developed master plan as efforts for urban transport improvement in the Section 5 of the Article 6.

<Institutional/Organizational Aspect>

The Directorate of Infrastructure, Projects and Transport under the Department Secretariat of Economic Development has been responsible for implementing the developed master plan. At the time of the ex-post evaluation, the staff number was five including one transport specialist and two engineers, after being reduced due to the budget shortage, and it make them facing difficulty to implement the master plan. At the municipal level, in GAMSC, SEMURB has been in charge of the transport plan implementation. In the new administration since 2021, 90% of the staff who had experience in the project were removed. In the Municipality of Porongo, the Traffic and Transport Division has taken responsibility of the transport plan. It answered that the number of the staff has not been sufficient due to the budget shortage, as well as other municipalities (Warnes, La Guardia, and El Torno).

<Technical Aspect>

Regarding the capacity to implement the master plan, until the election of the new administration started in 2020 there were skilled staffs who were trained by. In the ex-post evaluation GADSC and all of the surveyed target municipalities answered that they have not fully sustained the skills and knowledge gained from the project, but they have designed and implemented some proposed projects. In GADSC and the surveyed municipalities, since the change of the administration, experienced staff were removed, and new qualified technical staff have not been assigned.

<Financial Aspect>

Even the previous -administration had implemented some projects in MP with assigned budget, currently GADSC and all of the surveyed target municipalities answered that the budget to implement the master plan has not been sufficiently assigned and that they have been seeking a financial support from international partners. For example, GAMSC has negotiated for the possible loan from the Development Bank of Latin America and the World Bank. In some municipalities, the project and the necessity of developing the municipal plan has not been familiarized by the new administration, which has made no budget allocation. It was also pointed out by GAMSC that the normal budget allocation in amount and schedule could be hindered by the pandemic of COVID-19.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, technical and financial aspects of the implementing agencies. Therefore, the sustainability of the effectiveness is fair.

5 Summary of the Evaluation

In the project, the "the Transport Improvement Master Plan (M/P) for 2035" was prepared. Since the time of project completion, it was officially approved in 2020 by GADSC, and some projects have been implemented by some target municipalities. As results of the implemented projects, positive impacts have been confirmed such as improved traffic conditions including the accessibility of the persons with disability. Regarding sustainability, there have been concern on the shortage on the technical staff and budgets to implement the master plan, though they have been seeking an external financial support. With regard to efficiency, the project period exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is recommended to GADSC to implement capacity development training by using human resources who were engaged in the project to implement the master plan at the possible earliest timing. GADSC also should convince the same action to the target municipalities, so that they could utilize the gained experience and developed capacity from the project.
- It is recommended to GADSC and GAMSC to take an initiative and share their experience of the project and their efforts for implementing proposed projects after the project completion with other target municipalities where the experienced staff were removed, firstly by explaining the project outputs and the importance of the transport development of the Santa Cruz Metropolitan Area to the new municipal authority.

Lessons Learned for JICA:

- In the project, the master plan was developed and after the project it was officially approved at the department level. However, the administration changed in the election two years after the project completion, and it was found in the ex-post evaluation that most target municipal governments even did not know the master plan and thus they have not developed their municipal master plan or assigned sufficient personnel and financial resources for implementing projects proposed by the project. In countries where the change of the administration could lose the continuity of the project outputs, it is desirable to get the written agreement from the implementing agency to sustain the trained staff for taking actions suggested by the project in a certain period or at least by the following election period. There may be a case in which the continuity of the proposed projects including budgetary measures by the government due to the administrative change, even if there is a written agreement. In such a case, it is necessary to consider countermeasures such as involving private companies and academic groups in the projects formulation or to disseminate the masterplan to stakeholders including the ruling and opposition parties from the project period. In addition, JICA country office should keep following up more frequently each time after the change of administration.
- Since the time of project completion, proposed projects have been implemented in the Municipality of Santa Cruz. The driving force was the sharing of information and experiences with other countries in the region. There are two reasons why these experiences were easy for Santa Cruz to understand and apply. First, these countries had similar laws, regulations, administrative structures, and budgetary situations. Second, these countries had customized and localized their experience of JICA project implementation to their own contexts and had concrete practical examples. Thus, it is effective and efficient to use the resources of third countries to accelerate

implementation after the project completion and also promote the triangular cooperation. In this regard, it is necessary for country offices to investigate the availability of technical resources in neighboring countries and coordinate with embassies and other partner agencies to provide support for inviting experts and dispatching the counterpart personnel. This kind of follow-up could be more efficient in terms of time and costs than to formulate a new project and such as a technical cooperation project and dispatch of experts.

Braille Block on the sidewalk

BRT Corridor

BRT Bus Station

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bolivia Office: March 2022

Country Name	Maternal and Child Health Network Improvement Project in Potosi
Plurinational State of Bolivia	

I. Project Outline

Background	Among the Latin-American countries, Bolivia had the second-worst maternal mortality rate (190 per 100,000 live births) and under-5 child mortality rate (51 per 1,000 live births), beside Haiti (2013). Especially in the altiplanos of Bolivia where Potosi prefecture is situated, indicators of maternal and child health (MCH) were even worse than other areas of Bolivia, due to the combined factors such as difficulties in accessing to health services at health facilities, skill shortage of health personnel, and lack of knowledge and awareness of health in community population.		
Objectives of the Project	Through improvement in MCH services at health facilities, health promotion activities with community participation and the strengthening health administration capacity at municipality level at the two target areas of the Uyuni Health Network and the Tupiza Health Network, the project aimed at reducing health risks in the pregnant women and children under age five, thereby contributing to improvement of MCH situations in the Department of Potosi.		
	1. Overall Goal: MCH situation is improved in Potosi. 2. Project Purpose: Health risks are reduced in the pregnant women and children under age five at the Project sites.		
Activities of the project	1. Project site: 5 municipalities in the Health Networks of Tupiza (Tupiza, Atocha, Mojinete, San Pablo de Lípez, San Antonio de Esmoruco) and 6 municipalities in the Health Network of Uyuni (Uyuni, Colcha "K", San Pedro de Quemez, Llica, Tahua, and San Agustin). 2. Main activities: Training of the health personnel on care services for pregnant women and under-five children, strengthening the referral/counter referral system, conducting the supervision and monitoring to the health facilities and communities, etc. 3. Inputs (to carry out above activities). Japanese Side 1) Experts from Japan: 6 persons 2) Equipment: Vehicles, fetal Doppler, echo, birth simulator oxygen inhaler incubator, etc. 3) Local cost: hiring local consultants, activity operational expenses, etc. Bolivian Side 1) Staff allocated: 27 persons 2) Land and facilities: Office space, PC, officer supplies, etc. 3) Local cost: travel costs, etc.		
Project Period	(ex-ante) January 2013 to December 2016 (actual) June 2013 to June 2017	Project Cost	(ex-ante) 288 million yen, (actual) 268 million yen
Implementing Agency	Ministry of Health and Sports, Department of Health Service of Potosi (SEDES).		
Cooperation Agency in Japan	Juntendo University.		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Indicators 1-3 of the Project Purpose (percentage of the pre- and post-natal check-ups and the number of institutional deliveries) were not used for verification the continuation of the project effects. As these indicators were not the result of the project's direct intervention, the appropriateness of these indicators was questioned in the Terminal Evaluation. In the ex-post evaluation, these indicators were used for verification of other impacts, but no relevant data were confirmed.
- For verification of Indicator 5 of the Project Purpose, effects of the participatory community activities on self-efficacy, social capital and quality of life of the community residents were statistically analyzed in the Terminal Evaluation. In the ex-post evaluation, since the same data collection and analysis were difficult due to the time and resource constraints, the continuity of the community activities were surveyed and analyzed. However, it was not used for evaluation judgement.

1 Relevance

<Consistency with the Development Policy of Bolivia at the time of Ex-ante Evaluation>

The "Health Sector Development Plan" (2010-2020) prioritized strengthening social organizations that support multicultural community family health policies and health systems, with a primary focus on universal access to health care services. Also, the "National Strategic Plan for Improving Maternal and Newborn Health" (2009-2015) included concrete measures such as comprehensive health management from newborn to adolescence. Thus, the project was consistent with the development policy of Bolivia at the time of ex-ante evaluation.

<Consistency with the Development Needs of Bolivia at the time of Ex-ante Evaluation>

One of the issues in the Health Networks of Tupiza and Uyuni was the permanent shortage of doctors and nurses. Another issue was that assistant nurses did not have sufficient medical knowledge and skills. In the Department of Potosi with 11 Health Networks, the maternal mortality rate was the second highest in the Tupiza Health network at 321 (100,000 live births) and the fourth highest in the Uyuni Health Network at 245 (100,000 live births), while the infant mortality rate was the fourth highest in the Uyuni Health Network at 16 (1,000 live births) and the sixth highest in the Tupiza Health Network at 7 (1,000 live births) (2011). Thus, the project was consistent with the development needs of Bolivia at the time of ex-ante evaluation.

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

In the "Country Assistance Policy for Bolivia" (2012), one of the priority areas was social development centered on human resource

development, and one of the development issues was health and medical care. It had a basic principle of strengthening the health network with a focus on the reduction of the maternal mortality rate and infant mortality rate. Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. In the Health Networks of Tupiza and Uyuni, health risks for pregnant women and under-five children were reduced. There was an increase in the pre-natal (Indicator 1), post-natal check-ups (Indicator 3) and institutional deliveries (Indicator 2), though the project's contribution could not be strictly confirmed. On the other hand, the number of developmental health check-ups for under-five children increased (Indicator 4), and self-efficacy, social capital and quality of life of the residents were statistically judged as improved (Indicator 5). Most of the target municipalities came to formulation their municipal health plan in a participatory way (Indicator 6).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have partially continued. Developmental health check-ups for under-5 children have been continuously conducted in the Health Networks of Tupiza and Uyuni (Indicator 4), although the number decreased in 2019 and 2020, respectively. In Uyuni, although the control of child growth and development has continued to be prioritized, there has been a personnel shortage due to the limited support from the municipal government. In such a situation, more priority was placed on emergency cases in 2019. The number also decreased due to the pandemic COVID-19 in both networks in 2020. Community health activities related to hygiene, waste management, sexually transmitted infections, etc. have been implemented by the Education for Life Teams in Tupiza but not Uyuni (Indicator 5), because of frequent changes in municipal health officers. All of the five municipalities of the Tupiza Health Network have prepared and implemented their Municipal Health Plans, while four of the six municipalities in the Uyuni Health Network have done so (Indicator 6). The Municipalities of Uyuni and Llica have not prepared their Municipal Health Plans due to the personnel and budget shortages.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved. The government of Potosi has made efforts to diffuse the project experience to other Health Networks (40 municipalities) through the materials prepared by the project, such as "Information Analysis Committee (CAI) Simplified Guide for All," "Referral Guide with A.J.O. (Adequate, Justified and Timely)," "Supervision Guide," and "Education for Life Guide." As a result, at the department level, the number of maternal deaths decreased to 9 in 2019 (Indicator 1), although it increased in 2020 due to the pandemic of COVID-19. No decreasing trend could be confirmed in the target Health Networks. The absolute number of under-five deaths in the Department of Potosi decreased from 115 in 2017 to 59 in 2020 (Indicator 2). The situation has been improved in the Uyuni Health Network. There was no under-five death at the department level in 2019, but the reason and the data reliability could not be confirmed in the ex-post evaluation survey. The reason why the under-five mortality was not affected by the pandemic of COVID-19 could not be confirmed in the ex-post evaluation survey. The number of neonatal deaths in the Department of Potosi decreased after the project completion but increased in 2020 (Indicator 3). However, comparing to the figure before the project, it decreased much at the department level. As well as the under-five mortality, the situation of neonatal mortality has been improved in the Uyuni Health Network, but not Tupiza. The reason could not be confirmed. The data of the under-five mortality ratio and the neonatal mortality ratio were not available, as they were calculated in the census every five years. The Ministry of Health and Sports has annually managed the absolute number of mortalities, which were used in the ex-post evaluation. The data of the proportion of chronically malnourished under-two children were not available due to the change in the National Health Information System (SNIS). As supplemental data, the proportion of chronically malnourished under-five children increased in 2018 but decreased after 2019, which was still larger than the data in 2017 (Indicator 4). In the Health Networks of Uyuni and Tupiza, the number or percentage has been fluctuating.

<Other Impacts at the time of Ex-post Evaluation>

Several positive impacts have been confirmed. First, the gender approach has been considered within the Municipal Health Plans and the Education for Life Plans. Specifically, most of the trained community health leaders were female. Thus. the training of female leaders and their incorporation into the structure of health services and the education for life teams have made it possible to reflect their needs and viewpoints more than before. Second, through CAI, municipalities have become more aware of health obligations and improved their planning capacity, according to the health promotion officer of SEDES Potosi and Coordinators of Health Networks, and their developed health plan have succeeded in achieving access of the population living in remote areas to health care, providing health education and promotion activities through the Education for Life Teams at the community level. Some municipalities have purchased biosafety supplies, biosafety material, and others.

No negative impact on the natural environment has been caused, as the Biosafety Committees were formed and trained, and there has been improvement in the classification of waste until final storage. The use of incineration as the final method of waste disposal has been reduced.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Health risks are reduced in the pregnant women and children under age five at the Project sites.	1. The percentage of the pregnant women with four pre-natal check-up increases in the target area.	Status of achievement: Achieved (Not verified) (Project Completion) - The percentage of the pregnant women with four pre-natal check-up increased both in Uyuni and Tupiza. - On the other hand, the percentage in the Department of Potosi increased more. Therefore, the intervention effects could not be confirmed. Also, the project did not implement activities to directly promote the pre-natal check-ups. - It was pointed out by the Terminal Evaluation Team that the indicator was not	Terminal Evaluation Report.

<table>
<tr><td></td><td></td><td>appropriate because the causal linkage was not clear for verification.</td><td></td></tr>
<tr><td></td><td>2. The number of institutional deliveries increases in the target area.</td><td>Status of achievement: Achieved (Not verified)
(Project Completion)
- The number of institutional deliveries and the percentage of the deliveries assisted by the health personnel slightly increased and remained mostly same after 2014 in Uyuni, and the figures increased in Tupiza.
- However, the project did not implement activities to directly promote the institutional deliveries.
- It was pointed out by the Terminal Evaluation Team that the Indicator was not appropriate because the causal linkage was not clear for verification.</td><td>Terminal Evaluation Report.</td></tr>
<tr><td></td><td>3. The percentage of the pregnant women with post-natal check-up increases in the target area.</td><td>Status of achievement: Partially achieved (Not verified)
(Project Completion)
- The percentage of the pregnant women with post-natal check-up increased in Tupiza. There was a comparable raise in the Department of Potosi. The percentage of the pregnant women with post-natal check-ups decreased in Uyuni.
- It was pointed out by the Terminal Evaluation Team that the Indicator was possibly not appropriate because the causal linkage was not clear for verification.</td><td>Terminal Evaluation Report.</td></tr>
<tr><td></td><td>4. The number of developmental health check-ups for under-5 children increases in the target area.</td><td>Status of achievement: Achieved (Partially continued).
(Project Completion)
- The number of developmental health check-ups for under-5 children increased to approximately 3,900 in Tupiza. The number slightly increased to approximately 2,600 in Uyuni. The number did not change in the Department of Potosi.
- However, the project started the activities related to child development in the last year, so it was considered that the project gave a limited impact, as pointed out by the Terminal Evaluation Team.</td><td>Terminal Evaluation Report.</td></tr>
<tr><td></td><td></td><td>(Ex-post Evaluation)
- The number of developmental health check-ups for under-5 children increased until 2019 but decreased in 2020 in Tupiza. The number was on a decreasing trend in Uyuni.

Table: Number of developmental health check-ups for under-5 children
<table><tr><td></td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>Potosi Department</td><td>58,896</td><td>59,890</td><td>48,908</td><td>40,665</td></tr><tr><td>Uyuni Network</td><td>3,083</td><td>3,253</td><td>2,439</td><td>2,378</td></tr><tr><td>Tupiza Network</td><td>6,207</td><td>6,231</td><td>6,951</td><td>3,936</td></tr></table></td><td>NIS, SEDES.</td></tr>
<tr><td></td><td>5. Indicators of self-efficacy, social capital and quality of life of the randomly selected residents in the community which participated in the implementation of the Educational Guidebook for the Life are improved.</td><td>Status of achievement: Achieved (Not verifiable).
(Project Completion)
- Indicators of self-efficacy, social capital and quality of life of the randomly selected residents improved, especially that of social capital.
- The health-related quality of life (QOL) index also showed a large increase compared to the control group. It was considered that there was an impact of education for daily life on the health of residents.</td><td>Terminal Evaluation Report.</td></tr>
<tr><td></td><td></td><td>(Ex-post Evaluation)
- In the surveyed municipalities of Tupiza, community health activities have been continuously implemented, and new community health leaders have been annually trained. Efforts have been sustained for improving self-efficacy, social capital and quality of life, although their attribution could not be strictly confirmed. On the other hand, no community health activities have been implemented in the surveyed municipalities of Uyuni.

Table: Number of community health activities
<table><tr><td></td><td></td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>Tupiza Network</td><td>Tupiza</td><td>250</td><td>263</td><td>230</td><td>78</td></tr><tr><td></td><td>Atocha</td><td>79</td><td>45</td><td>26</td><td>63</td></tr><tr><td>Uyuni Network</td><td>Uyuni</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td></td><td>Colcha “K”</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table>
Table: Number of trained community health leaders
<table><tr><td></td><td></td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>Tupiza Network</td><td>Tupiza</td><td>24 (21)</td><td>26 (24)</td><td>30 (22)</td><td>32 (23)</td></tr><tr><td></td><td>Atocha</td><td>43 (31)</td><td>14 (10)</td><td>17 (17)</td><td>42 (33)</td></tr><tr><td>Uyuni Network</td><td>Uyuni</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td></td><td>Colcha “K”</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table></td><td>Municipal Chief of Health of Tupiza, Atocha, Uyuni and Colcha K, Tupiza Health Network, Uyuni Health Network.</td></tr>
<tr><td></td><td>6. The number of the municipalities which have the Municipal</td><td>Status of achievement: Achieved (Continued).
(Project Completion)
- By 2016, eight of the 11 target municipalities developed the health plans</td><td>Terminal Evaluation Report.</td></tr>
</table>

<table>
<tr><td></td><td>Health Plan in implementation.</td><td>through a participatory process in accordance with the regulations of the Ministry of Health and Sports regulations. At the time of the terminal evaluation survey, one was in the process of developing the plan.</td><td></td></tr>
<tr><td></td><td></td><td>(Ex-post Evaluation)
- All of the five municipalities of the Tupiza Health Network have prepared and implemented their Municipal Health Plans.
- Four of the six municipalities in the Uyuni Health Network have prepared their Municipal Health Plans.</td><td>Tupiza Health Network, Uyuni Health Network.</td></tr>
<tr><td rowspan="4">(Overall goal)
MCH situation is improved in Potosi.</td><td>1. The number of maternal deaths in the Department of Potosi decreases from 89 in the 2002 post-censuses.</td><td><u>Status of achievement: Achieved.</u>
(Ex-post Evaluation)
- The number of maternal deaths in the Department of Potosi decreased to 9 until 2019 and increased to 18 in 2020.

Table: Number of maternal deaths
<table>
<tr><td></td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr>
<tr><td>Potosi Department</td><td>17</td><td>12</td><td>9</td><td>18</td></tr>
<tr><td colspan="5">Supplemental information</td></tr>
<tr><td>Uyuni Network</td><td>0</td><td>2</td><td>1</td><td>2</td></tr>
<tr><td>Tupiza Network</td><td>NA</td><td>NA</td><td>2</td><td>2</td></tr>
</table></td><td>SNIS, SEDES.</td></tr>
<tr><td>2. The under-five mortality rate per 1,000 live births in the Department of Potosi decreases from 126 in 2008.</td><td><u>Status of achievement: Not verified.</u>
(Ex-post Evaluation)
- The data of the under-five mortality rate per 1,000 live births were not available.
- As supplemental information, the number of under-five death in the Department of Potosi decreased to 59 in 2020 from 115 in 2017. The total number of births was not available.

Table: Number of under-five death
<table>
<tr><td></td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr>
<tr><td>Potosi Department</td><td>115</td><td>90</td><td>0</td><td>59</td></tr>
<tr><td colspan="5">Supplemental information</td></tr>
<tr><td>Uyuni Network</td><td>6</td><td>2</td><td>0</td><td>2</td></tr>
<tr><td>Tupiza Network</td><td>2</td><td>5</td><td>0</td><td>3</td></tr>
</table></td><td>SNIS, SEDES.</td></tr>
<tr><td>3. The neonatal mortality rate per 1,000 live births in the Department of Potosi decreases from 52 in 2008.</td><td><u>Status of achievement: Not verified.</u>
(Ex-post Evaluation)
- The data of the neonatal mortality rate per 1,000 live births were not available.
- As supplemental information, the number of neonatal deaths in the Department of Potosi decreased in 2018 and increased in 2020. Comparing to the figure of 2013, it decreased much at the department level. The total number of births was not available.

Table: Number of neonatal deaths
<table>
<tr><td></td><td>2013</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr>
<tr><td>Potosi Department</td><td>242</td><td>71</td><td>53</td><td>53</td><td>76</td></tr>
<tr><td colspan="6">Supplemental information</td></tr>
<tr><td>Uyuni Network</td><td>17</td><td>2</td><td>5</td><td>2</td><td>13</td></tr>
<tr><td>Tupiza Network</td><td>2</td><td>3</td><td>6</td><td>4</td><td>7</td></tr>
</table></td><td>SNIS, SEDES.</td></tr>
<tr><td>4. The proportion of chronically malnourished children under two years of age in the Department of Potosi decreases from 18.6% in 2012.</td><td><u>Status of achievement: Not achieved.</u>
(Ex-post Evaluation)
- The data of the proportion of chronically malnourished under-two children were not available.
- As supplemental information, the proportion of chronically malnourished under-five children increased in 2018 but decreased after 2019.

Table: Number/percentage of chronically malnourished under-five children
<table>
<tr><td colspan="2"></td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr>
<tr><td colspan="2">Potosi Department (%)</td><td>0.5</td><td>2.9</td><td>2.4</td><td>2.4</td></tr>
<tr><td colspan="6">Supplemental information</td></tr>
<tr><td rowspan="2">Uyuni Network</td><td>Tupiza (number)</td><td>213</td><td>212</td><td>NA</td><td>219</td></tr>
<tr><td>Atocha (number)</td><td>97</td><td>73</td><td>NA</td><td>81</td></tr>
<tr><td rowspan="2">Tupiza Network</td><td>Uyuni (%)</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td></tr>
<tr><td>Colcha K (%)</td><td>1.1</td><td>1.2</td><td>1.2</td><td>1.8</td></tr>
</table></td><td>SEDES.</td></tr>
</table>

3 Efficiency

Both of the project cost and period were within the plan (ratio against the plan: 93% and 100%, respectively). Outputs were produced as planned. Therefore, the project efficiency is high.

4 Sustainability

<Policy Aspect>

Promotion of MCH care has been prioritized in the national and department policies, including “Continuous Quality Improvement

Cycles" (2016-), "Integrated Care to the Life Care Course" (2013-), "Plan for the Accelerated Reduction of Maternal Mortality" (2016-), and so on.

<Institutional/Organizational Aspect>

The organizational structure for promoting MCH in the Department of Potosi has not changed. The Network Coordination has been responsible for ensuring the implementation of health programs in the municipalities and performed follow-up activities. CAIs have been sustained at the both Network and municipal levels. Also, the Municipal Health Committees have been conducted to prepare the Municipal Health Plan in all municipalities except two municipalities in the Uyuni Health Network due to the difficulty of its internal coordination. Referral has been conducted in most municipalities based on A.J.O. SEDES of Potosi has sustained the supervision of the services of the Health Networks of Tupiza and Uyuni with the tools developed by the project, and these Health Networks have supervised the municipalities. Also, preventive maintenance of the medical equipment has not been carried out in the Uyuni Health Network because the person in charge has not been assigned.

<Technical Aspect>

The personnel of the health network of Tupiza have sustained necessary knowledge and skills on MCH services, referral/counter referral, equipment maintenance, bio safety, child development, and so on. The training center has provided training to the existing and new personnel in the Municipality of Tupiza, and the more experienced personnel have given feedback to the new personnel in Atocha. However, in the Municipality of Uyuni, there have been many personnel changes, and no training has been conducted to the new personnel. Activities of the educators for early childhood development have not continued. Because this component was carried out for so short period in the project that it has not taken root in the communities.

<Financial Aspect>

The annual budget of SEDES of Potosi for MCH has been mostly stable. However, according to SEDES, it has not been sufficient, and this shortage has limited the preparation of technical documents and conduct of supervision activities.

During the project period, SEDES reserved a budget for both Health Networks for implementing the project activities. However, since the time of project completion, any budget has not been assigned from SEDES to these Health Networks. The budget of the Uyuni Health Network has been on a decreasing trend, and it has been used only for the purchase of office supplies, fuel for vehicles, and other minor expenses. The financial data of the Tupiza Health Network were not available in the ex-post evaluation.

Budget of SEDES Potosi for Comprehensive Care Unit for Women, Sexual and Reproductive Health and the Continuous Care Area for the Life Course (Bolivianos)

	2017	2018	2019	2020
Budget	57,500.00	56,964.00	56,888.00	60,113.00

Source: SEDES of Potosi.

Budget of Uyuni Health Network (Bolivianos)

	2017	2018	2019	2020
Budget	50,380.40	9,652.00	8,219.00	20,359.60

Source: Uyuni Health Network.

<Evaluation Result>

In the light above, there have been issues in the institutional/organizational, technical and financial aspects. Therefore, the sustainability of the effects is fair.

5 Summary of the Evaluation

The Project Purpose was achieved, and the project effects partially continued. Health risks of the pregnant women and under-five children were reduced, and the efforts such as health check-ups of the under-five children and municipal health planning have continued. As a result, MCH conditions were improved after the time of project completion, but the year 2020 was affected by the pandemic of COVID-19. Regarding sustainability, both Health Networks have had a budget shortage. And, there have been issues related to preventive maintenance of the equipment and capacity building of the new personnel in the Uyuni Health Network, while the Tupiza Health Network has sustained training and have not faced these issues.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- It is recommended to the Health Networks of Tupiza and Uyuni to include the training activities for MCH and maintenance of the medical equipment in their Annual Operational Plan to ask the budget from SEDES of Potosi. The facilitators trained at the Eduardo Eguia Hospital in Tupiza could be trainers, and the guidebook developed by the project could be used as training materials.
- It is recommended to the Health Networks of Tupiza and Uyuni to include the activities for early childhood development in their Annual Operational Plan to ask the budget from SEDES of Potosi, so that the facilitators should train educators for the activities.
- It is recommended to the Health Networks of Uyuni to strengthen community health activities by utilizing resources of the "My Health" Program of the Ministry of Health and Sports. Specifically, the health team assigned to each municipality could carry out part of the life education activities.

Lessons for JICA:

- In the project, health problems were identified together with community residents and incorporated into the municipal health plan and Network Annual Operation Plan through CAI, which allowed the community not only to take ownership of the health problems and become aware of the need to implement actions for improvement, but also to develop their close relation with the health personnel. For designing the project activities, it is very important to involve service beneficiaries in the process of problem identification and needs assessment and also make them as part of agents for improvement of their problems.
- Indicators of the Project Purpose are necessary for verification of the continuity of the project effects in the time of ex-post evaluation. However, in this project, four of the six indicators were not utilized for that purpose. Three had been judged inappropriate because they did not measure the project direct intervention, and the other was difficult to carry out the same data collection and statistical analysis in the simplified internal ex-post evaluation with time and cost constraints. Appropriateness and practicability of indicators should be examined and they should be modified, if necessary, during the project period. In addition, the indicators to be utilized in the ex-post evaluation should be confirmed at the time of project completion. If there are inappropriate or difficult indicators, recommendations should be made for JICA on alternative indicators or alternative data source.

Improved Neonatal Care

Strengthened waste management

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Brazil Office: March, 2023

Country Name	Project for E-waste Reverse Logistics Improvement
Federative Republic of Brazil	

I. Project Outline

Background	In Brazil, the rapid economic growth brought about rapid increases in solid waste volume and proper waste management became a key issue. In addition, the capacity of landfills in suburb areas was tight, and further introduction of waste reduction, reuse, and recycling became essential. Under those circumstances, the state of Sao Paulo enacted a state law on electrical and electronic waste ("E-waste") in July 2009, ahead of the federal government and other states, and signed a commitment with a telecommunications company for a product circulation system (reverse logistics[1]: RL). In response, private operators begun establishment of RL for cell phones. In addition, the State of Sao Paulo was considering negotiations to establish RL for laptop computers and home appliances. However, in expanding the target items, the establishment of RL for E-waste with more effectiveness has been a challenge.		
Objectives of the Project	Through collecting basic information on E-waste, planning, implementation, and evaluation of the pilot project, deriving recommendations and lessons learned from the pilot project, and developing RL guidelines for the government or private sector, the project aimed at presenting actions for improving implementation of reverse logistics from the federal government, thereby contributing to facilitate implementation of reverse logistics.		
	1. Overall Goal: Implementation of reverse logistics are facilitated. 2. Project Purpose: Actions for improving implementation of reverse logistics are presented by the federal government.		
Activities of the Project	1. Project Site: City of Sao Paulo, relevant areas in the state of Sao Paulo (limited areas where the RL value chain of E-waste targeted by the pilot project is located, mainly in the city of Sao Paulo), Brasilia, and Recife. 2. Main Activities: 1) Collection of basic information on E-waste; 2) Planning, implementation, and evaluation of the pilot project; 3) Preparation of recommendations and lessons learned from the pilot project; 4) Development of RL guidelines for the government or private sector, and so on. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 10 persons 2) Trainees Received: 11 persons 3) Equipment: laptop computers (2), desktop computer (1), printer (1), projector (1) 4) Local operation expenses: Local activity expenses Brazilian Side 1) Staff Allocated: 19 persons 2) Land and facilities: Office space and furniture in AMLURB 3) Local operation expenses: Utilities, communication, etc.		
Project Period	(ex-ante) April, 2014 – March 2017 (actual) October 2014 – September 2017	Project Cost	(ex-ante) 360 million yen, (actual) 380 million yen
Implementing Agency	Ministry of Development, Industry and Foreign Trade, Ministry of Environment, Municipal Urban Cleaning Authority (Autoridade Municipal de Limpeza Urbana, AMLURB)		
Cooperation Agency in Japan	Nippon Koei Co., Ltd. Sustainable System Design Institute Co., Ltd. Kokusai Kogyo Co., Ltd. Nippon Koei Latin America-Caribbean Co., Ltd.		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Due to COVID-19, it was not possible to conduct a field survey. Therefore, the survey was conducted through questionnaires and interviews with AMLURB.

1 Relevance

<Consistency with the Development Policy of Brazil at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of the government of Brazil, as waste management including E-waste was one of the priority programs in the "Multi-Year Plan" (2012-2015) formulated by the government of Brazil.

<Consistency with the Development Needs of Brazil at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs in Brazil, such as the comprehensive management of waste, which focused on the sharing of responsibility among stakeholders for the proper disposal of products along their life cycles.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the "Country Assistance Policy for Federative Republic of Brazil" (2012), which provided support for "urban issues and environmental and disaster prevention measures" including environmentally friendly urban development as one of the two priority areas.

<Appropriateness of Project Design/Approach>

While the project implementation, the implementing agency was abolished due to administrative reform and a new organization was established. However, the organization structure, staffing and budget are unforeseen at the time of ex-post evaluation, which has affected the evaluation result of sustainability. On the other hand, although the achievement of the partial project purpose was delayed, it was achieved after the project completion and the other project effects have continued and the overall goal has been achieved. Especially, the

[1] A series of processes to return products after disposal to private businesses for reuse, recycling, and proper treatment and disposal

facilitation of RL as the overall goal, has been secured by the federal government's decree and, therefore, the project planning and approach were appropriate.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The project purpose was partially achieved at the time of project completion. During the project period, the federal government proposed a scheme to the Ministry of Development, Commerce, and Industry to utilize subsidies for the construction of E-waste recycling facilities. On the other hand, lessons learned from the pilot project were not reflected on the federal government's solid waste policy, although they were being applied throughout the country, in the state of Sao Paulo, and in the city of Sao Paulo.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

Since the project completion, the project effects have continued. The preferential policies proposed to the federal government have been adopted, and a sector agreement on the implementation of RL was signed in 2019. Through the sector agreement, stakeholders in the manufacturers of household electronic products have been implementing a series of actions for the implementation of the national solid waste policy. Although the solid waste policy did not reflect the lessons learned from the pilot project at the time of project completion, the Ministry of Environment introduced collaboration with the private sector in solid waste policy at the time of the ex-post evaluation, based on the lessons learned that working with private waste picker cooperatives (informal waste collectors) were effective in RL of electronic equipment.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The overall goal has been achieved at the time of the ex-post evaluation.

At the federal level, a sector agreement on the implementation of RL for electronic products and their components was signed in 2019, and the Decree No. 10,240 was issued in 2020 with the same content as the sector agreement (Indicator 1). At the federal level, Decree No. 10,240 ANNEX 2 sets a five-year collection target rate starting in 2021; the goal is for 17% of E-waste to be collected by the fifth year (2025). On the other hand, at the local level, there was no consensus on legislation and, at the municipal level, AMLURB had many difficulties in convincing the private sector to sign commitment clauses. For example, the collection rate for large appliances is not mentioned in the local law. This is because the municipality believes that collection should be regulated at the federal level. However, in Sao Paulo, a law (No. 17,471) was enacted and entered into force in September 2020, awaiting the publication of the regulating the Decree (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

Positive impacts related to the social environment were observed at the time of the ex-post evaluation. The project worked with a cooperative of waste pickers, who were socially vulnerable and had difficulty finding work in the formal labor market and led to the creation of work and income for these people. The cooperation has been expected to continue to operate as a Consolidation Center commissioned by the private sector or as a dismantling center for small electronic equipment. On the other hand, the awareness of the residents was very slow, and since electronic equipment has been very expensive in Brazil, they always have found value in it and are reluctant to throw it away, preferring to donate it to charity, which was a limitation for the mechanisms and activities introduced in the project to have a greater impact. However, the idea of reusing electronic devices is a part of the 3Rs and it has not been denied.

No negative impacts were observed at the time of the ex-post evaluation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Actions for improving implementation of reverse logistics are presented by the federal government.	Indicator 1: At least one federal government incentive, such as financing for capital investment or tax incentives, is proposed during the project period.	Status of the Achievement: Achieved (continued) (Project Completion) ・ A scheme to utilize subsidies in the construction of E-waste recycling facilities and other facilities was proposed to the Ministry of Development, Commerce and Industry. Other schemes were also considered, such as providing incentives to consumers who emit E-waste, and exemptions from transportation taxes on E-waste transportation. (Ex-post Evaluation) ・ The above preferential policies proposed to the federal government have been adopted. The sector agreement on the implementation of the RL for electronic products and their components was signed in 2019. Through the sector agreement, stakeholders in the manufacturers of household electronic products have implemented a series of actions for the implementation of the national solid waste policy. ・ Furthermore, the Decree No. 10,240 was issued in 2020 with the same content as the sector agreement.	Project Completion Report, AMLURB
	Indicator 2: Lessons learned from the pilot project are reflected in federal solid waste policy.	Status of the Achievement: Not achieved (Achieved) (Project Completion) ・ Lessons learned from the pilot project were not reflected in the federal government's solid waste policy. However, the lessons learned were being applied throughout the country, the state of Sao Paulo, and the city of Sao Paulo. (Ex-post Evaluation) ・ Lessons learned from the pilot project confirmed the effectiveness of working with private waste picker cooperatives for RL of electronic equipment, and	Project Completion Report, AMLURB

		the Ministry of Environment introduced collaboration with the private sector in its solid waste policy.	
(Overall Goal) Implementation of reverse logistics are facilitated.	Indicator 1: R/L is initiated by at least one sector agreement or commitment, or a decree at the federal or municipal level by 2020 in Brazil.	(Ex-post Evaluation) Achieved ・ At the federal level, a sector agreement on the implementation of RL of electronic products and their components was signed in 2019, and Decree No. 10,240 was issued in 2020 with the same content as the sector agreement. ・ At the municipal level, the decree has not yet been issued due to the COVID-19. In Sao Paulo, a municipal law requiring the private sector to implement the RL system was promulgated in September 2020, but has not yet entered into force.	AMLURB
	Indicator 2: Signed sector agreements or commitments set the target for collection rate.	(Ex-post Evaluation) Achieved ・ At the local level, there is no consensus on legislation, for example, the collection rate of large appliances has not been mentioned in the local law; AMLURB has assumed that it would take time to convince the private sector to sign the commitment clause at the municipal level. However, the law No. 17,471 was enacted and entered into force in September 2020 in the city of Sao Paulo, awaiting the publication of the regulating Decree. ・ At the federal level, Decree No. 10,240 ANNEX 2 sets a five-year collection target rate starting in 2021; the goal is for 17% of E-waste to be collected by the fifth year (2025).	AMLURB

3 Efficiency

Although the project cost exceeded the plan (ratio against the plan: 106%), the project period was as planned (ratio against the plan: 100%). Outputs were produced as planned. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

The waste law enacted in 2010 has regulated waste in general, and based on the results of the project, the Decree No. 10,240 was enforced in 2020, clarifying in more detail the roles of each producer and user, product sorting, etc. related to RL.

< Institutional/Organizational Aspect>

Due to the administrative changes implemented since July 2021, AMLURB was abolished, and SP Regula is established. With the abolition of AMLURB, waste-related issues have been handled by SP Regula together with other secretariats. Although the establishment of the new organization has not completed at the time of ex-post evaluation, the transition to SP Regula will be proceeded gradually since each task set the deadline.

<Technical Aspect>

Since the structure of SP Regula as the implementing organization has not been established, the technology has not been maintained, and the guidelines have not been utilized.

However, since the staff of the former AMLURB has been scheduled to be transferred to the new SP Regula, the results of the project will be taken over and the knowledge and skills will be maintained.

<Financial Aspect>

The SP Regula as the implementing organization has not yet been established, and no budget has been allocated.

<Evaluation Result>

In light of the above, uncertainties have been observed in terms of the institutional/organizational and financial aspects of the implementing agency and some problems have been observed in terms of the technical aspect. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and the Overall Goal to facilitate implementation of reverse logistics, through the presentation on actions for improving implementation of reverse logistics from the federal government. Regarding sustainability, although AMLURB, as the implementing agency for the project, was abolished and a new organization, SP Regula, has been established, its organizational structure and responsible officers have not yet been determined, and no budget has been allocated, but the results of the project will be taken over and the knowledge and skills will be maintained since the former AMLURB staff will be transferred to SP Regula. As for efficiency, the project cost slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

The RL for E-waste is an issue that must be addressed by the entire government and the private sector in an integrated manner. It is necessary to enact appropriate laws at the federal level, establish a mechanism at the three levels of government (federal, state, and municipal) for relevant government agencies and the private sector to implement these laws, and follow up and monitor the implementation status.

Lessons Learned for JICA:

In the implementation of the project, it was a challenge to disseminate the concept of RL for E-waste to the citizens and the private sector, while respecting the idea of taking good care of belongings, since many of them disposed of appliances easily without recycling them due to the lack of appropriate disposing procedures. In general, internalization of new concepts and customs in Brazil may require a great deal of communication. As an example, the project provided training and learning about RL for E-waste to both AMLURB and stakeholders, including an electronics cooperative in Sao Paulo, which provided an opportunity for dialogue between the public and private sectors. Future JICA projects in Brazil can be expected to include collaboration and strengthening of relationships not only with government agencies but also with private sector organizations by providing training and seminars subject to both the public and private sector as a

project component to promote the use of E-waste to the citizens and the private sector.

In addition, to ensure that administrative reforms and reorganizations do not affect sustainability, JICA should propose to the counterpart government at the time of project formation that, when the counterpart government formulates these policies and designs institutions, the roles of the implementing agencies and the necessary organization structures should be clearly stated. As the result, such information can be used as a basis for staffing and budget allocation at the time of evaluation.

Recycling bins to collect electronic products installed at City Hall in the Santana District

Recycling bins to collect electronic products installed at City Hall in the Municipal District of Matarazzo

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Philippines Office: March 2022

Country Name	**Project for Enhancing Capacity on Weather Observation, Forecasting and Warning**
Republic of the Philippines	

I. Project Outline

Background	Every year, the Philippines is exposed to various meteorological disasters, such as typhoons and monsoon rains which bring floods, storm surges, landslides and other natural hazards that cause economic damages and loss of lives. According to the Office of Civil Defense (OCD), 12 tropical storms and typhoons in 2011 alone affected more than 3.5 million people and had caused 1,557 deaths and severe damages to infrastructures, agriculture and people's economic activities. As such, disaster risk management became a critical issue for poverty reduction. In response, JICA implemented a grant aid project, "The Project for Improvement of the Meteorological Radar System" (2009-2014) for the installation of three major doppler radars to provide more accurate typhoon warning signals and typhoon information. However, it was deemed necessary to strengthen the capacity of the staff of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), an agency responsible for operating meteorological radars and disseminating weather information, on weather observation, forecasting and warning based on the effective use of meteorological radars and on effective dissemination about weather-related information.		
Objectives of the Project	Through implementation of a baseline survey about operation and maintenance status of radars, provision of trainings on calibration, maintenance, operation of an analysis tool for satellite image, weather guidance and others; development of guidelines and manuals on calibration and maintenance; creation of a website and a mobile application to disseminate meteorological information; and planning and implementation of action plans for awareness-raising activities, the project aimed at enhancing the capacity of PAGASA Central Office and Southern Luzon PAGASA Regional Services Division (Southern Luzon PRSD) in terms of weather observation, forecasting and warning, thereby contributing to the enhancement of the capacity of all PAGASA Regional Services Divisions (PRSDs).		
	1. Overall Goal: Capacity of all PAGASA Regional Services Divisions (PRSDs) is enhanced in terms of weather observation, forecasting and warning. 2. Project Purpose: Capacity of PAGASA Central Office and Southern Luzon PRSD is enhanced in terms of weather observation, forecasting and warning.		
Activities of the Project	1. Project site: Metro Manila and Southern Luzon 2. Main activities: 1) Implementation of a baseline survey about operation and maintenance status of radars, 2) Provision of trainings on calibration, maintenance, operation of an analysis tool for satellite image, weather guidance and others, 3) Development of guidelines and manuals on calibration and maintenance, 4) Creation of a website and a mobile application to disseminate meteorological information, 5) Planning and implementation of action plans for awareness-raising activities, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 13 persons 2) Trainees received: 4 persons 3) Equipment: PC, scanner-printer compound apparatus, projector, etc. 4) Local expense: cost for project activities Philippine Side 1) Staff allocated: 36 persons 2) Land and facility: an office space in PAGASA central office 3) Local expense: utility cost, etc.		
Project Period	(ex-ante) March 2014 – February 2017 (actual) June 2014 – May 2017	Project Cost	(ex-ante) 250 million yen (actual) 256 million yen
Implementing Agency	Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)		
Cooperation Agency in Japan	Japan Meteorological Business Support Center		

II. Result of the Evaluation

<Constraints on Evaluation>

・ Due to COVID-19 quarantine restrictions, face-to-face interviews and field visits could not be conducted. To address these limitations, questionnaire surveys, telephone interviews and online meetings with former project counterparts were carried out. Phone surveys with non-pilot local governments were also conducted.

1 Relevance

<Consistency with the Development Policy of the Philippines at the Time of Ex-Ante Evaluation >

The project was consistent with the national development policies of the Philippines such as the "Philippine Development Plan" (2011-2016) aiming at enhancement of monitoring, forecasting, early warning, risk evaluation, and risk management at national and regional levels as one of the strategic frameworks in a national disaster area.

<Consistency with the Development Needs of the Philippines at the Time of Ex-Ante Evaluation >

The project was consistent with development needs of the Philippines such as to strengthen the capacity of PAGASA's staff on weather observation, forecasting and warning based on the effective use of meteorological radars and on effective dissemination about weather-related information.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's Country Assistance Program for the Republic of the Philippines (2012) positioned

"overcoming vulnerability and stabilizing bases for human life and production activity" as one of the priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is evaluated high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

The Project Purpose was achieved by the time of project completion. The average operation rate (i.e. data are provided to PAGASA from radars) of three radars was more than 80% at the time of project completion (Indicator 1). Also, the quantitative forecasting was issued by using weather guidance (Indicator 3). 80% of concerned agencies such as the Municipal Disaster Risk Reduction Management Office (MDRRMO) and the Department of Education who were surveyed agreed that laymanized meteorological information was delivered to them on a timely basis by the time the project was completed (Indicator 3).

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

The project effects have been partially continued at the time of ex-post evaluation. Although two radars in Guiuan and Aparri have remained having an operational rate of more than 80%, the operational rate of the radar in Virac declined to 40% since November 2020 due to the damage caused by super typhoon Goni at the same time. Damage assessment was already done by the maintenance service provider in 2021 and repair is expected to take place soon after PAGASA obtain the budget. Quantitative forecasting has been continuously issued by using weather guidance after project completion. Laymanized meteorological information has been delivered on a timely basis to concerned agencies such as the Office of Civil Defense (OCD), the Philippine Coast Guard (PCG) and Local Government Units (LGUs) in project sites even after project completion.

On the other hand, the action plan developed by the project has not been continuously implemented after project completion. Also, the software for radar data calibration with rain gauge data developed by the project has not been utilized after project completion because of the inadequacy of rain gauge data to work on and because the number of rain gauges installed in the Virac radar site was later found to be insufficient to develop the Quantitative Precipitation Estimation (QPE). Because of this reason, PAGASA instead focused on archiving radar data and Automatic Weather Station (AWS) data. Furthermore, the website and the mobile phone application developed by the project have not been continuously operated after project completion as PAGASA later shifted to a more sophisticated Application Programming Interface (API) which does not match with the mobile application developed by the project as it requires major changes in the source code. Nevertheless, PAGASA is currently developing a unified mobile application which hopes to revive the utilization of the mobile application developed by the project. In addition, PAGASA is improving its new website for better use of the general public, aviation and marine industries using local languages. As mentioned above, the software for radar data calibration with rain gauge data, the website and the mobile phone application developed and improved by the project have not been utilized continuously after the project completion. However, PAGASA has been taking actions to continue the project effects by developing systems to replace them. For this reason, the continuation status of indicator 2 and 3 of the Project Purpose at the time of ex-post evaluation was judged as "partially continued".

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

The Overall Goal was achieved at the time of Ex-post evaluation. According to the results of the phone interview surveys with representatives of local governments (provinces) in non-pilot areas (16 provinces in North Luzon and 17 provinces in Visayas), more than 80% of the interviewees agree that laymanized meteorological information is timely delivered to them by the PAGASA Regional Services Divisions (PRSD) (Indicator 1). Although some of the project outputs were not continued after the project completion as mentioned above, it seems that this did not affect much the achievement of overall goal because PAGASA took alternative measures to mitigate its negative impacts.

<Other Impacts at the Time of Ex-Post Evaluation>

There have been some positive impacts observed at the time of ex-post evaluation. More people are following warnings of PAGASA especially those located in typhoon-vulnerable areas as evidenced by the various reports of LGUs and the National Disaster Risk Reduction Management Council (NDRRMC) through OCD. Public reception and thrust of PAGASA's services are evidently established firmly as PAGASA continues to provide more articulate weather forecasts and warnings. No negative impact on natural environment was observed.

<Evaluation Result>

In sum, the Project Purpose was achieved, and the project effects were partially continued at the time of ex-post evaluation. Although the software for radar data calibration, the PAGASA website and the mobile phone application developed and improved by the project have not been utilized continuously after the project completion, the Overall Goal was achieved. This ex-post evaluation made an evaluation judgement of effectiveness/impact with more emphasizing on the achievement status of Overall Goal.

Therefore, the effectiveness/impact of the project is evaluated high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Capacity of PAGASA Central Office and Southern Luzon PRSD is enhanced in terms of weather observation, forecasting and warning.	Indicator 1 Average operation rate (i.e. data are provided to PAGASA from radars) of three radars becomes more than 80% in the third year.	Status of the Achievement (Status of the Continuation): achieved (partially continued) (Project Completion) • In order to achieve Outputs 2 and 3 of the project, it was necessary to have access to observation data (such as surface observation, AWS, Radar) and incoming data (like satellite data and NWP). As PAGASA already stores such data on their data server, the average operation rate of three radars became more than 80%. (Ex-Post Evaluation) • Two radars in Guiuan and Aparri have remained having an operation rate of more than 80%. However, the operation rate of the remaining radar in Virac declined to 40% since November 2020 because it was damaged by super typhoon Goni in November 2020. • Damage assessment was intermittently conducted by the maintenance service provider in 2021 because of COVID-19	Project Completion Report, Terminal Evaluation Report, Responses to questionnaire from former project counterparts in PAGASA

		pandemic travel restrictions. Repair of the damaged radar is expected to take place soon after PAGASA obtain the budget.	
	Indicator 2 Quantitative forecasting is issued by using weather guidance.	Status of the Achievement (Status of the Continuation): achieved (partially continued) (Project Completion) • Quantitative forecasting was issued by using weather guidance. (Ex-Post Evaluation) • Quantitative forecasting has been continuously issued by using weather guidance after project completion. • In making daily temperature forecast, the operational Temperature Guidance Production System (part of the weather guidance) is used as reference and guide, without which daily temperature forecast could not be delivered. However, this system was originally developed by PAGASA.	Project Completion Report, Terminal Evaluation Report, Responses to questionnaire from former project counterparts in PAGASA
	Indicator 3 More than 80% of concerned actors (i.e. OCD; PCG; LGUs in pilot PRSD) agree that laymanized meteorological information is timely delivered to them in the third year. OCD: Office of Civil Defense PCG: Philippine Coast Guard LGU: Local government unit	Status of the Achievement (Status of the Continuation): achieved (partially continued) (Project Completion) • 24 people out of 30 people of concerned agencies such as Municipal Disaster Risk Reduction Management Office (MDRRMO) and Department of Education marked “Excellent” or “Good” against the question “Do weather information released by South Luzon Province timely?”. (Ex-Post Evaluation) • Laymanized meteorological information has been timely delivered to concerned agencies such as OCD, PCG and LGUs in project sites after project completion. • The new website of PAGASA-enhanced further its contents for better use of the general public, aviation and marine industry. The enhancements include improvements using local language. However, this new website was originally developed by PAGASA.	Project Completion Report, Responses to questionnairefrom former project counterparts
(Overall Goal) Capacity of all PAGASA Regional Services Divisions (PRSDs) is enhanced in terms of weather observation, forecasting and warning.	Indicator 1 More than 80% of LGUs in non-pilot PRSDs agree that laymanized meteorological information is timely delivered to them.	Status of the Achievement: achieved (Ex-Post Evaluation) • According to the interview survey with representatives of the local governments (provinces) in non-pilot areas (16 provinces in North Luzon and 17 provinces in Visayas), more than 80% of the interviewees agree that laymanized meteorological information is timely delivered to them by the PAGASA Regional Services Divisions (PRSD).	Survey results in 33 provinces in non-pilot areas.

3 Efficiency

The project period was within the plan (ratio against the plan: 100%), the project cost slightly exceeded the plan (ratio against the plan: 102%). The outputs were produced as planned. Therefore, efficiency of the project is evaluated fair.

4 Sustainability

<Policy Aspect>

The existing government policies such as “the Philippine Development Plan” (2017-2022), the “National Disaster Risk Reduction and Management Plan” (2011-2028), and the “Climate Change Action Plan” (2011-2028) are supporting the promotion/dissemination of weather monitoring, forecasting, early warning, risk evaluation and risk management.

<Institutional/Organizational Aspect>

PAGASA, which is under the Department of Science and Technology (DOST), is responsible for monitoring meteorological phenomenon and for providing meteorological information. PAGASA is consisted of the Office of the Administrator and 7 Divisions including Weather Division (41 staff) which is responsible for dissemination of forecasting products via all medium and Public Information Unit, Research & Development &Training Division (4 staff) which is responsible for promoting PAGASA’s services. The sufficient number of staff is allocated to continue the project activities such as quantitative forecasting using weather guidance data, making daily temperature forecast using the Temperature Guidance Production System, among others.

<Technical Aspect>

PAGASA sustains skills and knowledge of its staff in promoting/disseminating weather monitoring, forecasting, early warning, risk evaluation and risk management by sending staff to trainings/workshops conducted by other organizations from time to time as well as attending to in-house training and workshops. Most of the staff who were sent to Japan for training during project implementation are still working with PAGASA. They conduct peer-to-peer mentoring and coaching to new staff and share their skills and knowledge. Most of the main equipment such as automatic rain gauges, pressure/de-pressure pump (model VI), digital barometer (3 sensors) necessary to sustain knowledge and skills of staff are still functional and continued to be utilized. The operation and maintenance manuals and guidelines for the weather radar system and other equipment introduced by the project have been utilized.

<Financial Aspect>

PAGASA has continuously secured the necessary budget for promoting or disseminating weather monitoring, forecasting, early warning, risk evaluation and risk management.

Budget for promoting /disseminating weather monitoring, forecasting, early warning, risk evaluation, and risk management targeted by the project

(Unit: in Philippine Peso)

Item	2017	2018	2019	2020	2021

	(Actual)	(Actual)	(Actual)	(Actual)	(Plan)
Personal Services	520,789	519,352	542,997	553,273	605,464
Maintenance and Other Operating Expenses	459,604	470,722	536,092	471,333	549,364
Capital Outlay	2,347,890	1,496,980	567,088	419,955	666,224
Total	3,328,283	2,487,054	1,646,177	1,444,561	1,821,052

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy, institutional /organizational, technical, financial aspects. Therefore, the sustainability of the project effects is evaluated high.

5 Summary of the Evaluation

The project achieved the Project Purpose which aimed to enhance the capacity of PAGASA Central Office and Southern Luzon Regional Services Divisions (PRSD) in terms of weather observation, forecasting and warning. Also, the continuation status of project effects was partially continued at the time of ex-post evaluation. The Overall Goal which aimed at enhancing the capacity of all other PAGASA PRSDs in terms of weather observation, forecasting and warning has also been achieved. As for efficiency, the project cost slightly exceeded the plan.

Considering all the above points, this project is evaluated overall to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is recommended that PAGASA clarify the cost estimates for the repair of damaged radar in Virac, coordinate repair schedules with the maintenance service provider and conduct the necessary repair activities on site but should be compliant with the health protocol standards implemented by the central and local governments

Lessons Learned for JICA:

- In this project, some of the project outcomes such as the software for radar data calibration with rain gauge, the action plan, the website and the mobile phone application have not been utilized after project completion. To ensure continued usability and workability of project products such as data calibration software, it is important to conduct first a complete assessment on the availability of necessary components such as sufficiency of rain gauges to collect rainfall data before developing the software.

Japanese expert conducting training on temperature guidance to PAGASA counterparts

An Automatic Rain Gauge equipment installed for radar calibration and quantitative precipitation estimation

conducted by Ethiopia Office: March, 2023

Country Name	**Project for Capacity Development for Improving Learning Achievement in Mathematics and Science Education in Ethiopia**
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	While Ethiopia had been making steady progress in improvement of net enrollment in primary education, improving the quality of that education had been a remaining challenge. For example, according to the results of the National Learning Assessment (NLA), which is conducted every four years, the overall score for the 8th (final) year of primary education was 35.3% (2010), which was below the national minimum (50%). The situation was particularly serious in the area of arithmetic, where the percentage was 25.3%. One of the reasons for that situation was a lack of classroom practice to improve children's academic ability due to the lack of teachers' teaching skills though the skills and techniques that children should acquire through learning were clearly stated in the curriculum. Also, the issue was the lack of consistency between questions for the achievement tests and the curriculum and classroom practices.		
Objectives of the Project	Through (1) conducting mathematics and science training for mathematics and science subject working group members, (2) developing Item Pools*1 for Grade 7 and 8 and sample Item Polls for Grades 4 and 10 in mathematics and science education, (3) capacity development on related personnel for developing Item Banks*2, (4) developing Workbooks*3 on mathematics and science for Grade 7 and 8, (5) elaborating "Assessment session module on mathematics and science education for Grade 7 and 8 " based on the Item Pools as one of the CPD (Continuous Professional Development) modules, (6) elaborating the "Assessment session module on mathematics and science education for Grade 7 and 8" based on the Item Pools as one of the CTE (College of Teacher Education) modules , (7) developing action plans for the utilization of the developed materials, the project aimed at enhancing the quality of curriculum strategy, and thereby contributing to the pedagogical basic foundation at Grade 7 and 8 in order to improve students' learning achievement. *1 Item Pool: A database of learning items that can be shared among the Ministry of Education's educational evaluation (assessment) stakeholders. Basically, it is open to the public. *2 Item Bank: A database of test items used by specific parties, such as the National Educational Evaluation and Testing Organization and state education bureaus, for specific purposes, such as diploma examinations and academic assessments. It is not open to the public and confidential. *3 Workbook: A study material (e.g., a question book) that contains a comprehensive set of high-quality question items for the purpose of improving the academic performance of children and students.		
	1. Overall Goal: Pedagogical basic foundation is prepared mainly at Grade 7 and 8 to improve students' learning achievement. 2. Project Purpose: Quality of curriculum strategy to improve students' learning achievement in mathematics and science education at target grades is enhanced under curriculum consistency.		
Activities of the project	1. Project site: whole country of Ethiopia 2. Main activities: (1) conducting training for mathematics and science subject working group members, (2) developing Item Pools for Grade 7 and 8 and sample Item Pool for Grade 4 and 10 in mathematics and science education, (3) capacity development training on related personnel for developing Item Banks, (4) developing Workbooks on mathematics and science for Grade 7 and 8, (5) elaborating "Assessment session module on mathematics and science education for Grade 7 and 8" based on the Item Pool as one of the CPD modules, (6) elaborating the "Assessment session module on mathematics and science education for Grade 7 and 8" based on the Item Pools as one of the CTE modules, (7) developing action plans for the utilization of the developed materials 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 10 persons 2) Trainees received: 38 persons 3) Equipment: PCs, printer, facsimile, scanner, and projector Ethiopian Side 1) Staff allocated: 90 persons		
Project Period	(ex-ante) August 2014 –July 2017 (actual) October 2014 – September 2017	Project Cost	(ex-ante) 508 million yen, (actual) 471 million yen
Implementing Agency	Ministry of Education (MoE) - Mathematics and Science Improvement Center (MSIC) - National Educational Assessment and Examinations Agency (NEAEA) - Curriculum Development and Implementation Directorate (CDID) - Teachers and Educational Leaders Development Directorate (TELDD) - 11 Regional Education Bureaus (REBs) Among them, MSIC served as the National Coordinator of this Project.		
Cooperation Agency in	International Development Center of Japan Inc., Koei Research & Consulting Inc.		

Japan	
Related Project	National Pilot Project for Strengthening Mathematics and Science Education (Technical cooperation project, 2011-2014)

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Ethiopia at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Ethiopia. The "Fourth Sector Development Program" (ESDP IV 2010/11-2014/15) emphasized the importance of strengthening scientific and engineering human resources in order to contribute to economic development in line with national policy. The program focused on the promotion and improvement of science and mathematics education in primary and secondary education. The program also indicated that it would focus on improving the quality of education in response to the pupils' poor academic performance. Specifically, in the General Education Quality Improvement Program (GEQIP1: 2009-13, GEQIP2: 2014-18), which was being implemented with support from development partners, the government was focusing on "curriculum, textbook, and assessment development," "teacher development."

<Consistency with the Development Needs of Ethiopia at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Ethiopia for improving quality of mathematics and science education. The results of NLA conducted in 2010, were particularly low in the area of arithmetic, for which lack of teaching skills as well as inconsistency between questions for the achievement tests and the curriculum and classroom practices were main factors.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with Japan's ODA policy to Ethiopia. Education was one of the priority areas under "the Country Assistance Policy to Ethiopia" (2012). A particular emphasis was placed on improving the quality of science and mathematics education.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved. Regarding indicator 1 "Materials developed by the Project have curriculum consistency" can be judged as achieved because the workbooks for Grade 7 and 8 and Item Pool were developed to cover all the units specified in the curriculum; furthermore, INSET module and PRESET module have been developed based on the Item Pool.

The indicator 2 "Workshop participants' understanding about the importance of curriculum consistency in terms of the rate of participants who strongly agreed with its importance" can be judged as "achieved" because the number of participants who strongly agree with the view that "the curriculum (syllabus), textbooks and Primary School Leaving Certificate Examination (PSLCE) should be mutually consistent" was increased compare to the time of commencement of the project.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

As mentioned above, the continuation status of the project's effects is analyzed as factors to achieving the Overall Goal. However, the indicator 1 was not verified due to the ongoing curriculum revision. Once the curriculum revision will be completed, the materials developed in this project also might be revised based on the new curriculum.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved. As for the indicator 1 "Workbook developed by the Project are distributed to schools", no evidence has been found that the workbooks developed by the project have been distributed to schools. The workbooks have not been distributed due to several reasons. 1) There was a restructuring in CDID, and the new director and other staff have not followed the distribution and printing. 2) Further, CDID has been engaged in total curriculum revision and reluctant to advocate workbooks that were prepared based on the previous curriculum/textbooks. Nonetheless, interviews with mathematics subject specialists from MSIC and REB staff who were members of the Continuous Classroom Assessment (CCA) under the General Education Quality Improvement Program for Ethiopia (GEQIP-E) (2017-2021)[1] confirmed that GEQIP-E supports and finances the development of CCA materials based on the project's workbooks and item pools, though GEQEP-E investment has been only in math's for G7&8. It has excluded science subject because of budget issue. The materials were printed and distributed for the first-phase schools of 2,160 schools for teacher training and orientation purpose, and they are being used by GEQIP-E CCA for grade 7&8 mathematics teachers training.

The indicator 2 "Assessment and Evaluation session module on mathematics and science education is utilized at CTE and INSET[2]" has been achieved. From the extensive interviews and group discussions, it is positively confirmed that after the project completion, MSIC endorsed and continued to adopt and utilize the module on assessment. MSIC has been fully utilizing assessment module as part and parcel of the INSET program. Almost all MSIC national trainers who were interviewed for this survey confirmed that they currently use the modules by incorporating it with the existing INSET modules to train key teachers, supervisors, school directors and regional trainers. Officials at MSIC said "we have been using assessment and evaluation check list module as our part of teachers and school leaders training even this year. We also use assessment module for teacher training in how to develop good item for class exam as well as standard tests."

The survey indicates that TELDD, that is responsible for Pre-service Education and Training (PRESET), distributed the modules to CTEs throughout the country, and the module has been utilized at CTE level. TELDD experts and CTE teachers acknowledged that the modules met their expectation as it took practical experiences in CTE classrooms well into consideration. However, at the time of ex-post evaluation, TELDD was coordinating with CDID and holding consultation workshops with CTE to revise the current CTE curriculum in accordance with the new education curriculum which will be in school as of next year. Experts at TELDD expressed their hope, Assessment and Evaluation session module prepared by the project outputs will be further used as a good reference and incorporated in the upcoming new version of CTE module.

<Other Impacts at the time of Ex-post Evaluation>

A positive impact has been observed that INSET and PRESET module developed by the project has been utilized as a base for developing other modules for different grades and target with in MSIC and CTE, such as G9-10 teachers training manual (in preparing

[1] CCA is one of GEQEP- E Result Area designated for improving learning outcome in mathematics for G7 and G8 students in targeted schools.

[2] INSET refers to In-service Education and Training.

quality items and item analysis).

The other positive impact has also been observed. The project intended to contribute to the improvement in children's academic ability, i.e. improvement in Primary School Leaving Certificate Examination (PSLCE) in mathematics and science and NLA. National Educational Assessment and Examination Agency (NEAEA)'s data showed that PSLCE and NLA results in math's and science for Grade 8 students has showed slight progress over the past few years partly because the quality of the exam items is improved because the item writers both at NEAEA and REBs have continuously improved their capacity of developing good items that are friendly to students. This project involved NEAEA experts who developed items for NLA and REB experts who prepared exams for PSLCE for 3 years during the project implementation and the project provided item pools data over 1000 questions for math and science subjects that could be easily accessible for them for reference to develop good items for NLA and PSLCE.

No negative impacts on the natural environment have been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Quality of curriculum strategy to improve students' learning achievement in mathematics and science education at target grades is enhanced under curriculum consistency.	Indicator 1: Materials developed by the Project have curriculum consistency.	Status of the Achievement: Achieved (not verified) (Project Completion) - The Workbooks for Grades 7 and 8 and Item Pool had been developed covering all the units specified in the curriculum. INSET module and PRESET module have been developed based on the Item Pool. - The project seemed to contributed for improving "curriculum strategy" by gradually constructing a backward loop from assessment to textbooks and curriculum. Through the workshop, participants who were responsible for the development of curriculums and textbooks seemed to have realized that the textbooks and curriculums need review and improvement, as well as importance of consistency throughout the curriculum. In view of the latest news that MoE was considering revising the curriculums at the time of project completion, those project participants were expected to have a pivotal role in the national endeavor. The project was expected to achieve its project purpose by supporting those officials to take lead in this important duty. . (Ex-post Evaluation) Continuation status was not verified as curriculum revision was going on. In the future when curriculum revision is completed, they might be possibility that developed education material might be revised based on the new curriculum.
	Indicator 2: Understandings on quality of curriculum policy under curriculum consistency in mathematics and science education are deepened among the stakeholders. Workshop participants' understanding about the importance of curriculum consistency in terms of the rate of participants who strongly agreed with its importance: In 2014 28.6% In 2017 50%	Status of the Achievement: achieved (continued) (Project Completion) The rate of the participants who strongly agree with the view that "the curriculum (syllabus), textbooks and Primary School Leaving Certificate Examination (PSLCE) should be mutually consistent" was: 2014 28.6% 2015 51.2% 2017 46.5% It is clear that the participants of the workshops have better understood the importance of curriculum consistency than before the project started. However, that rate in 2017 was slightly below the target(50%). (Ex-post Evaluation) Continuation status of the project effects (project purpose indicator 2) will be verified as factors to achieve the Overall Goal indicator 2."
(Overall Goal) Pedagogical basic foundation is prepared mainly at Grade 7 and 8 to improve students' learning achievement.	Indicator 1: Workbook developed by the Project are distributed to schools.	Status of the Achievement: Not achieved. (Ex-post Evaluation) Evaluation team confirmed that regions received the soft copy of the developed workbooks and items pools both in soft copy and printed version but there was no evidence that shows workbooks and item pools printed and distributed to schools.
	Indicator 2: Assessment and Evaluation session module on mathematics and science education" is utilized at CTE*1 and INSET*2.	Status of the Achievement: Achieved. (Ex-post Evaluation) - After the project completion, MSIC endorsed and continued to adopt and utilize the INSET module on assessment. MSIC adopted and has been fully utilizing assessment module as part and parcel of the INSET program. - TELDD distributed the module to CTEs throughout the country and has been utilized at CTE level.

The number of trainees who took modular courses for assessment at CTE and INSET:

	2018/19	2019/20*	2020/2021
CTE/PRESET	470	640	720
INSET	380	_	320

*CTE/PRESET data is only indicative and collected only from 3 CTE (Debreberhan, Assela and Hawassa CTE). Number of trainees reflected here is those who are for Integrated course, who took modular courses for assessment at the respective CTE

Source; Questionnaires and interviews with MSIC, CDID, TELLD, REBs and CTE.

3 Efficiency

Both the project cost and project period were within the plan (Ratio against the plan: 93%, 100%). The outputs were produced as planned. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Ethiopia government has set the policy for strengthening mathematics and science.

- Under the "Growth and Transformation Plan II" (GTP II) (2016) that aims for Ethiopia to be a lower middle-income country by 2025, education is set as one of six important policies, as important item of the education strategy, improving the quality of science and mathematics education and utilization of technology is emphasized at the general education.
- MoE, with the support of JICA, developed the "Mathematics and Science Education Policy Strategy" in 2016. The policy described a comprehensive strategy to enhance mathematics and science education.
- The government decided to carry out education reform in 2016, and as a first step, the "Ethiopian Education Development Road Map 2018-2030" was developed and launched in 2020. The road map stresses the importance of introducing STEM education in upper primary and secondary schools to strengthen science and technology. In addition, the importance of dissemination and strengthening the STEM education is proposed in the Education Sector Development Plan VI (ESDP VI).

< Institutional/Organizational Aspect>

MSIC, the main counterpart of the project has been promoted now into directorate level which mange the four departments (math's, biology, chemistry, and physics). MSIC has been fully functional and mainly tasked with the improvement of science and mathematics education through INSET in Ethiopia. According to MSIC, there are there are no problem to sustain the project effect in the same scale, however, to scale up the project outputs (Item pool, workbooks and INSET/PRESET modules) the organizational needs to increase its staff considering the workloads and the challenges such as lack of trained personnel at regional and cluster level (national trainers need to be increased so that MSIC can reach out in providing training extensively for key teachers throughout the country).

It is confirmed that REBs have had SMASEE structure[3] at the regional level. In other words, they have provided and coordinated SMASEE INSET Training, and they have had one expert for each subject (for mathematics, physics, chemistry and biology). They have also had SMASEE focal person at the zonal and sub city level (units below regions) respectively. Therefore, MSIC anticipates utilizing this structure to scale up the results of this project in the future if additional resource is secured from GEQIP-E, as it is mandate of MSIC that MSIC supports REBs with the standardized modules to further cascade SMASSE training.

- Material (Textbooks and workbooks etc.) development and implementation have been under the auspices of CDID. CDID has had similar arrangement at the REB level to implement curriculum material developed and shared by CDID to in schools at the local level. Implementation of PRESET curriculums has been done by regions and CTE themselves; however, TELDD has strongly been involved in initiating, designing and modifying PRESET curriculums and also has monitored the implementation in collaboration with REB's and CTE's.

<Technical Aspect>

Interviews with MoE, REBs and experts indicate that at federal level (MoE), project counterparts have had high quality science and mathematics contents knowledge and skills of training provision and project management planning, monitoring and supervision skills. The reason is most of the project counterparts had an opportunity for short and long term training in Japan. Those exposures coupled with practical experience for providing training for INSET and PRESET service have sustained their skills and knowledge. Moreover, as mentioned in "2 Effectiveness/Impact", MSIC and TELDD have been fully utilizing the modules made by the project by utilizing existing training framework after completion of the project.

<Financial Aspect>

The table below shows the budget allocated for INSET from MoE; however, this does not include the one for cluster-based INSET. Consequently, the amount of budget has not been adequate considering the number of science and mathematics teachers who have not taken part in training.

MSIC has requested more budgets for the upcoming new fiscal year.

The lack of budget both at federal and regional level is a challenge to upscale the project outputs. Further, GEQIP-E fund has not allocated any part to these activities. On the other hand, as mentioned in "2 Effectiveness/Impact", GEQIP-E finances the development of CCA materials based on the project's workbooks and item pools. The materials were printed and distributed for the first-phase schools of 2,160 schools for teacher training and orientation purpose, and they are being used by GEQIP-E CCA for grade 7&8 mathematics teachers training.

Budget for INSET activities at MSIC

[3] SMASEE is a structure based on a technical cooperation project named "National Pilot Project for Strengthening Mathematics and Science Education in Ethiopia" SMASEE structure is envisioning cascading model. Federal trainers provide training for Regional TOT and Regional trainers provide TOT for cluster teachers and cluster teachers provide TOT for key teachers at school.

Unit: ETB

	2017/18	2018/19	2019/20
Budget for INSET activities at MSIC	5,900,035	8,900,000	9,400,000

<Source> MoE

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and partially achieved the Overall Goal through development of the curriculum consistent materials and dissemination of the developed material to the schools and the INSET / PRESET programs. As for the sustainability, slight problems have been observed in the financial aspects. However, the sustainable dissemination/expansion of the project effect by utilizing the international donor's fund and existing training framework can be observed. No problems have been observed in terms of the institutional/ organizational, technical and policy aspect.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- MoE (CDID) is engaged in total curriculum revision in the past two years and has validated the developed material. MSIC should play proactive role with CDID, TELDD, NEAA, REBs and CTE to integrate and scaleup best practices of the project outputs (item pool, and workbooks) into the ongoing curriculum revision by utilizing GEQIP-E fund.
- MSIC should constantly negotiate with senior MoE officials and other stakeholders at MoE that GEQIP-E fund should be realigned/focused for strengthening INSET programs (including for scaling up of good practice from the project) so as to improve students learning achievement through improving quality of teachers.
- MSIC needs to upgrade the capacity of MSIC experts so that they can provide quality training and monitoring support to REB's, CTE's and cluster level key teachers with the view reaching school level beneficiaries.
- MSIC needs to have strategic collaboration with TELDD and CTE in order to equip young teachers with continuous classroom assessment and evaluation of the project output.
- In order to support the science and math activities at all levels from region to schools continuously, MSIC should play key role and negotiate with MoE and REB's that all REB's should have science and math case team/structure at regional level and focal persons at zonal and woreda level.

Lessons Learned for JICA:

After completion of the project, JICA advisor has worked together with the science and math experts in MSIC very closely to provide technical support for the completed projects including this project by ensuring scale up activities are included in the annual and rolling plan of MSIC. Thus, generally, JICA needs to hold periodic consultations and technical follow-up with counterparts so that they can continuously follow up and scale up the project impact.

Figure 1 **Dr. Abrham, DG of MSIC discuss strategies with his directors on scaling up of LAMS Output nationwide**

Figure 2 MSIC national trainer providing training on class room assessment based on LAMS module

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Kenya Office: March, 2023

Country Name	Project for Capacity Development for Promoting Rural Electrification Using Renewable Energy
Republic of Kenya	

I. Project Outline

Background	Although the Ministry of Energy (MOEn) and the Rural Electrification Authority (REA) had been promoting electrification of unelectrified areas, the electrification rate of rural areas in Kenya as of 2009 was less than 10%. Most of renewable energy facilities in the unelectrified areas were small-scale; however, the local needs for electrification were very high, and challenges were to create models for the use and dissemination of appropriate technologies. As for technological development and research related to rural electrification by renewable energy, efforts had been made to improve adaption and durability of models; however, very few of them have reached the stage of widespread use and practical application. In terms of educational activities, there was no systematic course such as the "Renewable Energy Course," but only individual course items, and it was recognized that there was much room for improvement in both curriculum and teaching materials. As the quality of design and construction of power generation facilities using renewable energy by technicians from private contractors was not always high, the need for human resource development to promote rural electrification using renewable energy was rapidly increasing in Kenya. Also, securing the number and quality of trainers was an urgent issue.		
Objectives of the Project	Through (i) conducting joint researches, (ii) improving under and post-graduate education activities and (iii) preparing and conducting training program, the project aimed strengthening the capacity of Jomo Kenyatta University of Agriculture and Technology (JKUAT) on research and development (R&D), Education and Training in the field of rural electrification using renewable energy, thereby contributing to strengthening the technologies and human resources for rural electrification using renewable energy.		
	1. Overall Goal: Technologies and human resources for rural electrification using renewable energy are strengthened. 2. Project Purpose: Capacity of JKUAT in R&D (research and development), Education and Training in the field of rural electrification using renewable energy are strengthened in collaboration with other stakeholders in the field.		
Activities of the project	1. Project site: Nairobi 2. Main activities: (i) conducting joint researches, (ii) improving under and post-graduate education activities and (iii) preparing and conducting training program 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 21persons 2) Trainees received: 12 persons 3) Equipment: lab equipment, vehicle, PCs and others 4) Local cost: Operation cost, R&D and training Kenyan Side 1) Staff allocated: 24 persons 2) Land and facilities: Expert's office, training and laboratory spaces were provided.		
Project Period	(ex-ante) June 2011-May 2015 (actual) August 2011-January 2017 (Extended period: August 2015-January 2017)	Project Cost	(ex-ante) 253 million yen, (actual) 481 million yen
Implementing Agency	Institute of Energy, Environment and Technology (IEET), Jomo Kenyatta University of Agriculture and Technology (JKUAT)		
Cooperation Agency in Japan	Ashikaga Institute of Technology, Osaka City University		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Continuation status of the project effects are analyzed as factors to achieve the Overall Goal.

1 Relevance

<Consistency with the Development Policy of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Kenya. The "Vision 2030", a Kenya's national development plan, aims to transform the country into a newly industrialized nation in order to improve the lives of its people, and positions energy as the foundation for achieving economic, social, and political development.

<Consistency with the Development Needs of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs for renewable energy. Rural electrification of unelectrified areas was highly needed, as the electrification rate of rural areas in Kenya as of 2009 was less than 10%. However, there were challenges of creating models for use and dissemination of appropriate technologies. Very few researches related to the rural electrification by renewable energy had reached the practical adaptation, there was no systematic degree course on the renewable energy, and the technicians needed to upgrade their skills as the quality of design and construction of the facilities related to the renewable energy were low.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with Japan's ODA policy to Kenya. Based on the Country Assistance Program to Kenya (2000), economic infrastructure development including energy is one of the priority areas of ODA to Kenya.

<Appropriateness of Project Design/Approach>

Although the project was very much aligned to the core mandate of the university, the Overall Goal, especially in the R&D aspect has not been achieved. This is partly because of the time allotment of individual lecturers for the research under the project was limited, as they had to fulfil their core mandate of teaching and were left with little time to follow up the project research as they should have. Research coordination between Kenya and Japan side had a delay in terms of communication. And generally, R&D activities take time to realize results and only this component delayed. As such, though some problem in implementation process was observed (lecturer's priority on the research under the project was low), the approach was generally appropriate.

<Evaluation Result>

In light of the above, the relevance of the project is high

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The project achieved the Project Purpose at project completion. The total number of presentations in 2016 exceeded the plan (11 versus 9) (Indicator1), 5 research findings were piloted in relative to the planned 4 (Indicator 2), annual intake of participants in training on renewal energy for rural electrification in 2016 was 82 relative to the planned 80 (Indicator 3), in total, 28 members became trainers on renewable energy technologies against target number of 5 (Indicator 4). IEET Director and Deputy Vice Chancellor Academic Affairs confirmed during the time of ex-post evaluation survey that recommendations for further improving R&D and education activities on renewable energy for rural electrification are in the Senate Minutes (Indicator 5, 6), training program business plan of JKUAT on renewable energy for rural electrification is acknowledged by University Management Board (Indicator 7), though evidences i.e., Senate Minutes and University Management Board Minutes) were not located. Recommendations on licensing concerning renewable energy were acknowledged by Energy Regulatory Commission (ERC) (Indicator 8).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The effects of the project have continued after the project was completed. The continuation status of the project effects is analyzed as factors to achieve the Overall Goal (Indicator 1,3,4,5), such as f piloting for commercialization of the research findings, continuation of training/human resource development on rural electrification. <Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved. Additionally, 3 research findings have been piloted for commercial use (Indicator 1), Biogas Purification System have been successfully installed in various Counties, though 4 technologies in total were expected to be commercialized (Indicator 2), 18 graduate students in Master degree and Ph.D. courses completed dissertation on renewable energy for rural electrification after the project completion (Indicator 3), 638 technicians cumulatively completed T1/T2[1] solar-photovoltaic (PV) training with certification by National Industrial Training Authority (NITA) and licensing for T1, T2 and T3 technicians by Energy and Petroleum Regulatory Authority (EPRA, formerly ERC) (Indicator 4), and 300 people participated in one-day familiarization visit to IEET, but without certification (Indicator 5).

As for R&D, due to high staff-turnover of researchers in IEET/JKUAT, there were delays in completion of the joint research projects partly because data collection and analysis was not able to be completed as planned, and piloting and commercialization have been delayed. Regarding the education, in addition to the increase in the number of Master and Ph.D. students in renewable energy, it was verified that a new BSc course on Environmental Physics and Renewable Energy was introduced in 2017 and heavily relied on project recommendations. Further, there is the increasing potential of renewable energy advancement and sustainability at IEET, JKUAT namely; to start a Master of Science in Climate Change Management and Governance.

During the implementation of the project, the focus was very much placed on the solar-PV training courses. Implementation model for solar-PV training was developed by IEET and rolled out. IEET collaborated with other stakeholders such as NITA, EPRA and Kenya Renewable Energy Association (KEREA), the latter funded the training, to conduct training at Technical Training Institutes (TTIs). 638 technicians mentioned above (Indicator 4) have participated in the training at TTIs (the project targeted 13 TTIs) or other training institutes with the trainers trained under Training of Trainers (TOT) of the project. And the courses rollout to TTIs have been facilitated and monitored by IEET.

During the ex-post evaluation survey, the evaluation team visited TTIs to monitor their T2 training courses. At one TTI, they have been conducting a 2-week T2 course which had 10 trainees and 4 trainers. It was quite efficiently establishment since 4 trainers (with certificates by the project) teach 10 trainees. In addition, they introduced the same training style which they have learnt through the project. It enhances thinking power of trainees. They also provided the textbook which was used at the TOT.

As for the continuity of the project outputs, training materials in solar-PV, hydro, biogas, wind developed through the project continues to be updated and utilized as a continuous process. However, necessity for a more comprehensive approach to make them more relevant in accordance with the technology change has been observed, on the information provided by IEET. This means that the teaching methodologies as well as the course content in the training manual need to be revised in sync with the recent scientific facts and emerging technological development. The number of trainers (at JKUAT and TTIs) has increased after the project was completed. At the time of ex-post evaluation, there were 52 trainers for solar-PV, 7 small wind energy trainers and 10 biogas power generation trainers. All the Equipment provided by the project have been continuously used.

<Other Impacts at the time of Ex-post Evaluation>

Positive impacts on gender perspective have been observed. The project trained a number of women in the projects thematic areas, adding to the pool of knowledge and increasing the number of trainers as well as researchers. Hydram technology and biogas cooking under the pilot research have had a preserve of women. So that the benefits of bringing potable water to near home as well as clean cooking (compared to the traditional cooking which uses firewood and smokes accordingly) have improved the livelihood. Increase in revenue for female farmers at a hydram site have been observed as the custodians, they have continued water supply for irrigation using hydram to grow vegetables and tomatoes for sale. Total estimated no. of women and girls benefitted from hydram technology would be approximately 130. Also, women group improved revenue due to biogas used in cooking fish eateries in Kisumu.

No negative impacts on the natural environment are observed.

[1] The Energy Regulatory Commission (ERC) issued a decree in 2012 to improve the quality of PV installation work, including the requirement that technicians involved in the installation obtain a license. These licenses are divided into T1 to T3 levels, and each license holder is allowed to install at a certain level. The project targeted T1 and T2 level licenses.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td rowspan="6">(Project Purpose) Capacity of JKUAT in R&D (research and development), Education and Training in the field of rural electrification using renewable energy are strengthened in collaboration with other stakeholders in the field.</td><td>Indicator 1: Annual number of presentations on research findings on renewable energy for rural electrification exceeds 9.</td><td>Status of the achievement: achieved
(Project completion) In 2016, the total number of presentations at the conference or accepted paper was 6. Additionally, 5 presentations about research findings were made during the final seminar in November 2016 which makes the total number of presentations as 11.
(Ex-poste evaluation)
-Refer to the Overall Goal below (Indicator 3).</td><td>JICA documents</td></tr>
<tr><td>Indicator 2: At least 4 research findings are piloted for commercialization.</td><td>Status of the Achievement: achieved
(Project completion)
Following five field tests and monitoring activities were considered as piloting.
1. Biogas digester, biogas clean-up equipment, and generator set up and operated by NGO in Kisumu ;
2. Bio-gasifier was fabricated and tested for its performance at JKUAT ;
3. Solar home systems with pilot type 12V lead free batteries were installed at JKUAT and will be monitored until Jan. 2017 ;
4. Hydram was installed in Nyeri/Kerugoya and will be monitored until Jan. 2017 ;
5. 200W small wind generation system was fabricated at JKUAT and will be monitored until Jan.2017.
(Ex-post Evaluation)
Refer to the Overall Goal below (Indicator 1).</td><td>JICA documents</td></tr>
<tr><td>Indicator 3: Annual intake of participants in training on renewable energy for rural electrification exceeds 80.</td><td><u>Status of the achievement: achieved</u>
(Project completion)
In 2016, four training courses were conducted with the participants of 82.
(Ex-post Evaluation)
Refer to the Overall Goal below (Indicator 5).</td><td>JICA documents</td></tr>
<tr><td>Indicator 4: At least 5 JKUAT members newly become trainers in training program on renewable energy for rural electrification.</td><td><u>Status of the achievement: achieved</u>
(Project completion)
In total, 28 members became trainers on renewable energy technologies against target number of 5.
<table>
<tr><th>Trained technology</th><th>No of trainers</th></tr>
<tr><td>Solar PV Technology Trainers</td><td>18</td></tr>
<tr><td>Small Wind Energy Trainers</td><td>3</td></tr>
<tr><td>Biogas Power Generation Trainers</td><td>7</td></tr>
<tr><td>Total</td><td>28</td></tr>
</table>
(Ex-post Evaluation)
Refer to the Overall Goal below (Indicator 5).</td><td>JICA documents</td></tr>
<tr><td>Indicator 5: Recommendations for further improving R&D on renewable energy for rural electrification in JKUAT is acknowledged by Senate.</td><td><u>Status of the achievement: achieved</u>
(Project completion)
IEET Director just confirmed it is in Senate Minutes.
(Ex-post Evaluation)
Based on the recommendation, all 4th year students doing BSc in Renewable Energy and Environmental Physics take compulsory research project equivalent to two units. Research topic in Renewable energy were popular and utilize the recommendations made by the project for the improvement of R&D in solar-PV, hydro, small wind turbine, which in turn had been heavily influenced by the project.</td><td>1. JICA documents
2.IEET</td></tr>
<tr><td>Indicator 6: Recommendations for further improving education activities on renewable energy for rural electrification in JKUAT are acknowledged by Senate.</td><td><u>Status of the achievement: achieved</u>
(Project completion)
IEET Director confirmed it is in Senate Minutes. IEET Director and Deputy Vice Chancellor Academic Affairs and confirmed that both approvals were done based on the approved and rolled out to Bachelor course syllabus on Environmental Physics and Renewable Energy.
(Ex-post Evaluation)
BSc in Renewable Energy and Environmental Physics course got Senate approval and rolled out in the university since 2017. The renewable energy topics in solar-PV, small hydro, biogas and wind administered by IEET were based on recommendations by the project. Training manuals developed in the project were used in implementing the course so that the recommendations for further improvement of education have been acknowledged by Senate.</td><td>1. JICA documents
2.IEET</td></tr>
</table>

<table>
<tr><td></td><td>Indicator 7: Training program business plan of JKUAT on renewable energy for rural electrification is acknowledged by University Management Board.</td><td><u>Status of the achievement: achieved</u>
(Project completion)
IEET Director and Deputy Vice Chancellor Academic Affairs confirmed that it is in the Minutes and confirmed that approvals were done.
(Ex-post Evaluation)
Implementation model for solar PV training was developed by IEET and rolled out in collaboration with other stakeholders. As a rule, training plan can only be implemented upon approval by the Senate and budgetary allocation is approved by the UMB. IEET submits an average budget of 400,000KSH per training to the university management which approves the budget (For solar pv budget training at JKUAT and field monitoring to ITTs). It implies that the training program and business plan must have been approved by Senate and the University Management.</td><td>1. JICA documents
2.IEET</td></tr>
<tr><td></td><td>Indicator 8: Recommendations on licensing concerning renewable energy are acknowledged by ERC.</td><td><u>Status of the achievement: Achieved</u>
(Project completion)
The existing certification process of PV T1-level and T2-level offered by ERC was reviewed in June 2016 and the recommendations on licensing of solar PV were compiled by PV training experts and the training coordinator. As a result of review, from 2017, NITA became the implementation organization to conduct PV certification examinations for the participants of short courses offered by TTIs and NITA. Participants who passed exams receive certificates from ERC.
(Ex-post Evaluation)
Refer to the Overall Goal below (Indicator 4).</td><td>JICA documents</td></tr>
<tr><td>(Overall Goal) Technologies and human resources for rural electrification using renewable energy are strengthened.</td><td>Indicator 1: At least 5 research findings are additionally piloted for commercial use.</td><td>(Ex-post Evaluation) Partially achieved
Technologies additionally piloted are as follows:
- Biogas purification
- Wind-Vertical Axis wind Turbine
- Wind- Horizontal Axis wind Turbine</td><td>IEET Training Report</td></tr>
<tr><td></td><td>Indicator 2: At least 4 technologies developed/improved by project are commercialized.</td><td>(Ex-post Evaluation) Not achieved
One technology was commercialized, though other technologies are additionally and successfully piloted.<table><tr><td>Technologies</td><td>The details of technologies and status at the time of ex-post evaluation</td></tr><tr><td>Prototype of lead-free battery</td><td>Still at research level JKUAT/IEET and a Japanese expert) continue to collect and improve on the data</td></tr><tr><td>Biogas</td><td>Biogas Purification System have been successfully installed in various Counties - Biogas generation project in Dunga beach continues to date</td></tr><tr><td>Wind power</td><td>Vertical and Horizontal Axis Wind Technologies (VWT and HAWT) have been developed and being piloted in JKUAT community More research on-going)</td></tr><tr><td>Hydro power</td><td>Hydram technology being successfully piloted at Ragati and Gikera rivers in Nyeri county and ready for commercialization</td></tr></table></td><td>IEET Training Report</td></tr>
<tr><td></td><td>Indicator 3: At least 18 MSc students complete dissertation on renewable energy for rural electrification after project completion.</td><td>(Ex-post Evaluation) Achieved
No. of students who completed dissertation for MSc and PhD in Renewable Energy for rural electrification<table><tr><td></td><td>Project completion</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>Total</td></tr><tr><td>Master students</td><td>9</td><td>1</td><td>7</td><td>3</td><td>3</td><td>23</td></tr><tr><td>PhD students</td><td>1</td><td>1</td><td>0</td><td>1</td><td>2</td><td>5</td></tr></table></td><td>Graduation booklets</td></tr>
<tr><td></td><td>Indicator 4: At least 800 technicians complete T1/T2 solar PV training course.</td><td>(Ex-post Evaluation) Partially achieved
No. of technicians completed T1/T2 solar PV training course<table><tr><td></td><td>At the project completion</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>Total</td></tr><tr><td>The number of technicians who complete T1/T2 training</td><td>372*</td><td>28</td><td>15</td><td>84</td><td>139</td><td>638</td></tr><tr><td>The number of T1/T2 training course conducted</td><td>-</td><td>1</td><td>3</td><td>3</td><td>13</td><td>20</td></tr></table>* Cumulative as of January 2015</td><td>Training Records IEET</td></tr>
<tr><td></td><td>Indicator 5: At least 300 people complete training by IEET on renewable energy for rural electrification after</td><td>• (Ex-post Evaluation) Achieved300 people participated in official/unofficial one-day familiarization visit to IEET and pilot sites from 2017 to 2021 without certification. the visiting teams come not as general visitors to JKUAT but specifically targeting IEET to be trained on Biogas,</td><td>IEET records</td></tr>
</table>

	project completion.	Solar-PV and Wind in this "one day training course" • In addition, 200 member farmers of Sharma Group, which is a farmer group in cash crops and mixed corps agribusinesses from Nyeri County of Mt. Kenya region, received one day structured training mainly on the basics of biogas production, utilization, operation and maintenance.	

Source：Questionnaires and interviews with IEET. Documents of JKUAT.

3 Efficiency

The project cost significantly exceeded the plan and the project period exceeded the plan (the ratio against the plan: 190%, 138%). The project was extended for 1.5 years to complete the remaining activities of R&D. The outputs were produced as planned.

Therefore, the efficiency of the project is low.

4 Sustainability

<Policy Aspect>

There has been policy support for promoting renewal energy for rural electrification. The Energy Act 2019 emphasizes Renewable generation and Rural Electrification and Renewable Energy Corporation (REREC) was established to oversee the implementation of the Rural Electrification Programme accordingly.

<Institutional/Organizational Aspect>

There has been no change in the structure to disseminate the project effects as per IEET and TTIs as institutions for Technical and Vocational Education and Training structure.

During the project period, a total of 24 staff members of JKUAT were registered as counterparts from various departments as well as IEET. JKUAT needs to take the employment condition attractive to reduce high turnover and retain high level cadre of staff and researchers. NITA and EPRA have had adequate numbers of staff to implement the various training. Both have played a critical role and attend TOT for solar-PV in JKUAT. To train more human resources on renewable energy, the number of trained trainers under the project has been sufficient. JKUAT/IEET has had 24 trainers and the target TTIs (13) have had 2 trainers each.

The management structure at IEET is appropriate for promoting R&D, education and training on renewal energy.

High turnover of researchers at JKUAT has been a problem to continue and expand the research under the project.

<Technical Aspect>

Although high turnover of researchers at JKUATTA has been a problem for continuity and expansion of the research under the project, the trained staff members have continued to disseminate the knowledge and skills gained in in capacity buildings and R&D.<Financial Aspect>

According to IEET, JKUAT Management Board has provided necessary budget for IEET activities (the training activities carried out by IEET at JKUAT level (TOT) and at the TTI level). TTI managements also facilitate the training. However, not enough budget has been allocated. Nonetheless, participants attending the short courses on IEET/JKUAT are fully sponsored by their institutions which pay for these courses to IEET before they are trained. No. of applicants are usually more than IEET can allow in so the demand is high and through this arrangements, JKUAT/IEET is able to recover all their cost of offering the courses.

<Evaluation Result>

In light of the above, not problem has been observed in terms of the policy, institutional/organizational, technical and financial aspects. Therefore, the sustainability of the effectiveness through the project is high.

5 Summary of the Evaluation

The project achieved the Project Purpose at the project completion, as the research findings were piloted, training on the renewal energy was conducted and recommendations by the project on R&D, education, and training and licensing were acknowledged by JKUAT as well as ERC. The Overall Goal has been partially achieved. Technicians have continuously completed T1/T2 training, and more graduate and undergraduate students completed dissertations on the renewable energy, though training on other topics have been limited. Research findings have been additionally piloted and commercialized, though the targets have not been met. As for the efficiency, the project cost significantly exceeded the plan, and the project period exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

High turnover of researchers due to insecurity of employment could negatively affect the project impact. Human Resource Department in JKUAT need to consider supporting JKUAT researchers by engaging them on long-term basis instead of temporary with the aim to have a solid renewable energy and training hub in JKUAT.

Lessons Learned for JICA:

Joint collaboration on data sharing and analysis brought about accelerated quality genuine results and better understanding between the Kenyan and Japanese researchers. This situation is better than when each side would be collecting and analyzing their own data and only share final product. In this project, both local data and Japan collected data were transparently shared even when sometimes it would be contradicting for example. This should be emulated in the projects where Japan and Kenyan researchers are working on shared themes through shared data and peer reviewed to come up with the better conclusions.

Utilize above model in future formulation of new technical cooperation projects whereby joint research is a core component with high expectation from both local and Japanese sides (instead of passively local awaiting the Japanese side to deliver results).

There is need to de-link the development of the technology to its mature level by the Academia from the next level of commercializing it. The latter depends on interest or lack of it from the commercial sector who would have the finances to take up the product to a higher level of marketing it. IEET/JKUAT is poorly endowed to accomplish both roles. Or the project needs to include business support as a project activity.

It is very important for JICA and the project team to identify and address the gaps between planning and practice at the earliest possible.

With careful joint planning between the Japanese and Kenyan side, they would have agreed on the timing of the activities together identifying who can do what, when and how with the aim to get things done to minimize the external and internal disruption.

Women inspecting their Hydram installation at the River Ragati

WOTE (Makueni county) TTI lecturers showing their training equipment for Solar-PV

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Kenya Office: April, 2022

Country Name	**Project on Enhancing Gender Responsive Extension Services in Kenya**
Republic of Kenya	

I. Project Outline

Background

In Kenya, 70% of the agricultural production labor was occupied by women. Despite the fact that women played an important role in small-scale farming, their productivity was estimated to be 20-30% lower than that of male farmers due to their limited access to land, farm inputs, agricultural technology, and markets. Under those circumstances, the Kenya's Agricultural Sector Development Strategy (ASDS) emphasized the women's roles in agriculture and promoted gender equality through gender mainstreaming in agricultural enterprises. The Ministry of Agriculture, Livestock and Fisheries (MOALF, then the Ministry of Agriculture) formulated the Gender Mainstreaming Strategy in 2010.

Objectives of the Project

Through (1) developing the Gender Mainstreaming Package (GMP)*, (2) developing capacity of partner project* staff and the target sub-county agricultural staff on GMP, (3) introducing GMP into other smallholder agricultural projects, counties and agricultural training centres, the project aimed at enhancing institutional capacity of MOALF and Counties to promote gender responsive agricultural extension services, thereby contributing to improvement of livelihood for female and male smallholder farmers, pastoralists and fisher folks.

*The "Gender Mainstreaming Package" is a set of activities that should be implemented from a gender perspective in small-scale farmer support projects to promote gender-equal farmer management, as well as practical tools such as training modules, checklists, manuals, and guidelines necessary to implement these activities.

(Note) During the project implementation, Memorandum of Understanding (MOU) was signed with the Eastern Africa Agricultural Productivity Project (EAAPP)/WB for collaboration towards gender mainstreaming. Implementation of joint activities on gender mainstreaming was also agreed with the Rice-based and Market Oriented Agriculture Promotion Project (Rice MAPP)/JICA. Also, two more partner projects were selected in the last one year of the project period.

1. Overall Goal: Gender responsive agricultural extension services contribute to improvement of livelihood for smallholder female and male farmers, pastoralists and fisher folks.
2. Project Purpose: Institutional capacity of the Ministry of Agriculture, Livestock and Fisheries (MOALF) and Counties to promote gender responsive agricultural extension services is enhanced.

Activities of the project

1. Project site:

Site	County	Product	Partner project
Initial partner projects			
Mathira West Sub-County	Nyeri	Dairy	EAAPP (financed by the World Bank)
Teso South Sub-County	Busia	Cassava	EAAPP (financed by the World Bank)
Mwea Irrigation Scheme (MIS)	Kirinyaga	Rice	RiceMAPP (JICA technical cooperation)
Partner projects selected in the last one year			
—	Nandi	Fisheries	Promoting Nutrition Sensitive Agricultural Diversification to Fight Malnutrition and Enhance Youth Employment Opportunities in Eastern Africa (FAO)
—	Isiolo	Livestock	Regional Pastoral Livelihood Resilience Project (RPLRP) (WB)

2. Main activities: (1) developing GMP, (2) developing capacity of partner project staff and the target sub-county agricultural staff on GMP, (3) introducing GMP into other smallholder agricultural projects, counties and agricultural training centres
3. Inputs (to carry out above activities)

Japanese Side
1) Experts: 5 persons
2) Trainees received: 8 persons
3) Training in the third countries: 3 persons in South Africa, 15 persons in Tanzania and 1 person at UN headquarters
4) Equipment: Vehicles, PCs, printers, etc.
5) Local cost: Travel allowance, Honorarium, etc.

Kenyan Side
1) Staff allocated: 11 persons
2) Office and facilities: Office space and basic expenses such as electricity, water and telephone line
3) Local cost: Part of the operational expenses

Project Period	(ex-ante) March 2014 – March 2017 (36 months) (actual) September 2014 – August 2017	**Project Cost**	(ex-ante) 334 million yen, (actual) 208 million yen
Implementing Agency	Ministry of Agriculture, Livestock and Fisheries (MOALF) (now Ministry of Agriculture, Livestock, Fisheries & Cooperatives (MoALFC))		
Cooperation Agency in Japan	-		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Kenya. The "Kenya Vision 2030", a long-term national sustainable

development policy formulated in 2008, recognizes gender inequality as one of the major factors that impose significant costs on overall national economic growth. In addition to the equal participation of men and women in society, overcoming gender challenges has been set as a priority. ASDS emphasized the role that women play in agriculture and promotes gender equality through gender mainstreaming in agricultural enterprises. MOALF, then Ministry of Agriculture formulated the Gender Mainstreaming Strategy in 2010.

<Consistency with the Development Needs of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Kenya for gender equality in agriculture. As mentioned above ("Background"), there were gender disparities in the process of agricultural production including access to land, farm inputs, agricultural technology, and markets.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with Japan's ODA policy to Kenya. "Yokohama Action Plan 2013-2017" of the fifth Tokyo International Conference on African Development (TICAD V) mentioned "Special attention is also needed to ensure small holder and small scale, especially women, farmers are afforded equal access and opportunity, given that such farmers produce the majority of food in African countries. In this regard, attention to the specific needs of women farmers and assistance to farmers' groups to expand their activities is important to increase agricultural production and rural incomes." In addition, agriculture development was one of the priority areas for Japan's ODA to Kenya[1].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved at the project completion. Although GMP obtained positive response from MOALF through discussions/consultations/regular meetings, GMP was not adopted at the project completion (indicator 1). Three partner projects implemented GMP components in their plans and activities, and three Counties showed their commitments, though the strategies were not developed (indicator 2). Meanwhile, gender relations improved in the target partner projects in terms of decision-making (indicator 3), distribution of workload in productive activities (indicator 4), and access to and adaptation of technologies introduced under the project increased (indicator 5).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The effects of the project have partially continued since the project completion. MoALFC has applied the concept of household participation for gender equality and improved livelihoods, as introduced by GMP in several projects in mainstreaming gender issues, and part of the partner projects (including the succeeding projects) and counties have continuously implemented GMP though Eastern and Central Africa Agriculture Transformation Project (ECCATP) failed to succeed EAAPP. Although the counties are held back by budget issues, they still find other ways to embed gender mainstreaming through every project. On the other hand, the results of beneficiary interviews in the target partner projects have shown that their gender relations have become more enhanced, including the fact that both women and men continuously utilize the technologies introduced in the projects.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved at the time of ex-post evaluation. At the partner project sites visited during the ex-post evaluation (Dairy production under EAAPP in Nyeri County, Cassava production under EAAPP in Busia County and RiceMAPP, Kiringaya County), productivity (indicator 1), income (indicator 2), and household assets (indicator 3) of the majority of beneficiaries interviewed increased.

The implementation of GMP (indicator 4) partially achieved the targets. Six (6) projects implemented GMP, though the target was 10. Other than Nyeri, Busia and Kiringaya, four (4) counties somewhat implemented GMP, though the target was seven (7). One training institution (the target was two (2)) implemented GMP. While gender mainstreaming has become a central aspect of most projects at the national and county levels, it is apparent that GMP components that are expected have not been implemented to the letter. Further, the counties – including those that participated in the project – failed to develop any conscious strategy for upscaling of the effects of the project. MoALFC is making efforts to provide guidance on dissemination of GMP components but is limited by designation of budget to the Gender Unit (under the State Department for Crop Development and Agricultural Research; SCDC&AR).

<Other Impacts at the time of Ex-post Evaluation>

No direct negative impacts on natural environment from the project have been observed. However, in Nyeri County, where the target value chain was dairy production, concerns were raised regarding soil and water conservation. Farmers used chemicals for pest/diseases control and to increase fodder yields thereby causing degradation of the soils and pollution in the streams[2]. The County government initiated programs to ensure soil conservation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Institutional capacity of the Ministry of Agriculture, Livestock and Fisheries	Indicator 1 "Gender Mainstreaming Package" is adopted by MoALF.	Status of the Achievement: not achieved (not continued) (Project completion) - GMP was not adopted at the project completion. - The draft GMP was developed and presented in the national workshop in August 2016, and discussions with MoALF and other stakeholders were held thereafter. - Presented the content of the GMP at a regular meeting of the MoALF senior management. Received positive response from participants.	-JICA documents -Questionnaire and interviews with MoALFC

[1] Source: MOFA, ODA Data book 2013

[2] Based on the account of those interviewed (both beneficiaries and county staff), there have been instances of sicknesses related to pollution of the rivers and to some extent, some farms have experienced reduced soil health though cropping has not been largely affected.

<table>
<tr><td rowspan="3">(MOALF) and Counties to promote gender responsive agricultural extension services is enhanced.</td><td></td><td>(Ex-post Evaluation)
MoALFC has identified male dominance in the decision-making process in different areas; including division of labour, distribution of recourses, and the use of household income, hinder women from being more productive and the youth from participating in agriculture.. In line with this, the concept of household participation for gender equality and improved livelihoods, as introduced by GMP, has been applied in several projects in mainstreaming gender issues.</td><td></td></tr>
<tr><td>Indicator 2
Three (3) partner projects and three (3) counties develop strategies to implement GMP.</td><td>Status of the Achievement: partially achieved (partially continued)
- The partner projects ((i) EAAPP and the succeeding project named ECAATP, (ii) RiceMAPP and the succeeding project – (Capacity Development Project for Enhancement of Rice Production in Irrigation Schemes (CaDPERP), which was under formulation, and (iii) RPLRP) included GMP components in their plans and activities.
- Three county governments (Busia, Nyeri, and Kirinyaga) showed their commitments to utilize the GMP.
(Ex-post Evaluation)
<table><tr><th>Partner project/ County</th><th>Outline of GMP implementation</th></tr><tr><td>CaDPERP</td><td>Training of Core Farmers (CF) incorporated gender issues while gender friendly technologies such as push-weeders and levelers were introduced. Farmers were sensitized on collaborative planning for rice production activities, and encouraged to invest in reproductive labour saving techniques such as water harvesting to reduce burden on women.</td></tr><tr><td>Busia County</td><td>Since ECAATP failed to succeed EAAPP, the county also did not come up with a specific project or strategy that targets women as beneficiaries or address gender issues as the main goal or objective.. However, the County has managed to implement gender aspects in all its projects as a cross-cutting issue, and participatory decision-making has been incorporated in training to enable households become more productive.</td></tr><tr><td>Nyeri County</td><td>Despite ECAATP failing to take off as had been anticipated, the county has tried to mainstream gender perspectives in all trainings provided to farmers. GMP components such as reproductive technologies – water harvesting, smallholder irrigation, kitchen gardening and planning of fodder farms near dairy units are promoted alongside participatory involvement as a household in decision-making.</td></tr><tr><td>Kirinyaga County</td><td>Youth and women have been looped into the decision-making process committees at the County level and all trainings have conscious focus to include women and the youth.</td></tr></table></td><td>-JICA documents
-Questionnaire and interviews with MoALFC.
- Interviews with County officers</td></tr>
<tr><td>Indicator 3
Gender relations[3] in at least 15% of the PEGRES* target group members of initial two partner projects is improved.

* Abbreviation of the project name (Project on Enhancing Gender Responsive Extension Services)</td><td>Status of the Achievement: achieved (continued)
- According to the end-line survey, there were notable changes in the patterns of decision-making: more household members participate in household decision-making process. The number of the end-line survey respondents who discussed with their spouse on how to spend income derived from the target commodity increased by more than 15%.
- As for the reproductive activities, women remained as major doers in all three sites. Even so, in the project sites of Teso South and Kirinyaga, other members of the household started supporting them compared with the time of the baseline survey. The number of the cases in which reproductive activities were carried out by one person without help from other household members decreased by 4% in Teso South and 10% in Kirinyaga.
*Reproductive activities include cooking meals, washing kitchen utensils, fetching water, collecting firewoods, cleaning the house, washing cloth, shopping of family necessities, care of pre-school children, care of school children, taking care of the sick/elders, activities to keep security, and community obligation.
(Ex-post Evaluation)
<table><tr><th>Site</th><th>Status</th></tr><tr><td>Mathira West Sub-County (Dairy, EAAPP), Nyeri County</td><td>In the 2 farmer groups visited, the division of labour by fixed gender roles has been changed immensely, and
a participatory approach to productive and reproductive activities is well incorporated into activities. Technologies to ease reproductive works for women – such as water harvesting, improved stoves, etc, have been introduced in almost all households and men too, can now perform some reproductive activities like cooking.</td></tr></table></td><td>-JICA documents
-Questionnaire and interviews with MoALFC
-Interviews with target County and Sub-county officers
- Interviews with (i) 2 farmer groups in Nyeri, (ii) 20 farmers in 2 farmer groups in Busia and (iii) 10 farmers in MIS.</td></tr>
</table>

[3] Changes in gender relations will be captured by looking into changes in division labour, patterns of decision making, access to and control over resources among different gender groups

		Teso South Sub-County (Cassava, EAAPP), Busia County	Women and men beneficiaries in the two farmer groups visited showed cooperation in their households, including access for women to the decision-making process on household activities and income expenditures. . Further, men have initiated techniques to unburden women and youth of reproductive drudgery such as planting of trees for wood-fuel, installation of improved cooking stoves, sinking of boreholes for water supply, water harvesting, solar panels, and men can now help with such reproductive activities as cooking, washing, etc.	
		MIS (Rice MAPP), Kirinyaga County	Gender relations among the household members have insignificantly improved. However, majority of the beneficiaries (>=80%) have embraced technologies and efforts such as installation of improved stoves, water harvesting to improve productivity of women and youth in agriculture by reducing the burden of reproductive activities.	
	Indicator 4 Participation in productive activities[4] by at least 10% for all the gender groups of the PEGRES target group members of initial partner projects is improved.	Status of the Achievement: achieved (continued) (Project Completion) - Distribution of workload in productive activities of the target communities became more equitable among household members. During the baseline survey, 39-47% of total labour contribution in productive activities was made by one particular gender group (i.e. female adults in Nyeri and Busia and the male adults in Kirinyaga), while the rates of those reduced to 31-44% at end-line survey. - Decisions on marketing of the target commodities were now made more jointly with husband and wife in the project sites of Busia and Kirinyaga. In the project sites of Nyeri, more male youths and female youths were taking part in decision-making on milk marketing. (Ex-post Evaluation) See the table in the indicator 3 above.	Same as above.
	Indicator 5 Access to and adoption of technologies introduced by the initial partner projects is increased by at least 10% for all the gender groups of the PEGRES target group members of initial partner projects.	Status of the Achievement: achieved (continued) (Project Completion) - Adoption of the introduced technologies by household members other than those directly trained by the partner projects increased in all three sites of the projects. These rates increased by 14 to 21%, which indicates that technology transfer was taking place among household members, which were supported by the project. - In comparison between baseline and end-line survey data, in Busia, all both female and male groups increased their adoption of introduced technologies (technology, innovations and management practices: TIMPs of EAAPP). - In the case of Kirinyaga, only the women increased the adoption rate of technologies (Water Saving Rice Culture). This may be because more women were engaged in productive activities using introduced technologies, which used to be carried out by men. (Ex-post Evaluation) See the table in the indicator 3 above.	Same as above.
(Overall Goal) Gender responsive agricultural extension services contribute to improvement of livelihood for smallholder female and male farmers, pastoralists and fisher folks.	Indicator 1 Productivity of target commodities of the smallholder agricultural projects which introduce "Gender Mainstreaming Package" is increased among at least 10% of the target beneficiaries of the respective projects.	(Ex-post Evaluation) achieved Site: Changes in productivity, contribution of GMP, other factors		-Questionnaire and interviews with MoALFC -Interviews with target County and Sub-county officers - Interviews with (i) 2 farmer groups in Nyeri, (ii) 20 farmers in 2 farmer groups in Busia and (iii) 10 farmers in MIS.
		Mathira West Sub-County (Dairy, EAAPP), Nyeri County	Milk production has increased from an average of 6L/cow per day to an average of 14L/cow per day among >95% of the beneficiaries. The improvement is attributed to proper dairy management such as feeding by inclusive household participation and better quality fodder. Since all members of the household benefit from this venture, all are actively undertaking their respective roles in the production process – feeding, milking and marketing, and this adds to the overall production levels. Nonetheless, other factors such as reviving the daily cooperative by the County government affected the improved productivity.	
		Teso South Sub-County (Cassava, EAAPP), Busia County	Farmers in 2 groups visited have experienced good improvement in cassava productivity – from about 2 bags to averagely 10bags per 0.25acres - mainly due to embracing new improved varieties (as received during the project period) and sharing of roles between genders and increase of women participation in productive activities. Over 90% of the farmers in each of the 2 groups have experienced tremendous improvement in cassava production.	
		MIS (Rice MAPP), Kirinyaga County	Rice productivity of the beneficiaries has improved both for the main crop (from 22 bags/acre to a maximum of 31 bags/acre) and the ratoon (from 8 bags/acre to a maximum of 21 bags/acre) (farmers interviewed stated all beneficiaries improved their productivity, which was	

[4] Changes in participation in productive activities will be measured by looking into the degree of involvement in various activities for agricultural production among the different gender groups.

			confirmed by the project manager). Since RiceMAPP and later CaDPERP introduced such labour saving technologies as push-weeders that has enabled women to be active in productive activities alongside men and combine harvesters (which have increased from zero to 8 in number) that reduced post-harvest losses thus increasing rice production. Further, men have put in more effort to implement technologies for households that reduce time spent by women on reproductive roles and shift this productive time to support useful rice production.	
	Indicator 2 Income from target commodities of the smallholder agricultural projects which introduce "Gender Mainstreaming Package" is increased among at least 10% of the target beneficiaries of the respective projects.	(Ex-post Evaluation) Partially achieved Site: Changes in income, contribution of GMP, other factors Mathira West Sub-County (Dairy, EAAPP), Nyeri County: Increase milk productivity per unit was translated directly to income. COVID-19 did not affect adversely the income, and farmers attribute this to the effect of participatory decision-making process on production activities and expenditure plans. More than half of the beneficiaries (represented by the interviewees) have seen their household income increased despite the failure of ECAATP to take off. Teso South Sub-County (Cassava, EAAPP), Busia County: Household income has generally increased among over 80% of all farmers, according to the farmers who responded to the interview on behalf the members. However, this is attributed mainly to other factors (such as utilizing the aggregation centers set up nearby which influenced the market prices of their cassava products, diversifying revenue streams as well as promote value addition to their products). MIS (Rice MAPP), Kirinyaga County: Majority of the beneficiaries (about 90% of farmers interviewed) reported increased income from their rice production activities since there was a shift in reproductive labour to increase productivity of genders at each strata and mechanized harvesting was introduced as well.	Same as above.
	Indicator 3 Household assets of at least 10% of the target beneficiaries of the smallholder agricultural projects, which introduce "Gender Mainstreaming Package", is improved.	(Ex-post Evaluation): achieved In each site visited mentioned above (Indicator 1 and 2), beneficiaries have seen changes in the household assets in various forms: purchasing motor vehicles, constructing permanent/improved houses, installing solar energy systems for television and lighting. In Teso South Sub-County (Cassava production under EAAPP), farmers own livestock to diversify their farming. At MIS (RiceMAPP), Kirinyaga County, increased income, coupled with better understanding at household level, farmers made better planning for investment in assets. Consequently, households got better housing, water storage systems for reproductive relief to women, television sets, radio sets, and cattle, among others.	Same as above.
	Indicator 4 10 smallholder agricultural projects, 7 Counties and 2 Training Institutions implement components of the "Gender Mainstreaming Package (GMP)".	(Ex-post Evaluation) partially achieved Smallholder agricultural projects - Six projects - RiceMAPP/CaDPERP, SHEP-PLUS/SHEP-Biz (SHEP: Smallholder Horticulture Empowerment Project), Kenya Cereal Enhancement Programme (KCEP-CRAL), Kenya Climate-Smart Agriculture Project (KCSAP), Agriculture Sector Development Support Programme – Phase II (ASDSP-II) and Enable Youth Kenya Program - have implemented GMS. Most of the projects have conducted training of staff and farmers on gender mainstreaming, inclusive decision-making, division of labour between genders, access and control of resources, equity of benefits sharing. - KCSAP: Participatory decision making at household level regarding improvement of agricultural productivity in the face of climate change was incorporated - ASDSP-II: There has been deliberate inclusion of the historically disadvantaged groups – women and youth – in committees of agricultural value chains. - Enable Youth Kenya Program: The Project Log-frame was engineered to ensure gender mainstreaming in the project. Counties In addition to Kirinyaga, Busia, and Nyeri, Taita Taveta, Kilifi, Embu and Kitui Counties have been implementing gender aspects as part of the KCEP-CRAL, mentioned above. Training Institutions Kenya School of Agriculture has conducted gender training of staff and farmers on integration of gender in project activities; inclusive decision making.	Questionnaires and interviews with MoALFC

3 Efficiency

The project cost was within the plan and the project period was as planned (The ratio against the plan: 62%, 100%). The outputs were produced as planned. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

There has been policy support for promoting gender responsive agriculture extension services. The "National Policy on Gender and Development" (2019 -) was established under the State Department for Gender, Ministry of Public Service and Gender to set up a framework for integrating gender issues into development planning across ministries and departments at both levels of government. At the

time of ex-post evaluation, the "Agriculture Gender Policy" (Draft) was being finalized by MoALFC. It is expected to expand the space for development of gender responsive agricultural programs and align them through a well-coordinated gender mainstreaming effort in the agriculture sector.

< Institutional/Organizational Aspect>

The Government of Kenya has had positive intentions to promote gender mainstreaming across sectors.

At the MoALFC level, the Gender Unit that was active during implementation of the project has been on and has been strengthened to deliver its mandate accordingly. Even though, to this day there has been only one staff at the Gender Unit of SDCD&AR, a number of officers that have been allocated for gender mainstreaming roles in almost every agricultural project. A Gender Committee was also set up to ensure gender aspects of project development are promoted across the ministry.

On the other hand, at the County level, Nyeri and Busia Counties indicated that some extent of structural establishment has been put in place in line with gender mainstreaming. In Nyeri, the Directorate of Livestock Production was established to implement livestock policy and extension in this sub-sector. Busia, also came up with a Monitoring & Evaluation section to monitor the implementation and reporting of all related projects. This, however, seem not to be aligned directly to gender mainstreaming components.

The number of staff at MoALFC has not been sufficient, as only one (1) staff member has been assigned at the Gender Unit and there is need for more staff especially, in the area of M&E. The Gender Committee at the MoALFC has got six (6) members who need proper training on such gender related issues to be able to deliver its mandate of gender mainstreaming, effectively. At the Counties, Busia and Nyeri in their establishments for this purpose have allocated 8 and 18 staff members respectively. However, in both Counties, these are perceived to be slightly limited for some are tasked with responsibilities in other sectors/projects (Busia) and almost 34% are about to retire (Nyeri).

<Technical Aspect>

It is notable that most of the staff assigned to ensure gender mainstreaming both at MoALFC and at the Counties, have been undergoing some training geared towards their preparation for the tasks, which is a positive indication for the future of gender mainstreaming.

At MoALFC, the gender focal person has had no proper account of various training that the staff of related assignments have participated in and how this prepared them for the task of maintaining sustainability of GMP dissemination.

County Director of Agriculture (CDA) in Busia and Kirinyaga Counties had no accounts of any such training that may have been conducted recently for County staff to promote gender mainstreaming agenda. However, in Nyeri County, key staff participated in a number of relevant training activities

<Financial Aspect>

There is a growing trend to allocate funds for gender mainstreaming both at the national level and Counties despite the fact that majority of these entities is yet to dedicate a budget slot for specific gender units to run specific agenda on GMP dissemination.

At the national level, MoALFC has allocated and distributed funds for addressing gender issues across many projects, but not in a consolidated manner. In the financial year (FY) of 2020/21, a total of. 300 million Kenyan Shillings (KES) was allocated with half being utilized so far to promote gender mainstreaming in various programs. While the main source of funds is the Government of Kenya, the Gender Unit occasionally has obtained support from other development partners such as UN Women and others in the form of funds and in-kind.

The County Government of Nyeri also has consistently allocated funds for gender activities – 2018 (2 million KES), 2019 (2 million KES), 2020 (4 million KES) and in 2021 a commitment of about 9 million KES. has been made. In an interview with the County staff, these funds have been in all occasions spent to the last coin to promote gender mainstreaming in development of specific agricultural products or value chains such as poultry, bee keeping and dairy activities. In Kirinyaga and Busia, there was no clearer budget lines that targeted gender mainstreaming or activities related to it but this could be because of lack of proper working structure to promote gender activities in agriculture as a clear-cut agenda. However, in Kirinyaga the County government often allocate budget but as part of activities planned by the agriculture department since all projects have embedded to them a gender mainstreaming aspect. About KES. 0.9 million was spent on this manner in FY 2020/21.

<Evaluation Result>

In light of the above, minor constraints have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose at the project completion. Although GMP obtained positive response, it was not adopted at project completion, and three Counties were not able to develop GMP strategies, while three partner projects implemented GMP components. Overall, transformation of gender relations of the beneficiaries has been confirmed, which enabled more women to participate in the decision-making process and productive activities and to have access to and adaptation of technologies. And these effects have partially continued after the project completion. The Overall Goal has been partially achieved, as productivity, income and household assets increased at the target partner projects with the help of other factors. And some components of GMP have been implemented under smallholder agricultural projects, Counties, and training institutions, though the target was not achieved. As for the sustainability, slight problems have been observed in terms of the institutional/organizational, technical and financial aspects, however, no problem has been observed for the policy aspect.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

Sufficient dedicated budget for gender mainstreaming should be secured every fiscal year by MoALFC. The Ministry should consolidate all budgets previously meant for 'hidden' gender issues in projects into a single budget under the Gender Unit. This will help to focus and align all programs of the ministry to specific agenda through relevant capacity building of sufficient staff, and dissemination of the gains achieved and developed through GMP. The aim is to expand impact and guarantee sustainability. The County governments also need to secure budget for gender mainstreaming.

Lessons Learned for JICA:

The collaborative approach among development partners to implement technical cooperation projects especially, in agriculture has the capability of bringing out the best in each entity to leverage on linkages for synergy. In the project, farmers manifest huge gains as a result of this path and even when a donor withdraws, like in the case of WB's EAAPP, the gains are likely to be enhanced and sustained. For future agricultural projects in Kenya, JICA should consider partnerships with long-term projects such as KCSAP, National Agricultural and Rural Inclusive Growth Project (NARIGP), ASDSP-II or KCEP-CRAL which are quite sustainable. This project collaboration, however, has limitations since donors are not directly involved in the implementation. Therefore, it would be more effective if JICA directly approaches to donors at the project formulation stage/at the start of the project implementation and collaborates with donors financing these projects to implement a cross-cutting project like this project together for proper sustainability and enhancement of the gains/impact.

Solar-drier and Cassava chipper for cassava value addition by farmer's group in Teso South, Busia County

A household implementing rainwater harvesting system to ease reproductive burden on women, Nyeri County

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Kenya Office: April, 2022

Country Name	**Water Supply and Hygiene Improvement Project in Host Communities of Dadaab Refugee Camps**
Republic of Kenya	

I. Project Outline

Background	Located in Kenya's Northeastern Province near the border with Somalia, the Dadaab refugee camp admitted 450,000 Somali refugees, despite being originally designed to accommodate 90,000 persons. Due to the constant refugee influx, the camp continued to be sprawling. This caused negative impacts on the Kenyan host communities in the vicinity, such as indications of deteriorated environment and public security. Over time, the observable disparity in living conditions between the Kenyan host communities and the refugee camps became problematic. Having resided in a semi-arid area with less than 300 mm of annual rainfall, local Kenyans were distressed by a scarcity of water, whereas refugees could rely on foreign assistance for their basic needs. To assist to mitigate the situational gap, it was deemed urgent to support a better water supply for the Kenyan host communities to improve the basic living conditions. Moreover, between 2011 to 2012, a severe drought of "the worst in 60 years," struck the entire East African region. While Kenya was burdened with the crisis that ensued from the drought, an ever-increasing number of refugees from southern Somalia fled to Kenya. In response to the situation, the scope of livelihood assistance was extended in the project.		
Objectives of the Project	Through the construction of deep well water supply facilities and reservoirs, procurement of 4WDs and water trucks, and training for improving the maintenance, management, and sanitation of the water supply facilities, the project aims at improving access of eleven host communities of the Dadaab refugee camps to water supply, thereby contributing to the improvement of living conditions in the host communities in Garissa County, Kenya. 1. Overall Goal: living conditions in host communities of Dadaab refugee camps are improved through the water supply. 2. Project Purpose: access to potable water and livestock water supply are improved in eleven host communities of Dadaab refugee camps.		
Activities of the Project	1. Project site: Dadaab Sub-county, Lagdera Sub-county, and Jarajilla division, Fafi Sub-county in Garissa County 2. Main activities: 1) improvement of water supply facilities in host communities, 2) strengthening of operation and management (O&M) capacity of Water Users Associations (WUAs), 3) improvement of water storage facilities in host communities, 4) procurement of water supply equipment as emergency drought response, 5) procurement of school equipment as emergency drought response. 3. Inputs (to carry out the above activities) Japanese Side 1) Experts: 3 persons 2) Equipment: 4WDs, water trucks, water tanks, power generators, pumps, school furniture for refugee camps and Kenyan host communities, etc. 3) Local cost: administrative costs. Kenyan Side 1) Staff allocated: 5 persons 2) Facilities: Offices for the experts 3) Local cost: Administrative and operational expenses 4) Construction of water supply facilities and reservoirs in 2 communities (financed by Counter Part Fund)		
Project Period	(ex-ante) November 2010 – October 2012 (actual) November 2010 – October 2012	Project Cost	(ex-ante) 785 million yen, (actual) 849 million yen
Implementing Agency	Northern Water Works Development Agency (NWWDA) (created and replaced the Northern Water Services Board under the Water Act 2016)		
Cooperation Agency in Japan	--		

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to travel restrictions and lockdown measures raised during the COVID-19 Pandemic as well as the security reason of the sites, data gathered in remote areas during the ex-post evaluation was lower both in quantity and quality as on-site data collection and direct observation were not as feasible as planned. Nonetheless, mitigation measures were taken as follows; 1) rely more on existing monitoring data collected prior to COVID-19, 2) increase scope of desk-based review of administrative data, 3) use of remote data collection (e.g. telephone interview) and analysis methods where available.

< Special Perspectives Considered in the Ex-Post Evaluation >

No conventional evaluations were conducted prior to the ex-post evaluation

- The project design matrix with befitting indicators was not set forth and omitted to give a basic structure to evaluate the project. Inevitably, how to measure the achievement of the project purpose and the overall goal was retroactively reframed as shown in the box below based on each planned output and objective. Note, however, that it was impossible to set any numerical targets due to a lack of baseline data. It should be thus examined the information/data pertaining to the conceivable outcome of the output entailed in the target host communities selected along with multiple objectives and urgency at the times of project completion and the ex-post evaluation.
- Furthermore, according to the Record of Discussion, it was agreed at the outset that Counterpart Fund of Japan's Grant Assistance for unprivileged farmers (namely, 2KR) 2008 shall be utilized for; 1) drilling 11 boreholes, 2) construction of water supply facilities in host communities, 3) other equipment or construction which were mutually agreed upon between Kenyan and Japanese sides. Also, it was confirmed that the Kenyan side shall

take full responsibility for the utilization of the Counter Part Fund as the premise. Thus, irrespective of all the irregularities mentioned above as a technical cooperation project, it was imperative to be jointly accountable through assessing how the Fund was utilized to complete the target areas in order to achieve the agreed purpose of the project.

- After reframing the project activities, it was eventually agreed that two host communities were added to the list of original 11 target host communities for output 3 (construction of water storage facilities) and the portion was financed by the Counterpart Fund.

1 Relevance

<Consistency with the Development Policy of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development policies of Kenya at the time of ex-ante evaluation. The "Kenya Vision 2030" (2008) addressed the target of the ratio of water supply in rural areas to be 59 %, aimed at promoting from the level of 40 % at the time. Furthermore, to fulfill the mandate, the Ministry of State for Development of Northern Kenya & Other Arid Lands was newly established by the Government of Kenya in 2008. It manifested the political importance in the development of the target area of the project.

<Consistency with the Development Needs of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the needs of Kenya at the time of ex-ante evaluation. Dadaab is situated in the North-Eastern part of Kenya, only about 90 km distance from the border between Somalia. As of 2010, the refugee camp in Dadaab hosted approximately 30 thousand refugees. Situated in semi-arid land with an annual rainfall of 300 mm or less, residents in the host community in Dadaab were traditionally pastoralists relying on scarce water and fuelwood in their livelihood. Thus, they were negatively affected by the expansion of refugee camps as it caused deterioration of the local natural environment, decline in public safety, and consumer price hikes. Moreover, a severe drought struck the entire East African region in 2011. It was thus an urgent need to respond to the crisis in the project area.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy towards Kenya. According to the five priority areas addressed in Japan's assistance program for Kenya (2000), the project was consistent with two areas, specifically the community development through the improvement of livelihood in semi-arid land and water quality management and groundwater development.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved by the project completion. Regarding better access to the water supply in the target host communities, Borehole drilling was completed in all 11 host communities, however, the O&M training for WUAs had not been as intensive as planned due to the delay in construction. As for water storage facilities in 13 host communities, the construction was delayed in 2 communities financed by the Counterpart fund (Indicator 1). Regarding rehabilitation of the water supply equipment in the drought-hit area, the project rehabilitated a total of 20 water wells in the areas as planned by a two-phased approach (Indicator 2). Furthermore, concerning the improvement of the school environment in the drought-hit area, the project was not finished providing the planned scope of school furniture and auxiliary equipment for primary schools. Nonetheless, it was duly arranged to work with the United Nations High Commissioner for Refugees (UNHCR) to complete the scope of work (Indicator 3).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued since project completion. At the time of the ex-post evaluation survey, it was reported that out of the 13 sites where water storage facilities were constructed, 11 sites are fully functional whereas one site is partially functional and one other site is not functioning. In terms of management, all WUAs were trained on the operations and management of the water facilities, and the 11 sites have managed to keep the engagement of the communities and ensured water supply activities on the right track. This can also be observed with the target sites where all rehabilitated boreholes at the time of the survey were fully functioning, and all delivery trucks were in operation. The project brought about various positive outcomes in the area through concerted efforts of Development Partners (i.e., World Bank, World Vision, Fafi Integrated Development Association (FAIDA)) and the County Government of Garissa. Notably, the UNHCR supported the project in part of distribution and management of school equipment. It has consequently contributed to the sustainability of school furniture.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal had been partially achieved at the time of ex-post evaluation. It was reported that, despite a recurring drought incident and a steady population increase over the years, the living condition of host communities has improved in many aspects as a result of the project interventions (Indicator 1). The achieved water availability contributed to reducing the potential dangers of water-borne diseases. General hygiene has also improved. Children can fully attend school, as being released from water-fetching as their daily chores. Also, an increase in livestock coincided with an increase in economic activities in the target areas. The capacity to provide a steady water supply has also resulted in a stable increase in population and, a proportional increase in water demand in the communities. The project mobilized local people to plant and grow trees in the areas to create an environment congenial to settle. However, the knowledge and technique of the O&M of water supply facilities have not been disseminated to other host communities in Dadaab refugee camps, as the majority of WUAs' members have not been equipped with ample teaching abilities. Also, as they have limited literacy skills, it was considered hard to instruct the O&M even through the written manuals (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

As stated above, the project can promote a water supply to cover around 92% of host community members for their drinking water as well as for managing livestock. As a result, more women could become engaged in local commercial activities such as shopkeeping. The change is discerned in the areas where the boreholes have been operational and thus, women could have diversified the time use as they no longer need to walk a long distance to fetch water. Furthermore, a stable water supply from the boreholes has impacted the socio-economic status in a subtle but significant way; those who used to have a nomadic lifestyle have inclined to be settled. Furthermore, the improvement of a water supply has attracted pastoral farmers from other districts, resulting in a higher concentration of livestock and a change in mobile pastoral patterns in the region. On the other points of concern, there was no resettlement and land acquisition caused by the project, and thus there were no ramifications to do with them.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Access to potable water and livestock water supply are improved in eleven host communities of Dadaab refugee camps.	The project contributed to providing better access to the water supply in the target host communities. (Output 1) Water supply facilities in 11 host communities are improved. (Output 2) Operation and Maintenance capacity of Water Users Associations (WUAs) are strengthened. (Output 3) Water storage facilities in 13 host communities are improved.	Status of the Achievement: partially achieved (continued) (Project Completion) (Output 1) Borehole drilling was completed in all 11 host communities: Fafi center, Fafi Ajin center, Amuma center, Yumbis center, Dadaab, Mathahgesi, Damajaley, Hamey, Shitley, Nambarah, Dalsan (Output 2) Due to the delay in the preceding construction, other organizations excavated boreholes in the originally planned sites (after changing from Dertu to Damajale, finally decided in Maleiley).As such training timetable had to be pushed back. To complete the WUAs training sessions by the time of installation of the equipment, the community sensitization had to be conducted less frequently than originally planned. (Output 3) According to the completion report, the construction was completed in 11 target communities, although it was still under construction in the additional 2 target communities financed by the Counterpart Fund (Hagabuul and Maalim Mohamed). 13 target communities: Hagabuul , Maalim Mohamed , Fafi center, Fafi Ajin center, Amuma, Yambis center, Dadaab, Mathahgesi, Damajaley, Hamey, Shitey center, Nambarah, Dalsan (Ex-post Evaluation) 11 boreholes were drilled of which 10 are fully functional and the only one that is not functional in target host communities. Eight water pans were constructed to realize additional 160,000m3 water storage. Seven of the pans were fully functional whereas only one was not at the time of the survey. As for the capacity of WUAs, despite some managerial challenges, WUAs have maintained the 10 drilled boreholes fairly well and continued to engage the community in carrying out O&M activities. Concerning the reservoir construction of 13 host communities, the construction of two reservoirs that were still under construction at the time of completion was completed. However, at the time of ex-post evaluation, 10 reservoirs were fully functioning, two of them were partially functioning, whereas one of them was not working as desired. Also, it is confirmed that development partners and non-governmental organizations have given considerable support to the 3 districts of Fafi, Lagdera, and Dadaab.	NWSB Progress report 2nd May 2013 Expert's Project completion report, p.3 NWWDA's Responses to the survey questionnaire & Telephone interview
	The project contributed to rehabilitating the water supply equipment in the drought-hit area. (Output 4) Emergency drought response water supply equipment are procured	Status of the Achievement: achieved (continued) (Project Completion) The project rehabilitated a total of 20 water wells in the areas as planned: ・ <Phase I> a set of equipment (16 generators, 15 submersible pumps, etc.) for rehabilitation of 10 water wells provided to the following communities. Wajir, Garissa, Dilmanyaley, Gurufa, Baraki, Shamt-abak, Meri, Sabule, Dagahaley, Dadaab, Yumbis, Ruqa, ・ <Phase II> a set of equipment (10 generators, 10 submersible pumps, etc.) for rehabilitation of 10 water wells provided to the following communities. Wajir, Lagboghol East, Harakhotkhot, Absemet 1 & 2, Garissa, El-humo, Dadajbula, Biyamadow, Kumahumato, Liboi, Well Har borehole, Dadaab, Haragadera borehole 5, Alinjugur, Walmerer (Ex-post Evaluation) The population in the area has shown an increasing trend in the area despite the severe climate challenge since 2012. It corroborates the reported status of well-functioning water wells and a set of equipment provided by the project. Also, to keep the water supply accessible in such a sustainable way, it was confirmed that development partners and the County Government of Garissa have made a joint effort of supporting the area	NWSB Progress report 2nd May 2013 NWWDA's Responses to the survey questionnaire & Telephone interview
	The project contributed to the school environment in the drought-hit area. (Output 5) Emergency drought response school equipment are procured	Status of the Achievement: partially achieved (continued) (Project Completion) It was planned to provide school furniture and auxiliary equipment for primary schools located in Dadaab Refugee camp and 13 host communities. It was not completed at the time of project completion. ➢ 60 schools in Dadaab refugee camp ・ 36,000 sets of desk and chair ➢ 13 schools in host communities ・ 295 beds and 590 mattresses procured for (Senior Chief Ogle, Shant-abak, Afwein, Dertu, and Amuma communities) ・ 795 sets of desks and chairs were procured for (Madina, Nanighi, Dadajbula, and Dahgahaley communities) ・ 4 PV systems were procured for (Abakore, Jalango, Warable, and	NWWDA's Responses to the survey questionnaire & Telephone interview NWWDA'sResponses to the survey questionnaire & Telephone interview

<table>
<tr><td></td><td></td><td>Kumahumato communities)

(Ex-post Evaluation)
Since project completion in 2012, the distribution of school furniture and PV system has been coordinated by the UNHCR. The final distribution was completed in the year 2020 as residents could not handle the equipment as prescribed. With the assistance, the number of pupils has moderately increased over years, and yet the status of the school furniture and the PV system has been fully utilized with necessary maintenance.</td><td></td></tr>
<tr><td>(Overall Goal)
Living conditions in host communities of Dadaab refugee camps are improved through the water supply.</td><td>The status of living conditions in the host communities in the following aspects:
(1) Natural environment
(2) Public safety
(3) Hygiene/sanitation
(4) Primary education</td><td>(Ex-post Evaluation) achieved
Although the target area recurrently experienced drought and population increase (2012-2020) by approximately 11.7% over the past years, the living conditions were generally improved through the realization of a stable water supply.
<table><tr><td>Natural environment</td><td>The project launched sensitization and awareness campaigns on reforestation and environment and water management for host communities. In response, the community participated in planting trees and creating an even environment for settlement.
(Noted, however, along with the population growth, those trees have been cutting down for the construction of shelters and use for cooking. In addition, scarcity of firewood has been identified.) .</td></tr><tr><td>Public safety</td><td>They recognized being protected against potential dangers of water-borne diseases. On this realization, the communities ensured water facilities were well protected which led to longer use of the water facilities.</td></tr><tr><td>Hygiene/sanitation</td><td>The availability of water ensured improved hand wash as well as proper use of sanitation at all levels of operation.</td></tr><tr><td>Primary education</td><td>The quality of education for children who had failed to go to school regularly was improved as no need to spend time to fetch water and eliminated a potential cause of dropping out.</td></tr></table></td><td>NWWDA’s Responses to the survey questionnaire &
Telephone interview

Social assessment final report on Water and Sanitation Development Project for the refugee camps Host Community by Coast Water Services Board No. SF G3070 V2</td></tr>
<tr><td></td><td>The knowledge and technique of the O&M of water supply facilities have been disseminated to host communities in Dadaab refugee camps.</td><td>(Ex-post Evaluation) not achieved
It was not autonomously disseminated to other host communities in Dadaab refugee camps. Although the hands-on training was conducted to promote the O&M, the teaching ability for WUAs’ members to demonstrate what was required to disseminate in the other sites was quite limited. As WUAs’ members are oftentimes either illiterate or semi-illiterate, it was difficult for learners to comprehend the written materials provided by the project either.</td><td></td></tr>
</table>

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost slightly exceeded the plan (ratio against the plan: 108 %). The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The Constitution of Kenya 2010 came into effect in 2013, declared that access to safe water and sanitation services is a fundamental human right. To substantialize this, the Government of Kenya has upheld a set of policy documents: National Policy on Water Resources Management, National Water Development Policy, Northern Water Services – strategic plan, and Medium-Term Plan III. Under the policy direction, the Ministry of Water and Irrigation together with County Governments have been responsible for water-related policy development, multiple sector coordination, monitoring, supervision, and conservation of water resources. The policies have been valid since 2012 and further supplemented through the water act 2016. The County Government of Garissa has followed these policies to implement projects. The local Somali media transmission network has tried to raise awareness and outreach programmes to sustain water resources to be prepared for acute water shortage, especially during the dry season in the semi-arid County.

< Institutional/Organizational Aspect>

Under the new constitution stated above, key legislation that impacted the governing structure was notably, the County Government Act of 2012 and the Urban Areas and Cities Act of 2011, which have provided the devolution framework to implement the policies in general. However, staffing and manpower shortage has been a daunting challenge, especially at the county level. At that time, “the Northern Water Service Board” (and late reformed as NWWDA) delegated ongoing water programmes to the Garissa County Government including this very project. At the county level, an incumbent director has solely been responsible for running numerous water programmes in each area, and thus, there was not much of a hand but posted only one officer to oversee the Dadaab division. As the Garissa County Government, there has not been a sufficient number of officers vis-a-vis the required workload for the programmes in the County. They have been largely supported by Development Partners including assessment of the performance and maintenance of vested water facilities. At the time

of the ex-post evaluation, due to security reasons in the area, a water officer could merely visit once in two months.

<Technical Aspect>

As above, throughout the devolution process, NWWDA was mandated to cooperate with the Garissa County Government, especially on the implementation of National programmes. Staff members from the County Government were given opportunities to learn from trained engineers of NWWDA during project implementation. Although such interpersonal cooperation existed between NWWDA and the County Government, there was no future strategy or mechanism to collaborate further on an institutional basis, such as to build upon the experiences and share valuable hands-on experience and lessons learned. At the time of ex-post evaluation, no personnel was working at either NWWDA or the County Government due to retirement and/or transitions. The manuals provided by the project were no longer used directly by the communities. As community members are either illiterate or semi-illiterate, the level of understanding of the written document was inevitably limited, although personnel from NWWDA and County Government could refer to these manuals for training.

<Financial Aspect>

As an augmentation of water and sanitation services is a priority in the Garissa County Government, the budget has been continuously allocated to the sector according to biennial data confirmed since 2014. The water and irrigation services department has received a significant share of the county's public funding to disburse the construction of new water facilities. As for the budget for the maintenance of existing water facilities, however, it has been limited despite showing an increasing trend in the past years. To complement the shortfall to a degree, donors and humanitarian organizations working in Garissa County have provided funds to some communities for water programmes which include rehabilitation of existing water facilities, and the financial assistance will be continued in the foreseeable future.

<Evaluation Result>

In light of the above, Slight problems have been observed in terms of the Institutional/Organizational, technical aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose and the Overall Goal. Water accessibility being widely enhanced has positively affected the livelihood of the target communities. As for sustainability, with limited manpower, it has been a challenge for the implementing agency to disseminate the locally feasible way in dealing with the O&M of vested facilities, although the expansion of water supply and sanitation services has remained its priority in the County government. As for efficiency, the project cost exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

In order to ensure sustainability and to realize the full potential of the project in Garissa County, the issue of high illiteracy among host communities and WUAs members needs to be properly addressed in the County Government to design the approach most amenable to them for the sake of self-sustaining capacity building. For time being, water supply manuals by the project should be simplified with more graphics and translated into the local language for better and wider understanding. Going forward, it is imperative to request that all training materials should be easily understood and cogent irrespective of the literacy competence of the beneficiaries.

Lessons Learned for JICA:

The ex-post evaluation survey results show limited dissemination of the O&M of water facilities in other host communities due to the lack of technical/managerial knowledge in the County Government and NWWDA. In order to secure the sustainability of the project, staff members were required to acquire the necessary skill during the limited period of project implementation. As such, to further strengthen and retain the needed institutional capacity of the implementing agency for the O&M, an emphasis should be placed on the programme development of human resources as to how they can autonomously carry out on-the-job training (OJT) and subsequent refresher courses after the project completion. Given the prevailing high turnover rate through retirement and/or job-hopping, the local labor conditions, practices of a recipient country should be deliberately taken into consideration to set the scope of activities to strategize how to conduct training after project completion during the formulation of a technical cooperation project.

The ground site of the Hamey borehole

Hamey women fetching water from borehole supported by JICA

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Philippines Office: March, 2023

Country Name	**Project for Supporting Senior High School (SHS) Program in Technical Vocational High Schools**
Republic of the Philippines	

I. Project Outline

Background	While the literacy rate in the Philippines was high (95.4%, as of 2011) among the Southeast Asian countries, the enrollment rates of primary and secondary education were 85.01% and 62.38%, respectively (2009) and the indicator for the secondary education needed further improvement, in particular. In addition, low quality of education was pointed out and both achievement level of the nationwide academic aptitude test (especially science and mathematics) and the "Trends in International Mathematics and Science Study" showed low figures. In response to such educational circumstances, Japanese companies entering the market suggested the necessity to raise the educational level of manufacturing workers who completed secondary education due to the fact that labor power suited to the needs of the industry was not supplied. It was one of the impediments to investment from overseas.
Objectives of the Project	Through collaborating with Japanese industries/firms expanding into the Philippines market, the project aimed at developing a mechanism for Technical and Vocational High Schools (TVHSs) activities to ensure its effective implementation, thereby contributing to sharing activities, strategies and promising practices implemented in the Senior High School (SHS) modeling to other TVHSs. 1. Overall Goal: Activities, strategies and promising practices implemented in the Senior High School (SHS) modeling will be shared to other TVHSs including K to 12[1] modeling TVHS nationwide as a resource reference to develop/enhance their School Improvement Plans (SIP) (280 schools in total). 2. Project Purpose: A mechanism is developed for TVHS activities to ensure its effective implementation through collaboration with industries/firms including those from Japan (Targeting at all fourteen (14) TVHSs which participate in SHS modeling program[2]).
Activities of the Project	1. Project site: 14 target schools (4 pilot schools and 10 modeling schools)* in the Philippines 2. Main activities: (i) Identifying mismatches/gaps between capacities/competencies of graduates and industry needs at the pilot TVHSs and addressed in their School Improvement Plans (SIP), (ii) Promoting collaboration between pilot schools and industry/firms to improve school activities and to fill the identified gaps; and (iii) Sharing the information on piloted activities/best practices for possible replication/adaptation with SHS modeling TVHSs, other than the four (4) pilot schools. *14 target schools • Pilot schools: (1) Don Alejandro Roces Sr. Science and Technology High School (DARSSTHS), (2) Rizal Experimental Station and Pilot School of Cottage Industries (RESPSI), (3) San Pedro Relocation Center National High school (SPRCNHS), (4) Subangdaku Technical Vocational School (STVS). • Modelling schools: (1) Bukig National Agricultural & Technical School (BNATS), (2) Angeles City National Trade School, (3) Balagtas National Agricultural High School, (4) Bataan School of Fisheries, (5) Dona Montserrat Lopez Memorial School, (6) Merida Vocational School, (7) Opol National Secondary Technical School (ONSTS), (8) Iligan City National School of Fisheries (ICNSF), (9) Rogongon Agricultural High School (RAHS), (10) Tagum National Trade School (TNTS). • The Philippine government selected 14 out of 280 TVHSs as modeling schools for SHS modeling program. On the other hand, in this project, 4 out of 14 TVHSs that carried out pilot activities were called pilot schools, and the remaining 10 TVHSs were called modeling schools. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 4 persons 2) Trainees received: 39 persons 3) Equipment: Materials and equipment for vocation training 4) Local cost: Competitive grant Philippines Side 1) Staff allocated: 44 persons 2) Facilities and land: Project office and facilities 3) Local operation cost: salaries, electricity and water supply cost, stationary for modeling and pilot schools, workshop cost, etc.

Project Period	(ex-ante) February 2014 – May 2017 (actual) June 2014 – May 2017	Project Cost	(ex-ante) 237 million yen (actual) 226 million yen
Implementing Agency	Department of Education (DepEd)		
Cooperation Agency in Japan	KRI International Corp.		

II. Result of the Evaluation

<Constraints on Evaluation>

[1] "K to 12" is an extended basic education period reformed in line with "Education For All" and educational goals of the Millennium Development Goals, which is from 10 years education system (6 years of primary education, 4 years of secondary education) to 12 years education system (6 years of primary education, 4 years of secondary education in the first-term, 2 years of secondary education in the second-term).

[2] From March 2012 to March 2016, the Philippine government conducted an SHS modeling program in order to consider how to implement upper secondary education when extending basic education institutions from 10 years to 12 years (K to 12 reform). In implementation of this program, 16 schools from ordinary schools (total 7,466 schools) and 14 schools from TVHSs (total 280 schools) were selected as modeling schools.

- Due to COVID-19 quarantine restrictions, face-to-face interviews and field visits could not be conducted. To address these limitations, questionnaire surveys, telephone interviews and online meetings with 14 target schools of this project were carried out.
- As the ex-ante evaluation sheet was not prepared for this project, it took time to verify the project information at the planning stage such as planned project cost.

1 Relevance

<Consistency with the Development Policy of the Philippines at the Time of Ex-Ante Evaluation >

The project was consistent with the national development policies of the Philippines such as the "Philippine Development Plan" (2011-2016) aiming at extending basic education period, which was called as "K to 12 reform", from 10 years (6 years of primary education, 4 years of secondary education) to 12 years (6 years of primary education, 4 years of secondary education in the first-term, 2 years of secondary education in the second-term).

<Consistency with the Development Needs of the Philippines at the Time of Ex-Ante Evaluation >

The project was consistent with development needs of the Philippines such as to improve the worker graduates of secondary education through basic mathematics and basic skills training by introduction of selective vocational training courses in the second-term education.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's Country Assistance Program for the Republic of the Philippines (2012) addressing "Sustainable economic growth through promotion of investment" as one of priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

The Project Purpose was achieved by the time of project completion. At least 1 document (Guideline, Manual, MoA) related to tech-voc education (e.g., coordination mechanism with the Technical Education and Skills Development Authority (TESDA), the Commission on Higher Education (CHED) requested letters to industry associations, OJT guideline, and career education guide for elementary school) is developed (Indicator 1). The handbook for school-industry partnership developed by the project was evolved into "Guidelines for Building Partnerships for the K to 12 Basic Education Program". And finalized and published as "DepEd Order No. 40, 2015" on 28th August 2015. These Guidelines direct the SHSs to analyze the school situation qualitatively and quantitatively and plan through causal analysis of issues based on the voices of students and stakeholders. It includes the definitions of related words, coverage of partnership, method of monitoring, related laws and regulations, assessment tool by partner and sample of Memorandum of Agreement (MOA). The Guidelines supported for the clearer goal setting and monitoring method and to draw SIP which was useful to fit the actual situation.

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

The project effects have been continued at the time of ex-post evaluation. The guidelines have been regularly used by all the 14 target schools for building partnerships with various stakeholders and implementing the immersion program for SHS-TVL (Technical-Vocational Livelihood) track[3] students. Specifically, the guidelines were used as guide in designing and finalizing formal agreements between the schools and industry partners, planning and managing the work immersion program, monitoring and assessment of the work immersion program including tracking of SHS graduates.

These partners include industries, local governments, national government agencies, cooperatives, other schools, among others. Most of the 14 target schools increased in number of partners from industry firms, industry associations, NGOs, and Local Government Units (LGUs) after the project completion, and they strengthen the employment opportunities with partner industries. Opol National Secondary Technical School (ONSTS) and Iligan City National School of Fisheries (ICNSF) became a TESDA-accredited Training Assessment Center serving its province or its city and nearby municipalities.

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

The Overall Goal was achieved at the time of Ex-post evaluation. Although a specific target was not set, the actual values for Indicator 1 and Indicator 2 have contributed sufficiently to realize the Overall Goal, therefore, its achievement status was judged as "achieved". Total 64 schools among 280 TVHSs have been informed of outcome of the SHS modeling program (Indicator 1). The outcome of the SHS modeling program have been shared with other schools by orientation of visitors about the teaching methodologies, demonstration of students' skills and outputs, sharing experiences in industry immersion and building partnerships, and tour of school facilities and equipment. Also, total 163 schools benchmarked the pilot schools (Indicator 2). They benchmarked the following methodologies, programs and activities practiced in the pilot schools such as partnership building, SHS curriculum, learning methodology and tracing of graduates. students' skills acquired, classes and school facilities and equipment, and so on. As a result, total 75 schools (5 schools in Region X, 20 schools in Region II, 50 schools in Region IV-A) out of 280 TVHSs introduced a mechanism of partnership between schools and industries/firms except project target 14 schools.

<Other Impacts at the Time of Ex-Post Evaluation>

The partnership between the target 14 schools and stakeholders such as industry firms, industry associations, NGOs, and LGUs established through the implementation of this project brought about some positive impacts in the form of support from partners to schools. For example, San Pedro Relocation Center National High school (SPRCNHS) received donations from partners for upgrading tools and equipment and improvement of school facilities. In Angeles City National Trade School, the partnership with LGUs resulted in college scholarships for deserving students and donations of tablet computers for every student used in distance learning during pandemic of COVID 19. Due to the pandemic, the pilot/modelling schools with guidance from DepEd were able to adapt to alternative ways of delivering SHS-TVL education using distance learning platforms. No negative impact on natural environment was observed.

<Evaluation Result>

Therefore, the effectiveness/impact is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source

[3] SHS-TVL (Technical-Vocational-Livelihood) track consists of vocational and livelihood course specializations designed for senior high school students to learn job-ready skills for employment after graduation. TVL track provides preparation for occupation of future work in abroad, and the experience and skills to earn Certificates of Competency and National Certifications which they will need to seek future employment.

(Project Purpose) A mechanism is developed for TVHS activities to ensure its effective implementation through collaboration with industries/firms including those from Japan.	Indicator 1 At least 1 document (Guideline, Manual, MoA) related to tech-voc education (e.g., coordination mechanism with TESDA, CHED request letters to industry associations, OJT guideline, and career education guide for elementary school) is developed.	Status of the Achievement (Status of the Continuation): achieved (continued) (Project Completion) • The handbook for school-industry partnership "School Industry Linkage Officer's Handbook on Industry Immersion and Partnership", of which Project team has been involved in the formulation and improvement since November 2014, was evolved into "Guidelines for Building Partnerships for the K to 12 Basic Education Program". It was finalized and published as "DepEd Order No. 40, 2015" on 28th August 2015. • These Guidelines direct the SHSs to analyze the school situation qualitatively and quantitatively and plan through causal analysis of issues based on the voices of students and stakeholders. It includes the definitions of related words, coverage of partnership, method of monitoring, related laws and regulations, assessment tool by partner and sample of Memorandum of Agreement (MOA). The Guidelines supported for the clearer goal setting and monitoring method and to draw SIP which was useful to fit the actual situation. (Ex-Post Evaluation) • DepEd Order 40 Series of 2015 (Guidelines for Building Partnership for the K-12 Basic Education Program) has been used regularly by all the 14 target schools for building partnerships with various stakeholders and implementing the immersion program for SHS-TVL students. These partners include industries, local governments, national government agencies, cooperatives, other schools, among others. • Most of the 14 target schools increased in number of partners from industry firms, industry associations, NGOs, and LGUs after the project completion, and strengthen the employment opportunities with partner industries. • Opol National Secondary Technical School (ONSTS) and Iligan City National School of Fisheries (ICNSF) became a TESDA-accredited Training Assessment Center serving its province or its city and nearby municipalities.	(Project Completion) Terminal Evaluation Report (Ex-Post Evaluation) Interviews with school heads, Insustrial Linkage Coordinators (ILCs) and immersion teachers from pilot/modelling schools; interviews with SHS supervisors from DepEd Regional and Division Office; results of questionnaire survey
(Overall Goal) Activities, strategies and promising practices implemented in the Senior High School (SHS) modeling will be shared to other Technical and Vocational High Schools (TVHSs) including K to 12 modeling TVHS nationwide as a resource reference to develop/ enhance their School Improvement Plans (SIP) (280 schools in total).	Indicator 1 Number of TVHSs that are informed of outcome of the SHS modeling program.	Status of the Achievement: achieved (Ex-Post Evaluation) • Total 64 schools • The outcome of the SHS modeling program were shared with other schools by orientation of visitors about the teaching methodologies, demonstration of students' skills and outputs, sharing experiences in industry immersion and building partnerships, and tour of school facilities and equipment.	Interviews with school heads, ILCs and immersion teachers from pilot/modelling schools; interviews with SHS supervisors from DepEd Regional and Division Office; results of questionnaire survey
	Indicator 2 Number of schools which benchmarked the pilot schools.	Status of the Achievement: achieved (Ex-Post Evaluation) • Total 163 schools. • The 163 schools benchmarked the following: programs, strategies and activities practiced in the pilot schools such as partnership building, SHS curriculum, learning methodology and tracing of graduates. students' skills acquired, classes and school facilities and equipment, etc.	

3 Efficiency

Both project cost and period were within the plan (ratio against the plan: 95% and 90% respectively). The outputs were produced as planned. Therefore, efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The government policies such as "Philippine Development Plan" (2017-2022) remained supportive of the need to improve the quality of SHS particularly on the development of the SHS-TVL track. DepEd continues promotion/dissemination of the system/model introduced by the project such as the building partnerships between SHS and relevant stakeholders by issuance of ministerial ordinances on provision of related guidelines.

<Institutional/Organizational Aspect>

The organizational structure required to sustain the activities and positive effects arising from the project has been maintained at the national, regional, division and school level. The Regional Office and the School Division Office of DepEd have been responsible for promotion of SHS good practices and model activities initiated by the project through the Regional/Divisional Coordinators for SHS and TVL Focal Persons in coordination with Partnership Focal Person (PFP) of the School Governance Operation Division. The pilot and modelling schools retained the position of Industrial Linkage Coordinator (ILC) or PFP. Majority of the schools assigned work immersion teachers to facilitate industry immersion activities of students and assist the ILC/PFP in coordinating with industry partners.

According to the DepEd regional and school division offices, their manpower has been sufficient for promoting/ disseminating the good

practices introduced by the project. Also, all the target schools reported to have sufficient number of staff to provide employment support activities to their students and to promote the good practices to other schools during benchmarking activities. On the other hand, regarding monitoring or tracing the graduates in previous years (e.g., 2 to 3 years after graduation), majority of the schools faced difficulty as this activity requires more time and resources on the part of the school and its staff. The reason for this is that ILC and PFP are concurrently appointed by teachers who have full-time classes and therefore cannot devote sufficient time for the above-mentioned surveys. For this reason, some ILC or PFP have suggested that their teaching load be reduced so that they can have more time spent for building new and strengthening existing partnerships with relevant stakeholders.

<Technical Aspect>

TVL teachers including ILC/PFC and work immersion teachers have been able to enhance their skills through in-service seminars and skills trainings provided by Division Offices, actual exposure to the industry while supervising the immersion work of students, and on-the-job sharing of experiences among TVL teachers through DepEd's Learning Action Cells (LAC)[4]. In the context of the pandemic of COVID 19, the target schools expressed the need for more trainings for TVL teachers to develop and enhance their competencies on distance/online teaching methodology using ICT-based tools and platforms. Also, the majority of the target schools emphasized the need for upgrading TVL teachers' skills and learning facilities, tools and equipment in order to cope up with fast-changing technology and increasing level of technical competency demanded by TESDA accreditation and the industry. According to DepEd Central Office, the issues relating to limited capacity of TVL teachers and inadequacy of TVL learning equipment are currently being addressed by DepEd Order No. 35 series 2020 which provides the guidelines on the Implementation of the Joint Delivery Voucher Program for SHS-TVL Specializations. This Order will specifically benefit small TVL schools including the modelling schools as they will be given the opportunity to send their students to accredited schools for specialized training to facilitate acquisition of National Certificate (NC) by these students prior to graduation.

<Financial Aspect>

Financial resources to support partnership building with industries and work immersion activities by student activities have continuously been provided by DepEd to all pilot and modelling schools although at a very limited scale. In addition, some LGUs have donated facilities and equipment for in-school learning. While DepEd was not able to sustain the competitive grants, it was able to provide training materials and equipment to the target schools although at a much smaller scale than what the project has provided.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the financial aspect of the implementing agency. Therefore, the sustainability of the project effects is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose which aimed to develop a mechanism for TVHS activities to ensure its effective implementation through collaboration with industries/firms including those from Japan targeting at all fourteen TVHSs which participate in SHS modeling program. The Overall Goal which aimed at sharing activities, strategies and promising practices implemented in SHS modeling to other TVHSs nationwide as a resource reference to develop/enhance their SIP has also been achieved. As for sustainability, some problems have been observed in terms of the financial aspect of the implementing agency. However, the pilot and modelling schools have maintained employment support activities in partnerships with industries, NGOs, and LGUs and the DepEd has been active in promoting/disseminating the good practices introduced by the project.

Considering all the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- Regarding the issue on limited budgetary allocation of the government for work immersion programs, the schools should consider creating a mechanism to mobilize resources from partners including industries, local governments, parent-teachers associations. Also, DepEd is suggested to make sure to carry out the Joint Delivery Voucher Program for SHS-TVL track through partnerships with private institutions which are equipped with necessary resources such as teachers, workshops, tools and equipment.
- In order to confirm the effects of School Improvement Plans (SIP) implemented by this project and to continuously strengthen the educational program and activities for collaboration with industry/firms, it is important to conduct a monitoring or tracing of the graduates of TVHSs to know how many students are able to land a job, which companies they are hired, what kind of specialties are in demand in the current labor market, what specialties are useful and are able to apply to their current job, etc., as well as to create a database of this information for use. However, schools have found it difficult to conduct a monitoring or tracing of the graduates two to three years after graduation due to a lack of manpower. The reason for this is that ILC and PFP are concurrently appointed by teachers who have full-time classes and therefore cannot devote sufficient time for the above-mentioned surveys. To address this issue, it is necessary for each school to employ a full-time ILC and PFP specialized in their activities.

Lessons Learned for JICA:

- Based on the handbook, developed in the project, DepEd issued the "Guidelines for Building Partnerships for the K to 12 Basic Education Program" through "DepEd Order No. 40" in August 2015. These Guidelines direct the SHSs to analyze the school situation qualitatively and quantitatively and plan through causal analysis of issues based on the voices of students and stakeholders. It includes the definitions of related words, coverage of partnership, method of monitoring, related laws and regulations, assessment tool by partner and sample of Memorandum of Agreement (MOA). The Guidelines supported for the clearer goal setting and monitoring method and to draw SIP which was useful to fit the actual situation. These guidelines and subsequent ministerial ordinances by DepEd facilitated the adoption and dissemination of the good practices in building school- industry partnership to other TVHSs nationwide. In this regard it is effective to develop a handbook for school-industry partnership based on the good practices generated from the piloting and modelling activities in target schools.

[4] A Learning Action Cell (LAC) is a group of teachers who engage in collaborative learning sessions to solve shared challenges encountered in the school facilitated by the school head or a designated LAC Leader.

Students from San Pedro Relocation Center National High School utilizing JICA donated Desktop Computer to enhance their ICT skills.

A female student from Subangdaku Technical Vocational High School showcasing her Shielded Metal Arc Welding (SMAW) skills during the school-based job immersion.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Uganda Office: May, 2022

Country Name	**Secondary Science and Mathematics Teachers' Project Phase III**
Republic of Uganda	

I. Project Outline

Background	In Uganda, since introduction of Universal Primary Education in 1997 and Universal Secondary Education in 2007, the enrollment rate of lower secondary education increased. In association with the quantitative expansion, prevention of qualitative deterioration of the secondary education became an urgent issue in the country. The level of students' performance for science and mathematics had been particularly low. The results of National Assessment of Progress in Education conducted in 2010 revealed that the pass rate for mathematics was 49.7% and for biology was 30.4% while the rate for English was 67.5%. In order to improve the situation, the Ministry of Education and Sports (MoES) implemented technical cooperation projects of the "Secondary Science and Mathematics Teachers' Programme (SESEMAT)" (Phase I) (2005-2008) and the "SESEMAT National Expansion Plan" (Phase II) (2008-2012) with the assistance of the government of Japan. The Phase I project established a model cascade system of in-service training programme (INSET) in the pilot regions[1] for secondary education teachers especially focusing on science and mathematics. The Phase II project has expanded the regular INSET nationwide. However, the extension and improvement of INSET had been insufficient, and there was a considerable number of teachers who felt that understanding of the contents of subjects they taught was still challenging for them. In addition, continuous implementation of INSET was required for new teachers increased along with the increase in school enrollment rate.		
Objectives of the Project	Through the improvement of the quality of regular INSET and nationwide implementation of the SESEMAT Activities Regional-Based (SARB)[2] initiatives, the project aimed at improvement of the quality of lower secondary science and mathematics lessons, thereby contributing to improvement of attitude of lower secondary science and mathematics learners.		
	1. Overall Goal: The attitude of lower secondary science and mathematics learners is improved. 2. Project Purpose: The quality of lower secondary science and mathematics lessons is improved.		
Activities of the Project	1. Project Site: the whole country of Uganda 2. Main Activities: 1) Improvement of the quality of regular INSET, and 2) Nationwide appropriate implementation of SARB initiatives. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 12 persons 2) Equipment: digital duplicator, printers, projectors, PCs, etc. Ugandan Side 1) Staff Allocated: 12 persons 2) Land and Facilities: project office 3) Local cost: cost for utility of offices (electricity, water and telephone)		
Project Period	(ex-ante) September 2013 – August 2017 (actual) September 2013 – August 2017	Project Cost	(ex-ante) 300 million yen (actual) 357 million yen
Implementing Agency	Ministry of Education and Sports (MoES)		
Cooperation Agency in Japan	Koei Research & Consulting Inc.		

II. Result of the Evaluation

<Constraints on Evaluation>

- The ex-post evaluation was conducted by the questionnaire to and face-to-face/online interviews with the Secondary Education Department (SED), SESEMAT National Office, and Regional Management Committees (RMCs) or Regional Trainers (RTs) of Kampala, Jinja, Lango, and Mbarara. Field survey for visiting schools was not conducted due to the incidence of COVID 19.

<Special Perspectives Considered in the Ex-Post Evaluation>

- Indicator 2 and 3 for the Project Purpose and Indicator 2 for the Overall Goal were "referential indicators" which were not finalized as indicators by the project. Because they were not finalized indicators, their achievements were not evaluated in this ex-post evaluation although their achievements were confirmed.
- As defined in the Mid-term Review (2016) and the Terminal Evaluation (2017) of the project, the activities of the project consisted of three major pillars of 1) implementation of improved National and Regional INSET[3], 2) development of teaching references, and 3) nation-wide implementation of SARB. Although those were not included in the indicators of the project, the status of implementation of the National and Regional INSET and nation-wide implementation of SARB were evaluated as the components of "Continuation Status of Project Effects at the time of Ex-post Evaluation." Development of the teaching references was evaluated in the "Status of Achievement of the Project Purpose at the time of Project Completion."

1 Relevance
<Consistency with the Development Policy of Uganda at the Time of Ex-Ante Evaluation> The project was consistent with the development policies of Uganda at the time of ex-ante evaluation. The "National Development Plan

[1] SESEMAT activities have been conducted not on district basis but regional basis.

[2] SARB consists of four activities of lesson study, lesson observation, popularization of lesson planning, and implementation of remedial lessons. Each region is supposed to select one of the four activities and implement it in the schools in the region and report about the activities to RMC.

[3] National INSET is a national level INSET to train Regional INSET trainers and Regional INSET is a regional level INSET to train in-service teachers in regions.

2010/11-2014/15" (NDP II) placed the secondary education as one of the social services to be improved. The "Education and Sports Sector Strategic Plan 2007-2015" (ESSP) planned to improve teachers' teaching abilities through INSET in order to make young population who completed primary education be proficient labor force with problem-solving capability. In line with ESSP, the "Secondary Education Strategic Plan 2008-2019" (SESP) prepared a strategy to improve students' ability for mathematics and problem-solving and to strengthen the in-service teachers training system targeting improvement of the quality of education to make young population adaptive to higher education and labor markets. Besides, in the "Uganda Certificate of Education" (UCE), mathematics and three science subjects, i.e., physics, chemistry, and biology, are mandatory subjects. This indicates that the government of Uganda places high priority on science and mathematics education.

<Consistency with the Development Needs of Uganda at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Uganda at the time of ex-ante evaluation. The Phase I project established a cascade system of INSET in the pilot regions for secondary education teachers focusing on science and mathematics, and the Phase II project extended the regular INSET nationwide. However, there was a considerable number of teachers who found the contents of subjects they taught was still challenging for them. In addition, continuous implementation of INSET was required for new teachers including temporary employed teachers increased along with the increase of school enrollment rate. Specifically, teachers' insufficient knowledge of the subject contents and inadequate teaching methods excessively emphasizing theory and rote learning was pointed out. To address the situation, it was required to introduce a system to improve the quality of lessons through the improvement of teachers' knowledge of the subject contents and teaching methods.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy for Uganda at the time of ex-ante evaluation. In the "Country Assistance Policy for the Republic of Uganda" (June 2012), environmental improvement for realizing economic growth was identified as one of the four priority areas. Enhancement of education above the level of primary education was emphasized from the viewpoint of human resource development for economic growth. Enhancement programs for secondary science and mathematics and vocational training were included in the specific strategies for attaining this policy target.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved at the time of project completion. The average of Lesson Observation Index (LOI), rated by the National Trainers (NTs) by observing lessons of lower secondary science and mathematics teachers, was 2.2 which was higher than 80% of the target value of 2.3 (Indicator 1). As for the teaching references, the project planned to develop and distribute four versions for from S1 to S4, and the versions for S1 and S2 were developed during the project period. The versions for S3 and S4, which were not developed due to the delay of project activities, were expected to be developed by MoES after the completion of the project.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been partially continued at the time of ex-post evaluation. The lesson observation, data collection for Learner Participation Index (LPI), and Learner Performance Assessment have not been conducted after the completion of the project. The monitoring and supportive supervision for them ceased to be implemented due to insufficient budget, and this has led to a drop in motivation of teachers for those activities. Therefore, the continuation status of indicators was not verified. However, the National and Regional INSET have been implemented 3 times in a year respectively as planned after the completion of the project up to 2018/19. Only in 2019/20, they were implemented 2 times respectively due to the incidence of COVID 19. RTs trained in the National INSET train teachers in the Regional INSET. Thus, the cascade training system introduced by the project has functioned. The number of schools implementing SARB has been steadily increasing maintaining approximately 40% of the total number of schools in the country (Table 1).

Table 1: the number of schools implemented SARB

	2017/18	2018/19	2019/20
Number of schools implemented SARB	1,139	1,218	1,290
Total number of schools in the country	2,766	2,801	2,981
The rate of schools implementing SARB	41%	43%	43%

Source: 20 RMCs out of 27 in total in the country

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal was partially achieved at the time of ex-post evaluation. The achievement of the indicator was not verified because data collection for LPI has not been conducted after the completion of the project. However, according to RMCs and NTs, participation and performance of lower secondary schools' learners have improved. And according to the Commissioner of MoES in charge of the government secondary schools, the SESEMAT National Office, RMCs, and NTs, learners' perception about science and mathematics[4] has improved and it has been indicated by the increase of the number of students who move up to A level[5] and select science and mathematics for their subject combinations.

<Other Impacts at the time of Ex-post Evaluation>

NTs trained by the project have widely contributed in some other governmental agencies including the National Curriculum Development Centre (NCDC) and the Directorate of Education Standards (DES). NCDC invited NTs to develop and disseminate the new curriculum of the lower secondary science and mathematics, and to train teachers on the new curriculum and supervise the training provided by those teachers to other teachers. DES asked for NTs' cooperation to supervise and inspect a number of schools for their adherence to education standards. Besides, the SESEMAT approach of teaching such as the activity-based learning, learner-centered teaching, continuous improvement of teachers and learners, and others have been incorporated in the new lower secondary science and mathematics curriculum. In addition, teachers networking has been developed through the opportunities of sitting with in National and Regional INSETs. Through

[4] Learners' perception about science and mathematics means the students' notion about science and mathematics, for instance, interesting, practical, easy, boring, difficult, and others.

[5] At the end of the lower secondary education (S1 to S4), students sit for the Ordinary Level Exams. The students who pass the exams receive the Ordinary Level Certificates and move up to the advanced level (A level) for S5 and S6. S stands for "senior."

the networking, they share their locally made teaching materials which were encouraged by the project to be used as easy-to-use inexpensive learning tools. No negative impact on natural, social and economic environment has been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
Project Purpose: The quality of lower secondary science and mathematics lessons is improved.	Indicator 1: The Lesson Observation Index (LOI) obtain more than 2.3 on the 0-4 scale.	Status of the Achievement (Status of the Continuation): Achieved (not verified) (Project Completion) The average of LOI evaluated by NTs observing lessons by lower secondary mathematics and science teachers was 2.2 which was higher than 80% of the target value of 2.3. (Ex-post Evaluation) The lesson observation has not been conducted after the completion of the project. The monitoring and supportive supervision for the lesson observation ceased to be implemented due to insufficient budget, and this has led to a drop in motivation of teachers for the lesson observation.	Terminal Evaluation Report. Questionnaires to and interviews with SED, SESEMAT National Office, RMCs, and RTs.
	Indicator 2 (referential indicator): The Learner Participation Index (LPI) obtain more than 2.3 on 0-4 scale. (not to be assessed)	Status of the Achievement (Status of the Continuation): Achieved (not verified) (Project Completion) The average of LPI rated by the students attended the lessons by the teachers subjected by LOI evaluation was 2.2 which was higher than 80% of the target value of 2.3. (Ex-post Evaluation) Data collection of LPI has not been conducted after the completion of the project due to the reason stated above in Indicator 1.	Terminal Evaluation Report. Questionnaires to and interviews with SED, SESEMAT National Office, RMCs, and RTs.
	Indicator 3 (referential indicator): Results of Learner Performance Assessment conducted by SESEMAT for learners at sampled schools of S4 obtain more than 45%. (not to be assessed)	Status of the Achievement (Status of the Continuation): Achieved (not verified) (Project Completion) Results of Learner Performance Assessment of the S4 students of 24 sample schools were: biology 46%, chemistry 45%, physics 39%, and mathematics 37%. All of them were higher than 80% of the target value of 45%. (Ex-post Evaluation) Learner Performance Assessment has not been conducted after the completion of the project due to the reason stated above in Indicator 1.	Terminal Evaluation Report. Questionnaires to and interviews with SED, SESEMAT National Office, RMCs, and RTs.
Overall Goal: The attitude of lower secondary science and mathematics learners is improved.	Indicator 1: The Learner Participation Index (LPI) is improved.	(Ex-post Evaluation) Not verified Data collection for LPI has not been conducted after the completion of the project due to the reason stated above in Indicator 1 for the Project Purpose.	Questionnaires to and interviews with SED, SESEMAT National Office, RMCs, and RTs.
	Indicator 2 (referential indicator): Results of Learner Performance Assessment conducted by SESEMAT for learners at sampled schools of S4 are improved. (not to be assessed)	(Ex-post Evaluation) Not verified Learner Performance Assessment has not been conducted after the completion of the project due to the reason stated above in Indicator 1 for the Project Purpose.	Questionnaires to and interviews with SED, SESEMAT National Office, RMCs, and RTs.

3 Efficiency

Although the project period was as planned (the ratio against the plan: 100%), the project cost exceeded the plan (the ratio against the plan: 119%). The excess of the project cost resulted from "due to producing outputs" and "change of the project implementation structure." The outputs were produced as originally planned by the end of the project period. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The "National Development Plan 2020/21-2024/25" (NDP III) places high priority on the eight focal areas to be improved to address the challenges of low labor productivity in the country. One of the areas is the improvement of the quality of education at all levels. The "Education and Sports Sector Strategic Plan 2017/18-2019/20" (ESSP) which is under revision at the time of ex-post evaluation, included SESEMAT approach as one of the measures to improve teachers' in-service training and working environments. It also planned to increase the number of science and mathematics teachers for secondary schools to improve the quality of teaching and learning. According to MoES, the revised new version is supposed to maintain these policies.

<Institutional/Organizational Aspect>

In the restructuring of MoES took effect in 2021, a new position of the Assistant Commissioner was created in the Teacher Instructors Education Training (TIET) Department, and the SESEMAT National Office was transferred to the Assistant Commissioner's responsibility.

Before the restructuring, SESEMAT was under the Commissioner for Government Secondary Schools assisted by the Commissioner for Private Institutions and Schools and the Assistant Commissioner in charge of TIET. After the restructuring, SESEMAT is under the Commissioner for Teacher Education Training Development (TETD) and the Assistant Commissioner for SESEMAT. Thus, SESEMAT is institutionally properly placed in MoES now. The number of staff in the SESEMAT National Office is 19 including 11 NTs. The total number has decreased due to retirement and turn-over, and it's not sufficient for SESEMAT activities including INSET and SARB. As for the regions, the total number of staff is regulated as 16 for each RMC. Workload of RMCs differs from region to region depending on the number of schools in a region. But the number of staff is generally sufficient as far as SESEMAT activities concerned because those activities are not full-time activities for RMCs.

<Technical Aspect>

National and Regional INSET have been continuously implemented, and NTs and RTs keep introducing what they learned in the project including activity-based teaching methods, lesson planning, and others. They also keep using monitoring and evaluation system introduced by the project for monitoring INSET and SARB. The materials prepared by the project including SESEMAT fund operation manual, SARB operation manual, and Lesson Plan Sheet have been utilized by NTs, RTs, RMCs, and SED. The teaching references for S1 and S2 were developed during the project period and approved by MoES and distributed nation-wide after the completion of the project. The versions for S3 and S4 were expected to be developed by MoES after the completion of the project. At the time of ex-post evaluation, the version for S3 was drafted by NTs but not finalized, while the work on the version for S4 has yet started. Besides, those teaching references developed and drafted must be revised along with the revision of the curriculum.

<Financial Aspect>

MoES's budget for INSET has sustained at the level of 60 million Uganda Shilling (UGX) for five years after the completion of the project. According to MoES, although INSET has been implemented as scheduled, the budget has not been sufficient for all INSET related activities. For instance, the monitoring and supervision of lesson observation, data collection for LPI, and Learner Performance Assessment have not been conducted due to budget shortfalls. Budget for the SESEMAT National Office has decreased due to the national budget cut (Table 2). Insufficient budget has affected the school visit for monitoring and supervision of SARB conducted by the regions. RMCs are not allocated with the national budget but operated by the SESEMAT Fund collected from students' families. Each family of a student contributes 3,000 UGX in a year for the Fund. RMCs implement regional SESEMAT activities including Regional INSET, SARB activities, and other activities by the Fund. The balance has been favorable (Table 3).

Table 2: Budget for SESEMAT National Office

Unit: million UGX

Year	2016	2017	2018	2019	2020
Budget	3,795	2,313	624	624	408

Table 3: SESEMAT Fund

Unit: million UGX

Year	2016	2017	2018	2019	2020
Revenue	1,764	1,501	1,288	1,753	911
Expenditure	1,309	1,209	874	1,108	519
Balance	454	292	414	645	392

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agencies. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

Project Purpose was partially achieved by the time of project completion by achieving the target of Lesson Observation Index (LOI) but not completing the development of teaching references. After the completion of the project, project effects have been partially continued by conducting INSET regularly and increasing the number of schools implementing SARB. Overall Goal was partially achieved because although the data collection for LPI has not been conducted, according to the observations by RMCs and NTs, participation and performance of lower secondary schools' learners have improved. As for sustainability, problems have been observed in terms of the institutional/organizational, technical and financial aspects. As for efficiency, the project cost exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- It is recommended that the SESEMAT National Office finalizes the teaching references S3 and S4 and update S1 and S2 to make them comply with the new curriculum, gets approval by MoES, and distributes them to all secondary schools in the country. If any financial constraints are expected for drafting and distributing, it is recommended that the SESEMAT National Office with the backup of MoES tries to find external funding sources including schools', parents', and development partners' contributions. Distribution cost may be cut down by applying inexpensive ways or cost sharing ways, for instance, by sending the electronic data of them to be printed in each school.
- It is recommended that the SESEMAT National Office with RMCs to monitor the SARB activities conducted in schools and collect data to show the effectiveness of SARB to the society. This may lead to the stable budget allocation by the government and contributions by the external funding sources to SARB. Monitoring could be alternated by reporting from schools to minimize the cost for monitoring including school visits.

Lessons Learned for JICA:

- In the Terminal Evaluation conducted in 2017, it was reported that the data collection of LPI and Learner Performance Assessment would be difficult after the completion of the project due to insufficient budget. However, no action has been taken after the evaluation, and the data collection of LPI and Learner Performance Assessment have ceased due to insufficient budget after the completion of the project as anticipated. It is recommended that an evaluation of a project makes a recommendation specifying measures (actions) to be taken by the project or by the implementing agency to prevent negative anticipations made by the evaluation, if any. Further, it is expected that the section in JICA in charge of the project keeps monitoring the implementation of the actions and provides an assistance if necessary.

RMCs meeting at the SESEMAT National Office in 2019

Students in a science experiment lesson in 2019

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Madagascar Office: July 2022

Country Name	Project of Integrated Approach Development in order to Promote Environment Restoration and Rural Development in Morarano Chrome
Republic of Madagascar	

I. Project Outline

Background	About 63% of Madagascar's land area (about 587,000 km^2) was grassland, and the forest area was about 22% of the country's land area, which decreased by 2,850 km^2 during the period from 2005 to 2010. Main causes of deforestation and forest degradation were considered to be excessive slash-and-burn cultivation activities by the local residents over the years and forest fires caused by those activities. One of the reasons for the repeated unsustainable land use by the local residents was the lack of land registration in the villages and the fact that many villagers continued to use the land based on customary practices without any guarantee of permanent rights of use.		
Objectives of the Project	Through the promotion of activities for rural development and soil conservation conducted by local population and the registration of land ownership in target communes in Alaotra Mangoro Region, the project aimed at establishing the model to promote integrated rural development and soil conservation in degraded upstream areas, thereby contributing to promotion of rural development and soil conservation.		
	1. Overall Goal: Number of communes which promote rural development and soil conservation in integrated manner increases in degraded upstream areas. 2. Project Purpose: Model to promote integrated rural development and soil conservation in degraded upstream areas is established.		
Activities of the project	1. Project site: Initial target communes: Morarano Chrome, Andrebakely Sud, Ampasikely, and Ambodirano in Alaotra Mangoro Region Extended target communes: Andilanatoby and Ranomainty in Alaotra Mangoro Region and Tsinjoarivo Imanga and Ambatolampy in Bongolava Region. 2. Main activities: Baseline survey in the target communes, training for the local residents on specific topics, tree planting in the upland, training of trainers, development of the manual on the model, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts from Japan: 8 persons 2) Training in Japan: 9 persons 3) Equipment: PC, motorbikes, etc. 4) Local cost: hiring local consultants, training expenses, etc. Madagascan Side 1) Staff allocated: 30 persons 2) Land and facilities: Office space, etc. 3) Local cost: expenses for activity operation, etc.		
Project Period	(ex-ante) September 2011 to August 2016 (actual) February 2012 to March 2018 (Extension period: February 2017 to March 2018)	Project Cost	(ex-ante) 494 million yen, (actual) 579 million yen
Implementing Agency	Ministry of Environment, Ecology and Forests (MEEF) (Restructured to the Ministry of Environment and Sustainable Development (MEDD) in 2019 Ministry to the Presidency in charge of Agriculture and Livestock (MPAE) (Restructured to the Ministry of Agriculture and Livestock (MINAE) in 2021		
Cooperation Agency in Japan	IC Net., Ltd.		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Madagascar at the time of Ex-ante Evaluation>

The "National Policy for Watershed and Irrigated Area (BVPI)" (2006) aimed to enhance rice production by improving irrigation facilities nationwide and promoting sustainable water source recharge functions through vegetation restoration and afforestation in the upstream areas of irrigated areas. Thus, the project was consistent with the development policy of Madagascar at the time of ex-ante evaluation.

<Consistency with the Development Needs of Madagascar at the time of Ex-ante Evaluation>

In Madagascar, the grassland and the forest area were decreasing, and the main causes were considered to be excessive slash-and-burn cultivation activities by the local residents over the years and forest fires caused by these activities. Thus, the project was consistent with the development needs of Madagascar at the time of ex-ante evaluation.

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

During the previous administration, prior to the inauguration of the interim government, one of the priority areas for assistance was set as agricultural, fisheries, and rural development, based on the policy consultation in 2006. The project was adopted before the establishment of the interim government.[1]. Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

[1] Ministry of Foreign Affairs ODA Databook (2012).

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. Upland tree planting was practiced more than planned in most of Fokontany[2] (Indicator 1), and most of Lavaka[3] treated during the training were maintained (Indicator 2). For Lavaka maintenance, the local population conducted regular observation of Lavaka and took measures upon necessity. They also continuously practiced at least one of the new activities for improving living conditions and rural development, such as construction of improved kitchen stoves (*kamado*) and lychee production (Indicator 3). Thus, activities for rural development and soil conservation were implemented and monitored, and the experiences were summarized as the Life Model[4]. The manual for the Model users was developed (Indicator 4), and seven proposals for implementation of the Model were accepted by MEEF and MPAE (Indicator 5).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have partially continued. Although detailed data were not available in the ex-post evaluation, it was confirmed that the local population have continued upland tree planting, Lavaka treatment and activities for improving living conditions and rural development on an individual basis. MINAE and MEDD have collaborated with NGOs including the National Association of Environmental Actions (ANAE) and the Regional Directorate of Environment and Sustainable Development (DREDD) to introduce the Model and its activities in the Bongolava Region. The manual developed by the project has been utilized as reference, as its elements have been referred to in other materials related to the environmental restoration. For example, there have been many other manuals prepared by other development partners and organizations for the environmental conservation and development. Programs for the Model implementation have been implemented.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved. ANAE and another NGO (Mamafy Soa) have implemented activities based on the Model in 60 new communes. ANAE has trained 551 local trainers. Mamafy Soa has been funded through a consignment agreement under the JICA technical cooperation "Project for Rice Productivity Improvement and Management of Watershed and Irrigation Area" (PAPRIZ Phase 2) (2015-2020) and the JICA technical cooperation "Project for Productivity Improvement and Industrialization of Rice Sector" (PAPRIZ) (2020-2025), and many of its staff had the experience in working in the project. However, it should be pointed out that most of these activities have been implemented in new communes, rather than the project target communes. This is because that, since the time of project completion, follow-up visits have not been conducted by DREED technicians or local NGO staff, which were dependent on external funds.

<Other Impacts at the time of Ex-post Evaluation>

Several positive impacts have been confirmed. First, gender equity was promoted. According to the information collected in the field survey, women's participation has been noticeable in various income generating activities, as local trainers directly visited each household and invite women to the activities. Another motivation was that activities such as improved kitchen stoves and compost have attracted women. On the other hand, the following negative impacts were reported in the ex-post evaluation. In the expanded reforested area, local residents have come to carry out activities such as firewood collection but these activities have not been controlled sufficiently, which resulted in the increase in the number of bush fire in Andilanatoby Commune.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Model to promote integrated rural development and soil conservation in degraded upstream areas is established.	Indicators: 1. Upland tree planting is practiced by 60% of landowner households in upland in at least 75% of fokontany in the Initial Target Communes.	Status of the achievement (Status of the Continuation): Achieved (Continued). (Project Completion) - Upland tree planting was practiced by more than 60% of landowner households in upland in at least 96.7% of Fokontany in the Initial Target Communes. (Ex-post Evaluation) - Upland tree planting has continued in the Initial Target Communes by 92% of the households.	Project Completion Report. DREDD, Regional Directorate of MINAE (DRAE) NGO, beneficiaries.
	2. 75% of Lavaka treated during the training are maintained by the local population in the Initial Target Communes	Status of the achievement (Status of the Continuation): Achieved (Not continued). (Project Completion) - 94.6% of Lavaka treated during the training were maintained by the local population in the Initial Target Communes. (Ex-post Evaluation) - Lavaka treatment has been conducted on an individual basis by people who have Lavaka near their field. The percentage of Lavaka treatment was 36%.	Project Completion Report. DREDD, DRAE NGO, beneficiaries.
	3. 35% of total households continuously practice at least one of the new activities which contribute to improvement of living conditions and rural development in the Initial Target Communes	Status of the achievement (Status of the Continuation): Achieved (Continued). (Project Completion) - 47.7% of the surveyed households continuously practiced at least one of the new activities which contributed to improvement of living conditions and rural development in the Initial Target Communes. (Ex-post Evaluation)	Project Completion Report. DREDD, DRAE

[2] Fokotany is an administrative unit under a commune in Madagascar.

[3] Lavaka is a type of erosional feature usually found on the side of a hill in Madagascar.

[4] Life Model aimed at promoting rural development and soil conservation at the commune level by providing administrative support for the implementation of community-driven activities based on the needs of the local residents and the ecological functions and human and material resources of the area.

		- 82% of the households have continued activities of income generating, animal vaccination, use of improved stove and reforestation in the Initial Target Communes is 82%	NGO, beneficiaries.
	4. A manual for model user is approved by MEEF and MPAE	Status of the achievement (Status of the Continuation): Achieved (~~Partially~~ Continued). (Project Completion) - The manual for the model users was approved by MEEF and MPAE in January 2017. (Ex-post Evaluation) - The manual for the model users has been used as reference.	Project Completion Report. MEDD, MINAE.
	5. At least one program proposal for implementation of the Model in 31communes in degraded upstream areas is accepted by MEEF and MPAE for further action.	Status of the achievement (Status of the Continuation): Achieved (Continued). (Project Completion) - Seven program proposals for implementation of the Model in degraded upstream areas were accepted by MEEF and MPAE, as implemented for further action. 1. Program proposal to use the LIFE model as part of integrated paddy field and sloping land in the valley in collaboration with PAPRIZ2. 2. Program proposal to use the LIFE model as part of conservation of protected areas (completed), in collaboration with the UNDP/GEF Managed Resource Protected Areas (MRPA) Project. 3. Program proposal to use the LIFE model for watershed conservation as a CSR activity of a private company in collaboration with Ambatovy Mining Company (under implementation). 4. Program proposal to transfer know-how on model development to ANAE through the implementation of the GEF/UNEP project "Participatory Sustainable Land Management in the Grassland Plateaus of Western Madagascar" in SLM Bongolava (under implementation). 5. Program proposal to utilize the LIFE model in two target prefectures of the World Bank's PADAP (Project Agriculture Durable par une Approche Paysage) (under preparation for implementation). 6. Program proposal to use the LIFE model in two target prefectures of the African Development Bank (in preparation). 7. Program proposal to use the LIFE model for ESD activities in collaboration with JICA's ESD project (under implementation). (Ex-post Evaluation) - The following proposed programs have been implemented. 1. Program of Sustainable Land Management in Bongolava Region. 2. Sustainable Participatory Land Management Project in the Landscape of the Western Plateau of Madagascar in Bongolava Region. 3. Conservation and Improvement of Ecosystem Services in the Atsinanana Region. 4. Sustainable Agriculture Project using a landscape approach (PADAP) in Sofia Region. 5. PAPRIZ Phase 2 in Amoron'l Mania Region. 6. Irrigation and Watershed Management Project (BVPI).	Project Completion Report. MEDD, MINAE.
(Overall goal) Number of communes which promote rural development and soil conservation in integrated manner increases in degraded upstream areas.	1. Projects and/or organizations utilizing the Model established by the Project are newly implemented in 31 communes.	Status of the Achievement: Achieved (Ex-post Evaluation) - ANAE has implemented activities based on the Model in 56 Fokontany. Mamafy Soa (NGO) has implemented the Model-based activities in 11 Regions in more than 60 new Communes.	ANAE, Mamafy Soa.

Source: Project Completion Report and information provided by MWE and District Local Governments.

3 Efficiency

Both of the project cost and period exceeded the plan (ratio against the plan: 117% and 123%, respectively). These excesses were for capacity building of ANAE staff for sustaining the Model. Outputs were produced as planned. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

Rural development and soil conservation in degraded upstream areas have been supported by the Government of Madagascar which has committed to the environmental restoration, as described in the "National Strategy on Forest Landscape Restoration and Green Infrastructure in Madagascar" (2017-2027). Also, BVPI has been still effective as of the time of the ex-post evaluation.

<Institutional/Organizational Aspect>

As expected by the time of project completion, ANAE has taken over to promote the Model and has worked closely with DRAE. DRAE has given training sessions for supporting the farmer's extension on agricultural aspects. According to all the interviewees, the number of personnel of ANAE has been sufficient, as ANAE has not needed a large staff as its duties have been mainly supervision of the beneficiaries. ANAE has conducted monitoring of activities, being reported from the local trainers who have got information from the

Sustainable Land Management Committees at the Fokontany level. On the other hand, there has been a personnel shortage at MEDD, which has been responsible for the environmental aspect. MEDD has carried out periodic assessments of the activities with the help of the commune environmental committee and the Advisor for Rural Development for the Fokontany.

<Technical Aspect>

ANAE had conducted the activities based on the similar model even before the project, and by doing its personnel has sustained the necessary skills and knowledge to promote the model, according to the Technical Director of ANAE On the other hand, the General Manager of Environmental Governance answered that MEDD has needed more capacity building for promoting the model. For NGOs who have promoted the Model, various training has been provided by MINAE and MEDD.

<Financial Aspect>

Financial data could not be available from ANAE and MEDD at the ex-post evaluation survey. ANAE answered that there has not yet been a problem of financing for reforestation and training activities in Bongolava Region because of projects with external funds such as JICA, the World Bank and other international partners. On the other hand, MEDD answered that the budget has not been guaranteed for promoting the model but has got financial contributions from private companies as their social corporate responsibility.

<Evaluation Result>

In the light above, there have been some issues in the institutional, technical and financial aspects. Therefore, the sustainability of the effects is fair.

5 Summary of the Evaluation

The Project Purpose was achieved, in other words, the Life Model for the integrated rural development and soil conservation in degraded upstream areas was established, and elements of the Model have been referred to in other development projects. Activities based on the Model have implemented in new communes through JICA's succeeding project and other projects. Regarding sustainability, although MEDD has faced a personnel shortage and needed more capacity building, ANAE has sustained the necessary skills for promoting the Model. Activity monitoring has been sustained. As for efficiency, both the project period and cost exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- In order to MEDD to assign more personnel to continue follow-up of Lavaka treatment of the local population, which is indispensable to protect the downstream from erosion especially where they have their own rice field.
- It is recommended to MEDD to further promote the financial contribution from the private companies, by reporting to them how their support has been utilized and what results have been brought (reforestation, soil conservation, livelihood improvement, etc.) and also by diffusing the information through its Facebook.
- To implement BVPI which was developed by MINAE successfully, further active participation of MEDD and the two ministries' collaboration is necessary. It is recommended to the two ministries to have discussion and agreement regarding their specific roles such as erosion control in the downstream area and reforestation in the upstream area. Since the LIFE Model is based on BVPI, their strengthened collaboration would further promote the model diffusion.

Lessons Learned for JICA:

- The LIFE Model was successfully implemented in the project. However, the local population's activities, especially Lavaka treatment, has been limitedly carried out without the local trainer's monitoring. Before the project is concluded, an official document should be exchanged with the implementing agency JICA Technical Cooperation, which says that the responsible ministry should continue monitoring and follow-up in the intervened target sites for one or two years, not only diffuse the project experience in new sites.
- In some area, the project has expanded the reforested area as its effect, but at the same time, a negative impact, bush fire, has been caused because firewood collection has not been sufficiently controlled. In the project planning or implementation stage, it is important to make sure that an intended positive project effect would cause any negative impact. If any negative impact may be possible, it is necessary to include activities for mitigating it in the project.

Improved kitchen stove made with recycled materials.


Rice field in the downstream area.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Mozambique Office: September, 2022

Country Name	The Project for Promotion of Sustainable 3R Activities in Maputo
Republic of Mozambique	

I. Project Outline

Background	In Maputo City, the capital of Mozambique, urban solid waste management was promoted. For the reason, in 2007, under a cooperation with the German Corporation for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH: GIZ), the "Master Plan for Solid Waste Management in Municipal Council of Maputo" (2007) (M/P) was formulated, and various efforts for a comprehensive waste management, including the introduction of 3R (Reduce, Reuse, Recycle) were carried out. However, due to the limited capacity of solid waste management of the Municipal Council of Maputo, the Mozambican authority responsible for the project, solid waste was not collected, transported, and disposed in appropriate manner. In response, it was necessary to strengthen the basic skills of CMM on solid waste management and the technical skills and policy-making skills for the introduction of 3R.		
Objectives of the Project	Through the reviewing and updating of the existing M/P, the preparation, implementation and monitoring of the Action Plans, the development of guidelines for solid waste management and 3R activities, the preparation, implementation and monitoring of pilot projects for waste collection and transportation, and the reviewing, improvement and implementation of public awareness programs for 3R, the project aimed at improving capacity for solid waste management in the Municipal Council of Maputo, thereby contributing to improvement of the urban environmental and living condition in Maputo City. 1. Overall Goal: The urban environmental and living condition in Maputo City is improved. 2. Project Purpose: Capacity for Solid Waste Management in the Municipal Council of Maputo is improved.		
Activities of the Project	1. Project site: Maputo City (excluding the municipal districts of Katembe and Inhaca) 2. Main activities: 1) Reviewing and updating of the existing M/P, 2) Preparing, implementing and monitoring of the Action Plans, 3) Development of guidelines for solid waste management and 3R activities, 4) Preparing, implementing and monitoring of pilot projects for waste collection and transportation, 5) Reviewing, improving and implementing of public awareness programs for 3R, etc. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 9 persons 2) Trainees received in Japan: 8 persons 3) Trainees received in the third country: 8 persons (Brazil) 4) Equipment: vehicle, PC, printer, etc. 5) Local expense: cost for project activities Mozambican Side 1) Staff allocated: 20 persons 2) Land and facility: an office space in the Municipal Council of Maputo 3) Local expense: utility cost		
Project Period	(ex-ante) January 2013 – December 2016 (actual) March 2013 – May 2017	Project Cost	(ex-ante) 350 million yen, (actual) 541 million yen
Implementing Agency	Directorate for Waste Management and Cemeteries (DMCS) (this was reformed to Directorate of Environment and Waste Management (DSMAS) in January, 2020), the Municipal Council of Maputo		
Cooperation Agency in Japan	Nippon Koei Co., Ltd.		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Regarding the continuation status of project effects at the time of ex-post evaluation after project completion, the indicator 2 for the Project purpose, was verified in the technical aspect under sustainability.

1 Relevance

<Consistency with the Development Policy of Mozambique at the time of Ex-ante Evaluation>

The project was consistent with the Mozambique's development policies such as "National Environmental Policy" (1995) promoting the introduction of appropriate solid waste management and recycle system and the construction and management of sanitary landfill and the draft of the "National Strategy for Integrated Solid Waste Management" aiming to promote a strategic solid waste management across the country.

<Consistency with the Development Needs of Mozambique at the time of Ex-ante Evaluation>

The project was consistent with the Mozambique' development needs for strengthening the basic skills on solid waste management and the technical skills and policy-making skills for the introduction of 3R of the Municipal Council of Maputo.

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

The project was consistent with the Japan's ODA policy for Mozambique[1]. It sets "disaster prevention and climate change countermeasures", including the enhancement of solid waste management in urban areas, as one of the three priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

[1] ODA country data collection (2013)

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved by the time of project completion. The M/P, including plans to promote sustainable 3R activities had not been approved by the Municipal Council of Maputo but being reviewed within the council (Indicator 1). Average score of capacity assessment achieved 4.31 points on average of 5 scale evaluation (Indicator 2). The number of times of holding workshops for the guideline, the Action Plan, and the M/P were not confirmed. However, it was confirmed that they were finalized by the end of the project (Indicator 3). The guidelines of solid waste management for Maputo city were approved by the Municipal Council of Maputo in March, 2017 (Indicator 4).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have partially continued. The M/P was approved by the Municipal Council of Maputo (CMM) in December 2018 and has been used even at the time of ex-post evaluation. Although the Master Plan has not been updated yet, there is a plan to update it in order to incorporate to the M/P the new institutional structure, which includes Environmental Department, and the operation and management of the new sanitary landfill to be constructed in Katembe Municipal District. The Action Plan produced by the project has been used and implemented. Buckets Provision, which was proved as the most cost-effective way for separated collection by Impact Evaluation during the project, has not been adopted due to insufficient budget to purchase the buckets and install eco-points to promote source separation and recycling activities. Three (3) out of six (6) guidelines/manuals of solid waste management and 3R have been used. Although the normal solid waste management activities have been continued in the city, including in the pilot project sites, the pilot projects formulated by the project has not continued in the same way as planned because of financial constraints. The weigh bridge at Hulene dumping site was repaired in 2018, 2019, and 2021. The Hulene dumping site, in Maputo City, has not yet been closed or moved to Matola because the process depends on the construction of the new sanitary landfill in Mathlemele, Matola city, which also depends on the progress of reallocation/resettlement and compensation of the families occupying the area. DSMAS has continuously provided several capacity building activities within its organization and shared their experiences to CMM and other cities after the project completion

<Status of Achievement of Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved at the time of ex-post evaluation. The number of reports on inadequate waste management decreased from 5,508 reports in 2017 to 1,209 reports in 2019 (Indicator 1). Amount of final waste disposal per person did not decrease from 0.59kg/day in 2017 to 0.59kg/day in 2020 due to development of the country which resulted in increase in population with more purchasing power and increased use of disposable materials. Another associated factor was the increased number of people living in Matola city in who usually dispose waste in Maputo city on the way to work (Indicator 2). The amount of collected recyclables has increased from 12t/month in 2017 to 72t/month in 2020. However, such recyclables are collected from microenterprises, small NGOs and individuals, not through CMM's interventions or support (Indicator 3). It was not verified if the number of residents who understand the definition and participate in 3R increased, since DSMAS and CMM did not have any data due to lack of specific survey or study (Indicator 4). Satisfaction of citizen for solid waste management also was not verified due to lack of data to assess residents' satisfaction (Indicator 5).

<Other Impacts at the time of Ex-post Evaluation>

Some positive impacts were observed at the time of ex-post evaluation. As positive impacts related to gender, women actively participated in the solid waste collection activities and recycling organizations such as "Recicla" and "Consol" associations established by female ex-waste pickers. In addition, the project contributed to the improvement of the waste pickers' behavior at Hulene dumping site. Through civic education or behavioral change campaigns, DSMAS advised waste pickers to avoid making fire at the dumping site and encouraged waste pickers to be organized in groups or associations and avoid spreading waste coming from the trucks. In addition, "African Clean Cites Platform" was established in the international knowledge-sharing seminar on waste management and "National Solid Waste Manager's Association (ANGER) was established with Mozambican C/Ps' own initiative.

No negative impacts were observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Sources</th></tr>
<tr><td rowspan="2">(Project Purpose) Capacity for Solid Waste Management in the Municipal Council of Maputo is improved.</td><td>Indicator 1: The Master Plan (M/P) for post-termination of the project including plans to promote sustainable 3R activities is approved by the Municipal Council of Maputo.</td><td><u>Status of the Achievement: Not Achieved (Achieved)</u>
(Project Completion)
• The final draft of the M/P was not approved but being reviewed within the Municipal Council of Maputo. It was approved in December 2018.
(Ex-post Evaluation)
• The M/P was being used by the Municipal Council of Maputo even at the time of ex-post evaluation. Although the M/P has not been updated yet, there is a plan to update it in order to incorporate the new institutional structure, which includes Environmental Department, and the operation and management of the new sanitary landfill to be constructed in Katembe to the M/P.</td><td>Project Completion Report, DSMAS</td></tr>
<tr><td>Indicator 2: Average score of capacity assessment achieves at least 3 point of 5 scale evaluation.</td><td><u>Status of the Achievement: Achieved (Continued)</u>
(Project Completion)
• The results of the capacity assessment achieved 4.31 points on average.
[Results of capacity assessments for each output]
<table>
<tr><th>Topic</th><th>Score</th></tr>
<tr><td>Current Status Analysis Capacity Development</td><td>4.62</td></tr>
<tr><td>Urban Area Collection & Transportation Capacity Development</td><td>4.47</td></tr>
<tr><td>Suburban Area Collection & Transportation Capacity Development</td><td>3.87</td></tr>
<tr><td>Financial Management Capacity Development</td><td>4.29</td></tr>
</table></td><td>Terminal Evaluation Report, Project Completion Report, DSMAS</td></tr>
</table>

		Introducing Capacity of 3R Activities: 3.81 Public Awareness Raising Capacity for 3R Introduction: 4.83 **Overall: 4.31** (Ex-post Evaluation) • Refer to the sustainability of the technical aspects	
	Indicator 3: Workshops to share and examine drafts of the Guideline, the Action plan, and the M/P for post-termination of the project, are held among related authorities and stakeholders at least 2 times during the project period.	Status of the Achievement: Partially achieved (Continued) (Project Completion) • The number of times of holding workshops for the guideline, the Action Plan, and the M/P were not confirmed. However, it was confirmed that they were finalized by the end of the project. (Ex-post Evaluation) • CMM exchanged information and experience in SWM with Matola and Inhambane Municipalities in 2020 and with Vilankulos Municipality in the first quarter of 2021. • Maputo Municipality could participate and share experiences in the National Assembly of Solid Waste Management in November 2019, where 100 people from different institutions and sectors, including municipalities and other stakeholders participated. • CMM also organized in 2021 a local Assembly in the Municipal District of KaMubukwana aiming to discuss urban solid waste management related issues.	Project Completion Report, DSMAS
	Indicator 4: Guidelines of solid waste management for Maputo City are approved by the Municipal Council of Maputo.	Status of the Achievement: Achieved (Partially Continued) (Project Completion) • The guidelines of solid waste management for Maputo city were approved by the Municipal Council of Maputo in March 2017. (Ex-post Evaluation) • Three guidelines formulated by the project were used after the project completion (Guideline for Preparation of the Master Plan for the Integrated Management of Municipal Waste, Guideline for Improvement of Waste Collection and Transportation in the Urban Area and the Guideline for Introduction of 3R Activities) and other three were not used. • The reason why the CMM did not use the other guidelines was lack of continuation of the related pilot projects, which was also associated with financial constraints within the municipality.	Project Completion Report, DSMAS
(Overall Goal) The urban environmental and living condition in Maputo City is improved.	Indicator 1: The number of reports on inadequate waste management is decreased.	Status of the Achievement: Partially achieved (Ex-post Evaluation) • The number of reports on inadequate waste management has decreased from 5,508 reports in 2017 to 1,209 reports in 2019. [No. of reports on inadequate waste management] 2016: 3,047 / 2017: 5,508 / 2018: 3,768 / 2019: 1,209 / 2020: No info. • The number of reports on inadequate waste management increased in 2017 because of the Participatory Monitoring Pilot Project (Monitoria Participativa Maputo, MOPA) platform that was introduced. Because of MOPA, using mobile phone, residents were able to report to CMM problems related to waste collection services. Accordingly, the CMM conducted some awareness campaigns and waste collection companies to improve their services and promoted civic education about the waste disposal. Such interventions resulted in the reduction of the number of reports on inadequate waste management in 2018 and 2019. • It was not possible to have the number of reports on inadequate waste management in 2020 as the MOPA system stopped functioning in the same year because of financial constraints, and it was the only source of information about residents' report on inadequate solid waste management services. The Municipal Council of Maputo has a plan to reactivate the MOPA platform, but without a specific date.	DSMAS
	Indicator 2: Amount of final waste disposal per person is decreased.	Status of the Achievement: Not Achieved (Ex-post Evaluation) • Amount of final waste disposal per person did not decrease and remained as same from 0.59kg/day in 2017 to 0.59kg/day in 2020 due to development of the country which resulted in increase in population with more purchasing power and increased use of disposable materials. Another associated factor was the higher number of residents living in Matola city who usually disposed waste almost every day in Maputo city, on the way to work. [Amount of final waste disposal] Item: Amount of final waste disposal (t/day) / 2016: 1,201 / 2017: 1,245 / 2018: 1,259 / 2019: 1,273 / 2020: 1,284	DSMAS

		Population in Maputo city ('000)	1,257	1,273	1,288	1,304	1,320	
		Amount of final waste disposal per person (kg/day)	0.59	0.59	0.59	0.59	0.59	
	Indicator 3: Amount of collected recyclables is increased.	Status of the Achievement: Achieved (Ex-post Evaluation) • Amount of collected recyclables has increased from 12t/month in 2017 to 72t/month in 2020. [Amount of collected recyclables] 2016: 10t/month; 2017: 12t/month; 2018: 25t/month; 2019: 47t/month; 2020: 72t/month • The amount of collected recyclables increased as result of increased purchasing power of residents and use of disposables, as well as because of the residents' awareness on the economic value of waste (for livelihood). In addition, because of the limited number of industries or market for recyclable waste in Mozambique and high export cost, the recyclables did not significantly circulate in the society, being eventually accumulated in the city. • The above recyclables are collected from microenterprises, small NGOs and individuals.						DSMAS
	Indicator 4: Residents who understand the definition of 3R and engage 3R activities increases.	Status of the Achievement: Not verified (Ex-post Evaluation) • DSMAS did not have any data because of lack of specific survey or study. • It was difficult to find the number of residents who understand the definition and participate in 3R as the CMM did not conduct any related study.						DSMAS
	Indicator 5: Satisfaction of citizen for solid waste management is increased.	Status of the Achievement: Not verified (Ex-post Evaluation) • CMM did not have any data to measure satisfaction of citizens, although the satisfaction level had been assessed until 2015 based on the Report Card, which was an annual report that provides general information about the residents' satisfaction in all the services provided by the CMM.						DSMAS

3 Efficiency

The project period exceeded the plan (ratio against the plan: 110%) and the project cost significantly exceeded the plan (ratio against the plan: 155%). The reason of increasing the cost is that an international knowledge-sharing seminar on waste management for inviting members of African countries was held and it was not initially planned in the Project. Therefore, the project efficiency is low.

4 Sustainability

<Policy Aspect>

In order to promote sustainable solid waste management in the city, the CMM has been using the M/P, which was approved in 2018. The M/P provides all the necessary measures and actions to be taken within the sector, including the implementation of the Action Plan produced by the project. The institution has also the Regulation on Urban Solid Waste Management that promotes recycling activities in the city.

<Institutional/Organizational Aspect>

With the introduction of the new institutional structure, environmental management and supervision/inspection department has been newly established under Directorate of Environment and Waste Management (DMAS), and the CMM expects to improve the environmental activities in addition to the SWM services. However, since the number of staff working at DMAS is insufficient, most of the technicians have to respond for both departments (Environment and Urban SWM), which may compromise the performance.

<Technical Aspect>

The staff from DSMAS have sustained necessary skills and knowledge to promote/disseminate SWM, including the implementation of the M/P through their involvement in some trainings, daily work and during the revision/updating of the M/P, and other activities. Regarding the 3R activities, the CMM is planning to introduce 5R under the new JICA project and all the involved staff are being trained by the project. The manual on supporting teachers in some primary and secondary schools in collaboration with JICA volunteers for promotion of good practices about waste management and 3R manuals have been utilized.

<Financial Aspect>

The annual budget allocated to DSMAS to implement SWM related activities increased in 89.3% from 2016 to 2020, which helped the institution to expand and improve its services. However, it was not possible to secure budget to continue with some pilot projects formulated by the project.

[Budget for solid waste management and 3R including the implementation and updating of the M/P]

2016 (Actual)	2017 (Actual)	2018 (Actual)	2019 (Actual)	2020 (Actual)	2021 (Plan)
168,802,674.00 MZN*	221,557,497.00 MZN	221,557,496.00 MZN	269,504,585.00 MZN	319,595,015.00 MZN	294,156,510.00 MZN

*Mozambican metical

<Evaluation Result>

In light of the above, slight challenges have been observed in terms of the institutional/organizational and financial aspects of the

implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose and the Overall Goal to improve urban environmental and living condition in Maputo City, through the improvement of capacity for SWM in the CMM. Regarding sustainability, although there had been slight challenges in allocating the sufficient number of staff and the annual budget in DSMAS, the necessary skills and knowledge to promote/disseminate SWM were sustained. As for efficiency, the project period exceeded the plan, and the project cost significantly exceeded the plan due to hold an international knowledge-sharing seminar on waste management for inviting members of African countries additionally.

Considering all of the above points, this project is evaluated to be unsatisfactory, mainly due to low efficiency.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[Data collection and data base]

DMAS have been implemented several activities such as environmental education programs, including education and cleaning campaigns. However, most of the activities have not been recorded and the number of residents who attended such activities or program is unknown. This also includes lack of quantification of residents' satisfaction or claims for SWM and other relevant activities. Thus, as first step, a training for data collection, analysis and quantification of basic information about social surveys or behavioral change activities/programs in SWM is crucial. After its training, collected data should be recorded by DMAS for future studies or any planning activities.

[Commitment of the implementing agency to continue with the project activities after completion]

After the project completion, DMAS has made effort to continue improving the SWM in Maputo city. However, it was found that some pilot projects implemented by JICA project did not continue, not only because of limited budget, but also because the institution did not take the initiative to continue with such activities, within the limited budget, such as follow-up the status of pilot projects by visiting the sites where the pilot projects were implemented and promote discussions with the local beneficiaries to identify and analyze the barriers or strengths to the continuation of each relevant activity. After identifying and analyzing the barriers or strengths, DMAS should discuss internally how to implement some countermeasures by prioritizing them according the available budget.

[Improvement of coordination]

Under the decentralization of SWM activities, the municipal districts of Maputo city are autonomous but they can receive technical support from DMAS when required, including training. DMAS has also the responsibility to monitor and supervise the SWM in each municipal district of Maputo city. Thus, quarterly meetings are conducted every year between DMAS and municipal districts to report the situation of SWM in each municipal district. In case of any urgent matter, each municipal district can contact DMAS any time for support or assistance. However, a permanent communication, in short period, and regular site visits to each municipal district should be promoted by DMAS. Regarding the coordination with NGOs, normally, the communication occurs when a certain NGO needs the approval of an activity from CMM (usually about small-scale recycling activity or 3R programs). However, there is not any permanent or regular communication or meeting between DMAS and the NGOs working in the SWM sector. Thus, DMAS should promote at least biannual regular meetings with NGOs to discuss SWM in the city. In addition, DMAS should also register the NGOs working in the sector, as they may also contribute to the improvement of SWM in Maputo City.

Lessons Learned for JICA:

For this project, the designed indicators for the Overall Goal were not able to verify the expected positive impacts which were realized by the project effects because data for two of them was not available at the time of ex-post evaluation. In case where the project aimed at promoting the 3R activities in urban area to contribute to improving living conditions, the verifiable indicators for the Overall Goal should be more directly measurable ones, such as reduction of informal/illegal damping sites.

Compressed plastic bottles for recycle

Collection of valuable and recyclable wastes as a pilot project

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Mozambique Office: April, 2022

Country Name	**The project for strengthening pedagogical and technical skills of teachers of health training institute**
Republic of Mozambique	

I. Project Outline

Background	In Mozambique, there was a critical shortage in human resources in the health sector due to the Civil War that finally ended in 1992. The Ministry of Health (MOH) addressed building 750 new health centers, county hospitals, and general hospitals by 2025 in order to improve access to health services. The resulting demand-supply gap for the workforce in the health sector was deemed to widen further. As such, MOH formulated the "National Plan for Health and Human Resources Development" (2008-2015) to achieve the augmentation of human resources in the sector and proceeded with the specific training plan. On the other hand, regarding the quality of education in terms of the health sector, challenging issues emerged such as inconsistency of contents among a curriculum of different specialized courses as well as teaching methods. Therefore, there was a pressing need for the introduction of mechanisms that ensured and improved the quality of education, such as the detailed examination of guidance provided to each training institution, reinforcement of the standardized functions as well as teachers' capacity with pedagogical methodology.		
Objectives of the Project	Through standardization of curricula for technical courses of 6 priority areas, enhancement of the capacity for teachers at the Health Training Institutes (HTI), and establishment of the quality management system, the project aimed at promoting the training of human resources for the provision of proper healthcare service, thereby contributing to nurturing quality health personnel at the Health Training Institutes in Mozambique. 1. Overall Goal: Quality health personnel are nurtured at the Health Training Institutes. 2. Project Purpose: Promote the training of human resources for Heath at the Health Training institutions sustainably (priority areas: medical technician, preventive medicine & environmental sanitation (TMPSM), nursing, Maternal and child health (MCH) nursing, pharmacy technician, and laboratory technician) for provision of proper healthcare service.		
Activities of the Project	1. Project site: whole country of Mozambique 2. Main activities: (1) standardization of curricula for six priority technical courses, (2) enhancement of the capacity for the full-time teachers at the Health Training Institutes, (3) establishment of quality management system for full-time teachers. 3. Inputs (to carry out the above activities) Japanese Side 1) Experts: 67 persons 2) Trainees received: 35 persons 3) Third-country training: 15 persons (Brazil) 4) Equipment: photocopy machine, printer, PCs, video camera, etc. Mozambique Side 1) Staff allocated: 25 persons 2) Facilities: Office for the experts and training rooms 3) Local cost: Administrative and operational expenses		
Project Period	(ex-ante) January 2011 – January 2016 (actual) January 2011 – December 2015	Project Cost	(ex-ante) 393 million yen, (actual) 327 million yen
Implementing Agency	Ministry of Health (MOH), the National Directorate for Training of Health Professionals (DNFPS: Direcçã Nacional de Formação de Profissionais de Saúde) (The Directorate of Human Resource and the Department of Training were reorganized into the DNFPS in 2018)		
Cooperation Agency in Japan	Nagasaki University		

II. Result of the Evaluation

<Constraints on Evaluation>

Due to travel restrictions and lockdown measures raised during the COVID-19 Pandemic, data gathered in the rural areas during the ex-post evaluation was lower both in quantity and quality as on-site data collection and direct observation were not as feasible as planned. Nonetheless, mitigation measures were taken as follows; 1) rely more on existing monitoring data collected prior to COVID-19, 2) increase scope of desk-based review of administrative data, 3) use of remote data collection and analysis methods where available.

1 Relevance

<Consistency with the Development Policy of Mozambique at the Time of Ex-Ante Evaluation >

The project was consistent with the development policies of Mozambique at the time of ex-ante evaluation. The MOH formulated the "National Plan for Health and Human Resources Development (NPHHRD)" (2008-2015) to improve access to health care services and to increase the number of full-time human resources for health from 25,683 in 2006 to 45,654 in 2015. Based on the roadmap of the plan, new and enhanced Health Training Institutions in the health sector were to be established to expand the human resources in the sector. In addition, considering that the capacity of human resources in the sector is directly related to the quality of health services, the National Poverty Reduction Action Plan (PARP) set strategic goals such as improving the management of human resources for health (quality improvement of human resources for health) in order to provide quality care to meet the needs of patients.

<Consistency with the Development Needs of Mozambique at the Time of Ex-Ante Evaluation >

The project was consistent with the needs of Mozambique at the time of ex-ante evaluation. There were some fundamental problems in the training of health personnel, such as the lack of unified curriculum guidelines and textbooks, and insufficient knowledge of teaching methods among teachers. In response, the MOH Department of Training was assigned to strengthen the examination and standardization of

the content of the guidance was in charge of strengthening the teaching capacity of the teachers. However, there was a shortage of human resources, and support was needed. On the other hand, the ministry had designated medical technologists, preventive medicine, nursing, maternal and child health nursing, pharmaceutical technologists, and clinical laboratory technologists as priority areas to be strengthened. At the time, the plan was to train approximately 6,200 people in the six priority areas within a five-year time frame. As such there was a strong need to support the six priority areas.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy towards Mozambique[1]. It intended to assist human resource development focusing on the improvement of the quality of education and health care services considered prerequisites for poverty reduction and economic growth. It also addressed a cross-cutting issue of the governance through the improvement of administrative functions of the government necessary for achieving two priority issues of "rural development and economic growth" and "human resource development."

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the project completion. Standardization of curricula of the six priority courses was underway for authorization to implement at the time of project completion (Indicator 1). By the year 2014, 100% of full-time teachers receive pedagogical training by the project (Indicator 2). The manual for pedagogical supervision was approved by the MOH in October 2015 (Indicator 3). The first pilot national examinations were performed for all students in the final semester of three priority courses (Laboratory Technician, Pharmacy Technician, TMPSM) in July 2015. The national graduation examinations have been duly conducted for the Medical Technician course since the end of December 2011 and Nursing and MCH Nursing courses since July 2013 (Indicator 4).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued since project completion. At the time of the ex-post evaluation, out of the 6 priority courses, the course of medical technician has not been approved by MOH yet, although the revision is being planned. In the line of the NPHHRD, 88% of full-time teachers have received pedagogical training so far out of a total of 652 full-time teachers which increased from 414 in 2014. That suggested that about 160 teachers have been newly provided with the training since project completion. Concurrently, the manual for pedagogical supervision has been duly utilized and revised as required. After due authorization, the national examinations of all 6 technical courses have been officially conducted since 2017.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal had been achieved at the time of ex-post evaluation. According to the survey result, 95% of students of the six priority technical courses have been approved in the national graduation examinations (Indicator 1). Out of the 15 target HTIs, it indicates in the figures that at least 13 HTIs have conducted the approved pedagogical training as planned. Thus, 13 HTIs (86%) have been capable of providing the training on a regular basis (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

At the time of the ex-post evaluation, due to the COVID-19 pandemic and the state of emergency inevitably imposed on the country, classes in the training courses have not been conducted. To properly respond to the situation, the MoH and HTIs have had to methodically keep the minimum number of staff coming in and out of the workplace. Better yet, they have enabled teaching staff to manage the courses through the establishment of a digital platform.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Promote the training of human resources for Heath at the Health Training institutions sustainably (priority areas: medical technician, preventive medicine and environmental sanitation (TMPSM), nursing, Maternal and child health (MCH) nursing, pharmacy technician and laboratory technician) for	Indicator 1 Training courses with the standardized curriculum by the MOH are conducted at 15 Health Training Institutes.	Status of the Achievement: partially achieved (continued) (Project Completion) Substantially achieved through the introduction of the training courses on the condition that Output 1 (standardization of curricula for six priority technical courses) and Output 2 (capacity development of teachers at 15 HTIs) were both accomplished. Tasks for standardization for six priority technical courses were underway then due to financial reasons. Once the curriculum of the six priority courses, was to be standardized, it was under the competence of the MOH to authorize the implementation of these training courses in HTIs. Since the 5 curricula in the 6 priority courses were completed and only one curriculum (medical technician) was under revision, full implementation with the standardized curriculum will start from the 2nd Semester, 2016. (Ex-post Evaluation) Although the MOH authorized the implementation of the training courses in the HTIs, the course of medical technician has not been approved yet, due to the priority changes in DNFPS. However, the revision is being planned to implement by 2022. According to the response to the ex-post evaluation survey, Training Centre for Health/Centro de Formação de Saúde (CFS) Cuamba has not conducted teaching based on any standardized curriculum yet, because the CFS has not been designed to provide the medium-level courses to which the priority areas are subject.	Project Completion Report MOH Response to the questionnaire
	Indicator 2 More than 80% of full-time teachers receive pedagogical training.	Status of the Achievement: achieved (continued) (Project Completion) In 2014, 100% of full-time teachers (N=414) received pedagogical training.	Project Completion Report

[1] MOFA, ODA Databook 2010

provision of proper healthcare service.		(Ex-post Evaluation) In 2020, 88% of full-time teachers (N=652) received pedagogical training	MOH Response to the questionnaire
	Indicator 3 The manual for pedagogical supervision (external supervision) is approved by the MOH.	Status of the Achievement: achieved (continued) (Project Completion) The manual for pedagogical supervision (external supervision) was developed, reviewed, and approved by the MOH in October 2015. (Ex-post Evaluation) It was confirmed that the manual for pedagogical supervision has been continuously used by the HTIs and duly revised as required in 2017.	Project Completion Report MOH Response to the questionnaire
	Indicator 4 Conduct pilot National examinations of 3 priority technical courses (Preventive medicine (TMPSM), Pharmacy Technician and Laboratory Technician) and National examinations of Medical Technician, Nursing, MCH Nursing courses.	Status of the Achievement: achieved (continued) (Project Completion) The first pilot National examinations were performed in July 2015 for all students in the final semester of three priority courses. 107 students of Laboratory course, 56 of Pharmacy course and 203 students of TMPSM courses in Health Training Institute/ Instituto Ciencias de Saúde (ICS) Maputo, ICS Beira, ICS Chimoio, CFS Chicumbane, ICS Quelimane, ICS Nampula an ICS Tete. By then, the national graduation examinations had been conducted for students in the last semester of the Medical Technician course since the end of December 2011 and Nursing and MCH Nursing courses since July 2013. (Ex-post Evaluation) As shown in Table 1 below, the national examinations of all 6 technical courses have been officially conducted since 2017.	Project Completion Report MOH Response to the questionnaire
(Overall Goal) Quality health personnel are nurtured at the Health Training Institutes.	Indicator 1 More than 90% of students of six priority technical courses are approved in National graduation examinations.	(Ex-post Evaluation) achieved The total number of applicants in the 6 training courses in the last 6 years (2015-2020) was 9705. Whereas, as a result of the examination, the number of qualified applicants was 9,234, which accounts for 95% of the success rate throughout the same period. Table 1: The Success Rate and the Number of Applicants of National Examination by Target Training Course	MOH Response to the questionnaire

Training course		2015	2016	2017	2018	2019	2020
TMPSM	Success rate (%)	-	-	99	98	100	100
	Applicants	-	-	260	421	172	70
Pharmacy Technician	Success rate (%)	-	-	100	100	100	99
	Applicants	-	-	171	243	170	135
Laboratory Technician	Success rate (%)	-	-	95	99	98	100
	Applicants	-	-	413	241	118	72
MCH nursing	Success rate (%)	90	92	98	99	96	95
	Applicants	513	431	692	620	430	145
Nursing	Success rate (%)	91	88	95	98	99	99
	Applicants	797	631	676	443	155	137
Medical Technician	Success rate (%)	79	100	95	89	95	100
	Applicants	258	341	255	259	297	139
Total	Applicants	1568	1403	2467	2227	1342	698

	Indicator 2 Pedagogical training is systematically in operation at all 15 Health Training Institutes supported by the Department of Planning and Curriculum Development.	(Ex-post Evaluation) achieved According to the response from the MOH, it was confirmed that out of 652 full-time teachers, 571 (88%) received pedagogic training and out of 295 half-time teachers, 85 (29%) received the pedagogic training at the HTIs. However, as shown in Table 2. Out of 15 target HTIs, reported the figures to indicate that CFS Inhambane and CFS Nhamatanda may not have provided the pedagogical training to their teachers as desired (Noted, however, according to the response to the ex-post evaluation survey, they have conducted teaching based on the standardized curriculum for the courses). Thus, 13 HTIs (86%) have been capable of providing pedagogical training on a regular basis. Furthermore, according to figures monitored by DNFPS, the actual number of full-time teachers deployed at the HTIs under the NPHHRD already exceeded the target number in 2020 as shown in Table 3. The notable result is deemed to have had ripple effects on the other targets regarding the quality of education, ratios per class, and students, respectively. Table 2: The Number of Full-time and Half-time Teachers Received Pedagogical Training and (The Total Number of Full-time Teachers Employed) in Each 15HTIs	MOH Response to the questionnaire

HTI	2015	2016	2017	2018	2019	2020
ICS Maputo	51(51)	62(62)	53(53)	43(43)	52(52)	0(50)

ICS Nampula	54(54)	52(52)	51(51)	48(48)	53(53)	54(54)
ICS Quelimane	103(54)	106(66)	114(64)	116(68)	121(67)	95(69)
ICS Beira	19(33)	23(38)	16(43)	26(49)	12(53)	0(55)
ISC Tete	44(44)	49(49)	48(48)	56(56)	56(56)	60(60)
CFS Lichinga	15(15)	18(18)	17(17)	17(17)	20(20)	21(21)
CFS Mocuba	9(20)	10(20)	10(20)	10(18)	10(18)	8(18)
CFS Chimoio	39(46)	35(46)	30(44)	5(48)	4(48)	3(51)
CFS Inhambane	0(28)	0(26)	0(30)	0(28)	0(30)	0(32)
CFS Pemba	36(36)	50(50)	58(58)	51(51)	50(50)	49(49)
CFS Nhamatanda	0(0)	0(0)	0(0)	6(14)	8(9)	0(0)
CFS Massinga	38(38)	40(40)	39(40)	43(43)	40(40)	41(41)
CFS Cuamba	5(5)	5(5)	6(6)	6(6)	6(6)	6(6)
CFS Mocimboa da Praia	11(11)	11(12)	7(13)	7(13)	7(13)	7(13)
CFS Chicumbane	27(30)	28(33)	31(33)	30(39)	32(37)	24(32)

Note: As the numbers of half-time teachers were not available in some HITs, thus there may be some discrepancies.

Table 3: Status of the Achievement Regarding the Capacity Development in the Health Sector Addressed in the DNFPS Annual Plan

	2015 Baseline	**2020 Actual**	Target	
			2020	2025
Full-time teachers/ Class Ratio	2	**3.9**	**2.5**	4
Full-time teachers/ Students Ratio	1/15	**1/5**	**1/8**	1/4
Total number of full-time teachers	476	**652**	**534**	679

3 Efficiency

The project cost and the project period were within the plan (ratio against the plan: 83% and 98%, respectively). Also, the outputs were produced as planned. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Following the preceding NPHHRD (2008-2015), the current NPHHRD (2016-2025) has upheld four pillars: "Increase the availability and equity of health personnel", "Retain the health personnel at primary health care level", "Improve the satisfaction, competency of health personnel to provide qualified humanized health care" and, "Improve the legal and institutional health Human Resources Management." Moreover, the "Five-Year Strategic Plan for Health Sector" (2014–2019) remained valid at the time of the ex-post evaluation. It is to ensure MOH's position that human resources in the health sector are valuable assets to facilitate the anchoring of the earned capacity.

< Institutional/Organizational Aspect>

The roles and responsibilities of MOH to oversee the quality education in the health sector have not been changed. MOH was reformed in 2018 and it resulted in the formerly responsible for the project, the Human Resources Directorate, which was then under the Department of Training, being reorganized into the National Directorate for Training of Health Professionals (DNFPS). The DNFPS has been empowered by the reform to be in charge of policy planning for human resource development of health workers, formulation of training master plan and program, and registration and certification of health workers.

<Technical Aspect>

According to the survey results, most of the trained counterpart staff in both MOH and HTIs have retained and still been active. Also, it was reported that the equipment provided by the project has mostly remained functional. It was perceived that relevant staff both at the national and provincial levels has sustained the necessary knowledge and skills to perform their respective duties. According to the MOH, although there has been no internal training, most of the staff members have proactively gained more experience through attending conferences in the areas of training as well as publishing research papers in collaboration with Brazilian Experts. For instance, although the head of the pre-service training department trained by the project was retired, DNFPS positively promoted a counterpart staff also trained by the project to be appointed as the head of the department. Therefore, the knowledge and skills of the staff are considered to be sufficient.

<Financial Aspect>

According to the survey result, despite their weak financial foundation with only marginal external financial supports, there has been no national budget allocation from MOH to the HTIs, partly due to the ongoing financial decentralization process led by the Ministry of Economy and Finance –MEF. Effectively, a budget allocated for HTIs is directed from MEF instead of MOH. Nonetheless, it was not possible to accurately verify the operating costs for the capacity development and the financial balance in the HTIs as the accounting data was not available. Under the circumstances, qualified technicians have become increasingly in demand as manifested in the nationwide openings of medium-level technician courses in the HTIs. However, it is anticipated that it may seriously widen the financial gap between the overall cost indispensable for quality education with trained teachers and the limited budget allocated to manage the HTIs.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and the Overall Goal. It was deemed that the capacities being enhanced have positively affected the quality of education. As for sustainability, although financially challenging to further respond to the ever-increasing demand for qualified technicians in the health sector, the capacity development has been continued in a self-sustaining way through the training program.

Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

As there is an uncertainty in budget planning to continue capacity development of teachers and preceptors for healthcare professionals, it is recommended that MOH should develop a viable strategic direction underpinned by a budget plan for capacity development. Given the institutional structure of HTIs, it will enable to enhance the technical capacity of core teachers and staff in the area of nursing and midwifery profession as those are critical to reducing the high rate of maternal-infant mortality in Mozambique.

Lessons Learned for JICA:

The survey result reveals that there has been no national budget allocation from MOH to the HTIs, and the budget allocation for each of the HTIs was in fact processed in the MEF instead. Thus, there was concern that it would not be able to effectively respond to the growing demand for qualified technicians in the health sector. As such, to secure the budget to ensure the sustainability of the project, possible funding mechanisms should have been carefully assessed and discussed to enable prudent cost-sharing after the project in due consideration with the institutional capacity with the project counterparts and relevant stakeholders at the time of the preparatory survey and/or at project formulation

Nutrition curriculum Revision workshop

Pedagogical training in Gaza province

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Senegal Office: December, 2022

Country Name	Project for Drinking Water Supply and Improvement of Hygiene Conditions in Rural Areas （le Projet de l'Approvisionnement en Eau Potable et de l'Amélioration des Conditions d'Hygiène dans les Zones Rurales）
Republic of Senegal	

I. Project Outline

Background	Drinking water supply and improvement of hygiene conditions in rural areas have been urgent national issues in Senegal. Particularly in the targeted regions of the project (Tambacounda, Matam and Kédougou), construction of water supply facilities had been significantly limited because of remoteness, high poverty rates, and difficulty of groundwater development due to base rock layers in the areas. The water supply coverage by raceway water supply facilities in 2010 were 35.9% in Tambacounda, 70.7% in Matam, and 13.5% in Kédougou, which fell far short of the national average of 60.4%. Although the coverage in Matam region was high, in Ranérou department[1], one of the project sites, it was below 30%. As for hygiene conditions, most of the toilets in the regions were traditional ones which dissatisfied the standard targeted by the "Millennium Drinking Water and Sanitation Program" (PEPAM) set by the government of Senegal. Besides, because the people in the rural areas did not have hygiene practices such as handwashing, the infant mortality rate caused by waterborne diseases in the areas were high. The access rates to sanitary facilities in 2010 were 21% in Tambacounda, 14% in Matam, and 6% in Kédougou, which fell below the national average of 29.6%.					
Objectives of the Project	Through constructing raceway water supply facilities and sanitary facilities in the targeted sites in the regions of Tambacounda, Matam and Kédougou, the project aimed at increasing the population accessible to safe water and sanitary facilities in the sites, thereby contributing to the improvement of drinking water supply and hygiene conditions in the sites.					
Contents of the Project	1. Project Site: 34 villages in 5 sites in the regions of Tambacounda, Matam and Kédougou 2. Japanese side: 1) provision of grant necessary for construction of water supply facilities (level 2 water supply facilities, water stations for vehicles, public water stations, etc.) and sanitary facilities (public toilets and handwash stations) including transmission and distribution water pipes. 2) technical assistance (soft component of grant aid for establishing Water Users Associations (ASUFORs) and Sanitation Works Management Committees (COGESs), training for ASUFORs and COGESs, signing of agreements between communities and the Ministry of Water and Sanitation, awareness-raising of teachers and students on hygiene, etc.) 3. Senegalese side: logistical arrangements and clearances					
Project Period	E/N Date	March 7, 2015	Completion Date (ex-ante)	August, 2017	Completion Date (actual)	October 24, 2017 (construction completion ceremony)
	G/A Date	March 7, 2015				
Project Cost	E/N Grant Limit / G/A Grant Limit: 788 million yen, Actual Grant Amount: 780 million yen					
Executing Agency	Department of Water (DH), Department of Sanitation (DA), Rural Wells Office (OFOR), Ministry of Water and Sanitation (MHA)					
Contracted Agencies	Main Contractor: Nissaku Co., Ltd. Main Consultant: Nihon Techno Co., Ltd.					

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Senegal at the Time of Ex-Ante Evaluation>

The project was consistent with the development policies of Senegal at the time of ex-ante evaluation. Improvement of access to safe drinking water and sanitation facilities was highlighted as one of the human capital, social protection and sustainable development plans in the "Emergent Senegal Plan" (PSE) (2014-2018). In the "Millennium Water and Sanitation Program" (PEPAM) (2005-2015), which was the highest-level national policy for water and sanitation, it was planned to increase the access rate to safe drinking water in rural areas from 77.5% in 2010 to 82% in 2015 and the access rate to sanitation services from 29.6% in 2010 to 63% in 2015 through synergetic effects by a comprehensive approach for water and sanitation.

<Consistency with the Development Needs of Senegal at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Senegal at the time of ex-ante evaluation. According to the review of PEPAM conducted in 2010, the rate of safe drinking water supply targeted to be 82% by 2015 was expected to be achieved in 2011 or 2012 at national level. However, the achievement level largely varied from region to region. The rate of water supply by raceway water supply facilities was 35.9% in Tambacounda, 70.7% in Matam, and 13.5% in Kédougou, which fell far short of the national average of 60.4%. Although the rate in Matam region was high, the rate in Ranérou department where a site of the project located was below 30%. As for the access rate to sanitation facilities, the achievement in 2010 was 29.6% at national level to the target of 63% by 2015. The rate in the targeted regions of the project was 21% in Tambacounda, 14% in Matam, and 6% in Kédougou, which fell below the national average.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy for Senegal at the time of ex-ante evaluation. In the "Country Assistance Policy for the Republic of Senegal" (May 2012 revised in April 2014) of the government of Japan, one of the two major goals was the improvement of basic social services in Senegal by assisting the achievement of MDGs in the sector of health and hygiene.

[1] Department is an administrative district under region. Administrative hierarchy in Senegal is composed of region, department, commune, arrondissement, and village.

<Evaluation Result>
In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>
The project has achieved its objective by increasing the population accessible to safe water and sanitary facilities in 34 villages in five targeted sites in three regions of Tambacounda, Matam and Kédougou by constructing raceway water supply facilities and sanitary facilities. The safe water supplied population in the sites increases to 29,571 to the target of 26,000 by the end of the project in 2017. Although the data in 2020 was not available, according to ASUFORs and local residents, the water supply systems constructed by the project have been well maintained and the number of water users may increase but not decreased after the completion of the project. Therefore, the target population of 29,000 in 2020 which was three years after the completion of the project assumed to be achieved in 2020.

Most of the sanitary facilities constructed by the project have been well used in schools and health facilities. Only in some schools, e.g., in Saré Woka in Tambacounda, toilets are not well used by the students due to insufficient awareness of the benefits of using toilets. Although no quantitative data was available, according to the nurses in the project sites, the morbidity of waterborne diseases has considerably decreased through the improvement of water and hygienic conditions. In the field survey on project sites, some local residents answered that the work of water drawing by women and children has been largely alleviated because there were water connections in almost all houses in the villages.

<Impact>
Although no data was available, according to the Regional Sanitation Department and Health Posts, the infant mortality rate must be decreased in the project sites along with the decrease of morbidity of waterborne diseases including diarrhea, cholera, bilharzia, dermatological, and others. According to interviews with local residents, because the work of water drawing has significantly decreased, women and children spend more time on farming, housekeeping, schoolwork, and others. No resettlement and land acquisition were caused by the project, and no other negative impact on natural, social and economic environment has been observed.

<Evaluation Result>
Therefore, the effectiveness/impact of the project is high.

Quantitative Effect

Indicator	Baseline 2015 Baseline Year	Target 2020 3 Years after Completion	Actual 2017 Completion Year	Actual 2018 1 Year after Completion	Actual 2020 3 Years after Completion	Source
The population supplied with safe and sufficient water	0	29,000	29,571	No data available.	No data available.	OFOR

3 Efficiency

Although the project cost was within the plan (the ratio against the plan: 99%), the project period slightly exceeded the plan (the ratio against the plan: 107%). The outputs were produced as originally planned by the end of the project period. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional/Organizational Aspect>
Organizational structures and responsibilities and mandates of DH, DA, OFOR relating to rural water and sanitation development have not changed during and after the completion of the project. According to the questionnaire and interview surveys on DH, DA, and OFOR, the number of staff in charge of rural water and sanitation development has been sufficient for the duties. At the field level, as for water supply facilities, in Matam and Kédougou, daily operation and management are carried out by ASUFORs, and the facilities' monitoring and major maintenance works are done by the Water Brigades under the responsibility of the Regional Water Directors. In Tambacounda, operation and maintenance are outsourced to the Senegal Water Management Company (SOGES)[2]. As for sanitation facilities, facilities in the schools are managed by the School Management Committees (CGEs) and cleaned by the students, and facilities in the health posts and health huts are managed and cleaned by the Health Committees (CSs). Overall management is monitored by the Sanitation Works Management Committees (COGESs) and reported to Regional Sanitation Services (SRAs). No specific problem caused by the insufficient performance of institutions/organizations has been reported from the field level by the time of ex-post evaluation.

<Technical Aspect>
Water Brigades and SOGES are specialized teams and a company for water supply management, and they have sufficient technical skills and knowledge to operate and maintain water supply facilities. However, according to the Regional Water Director and local residents in the project sites in Tambacounda, the technical level of technicians of SOGES differ from person to person. According to the Regional Water Director, maintenance of water supply facilities in rural areas requires some special attentions and skills, and it may take a little time to get enough experience. ASUFORs are in charge of non-technical daily operation and management as stated above, while technical maintenance is taken cared by the Water Brigades and SOGES. As for the sanitation facilities, daily maintenance and cleaning do not require special technical skills and are carried out by the community members (CGEs and CSs) and the students. Repair works requiring technical skills have been outsourced to local business operators.

<Financial Aspect>
Water supply facilities constructed by the project have been maintained by water bills paid by the users. According to OFOR, because the project sites are in rural areas holding the population with social and financial difficulties, there are households having hardship in paying water fee. However, system of long-term payment or spread-over-time payment is prepared for low-income households, and their financial hardship has not been a big issue for maintenance and operation of the facilities. Sanitation facilities in schools and health

[2] SOGES is a public service delegation management company responsible for boreholes spread over in Tambacounda region.

facilities are managed by communes and community organizations as their common assets. Fund for maintenance is prepared by the communes' budget, plus CGEs and/or the Students' Parents Associations (APEs) for schools, and CSs for health facilities. Most of the community organizations including CGEs, APEs and CSs are managed without sufficient fund, and in some cases, local residents, teachers, and health staffs personally burden expenses. However, since daily maintenance such as cleaning do not cost much and costly works such as repairs are managed by the communes' budget, maintenance of the sanitation facilities are properly conducted in general. Revenue and expenditure data of operation and maintenance of the water supply facilities and sanitation facilities were not available.

<Current Status of Operation and Maintenance>

According to DH, DA, and OFOR, operation and maintenance of the facilities constructed by the project has been properly conducted after the completion of the project. In the filed survey conducted by the ex-post evaluation, no specific problem has been observed except some unclean toilets in some schools. Toilet cleaning is supposed to be conducted by the students in general. Spare parts, tools and utensils, and consumables for water supply facilities have been purchased in a timely manner and kept in stock to avoid suspension of water supply. Only in some areas such as Médina Diakha in Tambacounda, maintenance work faces some difficulties due to hard access to the communities especially in the rainy season, and in Kédougou, spare parts are not always available even in the capital of region due to some issues of business operation of suppliers.

<Evaluation Result>

Some problems have been observed in terms of the technical aspect, financial aspect, and current status of operation and maintenance. Therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

The project has achieved its objectives by increasing the population accessible to safe water and sanitary facilities in the project target sites through the construction of water supply facilities and sanitary facilities. Caused by those project effects, the morbidity of waterborne diseases has decreased, and the work of water drawing by women and children has been alleviated. As for sustainability, some problems have been observed in terms of the technical aspect, financial aspect, and current status of operation and maintenance. As for efficiency, the project period slightly exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- In some schools, toilets constructed by the project have not been well used by the students due to insufficient awareness of the benefits of using toilets. And some unclean toilets were observed in some other schools. Therefore, it is recommended that SRA takes initiative in collaboration with SOGES to make the related communes conducts awareness raising activities on the significance of using toilet and good maintenance involving the students, parents, teachers, CGEs, and APEs.

Lessons Learned for JICA:

- In a grant aid project providing facilities operated and maintained by community organizations and local residents, the soft component of the project usually takes care of institutional setup for operation and maintenance and awareness raising to foster ownership and sense of responsibility of the people involved. Also in the project, the soft component implemented those activities. However, in the case of the project, although no major problem of operation and maintenance took place, some minor problems such as unused and unclean toilets were observed. In order to increase local residents' awareness for and ownership of the facilities, a participatory approach involving the beneficiaries at the earliest possible time of the project may be effective. For instance, through the early implementation of soft component, the people could be involved in the selection of type of facility, design of facility, location of installation, drafting and editing of manuals, and creation of technical, institutional, and financial system for operation and maintenance. Signing and exchange of memoranda of understanding between the project and the community may strengthen their ownership, sense of responsibility, and satisfaction with the project.

Elevated water tank in Mako in Kédougou Region

Well maintained toilets in a school in Mako in Kédougou Region

conducted by Senegal Office: August 2022

Country Name	**Project for Renforcement for Maternal and New Born Health Care Phase 2**
Republic of Senegal	

I. Project Outline

Background	In Senegal, the Demographic Health Survey (DHS) 2010-2011 estimated the maternal mortality rate at 392 per 100,000 live births, which had been steadily reduced but not achieved the Millennium Development Goals (MDGs). Other indicators including neonatal mortality rate, rate of delivery by qualified birth attendants, and antenatal checkup rate also remained at undesirable levels. With that background, the Ministry of Health and Social Action (MHSA) implemented a technical cooperation project, the "Project for Reinforcement of Maternal and Child Health Care in Tambacounda and Kedougou Regions (PRESSMN)" (2009-2011), with the assistance of the government of Japan and established the "PRESSMN model" as an evidence-based comprehensive methodology to improve maternal and neonatal health care. The PRESSMN model was approved by MHSA and its concept was integrated in the national reproductive health protocol and expected to be applied nationwide.		
Objectives of the Project	Through establishment of a coordination system at national and regional level for scaling-up the PRESSMN model, integration of the PRESSMN model into the training curricula for nurses and midwives, and assessment of the effects of the PRESSMN model, the project aimed at the nationwide scaling-up of the PRESSMN model, thereby contributing to reduction in the rates of maternal and neonatal mortality. 1. Overall Goal: Maternal mortality rate and neonatal mortality rate are reduced through improvement of services for maternal and neonatal health in Senegal. 2. Project Purpose: The scaling-up of PRESSMN model is realized nationwide.		
Activities of the Project	1. Project Site: all regions of Senegal 2. Main Activities: 1) establishment and operationalization of a national level coordination system in MHSA for the scale-up of PRESSMN model, 2) establishment and operationalization of a regional level coordination system in 14 Regional Medical Offices for the scale-up of PRESSMN model, 3) integration of the PRESSMN model into the training curricula for registered nurses and midwives, 4) assessment of the effects of PRESSMN model by research studies. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 5 persons 2) Trainees received: 31 persons 3) Equipment: vehicles, copy machines, neonatal mannequins, etc. Senegalese Side 1) Staff allocated: 42 persons 2) Land and facilities: project offices 3) Local cost: cost for utility of offices (electricity, water and telephone), fuel for cars and motorcycles		
Project Period	(ex-ante) November 2012 - October 2016 (actual) November 2012 - March 2018	Project Cost	(ex-ante) 330 million yen (actual) 470 million yen
Implementing Agency	・ Ministry of Health and Social Action (MHSA) (current General Directorate of Public Health (GDPH)): Office of Administration, Directorate of Health, Directorate of Human Resources, Division of Mother and Newborn Health (DMNBH) of the Directorate of Mother and Child Health ・ National School of Health and Social Development (ENDSS)		
Cooperation Agency in Japan	National Center for Global Health and Medicine (NCGM)		

II. Result of the Evaluation

<Constraints on Evaluation>

・ In this ex-post evaluation, the evaluation judgment was made by analyzing information acquired by the questionnaire survey and telephone interviews with officials of DMNBH, the "Situation Analysis Survey Result" (2021) documented by the phase 3 project[1], and the "Final Report of Information Collection and Confirmation Survey on UHC in Senegal" (2021)[2]. No field survey was conducted due to the incidence of COVID 19.

1 Relevance

<Consistency with the Development Policy of Senegal at the Time of Ex-Ante Evaluation>

The project was consistent with the development policies of Senegal at the time of ex-ante evaluation. The "National Health Development Plan 2009-2018" (PNDS 2009-2018) was a long-term national health policy. It envisioned better access for the entire population to quality health and medical services focusing on the decrease of maternal and neonatal mortality and morbidity rates. The "Mid-term Sector Expenditure Framework 2011-2013" (CDSMT 2011-2013) was composed of the mid-term programs and their expenditure framework for the health sector in Senegal. In line with PNDS, CDSMT placed the top-priority on "maternal, newborn, child and adolescent health."

<Consistency with the Development Needs of Senegal at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Senegal at the time of ex-ante evaluation. According to DHS 2010-2011, the maternal mortality rate in Senegal had been steadily improved but not achieved MDGs' target aimed at the decrease of maternal mortality

[1] The succeeding project titled "Project for Reinforcement of Maternal and Newborn Healthcare in Senegal Phase 3" started in 2019 for five years and is ongoing at the time of the ex-post evaluation.

[2] The nation-wide survey on the situation of universal health coverage (UHC) in Senegal conducted by JICA in 2021. Universal health coverage means that all people have access to the health services they need, when and where they need them, without financial hardship.

rate to the level of one-quarter of the level in 1990 by 2015. The neonatal mortality rate, estimated at 29 per 1,000 live births in 2011, was also improved from 35 in 2005 but still remained at high level. The rate of delivery by skilled birth attendants was low as 65% with a significant gap between urban and rural areas (90.7% in urban areas and 49.2% in rural areas). As for the antenatal checkup rate, while the rate for more than one time checkup reached at 93%, the rate for more than 4 times checkup which was recommended by the World Health Organization (WHO) was as low as 50%.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with the Japan's ODA policy for Senegal at the time of ex-ante evaluation. In the "Country Assistance Policy for the Republic of Senegal" (May 2012 revised in April 2014) of the government of Japan, one of the two major goals was the improvement of basic social services, and it aimed to achieve the MDGs' targets in the areas of health and hygiene and education. As for health and hygiene, it was expected to improve the coordination with other development partners and international organizations especially in the area of maternal and neonatal health the government of Japan has supported on a priority basis.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved at the time of project completion. According to the survey conducted by the project, all of the four indicators, i.e., the satisfaction rate of women who used health facilities applied PRESSMN model (Indicator 1), the satisfaction rate of health staff in health facilities applied PRESSMN model (Indicator 2), the number of health staff who practiced evidence-based maternity care[3] (Indicator 3), and the practicing rate of the components of PRESSMN model (Indicator 4), have been statistically significantly increased.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been partially continued at the time of ex-post evaluation. Data of the satisfaction rates of women who used health facilities and health staff in health facilities applied PRESSMN model were not available. About evidence-based maternity care, according to DMNBH, freestyle childbirth[4] has been practiced in all Health Districts involved in the project. As for the practice of PRESSMN model, according to DMNBH, out of five components of the PRESSMN model[5], 5S[6] and freestyle childbirth have been continuously practiced.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal was partially achieved at the time of ex-post evaluation. The maternal mortality rate and the proportion of delivery by skilled birth attendants have been improved during the project period and have sustained their tendencies after the completion of the project. As for the four indicators of neonatal mortality rate, rate of utilization of antenatal care, proportion of delivery in the health facilities, and rate of postnatal care, although the values of them in 2020 showed improvements compared with the ones in 2011, they have been fluctuating and it's hard to confirm their improvement tendencies.

<Other Impacts at the time of Ex-post Evaluation>

According to DMNBH, midwives and nurses trained by the project have improved their communication with mothers and their families, and their sense of responsibility for safe deliveries has been heightened. Better communication with mothers and their families contributes to the improvement of accountability of birth attendant services. Service disparities between the health facilities involved and uninvolved in the project has been observed in some Health Districts. While the regional extension conducted by the project was limited to the primary and secondary health facilities of health centers and health posts, the successor of the project or the third phase project extends its activities to the tertiary health facilities of hospitals footing on the PRESSMN model health services introduced by the project. No negative impact on natural, social and economic environment has been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
Project Purpose: The scaling-up of PRESSMN model is realized nationwide.	Indicator 1: Satisfaction rate of women who used health facilities applied PRESSMN model is increased at least in one Health District in each of 14 regions.	Status of the Achievement (Status of the Continuation): Achieved (not verified) (Project Completion) The project conducted a comparative survey comparing one intervention health district and one control health district in each of 14 regions. The survey asked 17 evaluation questions about 8 factors including health staff's explanation about delivery process, respect for delivery body position, and others. The survey result showed that satisfaction rate of women who delivered in the health facilities applied PRESSMN model was higher on all of 17 evaluation questions than the rate of women who delivered in the facilities which did not apply PRESSMN model. Note, however, that the survey compared all intervention groups and control groups but not groups in each health district. Therefore, the achievement of the indicator district by district was not verified.	Project Completion Report, Questionnaire survey on DMNBH

[3] Scientifically sound technical interventions in the maternal and neonatal health care to conduce low-risk deliveries to normal deliveries.

[4] A way of delivery which allows a mother to choose the body position, place of birth, and others respecting the intension of the mother.

[5] Five components of PRESSMN model are: 1) communication with communities, 2) sharing of the concept of respectful maternity care, 3) work environment improvement through 5S, 4) practice of evidence-based maternity care, and 5) support from the government.

[6] 5S is a slogan taken from the initials of "sort, set, shine, standardize, sustain" aiming at positive transformation of staff's awareness and attitude about improvement of work process and work environment. (Source: web site of JICA)

		(Ex-post Evaluation) Although the number of women who used antenatal care service and delivered assisted by skilled birth attendants has been increased (see the Overall Goal), data of the satisfaction rate was not available because the satisfaction rate survey has not been conducted after the completion of the project.	
	Indicator 2: Satisfaction rate of health staff in health facilities applied PRESSMN model is increased at least in one Health District in each of 14 regions.	Status of the Achievement (Status of the Continuation): Achieved (not verified) (Project Completion) According to the survey stated above (see Indicator 1), satisfaction rate of health staff in health facilities applied PRESSMN model was higher on all of 15 evaluation questions about five components of PRESSMN model than the rate of staff in the facilities which did not apply PRESSMN model. However, the achievement of the indicator district by district was not verified due to the reason stated above (see Indicator 1). (Ex-post Evaluation) No data was available because the satisfaction rate survey has not been conducted after the completion of the project.	Project Completion Report, Questionnaire survey on DMNBH
	Indicator 3: The number of health staff who practices evidence-based health care is increased at least in one Health District in each of 14 regions.	Status of the Achievement (Status of the Continuation): Achieved (partially continued) (Project Completion) According to the survey stated above (see Indicator 1), the evidence-based health care practicing rate of the intervention group was significantly high on all of 14 items about the evidence-based health care including care in delivery stage, care after delivery, and others. However, the achievement of the indicator district by district was not verified due to the reason stated above (see Indicator 1). (Ex-post Evaluation) According to DMNBH, freestyle childbirth has been practiced in all Health Districts involved in the project. The situation analysis survey conducted by the phase 3 project and the information collection survey on UHC also reported the increase of freestyle childbirth in the country.	Project Completion Report, Questionnaire survey on DMNBH Situation Analysis Survey Result by the phase 3 project Final Report of Information Collection and Confirmation Survey on UHC in Senegal
	Indicator 4: Practicing rate of the components of PRESSMN model is increased at least in one Health District in each of 14 regions.	Status of the Achievement (Status of the Continuation): Achieved (partially continued) (Project Completion) According to the survey stated above (see Indicator 1), practicing rate of PRESSM model of the intervention group was statistically significantly higher than the control group on all of four components of PRESSM model except the evidence-based health care (Indicator 3). However, the achievement of the indicator district by district was not verified due to the reason stated above (see Indicator 1). (Ex-post Evaluation) Out of five components of the PRESSMN model, 5S and freestyle childbirth which is one of the evidence-based maternity care have been continuously practiced. 5S has been practiced on a personal basis in a number of health facilities. For freestyle childbirth, see Indicator 3 above.	Project Completion Report, Questionnaire survey on DMNBH
Overall Goal: Maternal mortality rate and neonatal mortality rate are reduced through improvement of services for maternal and neonatal health in Senegal.	Indicator: Following indicators mentioned in the Sectoral Mid-term Expenditure Framework 2011-2013 (1) Maternal mortality rate (2) Neonatal mortality rate (3) Rate of utilization of antenatal care (4) Proportion of delivery in the health facilities (5) Proportion of delivery by skilled birth attendants (6) Rate of postnatal care	(Ex-post Evaluation) Partially achieved Table 1: Achievement of the indicators	Project Completion Report, Questionnaire survey on DMNBH

	Indicators	2011	2016	2017	2020
1	Maternal mortality rate (per 100,000 live births)	392	315	236	236
2	Neonatal mortality rate (per 1,000 live births)	47	19	42	33
3	Rate of utilization of antenatal care (%)	50	48.1	97	92
4	Proportion of delivery in the health facilities (%)	73	76	78	77
5	Proportion of delivery by skilled birth attendants (%)	65	59.7	68.9	96
6	Rate of postnatal	50.5	99.9	104.1	78

			care (%)					

3 Efficiency

Both the project period and cost exceeded the plan (ratio against the plan was 135% and 142% respectively). At the early stage of the project, it took time for making a consensus with related agencies on the methods for baseline survey and for the procurement of survey consultant. In addition, because one of the Japanese leading experts left the project, replanning and rescheduling of the project was required. Due to those issues, it was decided to extend the project period. The outputs were produced as originally planned by the end of the extended period of the project. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The "National Health and Social Development Plan 2019-2028" (PNDSS 2019-2028) prepared by MHAS denotes three strategic directions of 1) strengthening of governance and financing for health and social action, 2) development of the supply of health services and social action, and 3) promotion of social protection. Under the strategy for the development of supply of health services and social action, one of the intermediate results is the improvement of maternal and neonatal health care services targeting the reduction of maternal and neonatal mortality rate.

<Institutional/Organizational Aspect>

The Reproductive Health Division of the Directorate of Health was separated and upgraded as DMCH in 2020 given more responsibilities and mandates to improve the maternal and neonatal health care services and sustain the effects of the project. The number of staff of DMNBH, the division in charge of mother and newborn health care in DMCH, is eight including the director, which is sufficient for its workload according to DMNBH. Although the information about institutional/organizational situation of RMOs, Health Districts, and Health Posts were not available, the information collection survey on UHC reported that, as of 2019, 680 nurses, 1,547 midwives, and 1,821 assistant nurses were insufficient in Health Posts relative to the heath human resource allocation standard of MHSA. The survey also reported that 2,297 stadiometers, 1,460 delivery tables, and 1,018 stethoscopes were insufficient in Health Posts in 2019 relative to the standard of MHSA. According to the situation analysis survey conducted by the phase 3 project, delivery training equipment (active chairs, mattresses, cushions, screens, baby care training models, etc.) provided by the project has not been utilized in the Regional Health Training Centers (CRFS) because delivery training has been practiced not in those centers but in hospitals.

<Technical Aspect>

DMNBH keeps providing training on freestyle childbirth and 5S for qualified and unqualified medical staff. Supervision has also been conducted by DMNBH for maternal and neonatal health care staff applying the knowledge and tools introduced by the project. Check items for the supervision are ones prepared by the project. Freestyle childbirth has been practiced in all Health Districts, and 5S has been practiced on a personal basis in a number of health facilities. However, the practice of other components of PRESSMN model was not confirmed. ENDSS also keep providing theoretical and practical training of PRESSMN model since it's included in the curriculum for midwives and nurses.

<Financial Aspect>

The amount of budget allocated to maternal and neonatal health care services was not available. However, according to DMNBH, the state budget for MHAS has been steadily increasing reflecting the high policy priority placed on the health sector. Adding to the state budget, MHAS has applied for the Japan's food assistance (KR) grant and been financially supported by the development partners including the World Bank, WHO, and others. No information about financial situation of RMOs, Health Districts, and Health Posts was available. However, insufficiency of human resources and equipment in Health Posts stated above in <Institutional/Organizational Aspect> indicated financial difficulties in the field level health facilities.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The Project Purpose was achieved by increasing the values of all of four indicators. The Overall Goal was partially achieved. While the maternal mortality rate and the proportion of delivery by skilled birth attendants have been improved and sustain their tendencies after the completion of the project, values of other four indicators have been fluctuating and it's hard to confirm their improvement tendencies. As for sustainability, some problems have been observed in terms of the institutional/organizational, technical, and financial aspects. As for efficiency, both the project period and cost exceeded the plan. Considering all the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- Although the project targeted the country-wide extension of PRESSMN model and evidence-based maternity care, the activities continuously implemented in the regions have been limited to freestyle childbirth and 5S. Therefore, it is recommended that DMNBH encourages pilot facilities intervened by the project to restart the activities of PRESSMN model and evidence-based maternity care. In order to accelerate it, it is recommended DMNBH to discuss with the phase 3 project to find possible ways without placing extra burdens on the phase 3 project.
- It is recommended that DMNBH discuss with CRFSs provided with the delivery training equipment but not used them to reallocate the equipment to other health facilities or health education facilities who have high and real needs for them.

Lessons Learned for JICA:

- The project set up a base in each region for the country-wide extension of PRESSMN model. However, the project did not prepare any extension plan or action plan to be implemented by DMNBH after the completion of the project. Therefore, continuation of the activities of PRESSMN model and evidence-based maternity care has been limited to freestyle childbirth and 5S, and monitoring to confirm the extension situation has not been conducted. Country-wide extension of a new system usually takes considerable time. Hence, most of the projects targeting country-wide extension are planned and implemented on the premise of continuous implementation of extension

activities by the counterpart agencies after the completion of the projects. Therefore, it is recommended that a project targeting country-wide extension of a system prepares a specific and feasible action plan to be implemented by the counterpart agency after the completion of the project. In order to make a technically and financially feasible action plan for the counterpart agency, close and candid discussion with the counterpart agency will be indispensable.

- The project provided delivery training equipment to some CRFSs but in some cases it has not been fully utilized. Even though this problem is being followed-up by the ongoing phase 3 of PRESSMN, it is recommended that a project conducts extensive surveys and has in-depth discussions with possible-recipient-facilities of equipment to find actual needs of them and to provide equipment to facilities who have real necessities.

Discussion in the Hospital de la Paix in Ziguinchor Region about the contents of the upcoming training program (2021).

Experience sharing seminar on "Respectful Care" in Dakar (2022)

conducted by Sudan Office: March, 2023

Country Name	**Capacity Building Project for the Implementation of the Executive Programme for the Agricultural Revival**
The Republic of the Sudan	

I. Project Outline

Background	Sudan was in urgent needs of rebuilding its finances, which were dependent on oil revenues. The agricultural sector, which used to account for the majority of the country's non-oil exports, has been a key factor in the country's development. However, the country's agricultural production has been stagnant for a long time, and the production and harvested area of major crops such as sorghum, wheat, sesame, cotton, and groundnut have been stagnant or decreasing. In recent years, domestic consumption of wheat has grown rapidly, and the country imports more than 1 million tons per year. As a countermeasure to the risk of the entire economy collapsing due to over-dependence on oil, the Government of Sudan formulated the "Executive Programme for Agricultural Revival (ERAR)" in April 2008 as a national strategy for the agricultural sector, with the promotion of agricultural and livestock exports, poverty reduction, and food security as its top goals. However, the implementation of the agricultural development plan remained limited, which was attributed to the low administrative capacity of government agencies and their inability to formulate and implement development plans.		
Objectives of the Project	Through 1) developing a model system of human resource development and organizational capacity development of the Ministry of Agriculture, and 2) enhancing planning, implementation, monitoring & evaluation for promotion of rice production, the project aimed at strengthening human and organizational capacity of the Ministry of Agriculture and other concerned organizations to materialize "The Executive Programme for the Agricultural Revival.", and thereby contributing to the improvement of the quality of public agriculture services.		
	1. Overall Goal: The quality of public services provided by the Ministry of Agriculture and the organizations concerned are improved through their capacity development. 2. Project Purpose: Human and organizational capacity of the Ministry of Agriculture and the organizations concerned is strengthened to materialize "The Executive Programme for the Agricultural Revival."		
Activities of the project	1. Project site: Gezira, Sennar, Gedaref, River Nile, Northern and White Nile State. 2. Main activities: 1) developing a model system of human resource development and organizational capacity development of the Ministry of Agriculture, and 2) enhancing planning, implementation, monitoring & evaluation for promotion of rice production. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 20 persons 2) Trainees received (in Japan): 63 persons 3) Third country training: 156 persons in Uganda and 159 persons in Egypt 4) Equipment: Tractors, seed drill, rice milling machines, stone removers, vehicles, etc. 5) Local cost: Personnel expenses, training expenses, agricultural materials and equipment, travel and transportation expenses, conference expenses, supplies Sudanese Side 1) Staff allocated: 24 persons (Management), 120 persons (Extensionists) 11 persons (Researchers) 2) Land and office: project office 3) Local cost: Allowance, labour cost, fuel, electricity, etc.		
Project Period	(ex-ante) March 2010 – February 2014 (actual) March 2010 – March 2016 (Extended period: March 2014 – March 2016)	Project Cost	(ex-ante) 520 million yen, (actual) 936 million yen
Implementing Agency	Federal Ministry of Agriculture and Forestry (FoMAF[1]), State Ministry of Agriculture of the target area (SMoA[2]) (Gezira, White Nile, Sennar, Gedaref, Northern, and River Nile)		
Cooperation Agency in Japan	Vision and Spirit for Overseas Cooperation Co., Ltd. (VSOC), C. D. C. International Corporation		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- Continuation status of the project effects are analyzed as factors to achieve the Overall Goal.
- Based on the suggestion by the project at the time of project completion, upland rice productivities, the number of farmers, cultivated area were treated as the concrete indicators for the Overall Goal. The indicator for the Overall Goal, "quality of public services

[1] FoMAF was reorganized to the Federal Ministry of Agriculture and Irrigation (FMoAI), and again reorganized to FoMAF in June 2015. At the time of ex-post evaluation, the name has changed to Federal Ministry of Agriculture and Natural Resources (FMoANR).

[2] Accordingly, SMoA was reorganized to State Ministry of Production and Economic Resources (SMoPER)

provided by the Ministry are improved", could have been measured by the quality of services provided to the target rice production farmers, its operations and frequency, as well as assessing the satisfaction rate of the farmers towards those services. However, due to the limitation of the time, budget and human resources to conduct the survey in all 6 target States, the alternative indicators which were mentioned above were utilized.

1 Relevance

<Consistency with the Development Policy of Sudan at the Time of Ex-Ante Evaluation >

The project was consistent with the development plan of Sudan. The Executive Programme for the Agricultural Revival (2008-2011), a four-year development plan for the agricultural sector, identified capacity development of agricultural producers and related institutions as one of the factors for achieving agricultural revitalization.

<Consistency with the Development Needs of Sudan at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Sudan for strengthening capacity for formulating and implementing agricultural development plan, as the implementation of the agricultural development plan remained limited.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with Japan's ODA policy to Sudan. Strengthening administrative capacity was one of the priority areas (cross-cutting issues) of ODA to Sudan[3].

<Appropriateness of Project Design/Approach>

During the project, there was a change in the project scope to expand the target area from 2 States to 6 States, which has significantly affected the Efficiency in Evaluation Criteria eventually. The original budget and duration were not sufficient to cover the additional 4 States, thus there was an increase of budget and project duration to accommodate the expansion of the target area.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved as the staff members of then FMoAF were trained and practiced Project Cycle Management (planning, implementation, monitoring and evaluation) (Indicator 1) and self capacity evaluation of the staff of then FMoAF and extension officers of the 6 target States of then State Ministries of Agriculture showed the improvement in their capacity (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

Continuation status of the project effects are analyzed as factors to achieve the Overall Goal. As mentioned below, the effects of the project have continued to certain extent, such as continuation of capacity building both at Federal and State level, the National Rice Project (NRP)'s monitoring and evaluation activities to the 6 target States as well as coordination of stakeholders initiated by the NRP.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved. Based on the suggestion made by the project at the time of project completion, the number of farmers, cultivated area and productivity (yield), were treated as the concrete indicators for the Overall Goal. All 6 target States have been continuing upland rice production after the completion of the project. The seed production has been even initiated at Khartoum State since 2021 with the guidance and support from NRP of FMoANR.

Regarding the indicators for the Overall Goal, cultivated area and productivity, are not showing significant increase. There are several reasons behind this, but one of the main reason is due to the limitation of the seeds. The on-going JICA technical cooperation project(Capacity Building Project for the Promotion of Rice Production, 2018-2022) focuses on seed multiplication activities on Breeder Seeds(BS), Foundation Seeds(FS) and Registered Seeds(RS) at Agriculture Research Corporation(ARC), followed by Certified Seed (CS) production at designated farmers' filed in the 6 target States. The project had to focus on the multiplication of seed, as there were limited varieties and amount of seeds that are officially registered and available in Sudan. As to the number of farmers, 139 farmers have experienced rice cultivation in 6 states with the support from SMoA from 2017 to 2021, leading to promotion of rice cultivation among farmers.

The seed production started in 2018 with the production of BS, FS and RS at ARC. Then CS production started in 2020 with the limited numbers of contracted farmers in Gezira State. As of the cultivation season of 2021/22, FS and RS production have been expanded from ARC headquarter in Gezira State to the ARC research stations in other 5 target States which contributes to increase in the amount of seeds. As of 2021/22 season, the CS production has also expanded to all the target 6 States.

While such efforts taking place, the total production area and the number of farmers has been still small. There has been still limitation of available amount of seeds to be distributed to the CS production farmers. In addition, CS production has been produced in smaller plot for each farmer (2feddans[4]/farmer in Gezira, 0.25feddans/farmer in other target States), as CS production requires more delicate and precise production techniques compared to the ordinary rice production. The CS production farmers are selected by certain criteria set by the on-going JICA project. The extension officers in the State level are also required to have closer contacts and support to the CS production farmers during the cultivation season. These conditions of the availability of the seeds as well as technicality of the CS production have been the limitation of expansion of the production.

With regard to the surrounding environment of the rice production in Sudan, it should also be emphasized that Sudan as a country has been experiencing political turmoil since 2019. There was a political turnover in April 2019 which lead to the establishment of transitional government, then the political turmoil occurred again in October 2021. In addition, there have been outbreak of COVID-19 since early

[3] Source: ODA Databook 2010

[4] 0.42ha.

2020 which also affected the economic activities in the country. These political and economic instability have been strongly affecting the performance of government services as well as production activities.

Regarding the Project Purpose and outputs, the effects of the project have continued to certain extent after the project was completed. The FMoANR has been continuing capacity building activities to certain extent, such as conducting skills and needs assessment, identifying mandates of each directorate, identifying training needs, transfer of technology and skills through trainings at Federal level. The method of learning by doing for upland rice production in which the project introduced for the capacity development of farmers and extension officers, has been actively utilized by all 6 target State through the trainings and at the demonstration farms. The handbook developed during the project has also been utilized in all 6 States at the trainings and the extension services. The on-going JICA technical cooperation project is now updating the technical handbook for the extension officers, and creating a new production manual for the researchers at ARC. In terms of the trainings on capacity development, all 6 target States have been conducting in-country trainings for extension officers and farmers, except for 2019, which was due to the political turmoil and related budget constraints. At the time of ex-post evaluation, most of the trainings are organized and implemented by Rice Promotion Unit (RPU) in the State level (mainly by Gezira State) which indicate the increase of their capacity.

During the project period, the project tried to involve stakeholders, by initiating Rice Sector Development Forum and establishing the National Rice Council in order to realize high productivity of upland rice production. Although these setting did not continue after the project completion, the function of the NRP has been strengthened as their role has expanded to include the responsibility of the National Rice Council. NRP has been making efforts to secure the annual budget from the Federal Ministry of Finance and Economic Planning, and distribute to the target 6 States for the rice production activities. NRP has made monthly and annual follow-up and evaluation for all the 6 States to monitor the implementation. They also hold annual coordination meeting with the stakeholders to work together towards the rice development in Sudan.

In-country Trainings conducted for the extension officers and farmers(2017-2021)

Year	Month	Trainings	Implementer	Venue	Number Participated
2017	-	Monitoring & Evaluation Method	RPU Sennar	Sennar	23
2018	-	Rice Cultivation & Production Techniques	AOAD[5]	Gezira	17
	-	Rice Harvest & Post harvest Technology	AOAD		17
2019	Jan	Rice Cultivation Techniques	RPU Gezira	Gezira	18
	Mar	Rice Seed Production	RPU Gezira	Gezira	16
	Sep	Rice Cultivation & Production Techniques	AOAD	Khartoum	12
	Oct	Rice Seed Harvest & Post-harvest	RPU Gezira	Gezira	36
2021	Feb	Wrap-up meeting on CS production in 2020 Season(plan)	RPU Gezira/NRP/JICA	Gezira	36
	Apr	CS Production for 2021 Season(plan)	RPU Gezira/NRP/JICA	Gezira	55
	Sep	Rice Seed Production(plan)	RPU Gezira	Gezira	20

Source：Questionnaire to the RPU in 6 States supplemented by the interview

<Other Impacts at the time of Ex-post Evaluation>

No other positive and negative impacts, including impact on the natural environment have been observed. There have been no land acquisition and resettlement.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source

[5] Arab Organization for Agriculture Development

<table>
<tr>
<td>(Project Purpose) Human and organizational capacity of the Ministry of Agriculture and the organizations concerned is strengthened to materialize "The Executive Programme for the Agricultural Revival."</td>
<td>Indicator 1
60% of the staff members of the Federal Ministry of Agriculture, and core staff of State Ministries of Agriculture and other organizations concerned, involved in the Project Activities, demonstrate improvements in action planning, implementation, monitoring & evaluation relating to the "Executive Programme for the Agricultural Revival".</td>
<td>Status of the Achievement: achieved (partially continued)
(Project Completion)
Capacity building of staff members of FMoAF were carried out through individual training and practicing action plans. Around 350 staff in total participated in the training on Project Cycle Management (planning, implementation, monitoring and evaluation). Around 250 (71.4%) staff in total conducted action plans utilizing knowledge and skills learned at the training on Project Cycle Management. They practiced cycles of planning of action plans, its implementation, monitoring and evaluation.

(Ex-post evaluation)
The FMoANR has been continuing capacity building activities to certain extent, such as conducting skills and needs assessment, identifying mandates of each directorate, identifying training needs, transfer of technology and skills through trainings at Federal level. Also, NRP has been making efforts to secure the annual budget from the Federal Ministry of Finance and Economic Planning, and distribute to the target 6 States for the rice production activities. NRP has made monthly and annual follow-up and evaluation for all the 6 States to monitor the implementation. They also hold annual coordination meeting with the stakeholders to work together towards the rice development in Sudan.</td>
<td>JICA documents</td>
</tr>
<tr>
<td></td>
<td>Indicator 2: 80% of the staff of the Federal Ministry of Agriculture, and core staff of State Ministries of Agriculture and other organizations concerned, who received training, show improvement in the score of the self capacity evaluation.</td>
<td>Status of the achievement: achieved (partially continued)
(Project completion)
The latest capacity assessment (self-assessment) was conducted from January to February in 2013. All participants showed the improvement in the score. Especially, 5 groups among 9 groups marked more than 4.0 points (in average of 5 components). If the score is more than 4.0, it is considered that their capacity is at satisfactory level.

Self-evaluation on capacity improvement was carried out by the extension officers of the relevant 6 MoAs after the 2014 cropping season. The officers evaluated themselves on the 5 aspects (Ability of formulating action plan, ability of managing and working, ability of identifying and solving technical problem, ability of responding to emergencies in the field, and ability of monitoring and evaluating field activities) both in the first year and in 2014. All extension officers answered that they have improved their capacity in the course of participation in the project.

(Ex-post evaluation)
Although there is no data of the score of the self-capacity evaluation at the time of ex-post evaluation by the staff of the Federal Ministry of Agriculture, and core staff of State Ministries of Agriculture and other organizations concerned, who received trainings, the method of learning by doing for upland rice production in which the project introduced for the capacity development of farmers and extension officers, has been actively utilized by all 6 target State through the trainings and at the demonstration farms. Most of the trainings are organized and implemented by Rice Promotion Unit (RPU) in the State level (mainly by Gezira State) which indicate the increase of their capacity.</td>
<td>JICA documents</td>
</tr>
<tr>
<td>(Overall Goal) The quality of public services provided by the Ministry of Agriculture and the organizations concerned are improved through their capacity development.</td>
<td>Indicator 1: 50% of relevant agricultural parties (Production coop, Investors, Agricultural product vendors etc.) recognized increases in quality of the public agricultural services.

Note：Based on the suggestion by the project at the time of project completion, the following indicators were collected. “the bottom line of the concrete final indicator should be the degree of improvement of upland rice productivities and income of the concerned farmers</td>
<td>(Ex-post Evaluation) partially achieved
The services extended to the farmers were regular visits by the extension officers, trainings courses (see page 3), operation of Farmer’s Schools, and distributing rice cultivation handbook.

【Number of farmers, cultivated area and productivities for the rice production in the 6 target State for CS and Ordinary Rice 】

<Gezira>
<table>
<tr><th></th><th>2017</th><th>2018</th><th>2019</th><th>2020 (CS)*</th><th>2021 (CS)*</th></tr>
<tr><td>Number of farmers**</td><td>6</td><td>7</td><td>5</td><td>10 (6)</td><td>12 (8)</td></tr>
<tr><td>Harvested area (feddans)</td><td>16</td><td>28</td><td>18</td><td>13.25</td><td>16</td></tr>
<tr><td>Production (Kg)</td><td>5200</td><td>14209</td><td>0</td><td>6792</td><td>7759.5</td></tr>
<tr><td>Yield (t/feddan)</td><td>0.325</td><td>0.507</td><td>0</td><td>0.512</td><td>0.484</td></tr>
</table>
*(number of farmers conducting CS production.)
**Total aggregated number of farmers who experienced cultivation of rice is 35. (One</td>
<td>Questionnaire and interviews with NRP, Interviews with Gezira State Ministry, Questionnaires to RPU in 6 states, Information shared from the experts of the succeeding project.</td>
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	through the Project activities. The other important point is that "how many farmers had shown their interest in growing upland rice and how many of them are actually cultivating upland rice". Accordingly toward achieving these goals, it is important to improve productivity of upland rice and to expand its production.	farmer continued rice cultivation from 2017 to 2021, and one farmer continued from 2019 to 2020.)

<White Nile>

	2017	2018	2019	2020 (CS)*	2021 (CS)*
Number of farmers**	10	7	5	2 (2)	22 (8)
Harvested area (feddans)	40	28	7	0.5	4
Production (Kg)	15000	14000	700	469	90
Yield (t/feddan)	0.375	0.5	0.1	0.938	0.022

*(number of farmers conducting CS production.)

**Total aggregated number of farmers who experienced cultivation of rice is 46.

< Sennar >

	2017	2018	2019	2020 (CS)*	2021 (CS)*
Number of farmers	4	7	4	2 (2)	7 (7)
Harvested area (feddans)	13	22.5	10	0.5	4
Production (Kg)	4500	8100	7000	375	1407
Yield (t/feddan)	0.346	0.360	0.7	0.75	0.351

*(number of farmers conducting CS production.)

**Total aggregated number of farmers who experienced cultivation of rice is 24

< Gedaref >

	2017	2018	2019	2020 (CS)*	2021 (CS)*
Number of farmers	2	1	1	3 (2)	4 (4)
Harvested area (feddans)	6	5	4	5. 5	8
Production (Kg)	1875	450	1800	2318	5929
Yield (t/feddan)	0.312	0.09	0.45	0.421	0.741

*(number of farmers conducting CS production.)

**Total aggregated number of farmers who experienced cultivation of rice is 7. (One farmer continued rice cultivation from 2017 to 2021)

< Northern >

	2017	2018	2019	2020 (CS)*	2021 (CS)*
Number of farmers	1	0	0	2 (2)	5 (5)
Harvested area (feddans)	40	0	0	0.5	2
Production (Kg)	60000	0	0	46	682
Yield (t/feddan)	1.5	0	0	0.9	0.341

*(number of farmers conducting CS production.)

**Total aggregated number of farmers who experienced cultivation of rice is 8.

< River Nile >

	2017	2018	2019	2020 (CS)*	2021 (CS)*
Number of farmers	5	3	3	2 (2)	6 (6)
Harvested area (feddans)	45	5	7	0.5	2
Production (Kg)	8200	2500	3500	508	1801
Yield (t/feddan)	0.182	0.5	0.5	1	0.9

*(number of farmers conducting CS production.)

		Total aggregated number of farmers who experienced cultivation of rice is 19. The rice production data of FS and RS at ARC. FS*&RS | 2018 | 2019 | 2020 Production (Kg) | 24.51 | 65.76 | 817.4 *FS: Foundation Seeds **RS : Registered Seeds	

3 Efficiency

Both project cost and project period significantly exceeded the plan, as the ratio against the plan was 180% for the cost, 150% for the project period. This was due to the extension of the project period for 2 years (March 2014 to March 2016) which was suggested at the time of Terminal Evaluation conducted before the end of the original project period. The main reasons for the extension was to fulfil the two indicators on the Output 2, which are; 1) appropriate upland cultivation technology development 2) capacity development of extension officers in 5 participating States(except for Gezira). This extension was justifiable considering the fact that the target States were expanded from initial 2 States (Gezira and White Nile) to the 6 States since 2012 cultivation season, in response to the request made by then FeMoAI. The State Ministries of the additional 4 States only had 2 years of experience until the end of the original project period, this would have been inadequate time for achieving the Output 2.

The outputs were produced as planned, however, due to the significant increased cost and duration compared to the original plan, efficiency of the project is low.

4 Sustainability

<Policy Aspect>

There has been update of the national strategy to "National Rice Development Strategy for Sudan" (NRDS) (2020 – 2030) in collaboration with the Coalition for African Rice Development (CARD) and JICA. The CARD is the international initiative for expansion of the rice production for the countries in Sub-Saharan Africa which was launched at the Tokyo International Conference on Africa Development (TICAD IV) in May 2008. Sudan became its member country since 2018, and received consultation supports from CARD secretariat for the development of national policy to improve the rice sector in the country. The NRDS describes the overview of the rice sector and action plan for strengthening the sector. In developing the NRDS, the NRP, along with various stakeholders, held a workshop in 2019 to exchange ideas.

<Institutional/Organizational Aspect>

There have not been major changes for organizational structures both at Federal and State level. FMoANR and SMoPER have 109 staff members in total for the rice development sector. At the target 6 States, the RPU have continued its function to promote rice production in each state under the supervision of NRP. The numbers of the extension officers under the RPU have not been changed over the years, although one State experienced slight decrease of skilled extension staffs due to the low salaries against the country's rapid inflation. For the time-being, the effects of the decrease of the extension officers are not so apparent, but if the country's current economic situation continues, there will be more decrease of extension officers which will affect the quality of extension services. NRP has also continued encouraging the private sector and financing institutions to support and develop rice production in Sudan.

<Technical Aspect>

At the target State level, the extension officers have sustained and improved their knowledge by conducting and participating the in-country training. At Federal level, NRP organized and participated in-country trainings as well as international trainings through the on-going JICA technical cooperation project. The farmers also have participated in the above mentioned in-country trainings although the opportunity were limited. Rather, the farmers were individually given close technical follow-up by the extension officers during the cultivation season. However, since the rice cultivation in Sudan is still at its initial stage therefore further technical inputs are necessary.

<Financial Aspect>

NRP secured activity cost requested by the 6 target States Ministries. However, there have been some issues with the budget planning and allocation. The budget requested and approved by the Federal Ministry of Finance and Economic Planning(FMoFEP) did not always distributed to the NRP in full amount and in timely manner. Accordingly, the budget has sometimes not been allocated to the States at the time of cultivation season at the needed time.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational, technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose at the time of project completion, as the implementing agency were trained and practiced Project Cycle Management and the evaluation showed the improvement of their capacity. The Overall Goal has been partially achieved, as the yield and cultivated area have not shown significant increase. However, this is justifiable since the rice production is still at its initial stage and it is still under the seed multiplication stage. As for the efficiency, both the project cost and project period significantly exceeded the original plan. On the other hand, the scale of the activities were significantly expanded from the original plan. As for the sustainability, slight problems have been observed in terms of institutional, technical, and financial aspects. Reflecting these points to the rating criteria, the project is evaluated to be Unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

With regards to the capacity development of extension officers and farmers, more trainings are needed since the rice production is still new phase in Sudan. In order to realize the enhancement of training opportunity, the Sudanese counterparts are suggested to coordinate well from the time of the planning stage. This applies not only the activity planning but also the budget planning, which include clarifying the demarcation of the cost borne by the Federal (NRP) and the States, as well as close follow-up of the budget distribution within the government. In addition, NRP and State Ministries are highly recommended to keep advocating the rice sector and needed support to both internally and externally in order to secure the enable environment. This applies especially to the aspect of securing the budget and irrigation water which are the fundamental bases of the production activities.

Lessons Learned for JICA:

Country situation in Sudan has been unstable since the political turnover in 2019. There has been obstacles for the Japanese experts and Sudanese counterparts to proceed the on-going project. Access to all the 6 target States and the distant areas within the State has been one of the major challenges, due to the unstable security situation, transportation and fuel issue arising from limited financial resources as well as limited road access from the effect flood during the cultivation season. Rice production in Sudan is still at its early stage, so the allocation of the budget should be conducted more efficiently and effectively. Considering these points, it is recommended at the time of planning stage, to be more aware of the limited resources of the project and the overall capacities of government of Sudan(time, budget, human resources) and those resources to be allocated more efficiently by considering the personnel and financial situation of each state, the maturity of agricultural technology, and the condition of the land. Adoption of a strategy that selects a technically matured state as a model and expands its experiences to other states is one of the options. In addition to that, it is necessary to set suitable goals that could be addressed even in situations where unforeseen circumstances are likely to occur.

Harvesting Rice at Gezira State

Harvest and post-harvest training conducted in Gezira State

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Gabon Office: August 2022

Country Name	**The Project for Introduction of Clean Energy by Solar Electricity Generation System**
Gabonese Republic	

I. Project Outline

Background	Approximately 45% of electricity in Gabon was generated by hydropower; however, during the dry season when the water level dropped, there was a shortage of electricity, and diesel power generation was used to meet the increasing demand for electricity. Therefore, increasing energy self-sufficiency and diversifying energy sources without relying on fossil fuels had become an issue. Against that backdrop, support for the introduction of renewable energies, including photovoltaic power generation, was expected as a technology that can provide a stable electricity supply while reducing greenhouse gas emissions.					
Objectives of the Project	To increase power generation capacity, diversify power sources, and raise awareness of people of Gabon for utilization of renewable energy by procuring photovoltaic (PV) system and related equipment as well as providing technical assistance for capacity building of technical personnel, and thereby contributing to demonstration of Japan's initiatives for promoting collaborative efforts by both developed and developing countries against climate change.					
Contents of the Project	1. Project Site: Libreville (Ministry of Foreign Affairs, International Cooperation and French Speaking Countries; MFAIC and Omar Bongo University; UOB) 2. Japanese side (1) 130 kWp PV generation system (installed at UOB) and 70 kWp PV generation system (installed at MFAIC) (PV modules, Junction box, Power conditioner cubicle, Meteorological observation device, PV connection panel, Materials for wiring and earth, Electrical facility cubicle, Supporting structures for PV modules, Foundation of supporting structures for the PV system and electrical facility cubicle, Fences, gates, and grave surfacing, Cable connection for Electrical facility cubicle/interconnection point/display equipment) and Spare parts and tool kits for maintenances of equipment (2) 100 kWp battery control systems (2 sets) (installed at UOB) (The output was added by using the residual amount of the E/N limit amount) (3) Technical assistance (soft component): Training on basic knowledge, technical characteristics, preventive inspection, operation and maintenance including emergency response 3. Gabonese side: To secure the land, to clear and level the area for PV module installation, to install fence and gate to PV system installation space, and others					
Project Period	E/N Date	March 18, 2010	Completion Date (Plan)	February 2012	Completion Date	- Original component: June 7, 2013 (Completion of soft component) - Additional procurement: August 13, 2019 (Handover of the equipment)
	G/A Date	March 18, 2010				
Project Cost	E/N Grant Limit / G/A Grant Limit: : 670 million yen					Actual Grant Amount: 661 million yen
Executing Agency	Ministère de l'Energie et des Ressources Hydraulique (Ministry of Energy and Water Resources; MEWR), at the time of project completion					
Contracted Agencies	Main Contractor(s): Marubeni Corporation, NBK CORPORATION Main Consultant(s): NEWJEC Inc., Japan Techno Co., Ltd. Agent: Japan International Cooperation System					

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Gabon at the Time of Ex-Ante >

The project was consistent with the development policy of Gabon. The Government of Gabon announced a new environmental initiative, "Gabon Vert (Green Gabon)" in November 2009 where the protection of tropical rain forests and the use of renewable energy including solar energy were pronounced.

<Consistency with the Development Needs of Gabon at the Time of Ex-Ante >

The project was consistent with the development needs of Gabon for the renewable energy. Increasing energy self-sufficiency and diversifying energy sources without relying on fossil fuels was an issue at the time of ex-ante evaluation.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with the Japan's ODA policy to Gabon. At the time of ex-ante evaluation, the Government of Japan considered cooperation in the environmental field[1]. Also, the Government of Japan introduced a scheme of "Program Grant Aid for Environment and Climate Change" in 2008 aiming at support for developing countries to take adaptation and mitigation measures against the adverse effects of the climate change.

<Appropriateness of Project Design/Approach>

The project design lacked adequacy, and some background information is as follows:

1. This solar system development project, funded by a fiscal 2009 supplemental budget, had a provisioning condition for installing grid-connected solar equipment and no batteries. This implies that the system would not be expected to operate during a power outage.
2. The report from the cooperative preparatory study stated that there was a perception that the inability of the solar system to work during a

[1] Source: ODA country databook 2011

power outage could be problematic as power outages frequently happen in Gabon.

3. Under such conditions, the cooperative preparatory study proposed a design with a stand-alone operational function to realize a solar power system that would work during power outages. However, due to its low reliability as a power source, the function was not adopted.
4. When the team from the study shared with the MFAIC and the UOB the system's specification that would not work during power outages, their response was not favorable.

From these facts, it was highly challenging to include an appropriate power outage countermeasure function in the design. At the same time, it is also true that decision-makers were aware of the risk of problems that could adversely affect the project's progress if they proceeded with the project without the power outage countermeasure function.

In fact, in the middle of the project, the counterparts became aware of the problem of the specification of the solar system not working in the event of power failure. The project was put on hold for an extended period due to lengthy discussions, which was a significant factor in the extension of the project period.

<Evaluation Result>

In light of the above, the relevance of the project is fair.

2 Effectiveness/Impact

<Effectiveness>

The project partially achieved the objectives. The power is not currently generated from the PV system installed under the project.

As for the UOB site, the power from the PV system has not been available as the inverters cannot be activated due to the air conditioning system failure caused by the theft of the part of the system since 2020. In addition, the computer used for monitoring the daily production of the solar power has not been functioning properly due to technical problem since around the end of 2018. Hence, an engineer fails to measure the energy production and to find if the target is achieved or not. In order to cope with this situation, a possibility of the follow-up cooperation is under discussion between the Ministry of Energy, the JICA headquarters and the JICA Gabon office.

At the time of ex-post evaluation, no PV system is installed at MFAIC as it was displaced to UOB and a vocational training center called Centre des Métiers Jean Violas (CDM) which is run by the Electricity and Water Corporation of Gabon (Société d'Electricité et d'Eaux du Gabon: SEEG) in the end of November 2019. The decision to move the solar system was triggered by the complete renovation of MFAIC. Seventy PV panels and two inverters were moved to UOB, which are in use at the time of ex-post evaluation. The rest of the system from MFAIC was transferred to CDM, which has not been installed yet. The Ministry of Energy has been in charge of the installation at CDM, and the work has not been completed. JICA has been discussing a solution to this issue with the Ministry. Until the system was displaced in 2019, the system was utilized at MFAIC site and the target was deemed to be achieved since the amount of energy consumed from the SEEG network had decreased, according to a technician who was in charge of the site at MFAIC, However, he has not maintained the records of the power production data, and therefore, it cannot be justified.

As qualitative effects, it was expected that the capacity on Operation and Maintenance (O&M) has been enhanced as a result of implementation of a soft-component, and awareness on the use of renewal energy is raised. At UOB, one engineer is well trained and competent. However, he has been faced with difficulties such as financial and human resources support to ensure the entire maintenance of the system. As for the awareness raising, although there were no activities to increase public awareness on the PV system, the location of the project sites is highly visible enough to be recognized by the public people. As for the UOB site, people used to enquire about the project during construction period. After the end of the site construction, 3 students from the CDM campus (SEEG student campus), used to approach the engineer at UOB to collect information for their thesis. Another group of 8 students who were preparing their exams approached him (around 2016-2017) to have detailed information about the objectives and operating of the system.

<Impact>

Although it was expected that Japan's initiative for promoting measures climate change both by developed and developing countries is publicized, it was unable to confirm any cases such as the project being as a model case at symposiums and other occasions.

No past or current damage on the natural environment has been observed. However, as Gabon is not equipped to dispose of the batteries, the Ministry of Energy is afraid of the damages of the used batteries that could cause harmful impacts on the environment. At the time of the ex-post evaluation, a feasibility study is underway for constructing a waste disposal and collection center with battery disposal facilities with the support of the European Investment Bank. The construction is expected to be completed around 2024-2025.

No land acquisition and resettlement occurred under this project.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is low.

Quantitative Effects

	Baseline (2009) Baseline Year	Target (2015) 3 year after Completion	Actual (2014) 1 year after Completion	Actual (2015) 2 years after Completion	Actual (2016) 3 years after Completion	Actual (2020 or 2021) At the time of ex-post evaluation
Indicator 1: Power generation volume at transmission end (MWh/year)	0	250	n.a.	n.a.	n.a.	n.a.
(Breakdown)						
UOB	0	160	n.a.*1	n.a.	n.a.	n.a.
MFAIC	0	90	n.a.*2	n.a.	n.a.	0
Indicator 2: Estimated reduction of CO2 emission (ton/year)	0	129	n.a.	n.a.	n.a.	n.a.

*1 Power generation during the period from Jan 1 2013 to Sep 19 2013 was 65.9 MWh during the period from Jan 1 2013 to Sep 19 2013 from a piece of document stored in JICA Gabon office.

*2 Power generation during the period from Feb 1 2013 to Jan 31 2014 was 66.6 MWh from a piece of document stored in JICA Gabon office..
Source：Questionnaires and interviews with Ministry of Energy, UOB

3 Efficiency

Although the project cost was within the plan (the ratio against the plan: 99%), the project period significantly exceeded the plan (the ratio against the plan: 194%-original scope only). One of the most critical reasons was that Ministry of Energy and MFAIC had some serious complaints on a lack of power outage countermeasure function in the installed PV system. It took long time to discuss and settle this issue. In October 2015, an agreement was reached on an additional procurement to install power failure countermeasures equipment including storage batteries on solar power units at the Ministry of Foreign Affairs and the UOB, and the project was resumed. In this way, the project was at a standstill for a long period. Outputs were produced as planned.

Therefore, the efficiency of the project is fair.

4 Sustainability

< Institutional/Organizational Aspect>

At UOB, Equipment and Assets Department has been responsible for Operation and Maintenance. However, at the time-of ex-post evaluation, one engineer works voluntarily to ensure operation and maintenance of the system (No staff has been officially assigned). Also, not having an assistant is problematic for him as the site maintenance requires physical work such as replacement of broken modules. As for CDM, though the Department of Equipment will look after the operation and maintenance, the actual team has not yet been constituted.

<Technical Aspect>

The technical staff trained by the project has been continuously engaged in O&M of the PV system installed by the project at UOB. As for the system for upgrading skills, in case new engineers are assigned, they will receive training from the existing engineer or from the technicians of the Ministry of Energy.

<Financial Aspect>

Due to government budget restriction, the financial line could not be secured for the UOB. The engineer has faced a problem that he has had no financial budget to purchase the necessary equipment to clean and to maintain the sites. As for CDM, as the system has not been operational, there has been no budget allocated.

At the time of ex-post evaluation, JICA Gabon office has been looking for a possibility to conduct a follow-up cooperation, however, it could be difficult to realize without a guarantee of the budget by the Ministry of Energy on O&M after the project.

The problem is that there is no budget for security in the project site and no security guards assigned.

<Current Status of Operation and Maintenance>

Most of the equipment items had been functioning well. However, the air conditioning system in the control room has been broken because a part of the system was stolen during the lockdown associated with Covid-19 in 2020. As a result, the facility cannot activate the inverters, and is not able to produce the electricity from the solar power system. In addition, the software installed on the PC in the room has malfunctioned, making it impossible to check the amount of electricity produced. As for the PV modules, 525 out of 572 modules installed at UOB (including modules moved from the MFAIC) have been functioning.

Regarding the practice of inspection and maintenance at UOB, the engineer checks the conditions of storage batteries and the current flow every day. In the event of a power outage, the electricity stored in the batteries will be automatically provided to each building in the university. Currently, the facility does not have access to solar power generation, so it receives electricity from its power supplier to be held in storage batteries.

If overall photovoltaic system functions well, the engineer will verify and record the amount of electricity produced by the photovoltaic system in addition to the current routine work.

At UOB, the spare parts have been properly maintained and utilized, nevertheless, it is important to mention that an entire cargo container has been stolen just after the end of the project in 2018. It was placed on the side of the road in the university at the time of the theft because there was no space to put in the project site. Important tools which were inside this container have not been replaced since then. Though the PV system has not been installed at CDM, they have kept spare parts such as modules and inverters properly.

<Evaluation Result>

Major problems have been observed in terms of the institutional/organizational and financial aspects. Therefore, sustainability of the project effects is low.

5 Summary of the Evaluation

The project partially achieved the objectives. The power has not been generated from the PV systems installed under the project since 2020, and therefore, the project did not achieve the targets. The computer used for monitoring daily production has not been functioning properly, which is another reason why no data is obtained. PV modules at MFAIC have been relocated to UOB and CDM, but not installed. As for the efficiency, the project period significantly exceeded the plan. As for the sustainability, major problems have been observed in terms of the institutional/organizational, technical aspect and financial aspects.

Considering all of the above points, this project is evaluated to be unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- It is recommended that Ministry of Energy and UOB increase security to prevent theft in the project site as it has occurred two times in 2018 and 2020 and some of project property has been lost.
- It is suggested that Ministry of Energy and UOB repair the air conditioning units installed to the control room so that the photovoltaic system can operate properly.

Lessons Learned for JICA:

- Careful confirmation should be made during the project preparation phase that the project meets the counterpart's needs. In the case of this project, it was necessary to fully recognize the high importance of the outage countermeasure function for the counterparts.
- When the counterpart and the beneficiaries are from different entities, it would be recommended to clearly define the responsibilities after the project of each partner. In this case, it would have been preferable to define who will bear the costs of maintenance and repairs. Though the Ministry of Energy was the counterpart, the maintenance of the photovoltaic system is still the charge of a volunteer worker

of the University Omar Bongo, though the property belongs to the Ministry of Energy.

Bulletin board that displays the amount of electricity produced at UOB


Solar panels installed at UOB

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Rwanda Office: August 2022

Country Name	Project for Increasing Crop Production with Quality Extension Services in the Eastern Province
Republic of Rwanda	

I. Project Outline

Background	Rwanda had the highest population density of 380 persons/ km^2 in sub-Sahara Africa. Farmers in the country were engaged in small-scale farming with the average of 0.76ha farm per household (hereinafter called as FHH), and, in addition, 80% of farmlands were 5 to 55 degrees slanted, according to "Agricultural Sector Investment Plan 2009-2012." In the hilly area, low productivity and profitability were predominant because of limited irrigation water, dependency on rainfall, and ineffective farming systems. JICA implemented the "Study on Sustainable Rural and Agricultural Development in Bugesera District, Eastern Province in the Republic of Rwanda" (2006-2009), and based on the results a technical cooperation project was requested by the Government of Rwanda for promoting rice production particularly in low wetlands.		
Objectives of the Project	Through improved the farmers' organizations' techniques for rice cultivation, horticulture cultivation and management and quality services of agricultural extension, the project aims at increasing the production of the rice production cooperatives and benefits of the horticultural crop production cooperatives in the target sites, thereby contributing to the increase in the rice production and horticulture benefits in Bugesera District and Ngoma District of the Eastern Province.		
	1. Overall Goal: 1) Rice production is increased in Bugesera District and Ngoma District of the Eastern Province. 2) Benefit of horticultural crop production cooperative is increased in Bugesera District and Ngoma District of the Eastern Province. 2. Project Purpose: Targeted rice production cooperatives increase production and horticultural crop production cooperatives increase benefits with quality extension services.		
Activities of the project	1. Project site: Bugesera District and Ngoma District of the Eastern Province. 2. Main activities: i) Training of cooperative members, RAB and NAEB staff and district agronomists on rice cultivation, ii) Post-harvest and horticulture techniques through Farmer Field School and seminars, iii) Development of the technology package for extension, study tours among cooperatives, iv) Training of district/sector officers and NAEB staff as trainers, v) training of cooperative members on organizational strengthening and gender mainstreaming, and so on. 3. Inputs (to carry out above activities) Japanese Side 1) Experts from Japan: 10 persons 2) Training in Japan: 3 persons 3) Training in the third country: 4 persons (Kenya) 4) Equipment: PCs, printers, motorbikes, etc. 5) Local cost: training expenses. Rwandan Side 1) Staff allocated: 24 persons 2) Land and facilities: Office space, land for dry-yards and storehouses. 3) Local cost: Transportation and per diem for training for staff at regional offices.		
Project Period	(ex-ante) October 2010 to September 2013 (actual) November 2010 to October 2013	Project Cost	(ex-ante) 459 million yen, (actual) 544 million yen
Implementing Agency	Ministry Agriculture and Animal Resources (MINAGRI), Rwanda Agriculture Board (RAB), National Agricultural Export Development Board (NAEB)		
Cooperation Agency in Japan	Sanyu Consultants Inc., Nippon Koei Co., Ltd.		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Rwanda at the time of Ex-ante Evaluation>

The "Economic Development and Poverty Reduction Strategy (EDPRS)" (2008-2012) as well as the "Strategic Plan for the Transformation of Agriculture in Rwanda-Phase II (PSTA II)" (2009-2012) were formulated, both of which emphasized the importance of intensification of sustainable production systems, technical and organizational capacity building of farmers, promotion of commodity chains and agribusiness, and strengthening the institutional framework of the sector and at the central and local level. Thus, the project was consistent with the development policy of Rwanda at the time of ex-ante evaluation.

<Consistency with the Development Needs of Rwanda at the time of Ex-ante Evaluation>

In Rwanda, most farmers in the country were engaged in small-scale farming, and low productivity and profitability were predominant in the hilly area. Although the smallholders had had experiences in cultivation of rice and horticulture crops, they needed more opportunities to learn improved cultivation techniques. Thus, the project was consistent with the development needs of Rwanda at the time of ex-ante evaluation.

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

The policy consultation meeting was held every year from 2004, in which priority areas were decided[1]. At the time of ex-ante evaluation, one of the priority areas was regional development which included promotion of agriculture and rural development. Thus, the project was consistent with Japan's ODA policy at the time of ex-ante evaluation.

<Appropriateness of the project design/approach>

[1] Ministry of Foreign Affairs, "ODA Databook" (2011).

In the project, almost all of the target rice production cooperatives increased their yields during the project period, but all of the surveyed cooperatives have decreased their yields since the project completion. This is because the diffused techniques did not take root in the cooperatives due to the change of the members and the turnover of the agronomists-in-charge. In addition, the project effects have not been diffused, largely due to the reduction of the government subsidy. Even the national average productivity of paddy rice (ton/ha) has significantly dropped by nearly 50% since 2014 (FAOSTAT). The personnel retention could not be controlled much by the project, and the reduction of the subsidy could not be foreseen at the planning stage. As the extension package has been taken over by the succeeding project, it could be considered that the project approach itself was not a problem.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. As the target rice production cooperatives in the Districts of Bugesera and Ngoma improved their techniques for production and organizational management, most of them increased the rice yields (Indicators 1 and 2). Also, the target core horticulture crop production cooperatives increased their benefits (Indicator 3).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have partially continued at the time of ex-ante evaluation. In Bugesera District, data were available from four of the nine target rice production cooperatives. Data were not available from the rest five cooperatives, because of various reasons such as missing data and personnel change. All of the four cooperatives decreased the same production amount since the project completion but maintained a certain level of the production at the time of project completion since 2017 (Indicator 1). In both core and satellite cooperatives, there have been changes in the members and turnover of the agronomists trained by the project. The decrease in rice production was according to the cooperative members, less members have applied techniques acquired from the project, according to the interviewed cooperatives. As well, in Ngoma District, data were available from five of the eight target rice production cooperatives. Data were not available from the rest three cooperatives, because of personnel change. The surveyed five cooperatives have decreased the production amount since the time of project completion (Indicator 2). Some cooperatives have merged with other rice farmers' associations to become new cooperatives and changed their management, which has negatively affected the rice production. Regarding the horticulture crop production, no data were available because of the difficulty of obtaining their contact details (Indicator 3).

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The achievement of the Overall Goal could not be verified, because the baseline data could not be confirmed. On the other hand, rice production has decreased in both Bugesera District and Ngoma District since 2017 (Indicator 1). According to the RAB), during the project period there were many projects of the government and donors such as the World Bank and the International Fund for Agricultural Development to provide intensive support and inputs in the rice sector. However, such projects have ended one by one, and some of the rice cooperatives have not been able to sustain their production as much as they used to. Moreover, there has been an input subsidy program, called the "Crop Intensification Program" (CIP), which started in 2007 for purchasing quality seeds and fertilizers for priority crops including rice. CIP set the subsidy rate of 75% during the project period, but since the exit of subsidy started to be operationalized in 2013, the rate has decreased to 25%. This has discouraged farmers to use good quality seeds. In fact, the productivity (ton/ha) of the national average in Rwanda peaked in 2013 and has decreased since 2014 (FAOSTAT), probably due to the sharp decrease in the subsidy rate of the input subsidy program. In addition, the research & development system in rice has been significantly weakened due to the major restructuring at MINAGRI and RAB since 2011. Regarding the horticulture crop production, no data were available because the profit of horticulture crops are not among the indicators under Seasonal Agriculture Survey of NISR (National Institute of Statistics Rwanda) as well as weaker record keeping capacity of horticulture cooperatives than rice cooperatives (Indicator 2). As the extension services of the central and district governments have been limited, and government agronomists are not specialized in rice but many other crops such as horticultural crops, most cooperatives have hired agronomists on their own. Thus, it could be presumed that the project experience in the target cooperatives has not been diffused much to other cooperatives in both districts. After the establishment of RAB in 2010 through integrating Rwanda Agriculture Development Authority (RADA), Rwanda Animal Resources Development Authority (RARDA) and Rwanda Agriculture Research Institute (ISAR), extension became a part of the RAB's mandate. In reality, according to RAB, each program allocates more budget to "research" rather than "extension".

<Other Impacts at the time of Ex-post Evaluation>

Several positive impacts have been confirmed. First, there has been an impact related to gender. Gender promotion was one of the subjects of the training in the project, where women and men were trained to work as business collaborates instead of looking at one as labor, especially women. As a good result in the most of cooperatives, women have been among decision makers and some have been elected as the executive committee member of the cooperative which is backed by government regulation. Secondly, the project experience has been diffused to other provinces through the successor project, "Smallholder Market Oriented Agriculture Project (SMAP)" (2014-2019). In SMAP, two districts of each of all provinces were targeted, and at the end of project RAB expressed the initiative to extend the project experience nationwide. However, due to the COVID-19 pandemic, the initiative has been slowing down.

No activities causing any negative environmental impact has been implemented in the project.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Targeted rice production cooperatives increase production and horticultural crop production	1. More than 50% of targeted rice production cooperatives increase their yields by 10% in Bugesera District.	Status of achievement: Achieved (Partially continued). (Project Completion) • Eight out of the nine target rice production cooperatives (88.9%) increased their yields by 10-146% in 2013 (season A) from 2010 in Bugesera District.	Project Completion Report.

<table>
<tr><td>cooperatives increase benefits with quality extension services.</td><td></td><td>(Ex-post Evaluation)
• Two of the five target rice production cooperatives from which data were available have sustained mostly the same production amount since the project completion in 2013 in Bugesera District.
Table: Rice production (t/ha, Season A)<table><tr><td></td><td>2010 Baseline</td><td>2013 Project Completion</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>Corinyaburiba</td><td>7.0</td><td>7.7</td><td>6.2</td><td>6.6</td><td>5.9</td><td>6.5</td></tr><tr><td>Jyambere Nyarugenge</td><td>2.6</td><td>6.4</td><td>5.0</td><td>6.0</td><td>6.4</td><td>5.1</td></tr><tr><td>Twizamure</td><td>4.0</td><td>5.9</td><td>4.2</td><td>5.4</td><td>5.2</td><td>3.6</td></tr><tr><td>Corivarwi</td><td>6.5</td><td>7.8</td><td>4.8</td><td>6.2</td><td>5.5</td><td>4.4</td></tr></table>Note: Corinyaburiba and Jyambere Nyarugenge were core cooperatives, and others were satellite cooperatives.</td><td>Target cooperatives.</td></tr>
<tr><td></td><td>2. More than 50% of targeted rice production cooperatives increase their yields by 15% in Ngoma District.</td><td><u>Status of achievement: Achieved (Not continued).</u>
(Project Completion)
• Seven of the target eight rice production cooperatives (89.5%) increased their yields by 22-98% in 2013 (season A) from 2010 in Ngoma District.
(Ex-post Evaluation)
• In all of the five target rice production cooperatives from which data were available, the rice production amount has significantly decreased compared to that in the year of project completion in 2013 in Ngoma District.
Table: Rice production (t/ha, Season A)<table><tr><td></td><td>2010 Baseline</td><td>2013 Project Completion</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>COPERIG</td><td>4.0</td><td>7.9</td><td>4.6</td><td>6.8</td><td>5.1</td><td>4.1</td></tr><tr><td>COCURIGI</td><td>4.5</td><td>8.3</td><td>3.6</td><td>3.9</td><td>3.6</td><td>3.2</td></tr><tr><td>COPRIMWA</td><td>4.0</td><td>6.6</td><td>4.9</td><td>4.0</td><td>4.0</td><td>3.1</td></tr><tr><td>COCURIRE</td><td>4.0</td><td>7.1</td><td>4.6</td><td>5.3</td><td>5.8</td><td>4.3</td></tr><tr><td>COPAMUNYA</td><td>6.0</td><td>6.1</td><td>NA</td><td>NA</td><td>4.1</td><td>3.1</td></tr></table>Note: COPERIG was the core cooperative, and others were satellite cooperatives. The data of 2017 was the production in the Season B.</td><td>Project Completion Report.

Target cooperatives.</td></tr>
<tr><td></td><td>3. More than 2/3 of targeted core horticulture crop production cooperatives increase their benefit by 15%.</td><td><u>Status of achievement: Achieved (Not verifiable).</u>
(Project Completion)
• All (100%) of the targeted core horticulture crop production cooperatives increased their benefit by 38-4,951%[2].
(Ex-post Evaluation)
• No data was available.</td><td>Project Completion Report.

NA.</td></tr>
<tr><td>(Overall goal)
1) Rice production is increased in Bugesera District and Ngoma District of the Eastern Province.
2) Benefit of horticultural crop production cooperative is increased in Bugesera District and Ngoma District of the Eastern Province.</td><td>1. Rice: Production in Bugesera District and Ngoma District is increased by 15%.</td><td><u>Status of achievement: Not verifiable.</u>
(Ex-post Evaluation)
• The baseline data could not be confirmed in both Bugesera District and Ngoma District. The data after 2017 were available. Rice production has decreased since 2017 in both districts.
Table: Rice production (t/ha, Season A/B)<table><tr><td>District</td><td>2010 (Reference)</td><td>2013 Project Completion (Reference)</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr><tr><td>Bugesera</td><td>5.2/6.2</td><td>6.8/NA</td><td>NA/4.3</td><td>3.4/2.6</td><td>3.1/4.6</td><td>3.1/1.2</td></tr><tr><td>Ngoma</td><td>4.7/4.7</td><td>7.0/NA</td><td>2.6/4.3</td><td>3.7/2.8</td><td>4.1/4.8</td><td>3.6/4.2</td></tr></table>Note: The reference data of 2010 and 2013 were estimated based on the achievement of the target cooperatives. From 2017 to 2020, the district-level data were available from the Seasonal Agricultural Survey (SAS)/NISR.</td><td>Project Completion Report, SAS/NISR.</td></tr>
<tr><td></td><td>2. Horticultural crops: Benefit of more than 2/3 of target cooperatives in Bugesera District and Ngoma District is increased by more than 30%.</td><td><u>Status of achievement: Not verifiable.</u>
(Ex-post Evaluation)
• No data was available.</td><td>NA.</td></tr>
</table>

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 119%). Outputs were produced as planned. Therefore, the project efficiency is fair.

[2] Some cooperatives had an extremely high increasing rates because they had a negative baseline or extremely low baseline benefit.

4 Sustainability

<Policy Aspect>

Rice and horticulture have been promoted through PSTA IV (2018-2024), which has been the main planning document under the agriculture sector of Rwanda. Specifically, the rice sector has its own strategic plan called "National Rice Development Strategy 2 (NRDS2)" (2020-2030) promoted under the initiative of "Coalition for Africa Rice Development (CARD)." For rice sector, there used to be a zonal system whereby farmers can sell their paddy only within the same zone. However, this rule was removed two years ago, and farmers are able to sell their produce to any other zones. This new policy will encourage market-oriented approach of rice farmers.

<Institutional/Organizational Aspect>

Although the organization structure of MINAGRI, RAB and NAEB has changed more than twice since the time of project completion, the package developed by the project has been taken over by the successor project, SMAP. It has been promoted through SMAP by RAB with the new name, MAEP (Market-Oriented Extension Package). According to RAB, it has sustained a sufficient number of staff to promote MAEP. On the other hand, District Officers have not been much involved in diffusion of MAEP due to large responsibilities they have to perform. Training of farmer promoters were continued in SMAP, and since then RAB provides training to farmer promoters every year, focusing on one crop or topic per year. Farmer Field Schools have been continued in the Eastern Province by farmer promoters under Twigire Muhinzi extension system. Although it is not easy to conduct some activities promoted during the project such as matching meetings and study tours due to insufficient budget, it became easier for districts to promote market-oriented agriculture, by providing marketing training and market linkages to the processing factories, hotels and schools.

<Technical Aspect>

RAB answered that its staff have sustained necessary skills and knowledge to promote the package. The staff trained by the project worked for SMAP and also other government projects and also contributed to the formulation of NRDS2.

<Financial Aspect>

Financial data could not be available at the ex-post evaluation survey. According to RAB, for promotion of the package budgets have been allocated to extension services and funds have been earmarked to the districts. Nevertheless, in reality, each program under RAB tends to allocate larger part of its budget to "research" activities rather than "extension", according to RAB.

<Evaluation Result>

In the light above, there have been issues in the institutional/organizational and financial aspects. Therefore, the sustainability of the effects is fair.

5 Summary of the Evaluation

The Project Purpose was achieved. Specifically, rice and horticulture production increased in target cooperatives. However, since the time of project completion, the same level of rice production has not been sustained in the target cooperatives. At the district level, rice production has not increased as expected. The data of horticulture production were not confirmed. Regarding sustainability, there has been a shortage of District Officers to support cooperatives. As for efficiency, the project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- RAB and Districts should strengthen the capacity of cooperatives (particularly, horticulture cooperatives) in good data collection and management based on which it should promote evidence-based strategic planning and support.
- As this evaluation found strong impact of subsidy program such as CIP on the productivity, RAB and Districts should promote sustainable supply chain of quality seeds, not limiting their support to technical training.

Lessons Learned for JICA:

- The continuation of the project effects and the achievement level of the Overall Goal could not be confirmed in the ex-post evaluation, due to the lack of data from the target cooperatives. The project should include a component of capacity building on data collection at cooperative or farmer levels, in order to enable proper monitoring and evaluation after the project completion. Also, it is necessary to make sure that the implementing agency to collect and manage the data from cooperatives or farmers.

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Democratic Republic of the Congo Office: November, 2022

Country Name	**[Phase 1] Support to Human Resource Development in health sector of Democratic Republic of the Congo (Projet d'Appui au développement des ressources humaines pour la santé: PADRHS) [Phase 2] Support to Human Resource Development in health sector of Democratic Republic of the Congo Phase 2 (PADRHS Phase 2)**
Democratic Republic of the Congo	

I. Project Outline

Background	Since its independence in 1960, the Democratic Republic of the Congo (DRC) experienced domestic and international conflicts and many people lived under the poverty line. While the health indicators had slightly improved since the 1990s, the Millennium Development Goals (MDGs) had not been achieved. The maternal mortality ratio was 550 deaths per 100,000 live births (2007) and the under-5 mortality rate was 168 deaths per 1,000 live births (2011), while the MDG targeted 332 and 60, respectively. The human resources in the health sector did not meet the international standards in quantity and quality. The number of nurses was only 0.82 per 1,000 populations, while the WHO standard was 2.3. Problems of human resources including misallocation of staff were hindering access to health services. DRC's Poverty Reduction and Growth Strategy Paper (PRGSP) 2000-2009 aimed to improve the access to basic social services, and health sector was one of the priorities. To achieve the goal, the Ministry of Health (Ministère de la Santé Publique: **MSP**) formulated the Strategy for Strengthening Health System (Stratégie de Renforcement du Système de la Santé: SRSS). Human resource development was one of the pillars to improve primary health care. In 2010, the National Health Development Plan (Plan National de Développement Sanitaire: PNDS) 2011-2015 was formulated as an action plan of PRGSP. PNDS urged to develop the National Plan of Human Resource Development in the Health Sector (Plan National de Développement des Ressources Humaines de la Santé: **PNDRHS**). JICA project PADRHS Phase 1 enhanced capacity in human resource management at the central level of MSP and supported the formulation and implementation of PNDRHS. PADRHS Phase 2 followed to enhance capacity at provincial level with the three selected Provincial Health Divisions (Division Provincial de la Santé: **DPS**) and to support formulation and implementation of the Provincial Plan of Human Resource Development in the Health Sector (Plan Provincial de Développement des Ressources Humaines de la Santé: **PPDRHS**), as well as to further strengthen the capacity at the central level.
Objectives of the Project	[Phase 1] The project aims to enhance the capacity of Human Resource Directorate (Direction des Ressources Humaines: **DRH**) of MSP through the strengthening of institutional capacity of DRH, formulation of PNDRHS 2011-2015 and related legal and normative documents as well as the development of information management tools for human resources for health (Ressources Humaines de la Santé: **RHS**), thereby contributing to the implementation of PNDRHS. [Phase 2] The project aims to enhance the bases necessary for the efficient and sustainable development and implementation of PNDRHS at the central and provincial levels through the formulation of the new version of PNDRHS (2016-) and related legal and normative documents as well as the formulation of PPDRHS, thereby contributing to the promotion of basic training, retention, career management and continuing training of RHS in an appropriate manner and based on the needs of target provinces, and to the dissemination of the project outcomes to other provinces. [Phase 1] 1. Overall Goal: The National Plan of Human Resource Development in the Health Sector (PNDRHS) is implemented. 2. Project Purpose: The capacities of the Human Resource Directorate (DRH) to implement the PNDRHS are enhanced. [Phase 2] 1. Overall Goal: Basic training, retention, career management and continuing training of human resources for health (RHS) are promoted in an appropriate manner and based on the needs of target provinces, and they are disseminated to other provinces. 2. Project Purpose: The bases necessary for the elaboration of the National Plan of Human Resource Development in the Health Sector (PNDRHS) and its effective and sustainable implementation are strengthened at the central departments and at the level of the target provinces.
Activities of the Project	1. Project site: [Phase 1] MSP headquarters. [Phase 2] MSP headquarters and DPS in the target provinces (Bas-Congo, Kasaï-Occidental and Katanga until 2015. Kongo Central, Kasaï Central and Haut Katanga since 2016 after the reform of administrative divisions) 2. Main activities: [Phase 1] 1) To train staff to strengthen institutional capacity of DRH. 2) To formulate PNDRHS. 3) To develop legal documents related to PNDRHS. 4) To define data to be collected and launch a system to update the data. [Phase 2]

	1) To formulate the new version of PNDRHS (2016-). 2) To establish training standards of RHS. 3) To develop legal and normative documents related to RHS. 4) To support DPS in formulation and implementation of PPDRHS. 3. Inputs (to carry out above activities) Japanese Side [Phase 1] * As of November 2013 1) Experts: 8 persons 2) Trainees received: 16 persons 3) Training in the third country: 9 persons in total (Senegal) 4) Equipment: Computers for RHS data management and equipment for RHS training, etc. 5) Operation cost [Phase 2] * As of March 2018 1) Experts: 6 persons 2) Trainees received: 28 persons 3) Training in the third country: 15 persons (Canada, Senegal, Côte d'Ivoire) 4) Equipment: Computers for RHS data management, etc. 5) Operation cost DRC Side [Phase 1] 1) Staff allocated: 14 persons 2) Project office and utilities 3) Operation cost [Phase 2] 1) Staff allocated: 29 persons 2) Project office and utilities 3) Operation cost		
Project Period	[Phase 1] (ex-ante) November 2010-October 2013 (actual) November 2010-November 2013 [Phase 2] (ex-ante) January 2014-December 2017 (actual) January 2014-March 2018	Project Cost	[Phase 1] (ex-ante) 385 million yen (actual) 287 million yen [Phase 2] (ex-ante) 455 million yen (actual) 543 million yen
Implementing Agency	Ministère de la Santé Publique (**MSP**) (Ministry of Health) Division Provincial de la Santé (**DPS**) (Provincial Health Divisions) of the target provinces		
Cooperation Agency in Japan	National Center for Global Health and Medicine (NCGM)		

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Phase 1 and Phase 2 were evaluated as a package. Regarding effectiveness and impact, achievement of the indicators of Phase 1 and 2 were examined separately and the evaluation results were compiled to cover both phases.
- As the products of Phase 1 covered the period until 2015 (PNDRHS 2011-2015), achievement of its Overall Goal was examined based on the situation of 2015 (target year). Continuation of project effects of Phase 1 was examined as a part of Overall Goal.
- To measure sustainability of the projects Phase 1 and Phase 2, questions were prepared based on the situation of Phase 2 at its completion. Some products of Phase 1 were outdated, and there was a reform of administrative divisions during Phase 2.
- Information at the time of ex-post evaluation was available basically only from Kongo Central. It was difficult to collect information remotely from the focal points of other two provinces, who were often unavailable online or did not send the requested documents. It was not only because of instable human resources as mentioned in the section of Sustainability, but also due to the impact of COVID-19. Moreover, at the time of the ex-post evaluation, Kongo Central was the only province which had already evaluated its second cycle of PPDRHS and documented it.

1 Relevance

<Consistency with the Development Policy of the Democratic Republic of the Congo (DRC) at the Time of Ex-Ante Evaluation >

[Phase 1] This project was consistent with DRC's Poverty Reduction and Growth Strategy Paper (PRGSP) 2000-2009 in which health sector was one of the priorities, with the Strategy for Strengthening Health System (SRSS) in which human resource development was one of the pillars, and with the National Health Development Plan (PNDS) 2011-2015 which urged to develop PNDRHS.

[Phase 2] This project was consistent with DRC's PRGSP II (2011-2015), SRSS (2011-2015), and PNDS (2011-2015).

<Consistency with the Development Needs of DRC at the Time of Ex-Ante Evaluation >

[Phase 1] This project was consistent with the needs for human resource development in health as mentioned in "Background" above.

[Phase 2] Phase 1 supported capacity development in human resource management at the national level. Capacity development at the provincial level and strengthening of coordination between national and provincial levels were expected to follow.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

[Phase 1] Improvement of access to social services was one of the priority areas of Japan's development assistance to DRC and health was one of the target sectors along with water supply and community development.[1]

[Phase 2] Improvement of access to social services was one of the priority areas of Japan's development assistance to DRC and health was one of the target sectors. Capacity development of human resources for health and rehabilitation of health infrastructure were priorities.[2]

<Appropriateness of project design/approach>

The choice of Kongo Central as one of the target provinces was right as its proximity to the central level made support and monitor the

[1] ODA country data collection (2010)

[2] ODA country data collection (2013)

development of RHS easy.
Budget for RHS development activities, normally planned by the Project implementation counterparts, is not clearly secured in the national budget at/by the higher level. And this is a serious problem in financial aspects of sustainability, while it is not derived from project design or approach. No particular problem was observed in project design or approach.
<Evaluation Result>
In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>
[Phase 1] The Project Purpose, "The capacities of the Human Resource Directorate (DRH) to implement PNDRHS are enhanced" was achieved. 25 out of 26 DPS submitted operational action plans (Plan d'Action Opérationnel: PAO) in 2013, which were annual activity plans including RHS indicators (Indicator 1). DRH developed its PAO including four sub-plans of PNDRHS (carrier management, basic education, continuing education and retention) which was considered as the national annual RHS development plan (Indicator 2).
[Phase 2] The Project Purpose, "The bases necessary for the elaboration of PNDRHS and its effective and sustainable implementation are strengthened at the central departments and at the level of the target provinces" was achieved as two indicators out of four were achieved and the other two were partially achieved. Stakeholder meetings were held more than four times a year between 2014 and 2017 (Indicator 1), and the legal and normative documents developed at the national level (carrier management regulations, continuing training regulations, and standards of training of birth attendants) were utilized in the target provinces (Indicator 3). The annual RHS directories at the national level were developed about once every two years since 2013 (Indicator 2), which was less than the target (annually), but they have been updated regularly at realistic interval. RHS thematic group meetings at the level of target provinces were held but less than four times every year (Indicator 4).
<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>
[Phase 1] The project effects partially continued till the time of ex-post evaluation. PNDRHS has been developed and implemented (Indicator 2), and PPDRHS have been developed and implemented by more than six DPS (Indicator 1) while information of implementation status was available only from Kongo Central. (Please refer to the achievement status of Overall Goal Indicators of Phase 1 below.)
[Phase 2] Overall,the project effects continued till the time of ex-post evaluation. Stakeholder meetings were held more than four times a year since 2018; annual RHS directories were published about once every two years since the project completion; legal and normative documents have been utilized at the provincial level while the utilization of the standard of training of birth attendants was not clear; and RHS thematic group meetings have been held but less than four times a year.
<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation> Information of budget and activities were available only from Kongo Central.
[Phase 1] The Overall Goal, "PNDRHS is implemented" was partially achieved. In Kongo Central, 14 out of 26 activities planned under its PPDRHS 2014-2016 were either achieved or partially achieved. For PPDRHS 2017-2020, 17 out of 32 planned activities were carried out. Information of other provinces were not available (Indicator 1. No target value). At the national level, 27 out of 41 activities in PNDRHS 2011-2015 were either achieved or partially achieved. PNDRHS 2016-2020 was re-programmed to PNDRHS 2019-2022 with three programs and being implemented (Indicator 2).
[Phase 2] The Overall Goal, "Basic training, retention, career management and continuing training of human resources for health (RHS) are promoted in an appropriate manner and based on the needs of target provinces, and they are disseminated to other provinces" was partially achieved. More than six provinces developed PPDRHS since the project completion (Indicator 1). The annual planned budget for the implementation of PPDRHS of Kongo Central increased by 140% between the first and second cycle of PPDRHS, while financial information of other target provinces was not available (Indicator 2).
<Other Impacts at the Time of Ex-Post Evaluation>
No negative impacts have been observed.
The implementing agencies pointed out positive impacts as follows:
- Promoting midwives and nurses training programs contribute to positive impacts to gender as more than the half of students are female.
- Collaboration between structures in charge of RHS was enhanced with clear working guidelines.
- DRH staff took initiative to intervene without JICA in some provinces which were supported by other development partners, bringing the technical tools developed with JICA and their own tools, as they are now more self-driven and confident.
- More development partners became interested in RHS development.

<Evaluation Result>
Therefore, the combined effectiveness/impact of the projects Phase 1 and 2 is high.
【Phase 1】

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) The capacities of the Human Resource Directorate (DRH) to implement PNDRHS are enhanced.	Indicator 1 By 2013, more than half of the provincial offices submit annual activity plans including basic data such as numbers of new graduates, new recruitment, people to retire, etc.	Status of the Achievement (Status of the Continuation): Achieved (partially continued) (Project Completion) 25 out of 26 DPS submitted Operational action plans (Plan d'Action Opérationnel: PAO) including indicators about RHS according to the provincial health development plans in 2013. They were considered as provincial annual RHS development plans. (Ex-post evaluation) There have been three cycles of PPDRHS since Phase 1. The three target provinces of Phase 1 developed PPDRHS (Kongo Central 2014-2016, Haut Katanga 2015-2017, Kasai Central 2014-2016), Six provinces developed	source : Terminal evaluation report, Project completion report, information from MSP

		PPDRHS 2017 or 2018-2020 (Kongo Central, Haut Katanga, Kasai Central, Lualaba, Kasai Oriental, Sud Ubangi). Four provinces developed PPDRHS covering 2021 and onward (typically up to 2025) (Lualaba, Kasai Oriental, Tshopo, Sankuru) and eight provinces are developing PPDRHS 2021-2025. (See Overall Goal Indicator 1 (Phase 1) and Overall Goal Indicator 1 (Phase 2) below.)	
	Indicator 2 By 2013, the national annual RHS development plan is formulated.	Status of the Achievement (Status of the Continuation): Achieved (continued) (Project Completion) DRH developed its PAO including four sub-plans of PNDRHS (carrier management, basic education, continuing education and retention). It was considered as the national annual RHS development plan. (Ex-post evaluation) PNDRHS 2011-2015 and 2016-2020 (reprogramed to 2019-2022) as national annual RHS development plans were formulated. (See Overall Goal Indicator 2 below.)	source：Terminal evaluation report, Project completion report, information from MSP
(Overall Goal) PNDRHS is implemented.	Indicator 1 The number of activities carried out according to the provincial annual plan for the implementation of PNDRHS (including the 4 sub-plans) * There is no target value of this indicator.	(Ex-Post Evaluation) Partially achieved For PPDRHS 2014-2016 of Kongo Central, 14 out of 26 activities planned were either achieved or partially achieved. For PPDRHS 2017-2020 of Kongo Central, 17 out of 32 planned activities were carried out. The evaluation report of Kongo Central PPDRHS 2017-2020 stated that “By evaluating the degree of achievement of the interventions compared to the results, the effectiveness of the plan is average.” The unavailability of a secure funding is the basis for the non-performance of certain activities. Information of other provinces were not available. Note: implementation of PNDRHS by provinces is equal to implementation of PPDRHS. PPDRHS includes annual implementation plan.	source：Terminal evaluation report, Project completion report, information from Kongo Central
	Indicator 2 The number of activities carried out according to the national annual plan for the implementation of PNDRHS * There is no target value of this indicator.	(Ex-Post Evaluation) Partially Achieved 27 out of 41 actions in PNDRHS 2011-2015 were either achieved or partially achieved. The unavailability of a secure funding was the main reason for the non-performance of certain activities. PNDRHS 2016-2020 was re-programmed to PNDRHS 2019-2022 under a national recommendation. It has three programs (staff availability and retention, basic training, and staff training) being implemented. Note: PNDRHS includes annual implementation plan.	source：Terminal evaluation report, Project completion report, information from MSP

【Phase 2】

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) PNDRHS and its effective and sustainable implementation are strengthened at the central departments and at the level of the target provinces.	Indicator 1 Stakeholder meetings are held four times a year to coordinate RHS management by taking advantage of the operation of the National Observatory for Human Resources in Health (ONRHS) and the RHS commission.	Status of the Achievement (Status of the Continuation): Achieved (Continued) (Project Completion) National RHS technical committee meetings: 12 times (2014: 3; 2015: 2; 2016: 4; 2017: 3) ONRHS meetings: 6 times (2014: 2; 2015: 1; 2016:1; 2017: 2) (Ex-post evaluation) National RHS technical committee (CRHS) meetings held: 2018: 2; 2019: 10; 2020: 5; 2021: 5. Meetings of Technical and Financial Partners (TFPs) specially involved in RHS Development: 2018: 6, 2019: 9, 2020: 3, 2021: 4 Outbreak of the Covid-19 from March 2020 affected the number of meetings.	source：Terminal evaluation report, Project completion report, information from MSP
	Indicator 2 The annual directories of RHS at the national level are developed once a year	Status of the Achievement (Status of the Continuation): Partially achieved (Continued) (Project Completion) 2013: Annual directory 2013 was published. 2014: Not published because the country profile was published. 2015: Published 2016: Not published because the project concentrated on the formulation of PNDRHS 2016-2020 2017: Published. (Ex-post evaluation) 2018: Was not developed due to the conflicting agenda at the RHS directorate. 2019: Published. 2020: Not published due to COVID-19. 2021: Scheduled at the last quarter of this year. The directory has been published about once every two years. As this seems to be realistic schedule than every year considering situations mentioned above, we judge this indicator has been continued.	source：Terminal evaluation report Project completion report, information from MSP

	Indicator 3 The legal and normative documents developed at the national level are implemented at the level of the target provinces. -60% of the target provinces as intervention zones implement legal and normative documents relating to career management and continuing training. -75% of the schools which have already integrated the revised program for birth attendants use the standard of training developed at the national level.	Status of the Achievement (Status of the Continuation): Achieved (Partially continued) (Project Completion) <u>Carrier management regulations:</u> Formulated in April 2017. Approved by RHS technical committee in October 2017. Introduced to Kongo Central and Haut Katanga. <u>Continuing training regulations:</u> Formulated in March 2015. Approved by the committee in June 2016. Signed by the minister of MSP in November 2017. Introduced to the 3 target provinces in 2017 and 2018. <u>Standards of training of birth attendants:</u> At the completion of Phase 2, there were about 470 schools in DRC to train mid-level (A2) health workers, among which 17 were to introduce new approach (APC: competency approach). As of May 2017, 14 schools out of 17 (82.3%) which had integrated new program used the standard of training of birth attendants. (Ex-Post Evaluation) <u>Carrier management:</u> The Manual of RHS management procedures was popularized in Kinshasa and Haut Katanga and was distributed in other provinces. While there is no evaluation of its use in the provinces, Kongo Central province customized it including distinct aspects. <u>Guidelines for elaboration of RHS directory, Guidelines for setting up the RHS database, Guidelines for the elaboration of PPDRHS:</u> These documents were popularized at the provincial level (especially in Kongo Central, Haut-Katanga, Kasaï Central, Lualaba). These provinces and some others either set up the RHS database (Kongo Central, Nord Ubangi, Maniema, Haut-Katanga, Lualaba, Kasaï, Kasaï Central as of March 2019), acquire or embark on the process of developing their provincial RHS directory or PPDRHS. <u>Continuing training:</u> Policy and Standards related to Continuing Training developed with JICA project were popularized in 3 provinces in JICA projects (Haut-Katanga, Kasaï Central, Kongo Central) in 8 other provinces supported by UNICEF (Sud-Ubangi, Kwango, Tshuapa, Kasaï, Maniema, Kongo Central, Mongala and Tshopo); and 9 provinces supported by US-funded PROSANI program (Haut Lomami, Haut-Katanga, Tanganyika and Lualaba; Sankuru, Kasaï Central, Kasaï Oriental, Lomami, Sud Kivu). DPS of the Kongo Central develops each year a joint plan for continuing training since 2017. The province has acquired a pool of 10 provincial trainers. <u>Birth Attendant training</u>: Various related standards (Référentiel des compétences, Référentiel de formation, Référentiel d'évaluation for example) are recommended to be used in the schools, and printed documents (in JICA projects) were sent to 11 schools out of 46. However, how many of these schools has actually utilized the distributed documents is unknown. In school year 2020-2021, among 607 A2-level schools nationwide, 153 introduced APC (Kongo Central: 17/46; Haut Katanga: 13/28; Kasaï Central: 4/28). However, no information was available on the number of these schools utilizing the related standards.	source：Terminal evaluation report, Project completion report, information from MSP/DPS
	Indicator 4 RHS thematic group meetings are held four times a year at the level of target provinces.	Status of the Achievement (Status of the Continuation): Partially achieved (Partially continued) (Project Completion) Number of meetings: Kongo Central: 2015: 9; 2016: 7; 2017: 4 Kasaï Central: 2015: 1; 2016: 4; 2017: 3; 2018: 2 Haut Katanga: 2015: 1; 2016: 3; 2017: 3; 2018: 2 (Ex-Post Evaluation) Kongo Central: 2018: 4; 2019: 6; 2020: 4; 2021: 4 (as of June) No information on other provinces.	source：Terminal evaluation report, Project completion report, information from MSP/DPS
(Overall Goal) Basic training, retention, career management and continuing training of human resources for health (RHS)	Indicator 1 Six provinces formulated their PPDRHS in accordance with PNDRHS	(Ex-Post Evaluation) Achieved Six provinces developed PPDRHS 2017 or 2018-2020 (Kongo Central, Haut Katanga, Kasai Central, Lualaba, Kasai Oriental, Sud Ubangi). Four provinces developed PPDRHS covering 2021 and onward (typically up to 2025) (Lualaba, Kasai Oriental, Tshopo, Sankuru) and eight provinces are developing PPDRHS 2021-2025.	source：Information from MSP/DPS
	Indicator 2	(Ex-Post Evaluation) Partially achieved	source：Data from Kongo Central

are promoted in an appropriate manner and based on the needs of target provinces, and they are disseminated to other provinces.	The budget for the implementation of PPDRHS increased by 10% in the target provinces	Financial data were available only from Kongo Central. Based on the available information, the trend shows an increase of planned budget between the first and the second cycles (2014-2016 and 2017-2020). Comparing the annual average of the planned budget in the first cycle with 3 years (370 521 USD per year) and the second cycle (with 4 years, 922 189 USD per year), there is an increase of more than 140%. However, in the national budget for health, RHS development activities are not clearly and definitely secured.	

3 Efficiency

[Phase 1] Both the project cost and period were within the plan (ratio against the plan: 75% and 100% respectively). The outputs were produced as planned. Efficiency is high.
[Phase 2] Both the project cost and period slightly exceeded the plan (ratio against the plan: 119% and 106% respectively). The project period of Phase 2 was extended for two months: the project completion date was changed from January 2018 to March 2018 mainly to complete the development of guidelines. The outputs were produced as planned. Efficiency is fair.
The combined efficiency of both phases is fair.

4 Sustainability

<Policy Aspect>
Human resource development in health continues to be a priority indicated by the Law No. 18/035 (2018) for the fundamental principles of public health declaring establishment of universal health coverage (UHC) (article 41). The current PNDS (2019-2022) and the National Strategic Plan of the UHC (PSN-CSU) 2020-2030 give a very special place to the RHS development.
<Institutional/Organizational Aspect>
RHS planning (in PPDRHS) is being institutionalized in DPS and health zones (ZS) beyond the project target provinces, utilizing the products of JICA projects including guidelines, database, and RHS directories. Central structures and management divisions at the provincial level seem to have sufficient personnel. Strengthening of the involvement of field structures in terms of quality and number would be required for further dissemination of RHS planning. Instability and insufficient critical mass of health staff in charge of RHS with experience and vision impacted by the JICA projects in certain provinces (especially the other two target provinces supported by phase 2 than Kongo Central), non-mobilization of other important ministry structures, weak advocacy at political level (central and provincial level) make the outlook uncertain. Design and control of health programs/activities have been separated into two parts at both central and provincial levels: the Central Directorates and DPS ensure the design and execution, and on the other hand, the Inspection Générale de la Santé (IGS) and Inspection Provinciale de la Santé (IPS) control the implemented activities and applied norms. The separation of these roles poses a challenge for the quality design and implementation. At the same time, RHS is a cross-cutting issue in the sector, but insufficient involvement of management and other ministries hinders sound development and distribution of health staff. Since the end of 2021, MSP plans to organize a platform of cross-sector discussion on the bottlenecks RHS development, named “états généraux des ressources humaines pour la santé” (general assembly of human resources in health) by the initiative of the General Secretary with the commitment of the minister.
<Technical Aspect>
MSP and DPS maintain and scale up skills and knowledge by training, study trips, support missions in the field. The existing technical tools are used and even updated or adjusted. RHS’s quantity and quality are not sufficient yet nationwide, and unequitable distribution is a problem. Few staff have forward-looking vision and viewpoint as managers.
<Financial Aspect>
The national budget for health has been around 10% of the total national budget for past years. Salaries of RHS are covered by the budget, but RHS development activities are not clearly and definitely secured in the domestic budget. Funding from public sector for these activities is not secured both in provincial and central levels, while Kongo Central experienced an increase of 140% of planned budget for PPDRHS between the first and second cycles (2014-2016 and 2017-2020) (Phase 2 Overall Goal Indicator 4). Moreover, Operating and Maintenance costs are not executed, even planned or allocated. Most of RHS development activities have been supported by external funding including JICA PADRHS 3, WHO, World Bank, UNFPA, EU, DFID, USAID, Belgium, etc.
<Evaluation Result>
In light of the above, serious problems have been observed in financial aspects though some improvement in Kongo Central and some problems have been observed in terms of the institutional/organizational and technical aspects of the implementing agency. Therefore, the sustainability of the project effects is low.

5 Summary of the Evaluation

These projects combined (Phase 1 and 2) achieved the Project Purposes at the time of project completion and effects continue at the time of ex-post evaluation. The Overall Goals were partially achieved, as more provinces have developed their RHS plans while details of activity implementation and finances were available only from Kongo Central. While RHS continues to be a priority in the health policy, some problems have been observed in institutional/organizational, technical and mainly financial aspects of sustainability. As for the efficiency, both the project cost and period exceeded the plan for Phase 2.
Considering all of the above points, these projects combined are evaluated to be partially satisfactory.

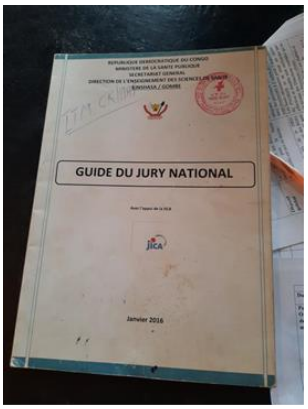
III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:
1. (National and Provincial Government) Secure the public funding (state budget) for the realization of the planned activities in the PNDRHS and the PPDRHS.
2. (National Government) Allocate the budget and endow timely the necessary resources for the execution of the national jury. There is an urgent need to support and to ensure the continuity and the sustainability in the organization of the national jury, which JICA support is gradually decreasing.
3. (National and Provincial Government) Ensure the stability of the personnel in charge of RHS, beneficiary of the achievements of PADRHS.

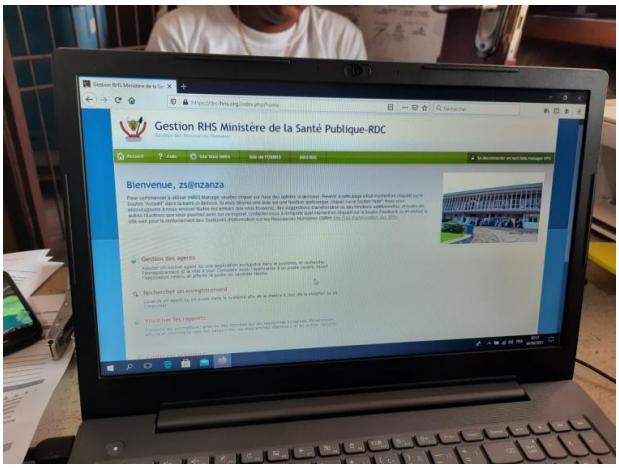
4. (National and Provincial Government) Integrate the roles of design and control of health programs/activities at both central and provincial levels for more effective design and implementation.
5. (National and Provincial Government) Involve management and other structures of MSP such as the IGS, or other key ministries such as the Ministry of Higher Education or the Civil Service in RHS planning and actions as it is a cross-cutting issue in the health sector.
6. (MSP at National and Provincial levels) Make an advocacy for the RHS agenda with political authorities (governor, provincial ministers, provincial assemblies, national ministers, National Assembly).
7. (MSP: SG, IGS, DPS and IPS) Develop the appropriate mechanisms to ensure the sustainability of the RHS development system under construction, both at the national and provincial levels: popularization of the developed tools with the actors of the system; marketing of the developed tools to politicians (presentation of PPDRHS, PNDRHS, database and its utility in the decisions making); organize the days of reflection on documents or results obtained with decision-makers.
8. (MSP: DESS) Accelerate scaling up process of the Skills-based approach (Approche par compétence: APC) to the medical schools in the country by transferring skills from the central to the provincial level, elaborating and reproducing appropriate manuals (reference documents), promoting the midwife section, and boost it through a political measure of closing the Objective-based approach (Approche par objectifs: APO) programs. Adopt an accreditation system of medical schools to improve the quality of training.
9. (MSP) Develop the capacities of RHS managers through missions of information or missions of exchange with the provinces, professional immersion, supervision, study trips, exchange of experiences between provinces. Intensify the support of the supervision by the national level to the provincial level in the RHS training at the secondary level.
10. (MSP: DRH) Take advantage of all possible initiatives assuring to collect and manage the RHS data and define a clear and formal harmonized policy of the RHS data management tools (GESPERSO or iHRIS).
11. (MSP) Develop the capacities for monitoring and evaluating the implementation of the plan (following the introduction of the culture of planning) or the tools developed (normative, regulatory or other tools) in order to continuously improve the content of the plan or the quality of these tools in their application. Improve steps C and A of the PDCA cycle of interventions.
12. (MSP) Complete the popularization of the continuing training standards, the development of joint continuing training plans in the provinces.

Lessons Learned for JICA:
1. It was a good strategy that JICA project took an integrated approach, starting from building a foundation of policy, planning, financing and legal and regulatory framework to support four pillars of RHS development, which are basic training, career management, continuing training and retention. It was different from previous RHS support focusing on financial motivation or continuing training. Many technical and financial partners, who usually support health zones and provinces, have followed JICA's footsteps not only looking at diseases but also RHS development including development of PPDRHS, development of RHS management manual and RHS database which has been used to advocate for allocation of funding.
2. This holistic approach was shared with the counterparts before starting the project and consensus was made among all members. The project was implemented under common understanding and facilitated collaboration with other relevant departments in RHS development activities. The project regularly organized meetings with all project stakeholders (each top management of the directorates) in order to plan, monitor, evaluate project activities. Joint missions were carried out in the provinces with the staff of national level. From 2010, the project made functional the framework for dialogue of the RHS thematic group at the national and provincial levels, by supporting the organization of meetings or workshops during which common subjects were discussed. The functionality of the National RHS Commission and Thematic Group has been instrumental in sustaining this momentum. JICA project was involved in these dialogue frameworks from the start. Thus, JICA played the role of leader in the RHS sub-group of Development Partners' Health Forum (Groupe inter-bailleurs santé: GIBS) and co-chair in the RHS commission. This approach was very helpful to have harmonious collaboration among three directorates and various partners. The usual practice of planning together with wide participation of staff, whether at national or provincial level in the framework of the PADRHS, has become the opportunity to strengthen the capacities of other participating staff in charge of RHS. This has given rise year after year to a certain culture of RHS planning acquired by counterparts.
3. The enhancement of the continuing training department through policy development was effective as other partners also refer to the developed standards and other JICA projects, including 5S-Kaïzen-TQM or disease control activities are operating based on it.
4. The decision made to focus on Kongo Central province was practical as its proximity to the central level made it easy to provide technical support and monitor the development of RHS in this province. One of the criteria to choose project target provinces should be easy access.
5. It is also needed to support intensively the activities related to the dissemination of knowledge and advocacy at political level, with all the evidence and results such as documents, tools and database elaborated by the Project. It helps the decision-making and also ensuring the sustainability of the change initiated by the project (PADRHS). So, based on the experience of the 2 phases, the activities of experience sharing and advocacy at political level should be considered and included in current and future pilot projects. For example, even if the database clarified the situation on RHS and, with the help of analyzes, enabled decision-making at Kongo Central; there remains a clear gap to be bridged between the evidence highlighted by the PADRHS and factual decision-making, between many of the documents or tools produced and their application, between the plans drawn up and their implementation.

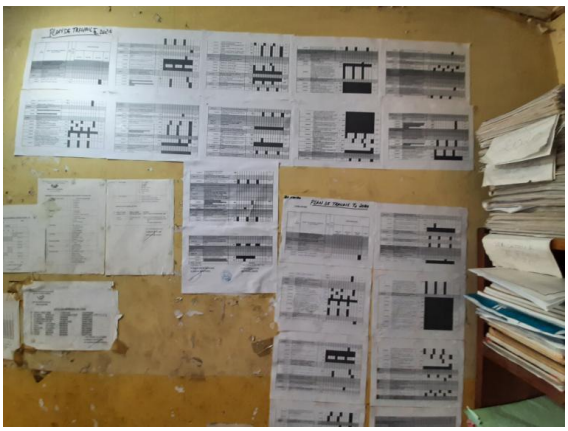
Manuals developed by the project used in the health zones



Guide of national exam of health personnel



RHS management software



Quarterly Plan of the Health Zone with a set of activities related to RHS development as formulated in the PPDRHS

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Democratic Republic of the Congo Office: November, 2022

Country Name	**[Phase 1] Support to Human Resource Development in health sector of Democratic Republic of the Congo (Projet d'Appui au développement des ressources humaines pour la santé: PADRHS) [Phase 2] Support to Human Resource Development in health sector of Democratic Republic of the Congo Phase 2 (PADRHS Phase 2)**
Democratic Republic of the Congo	

I. Project Outline

Background	Since its independence in 1960, the Democratic Republic of the Congo (DRC) experienced domestic and international conflicts and many people lived under the poverty line. While the health indicators had slightly improved since the 1990s, the Millennium Development Goals (MDGs) had not been achieved. The maternal mortality ratio was 550 deaths per 100,000 live births (2007) and the under-5 mortality rate was 168 deaths per 1,000 live births (2011), while the MDG targeted 332 and 60, respectively. The human resources in the health sector did not meet the international standards in quantity and quality. The number of nurses was only 0.82 per 1,000 populations, while the WHO standard was 2.3. Problems of human resources including misallocation of staff were hindering access to health services. DRC's Poverty Reduction and Growth Strategy Paper (PRGSP) 2000-2009 aimed to improve the access to basic social services, and health sector was one of the priorities. To achieve the goal, the Ministry of Health (Ministère de la Santé Publique: **MSP**) formulated the Strategy for Strengthening Health System (Stratégie de Renforcement du Système de la Santé: SRSS). Human resource development was one of the pillars to improve primary health care. In 2010, the National Health Development Plan (Plan National de Développement Sanitaire: PNDS) 2011-2015 was formulated as an action plan of PRGSP. PNDS urged to develop the National Plan of Human Resource Development in the Health Sector (Plan National de Développement des Ressources Humaines de la Santé: **PNDRHS**). JICA project PADRHS Phase 1 enhanced capacity in human resource management at the central level of MSP and supported the formulation and implementation of PNDRHS. PADRHS Phase 2 followed to enhance capacity at provincial level with the three selected Provincial Health Divisions (Division Provincial de la Santé: **DPS**) and to support formulation and implementation of the Provincial Plan of Human Resource Development in the Health Sector (Plan Provincial de Développement des Ressources Humaines de la Santé: **PPDRHS**), as well as to further strengthen the capacity at the central level.
Objectives of the Project	[Phase 1] The project aims to enhance the capacity of Human Resource Directorate (Direction des Ressources Humaines: **DRH**) of MSP through the strengthening of institutional capacity of DRH, formulation of PNDRHS 2011-2015 and related legal and normative documents as well as the development of information management tools for human resources for health (Ressources Humaines de la Santé: **RHS**), thereby contributing to the implementation of PNDRHS. [Phase 2] The project aims to enhance the bases necessary for the efficient and sustainable development and implementation of PNDRHS at the central and provincial levels through the formulation of the new version of PNDRHS (2016-) and related legal and normative documents as well as the formulation of PPDRHS, thereby contributing to the promotion of basic training, retention, career management and continuing training of RHS in an appropriate manner and based on the needs of target provinces, and to the dissemination of the project outcomes to other provinces. [Phase 1] 1. Overall Goal: The National Plan of Human Resource Development in the Health Sector (PNDRHS) is implemented. 2. Project Purpose: The capacities of the Human Resource Directorate (DRH) to implement the PNDRHS are enhanced. [Phase 2] 1. Overall Goal: Basic training, retention, career management and continuing training of human resources for health (RHS) are promoted in an appropriate manner and based on the needs of target provinces, and they are disseminated to other provinces. 2. Project Purpose: The bases necessary for the elaboration of the National Plan of Human Resource Development in the Health Sector (PNDRHS) and its effective and sustainable implementation are strengthened at the central departments and at the level of the target provinces.
Activities of the Project	1. Project site: [Phase 1] MSP headquarters. [Phase 2] MSP headquarters and DPS in the target provinces (Bas-Congo, Kasaï-Occidental and Katanga until 2015. Kongo Central, Kasaï Central and Haut Katanga since 2016 after the reform of administrative divisions) 2. Main activities: [Phase 1] 1) To train staff to strengthen institutional capacity of DRH. 2) To formulate PNDRHS. 3) To develop legal documents related to PNDRHS. 4) To define data to be collected and launch a system to update the data. [Phase 2]

	1) To formulate the new version of PNDRHS (2016-). 2) To establish training standards of RHS. 3) To develop legal and normative documents related to RHS. 4) To support DPS in formulation and implementation of PPDRHS. 3. Inputs (to carry out above activities) Japanese Side [Phase 1] * As of November 2013 1) Experts: 8 persons 2) Trainees received: 16 persons 3) Training in the third country: 9 persons in total (Senegal) 4) Equipment: Computers for RHS data management and equipment for RHS training, etc. 5) Operation cost [Phase 2] * As of March 2018 1) Experts: 6 persons 2) Trainees received: 28 persons 3) Training in the third country: 15 persons (Canada, Senegal, Côte d'Ivoire) 4) Equipment: Computers for RHS data management, etc. 5) Operation cost DRC Side [Phase 1] 1) Staff allocated: 14 persons 2) Project office and utilities 3) Operation cost [Phase 2] 1) Staff allocated: 29 persons 2) Project office and utilities 3) Operation cost		
Project Period	[Phase 1] (ex-ante) November 2010-October 2013 (actual) November 2010-November 2013 [Phase 2] (ex-ante) January 2014-December 2017 (actual) January 2014-March 2018	Project Cost	[Phase 1] (ex-ante) 385 million yen (actual) 287 million yen [Phase 2] (ex-ante) 455 million yen (actual) 543 million yen
Implementing Agency	Ministère de la Santé Publique (**MSP**) (Ministry of Health) Division Provincial de la Santé (**DPS**) (Provincial Health Divisions) of the target provinces		
Cooperation Agency in Japan	National Center for Global Health and Medicine (NCGM)		

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Phase 1 and Phase 2 were evaluated as a package. Regarding effectiveness and impact, achievement of the indicators of Phase 1 and 2 were examined separately and the evaluation results were compiled to cover both phases.
- As the products of Phase 1 covered the period until 2015 (PNDRHS 2011-2015), achievement of its Overall Goal was examined based on the situation of 2015 (target year). Continuation of project effects of Phase 1 was examined as a part of Overall Goal.
- To measure sustainability of the projects Phase 1 and Phase 2, questions were prepared based on the situation of Phase 2 at its completion. Some products of Phase 1 were outdated, and there was a reform of administrative divisions during Phase 2.
- Information at the time of ex-post evaluation was available basically only from Kongo Central. It was difficult to collect information remotely from the focal points of other two provinces, who were often unavailable online or did not send the requested documents. It was not only because of instable human resources as mentioned in the section of Sustainability, but also due to the impact of COVID-19. Moreover, at the time of the ex-post evaluation, Kongo Central was the only province which had already evaluated its second cycle of PPDRHS and documented it.

1 Relevance

<Consistency with the Development Policy of the Democratic Republic of the Congo (DRC) at the Time of Ex-Ante Evaluation >

[Phase 1] This project was consistent with DRC's Poverty Reduction and Growth Strategy Paper (PRGSP) 2000-2009 in which health sector was one of the priorities, with the Strategy for Strengthening Health System (SRSS) in which human resource development was one of the pillars, and with the National Health Development Plan (PNDS) 2011-2015 which urged to develop PNDRHS.

[Phase 2] This project was consistent with DRC's PRGSP II (2011-2015), SRSS (2011-2015), and PNDS (2011-2015).

<Consistency with the Development Needs of DRC at the Time of Ex-Ante Evaluation >

[Phase 1] This project was consistent with the needs for human resource development in health as mentioned in "Background" above.

[Phase 2] Phase 1 supported capacity development in human resource management at the national level. Capacity development at the provincial level and strengthening of coordination between national and provincial levels were expected to follow.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

[Phase 1] Improvement of access to social services was one of the priority areas of Japan's development assistance to DRC and health was one of the target sectors along with water supply and community development.[1]

[Phase 2] Improvement of access to social services was one of the priority areas of Japan's development assistance to DRC and health was one of the target sectors. Capacity development of human resources for health and rehabilitation of health infrastructure were priorities.[2]

<Appropriateness of project design/approach>

The choice of Kongo Central as one of the target provinces was right as its proximity to the central level made support and monitor the

[1] ODA country data collection (2010)

[2] ODA country data collection (2013)

development of RHS easy.
Budget for RHS development activities, normally planned by the Project implementation counterparts, is not clearly secured in the national budget at/by the higher level. And this is a serious problem in financial aspects of sustainability, while it is not derived from project design or approach. No particular problem was observed in project design or approach.
<Evaluation Result>
In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>
[Phase 1] The Project Purpose, "The capacities of the Human Resource Directorate (DRH) to implement PNDRHS are enhanced" was achieved. 25 out of 26 DPS submitted operational action plans (Plan d'Action Opérationnel: PAO) in 2013, which were annual activity plans including RHS indicators (Indicator 1). DRH developed its PAO including four sub-plans of PNDRHS (carrier management, basic education, continuing education and retention) which was considered as the national annual RHS development plan (Indicator 2).
[Phase 2] The Project Purpose, "The bases necessary for the elaboration of PNDRHS and its effective and sustainable implementation are strengthened at the central departments and at the level of the target provinces" was achieved as two indicators out of four were achieved and the other two were partially achieved. Stakeholder meetings were held more than four times a year between 2014 and 2017 (Indicator 1), and the legal and normative documents developed at the national level (carrier management regulations, continuing training regulations, and standards of training of birth attendants) were utilized in the target provinces (Indicator 3). The annual RHS directories at the national level were developed about once every two years since 2013 (Indicator 2), which was less than the target (annually), but they have been updated regularly at realistic interval. RHS thematic group meetings at the level of target provinces were held but less than four times every year (Indicator 4).
<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>
[Phase 1] The project effects partially continued till the time of ex-post evaluation. PNDRHS has been developed and implemented (Indicator 2), and PPDRHS have been developed and implemented by more than six DPS (Indicator 1) while information of implementation status was available only from Kongo Central. (Please refer to the achievement status of Overall Goal Indicators of Phase 1 below.)
[Phase 2] Overall,the project effects continued till the time of ex-post evaluation. Stakeholder meetings were held more than four times a year since 2018; annual RHS directories were published about once every two years since the project completion; legal and normative documents have been utilized at the provincial level while the utilization of the standard of training of birth attendants was not clear; and RHS thematic group meetings have been held but less than four times a year.
<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation> Information of budget and activities were available only from Kongo Central.
[Phase 1] The Overall Goal, "PNDRHS is implemented" was partially achieved. In Kongo Central, 14 out of 26 activities planned under its PPDRHS 2014-2016 were either achieved or partially achieved. For PPDRHS 2017-2020, 17 out of 32 planned activities were carried out. Information of other provinces were not available (Indicator 1. No target value). At the national level, 27 out of 41 activities in PNDRHS 2011-2015 were either achieved or partially achieved. PNDRHS 2016-2020 was re-programmed to PNDRHS 2019-2022 with three programs and being implemented (Indicator 2).
[Phase 2] The Overall Goal, "Basic training, retention, career management and continuing training of human resources for health (RHS) are promoted in an appropriate manner and based on the needs of target provinces, and they are disseminated to other provinces" was partially achieved. More than six provinces developed PPDRHS since the project completion (Indicator 1). The annual planned budget for the implementation of PPDRHS of Kongo Central increased by 140% between the first and second cycle of PPDRHS, while financial information of other target provinces was not available (Indicator 2).
<Other Impacts at the Time of Ex-Post Evaluation>
No negative impacts have been observed.
The implementing agencies pointed out positive impacts as follows:
- Promoting midwives and nurses training programs contribute to positive impacts to gender as more than the half of students are female.
- Collaboration between structures in charge of RHS was enhanced with clear working guidelines.
- DRH staff took initiative to intervene without JICA in some provinces which were supported by other development partners, bringing the technical tools developed with JICA and their own tools, as they are now more self-driven and confident.
- More development partners became interested in RHS development.

<Evaluation Result>
Therefore, the combined effectiveness/impact of the projects Phase 1 and 2 is high.
【Phase 1】

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) The capacities of the Human Resource Directorate (DRH) to implement PNDRHS are enhanced.	Indicator 1 By 2013, more than half of the provincial offices submit annual activity plans including basic data such as numbers of new graduates, new recruitment, people to retire, etc.	Status of the Achievement (Status of the Continuation): Achieved (partially continued) (Project Completion) 25 out of 26 DPS submitted Operational action plans (Plan d'Action Opérationnel: PAO) including indicators about RHS according to the provincial health development plans in 2013. They were considered as provincial annual RHS development plans. (Ex-post evaluation) There have been three cycles of PPDRHS since Phase 1. The three target provinces of Phase 1 developed PPDRHS (Kongo Central 2014-2016, Haut Katanga 2015-2017, Kasai Central 2014-2016), Six provinces developed	source : Terminal evaluation report, Project completion report, information from MSP

		PPDRHS 2017 or 2018-2020 (Kongo Central, Haut Katanga, Kasai Central, Lualaba, Kasai Oriental, Sud Ubangi). Four provinces developed PPDRHS covering 2021 and onward (typically up to 2025) (Lualaba, Kasai Oriental, Tshopo, Sankuru) and eight provinces are developing PPDRHS 2021-2025. (See Overall Goal Indicator 1 (Phase 1) and Overall Goal Indicator 1 (Phase 2) below.)	
	Indicator 2 By 2013, the national annual RHS development plan is formulated.	Status of the Achievement (Status of the Continuation): Achieved (continued) (Project Completion) DRH developed its PAO including four sub-plans of PNDRHS (carrier management, basic education, continuing education and retention). It was considered as the national annual RHS development plan. (Ex-post evaluation) PNDRHS 2011-2015 and 2016-2020 (reprogramed to 2019-2022) as national annual RHS development plans were formulated. (See Overall Goal Indicator 2 below.)	source：Terminal evaluation report, Project completion report, information from MSP
(Overall Goal) PNDRHS is implemented.	Indicator 1 The number of activities carried out according to the provincial annual plan for the implementation of PNDRHS (including the 4 sub-plans) * There is no target value of this indicator.	(Ex-Post Evaluation) Partially achieved For PPDRHS 2014-2016 of Kongo Central, 14 out of 26 activities planned were either achieved or partially achieved. For PPDRHS 2017-2020 of Kongo Central, 17 out of 32 planned activities were carried out. The evaluation report of Kongo Central PPDRHS 2017-2020 stated that “By evaluating the degree of achievement of the interventions compared to the results, the effectiveness of the plan is average.” The unavailability of a secure funding is the basis for the non-performance of certain activities. Information of other provinces were not available. Note: implementation of PNDRHS by provinces is equal to implementation of PPDRHS. PPDRHS includes annual implementation plan.	source：Terminal evaluation report, Project completion report, information from Kongo Central
	Indicator 2 The number of activities carried out according to the national annual plan for the implementation of PNDRHS * There is no target value of this indicator.	(Ex-Post Evaluation) Partially Achieved 27 out of 41 actions in PNDRHS 2011-2015 were either achieved or partially achieved. The unavailability of a secure funding was the main reason for the non-performance of certain activities. PNDRHS 2016-2020 was re-programmed to PNDRHS 2019-2022 under a national recommendation. It has three programs (staff availability and retention, basic training, and staff training) being implemented. Note: PNDRHS includes annual implementation plan.	source：Terminal evaluation report, Project completion report, information from MSP

【Phase 2】

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) PNDRHS and its effective and sustainable implementation are strengthened at the central departments and at the level of the target provinces.	Indicator 1 Stakeholder meetings are held four times a year to coordinate RHS management by taking advantage of the operation of the National Observatory for Human Resources in Health (ONRHS) and the RHS commission.	Status of the Achievement (Status of the Continuation): Achieved (Continued) (Project Completion) National RHS technical committee meetings: 12 times (2014: 3; 2015: 2; 2016: 4; 2017: 3) ONRHS meetings: 6 times (2014: 2; 2015: 1; 2016:1; 2017: 2) (Ex-post evaluation) National RHS technical committee (CRHS) meetings held: 2018: 2; 2019: 10; 2020: 5; 2021: 5. Meetings of Technical and Financial Partners (TFPs) specially involved in RHS Development: 2018: 6, 2019: 9, 2020: 3, 2021: 4 Outbreak of the Covid-19 from March 2020 affected the number of meetings.	source：Terminal evaluation report, Project completion report, information from MSP
	Indicator 2 The annual directories of RHS at the national level are developed once a year	Status of the Achievement (Status of the Continuation): Partially achieved (Continued) (Project Completion) 2013: Annual directory 2013 was published. 2014: Not published because the country profile was published. 2015: Published 2016: Not published because the project concentrated on the formulation of PNDRHS 2016-2020 2017: Published. (Ex-post evaluation) 2018: Was not developed due to the conflicting agenda at the RHS directorate. 2019: Published. 2020: Not published due to COVID-19. 2021: Scheduled at the last quarter of this year. The directory has been published about once every two years. As this seems to be realistic schedule than every year considering situations mentioned above, we judge this indicator has been continued.	source：Terminal evaluation report Project completion report, information from MSP

	Indicator 3 The legal and normative documents developed at the national level are implemented at the level of the target provinces. -60% of the target provinces as intervention zones implement legal and normative documents relating to career management and continuing training. -75% of the schools which have already integrated the revised program for birth attendants use the standard of training developed at the national level.	Status of the Achievement (Status of the Continuation): Achieved (Partially continued) (Project Completion) <u>Carrier management regulations:</u> Formulated in April 2017. Approved by RHS technical committee in October 2017. Introduced to Kongo Central and Haut Katanga. <u>Continuing training regulations:</u> Formulated in March 2015. Approved by the committee in June 2016. Signed by the minister of MSP in November 2017. Introduced to the 3 target provinces in 2017 and 2018. <u>Standards of training of birth attendants:</u> At the completion of Phase 2, there were about 470 schools in DRC to train mid-level (A2) health workers, among which 17 were to introduce new approach (APC: competency approach). As of May 2017, 14 schools out of 17 (82.3%) which had integrated new program used the standard of training of birth attendants. (Ex-Post Evaluation) <u>Carrier management:</u> The Manual of RHS management procedures was popularized in Kinshasa and Haut Katanga and was distributed in other provinces. While there is no evaluation of its use in the provinces, Kongo Central province customized it including distinct aspects. <u>Guidelines for elaboration of RHS directory, Guidelines for setting up the RHS database, Guidelines for the elaboration of PPDRHS:</u> These documents were popularized at the provincial level (especially in Kongo Central, Haut-Katanga, Kasaï Central, Lualaba). These provinces and some others either set up the RHS database (Kongo Central, Nord Ubangi, Maniema, Haut-Katanga, Lualaba, Kasaï, Kasaï Central as of March 2019), acquire or embark on the process of developing their provincial RHS directory or PPDRHS. <u>Continuing training:</u> Policy and Standards related to Continuing Training developed with JICA project were popularized in 3 provinces in JICA projects (Haut-Katanga, Kasaï Central, Kongo Central) in 8 other provinces supported by UNICEF (Sud-Ubangi, Kwango, Tshuapa, Kasaï, Maniema, Kongo Central, Mongala and Tshopo); and 9 provinces supported by US-funded PROSANI program (Haut Lomami, Haut-Katanga, Tanganyika and Lualaba; Sankuru, Kasaï Central, Kasaï Oriental, Lomami, Sud Kivu). DPS of the Kongo Central develops each year a joint plan for continuing training since 2017. The province has acquired a pool of 10 provincial trainers. <u>Birth Attendant training</u>: Various related standards (Référentiel des compétences, Référentiel de formation, Référentiel d'évaluation for example) are recommended to be used in the schools, and printed documents (in JICA projects) were sent to 11 schools out of 46. However, how many of these schools has actually utilized the distributed documents is unknown. In school year 2020-2021, among 607 A2-level schools nationwide, 153 introduced APC (Kongo Central: 17/46; Haut Katanga: 13/28; Kasaï Central: 4/28). However, no information was available on the number of these schools utilizing the related standards.	source：Terminal evaluation report, Project completion report, information from MSP/DPS
	Indicator 4 RHS thematic group meetings are held four times a year at the level of target provinces.	Status of the Achievement (Status of the Continuation): Partially achieved (Partially continued) (Project Completion) Number of meetings: Kongo Central: 2015: 9; 2016: 7; 2017: 4 Kasaï Central: 2015: 1; 2016: 4; 2017: 3; 2018: 2 Haut Katanga: 2015: 1; 2016: 3; 2017: 3; 2018: 2 (Ex-Post Evaluation) Kongo Central: 2018: 4; 2019: 6; 2020: 4; 2021: 4 (as of June) No information on other provinces.	source：Terminal evaluation report, Project completion report, information from MSP/DPS
(Overall Goal) Basic training, retention, career management and continuing training of human resources for health (RHS)	Indicator 1 Six provinces formulated their PPDRHS in accordance with PNDRHS	(Ex-Post Evaluation) Achieved Six provinces developed PPDRHS 2017 or 2018-2020 (Kongo Central, Haut Katanga, Kasai Central, Lualaba, Kasai Oriental, Sud Ubangi). Four provinces developed PPDRHS covering 2021 and onward (typically up to 2025) (Lualaba, Kasai Oriental, Tshopo, Sankuru) and eight provinces are developing PPDRHS 2021-2025.	source：Information from MSP/DPS
	Indicator 2	(Ex-Post Evaluation) Partially achieved	source：Data from Kongo Central

are promoted in an appropriate manner and based on the needs of target provinces, and they are disseminated to other provinces.	The budget for the implementation of PPDRHS increased by 10% in the target provinces	Financial data were available only from Kongo Central. Based on the available information, the trend shows an increase of planned budget between the first and the second cycles (2014-2016 and 2017-2020). Comparing the annual average of the planned budget in the first cycle with 3 years (370 521 USD per year) and the second cycle (with 4 years, 922 189 USD per year), there is an increase of more than 140%. However, in the national budget for health, RHS development activities are not clearly and definitely secured.	

3 Efficiency

[Phase 1] Both the project cost and period were within the plan (ratio against the plan: 75% and 100% respectively). The outputs were produced as planned. Efficiency is high.
[Phase 2] Both the project cost and period slightly exceeded the plan (ratio against the plan: 119% and 106% respectively). The project period of Phase 2 was extended for two months: the project completion date was changed from January 2018 to March 2018 mainly to complete the development of guidelines. The outputs were produced as planned. Efficiency is fair.
The combined efficiency of both phases is fair.

4 Sustainability

<Policy Aspect>
Human resource development in health continues to be a priority indicated by the Law No. 18/035 (2018) for the fundamental principles of public health declaring establishment of universal health coverage (UHC) (article 41). The current PNDS (2019-2022) and the National Strategic Plan of the UHC (PSN-CSU) 2020-2030 give a very special place to the RHS development.
<Institutional/Organizational Aspect>
RHS planning (in PPDRHS) is being institutionalized in DPS and health zones (ZS) beyond the project target provinces, utilizing the products of JICA projects including guidelines, database, and RHS directories. Central structures and management divisions at the provincial level seem to have sufficient personnel. Strengthening of the involvement of field structures in terms of quality and number would be required for further dissemination of RHS planning. Instability and insufficient critical mass of health staff in charge of RHS with experience and vision impacted by the JICA projects in certain provinces (especially the other two target provinces supported by phase 2 than Kongo Central), non-mobilization of other important ministry structures, weak advocacy at political level (central and provincial level) make the outlook uncertain. Design and control of health programs/activities have been separated into two parts at both central and provincial levels: the Central Directorates and DPS ensure the design and execution, and on the other hand, the Inspection Générale de la Santé (IGS) and Inspection Provinciale de la Santé (IPS) control the implemented activities and applied norms. The separation of these roles poses a challenge for the quality design and implementation. At the same time, RHS is a cross-cutting issue in the sector, but insufficient involvement of management and other ministries hinders sound development and distribution of health staff. Since the end of 2021, MSP plans to organize a platform of cross-sector discussion on the bottlenecks RHS development, named “états généraux des ressources humaines pour la santé” (general assembly of human resources in health) by the initiative of the General Secretary with the commitment of the minister.
<Technical Aspect>
MSP and DPS maintain and scale up skills and knowledge by training, study trips, support missions in the field. The existing technical tools are used and even updated or adjusted. RHS’s quantity and quality are not sufficient yet nationwide, and unequitable distribution is a problem. Few staff have forward-looking vision and viewpoint as managers.
<Financial Aspect>
The national budget for health has been around 10% of the total national budget for past years. Salaries of RHS are covered by the budget, but RHS development activities are not clearly and definitely secured in the domestic budget. Funding from public sector for these activities is not secured both in provincial and central levels, while Kongo Central experienced an increase of 140% of planned budget for PPDRHS between the first and second cycles (2014-2016 and 2017-2020) (Phase 2 Overall Goal Indicator 4). Moreover, Operating and Maintenance costs are not executed, even planned or allocated. Most of RHS development activities have been supported by external funding including JICA PADRHS 3, WHO, World Bank, UNFPA, EU, DFID, USAID, Belgium, etc.
<Evaluation Result>
In light of the above, serious problems have been observed in financial aspects though some improvement in Kongo Central and some problems have been observed in terms of the institutional/organizational and technical aspects of the implementing agency. Therefore, the sustainability of the project effects is low.

5 Summary of the Evaluation

These projects combined (Phase 1 and 2) achieved the Project Purposes at the time of project completion and effects continue at the time of ex-post evaluation. The Overall Goals were partially achieved, as more provinces have developed their RHS plans while details of activity implementation and finances were available only from Kongo Central. While RHS continues to be a priority in the health policy, some problems have been observed in institutional/organizational, technical and mainly financial aspects of sustainability. As for the efficiency, both the project cost and period exceeded the plan for Phase 2.
Considering all of the above points, these projects combined are evaluated to be partially satisfactory.

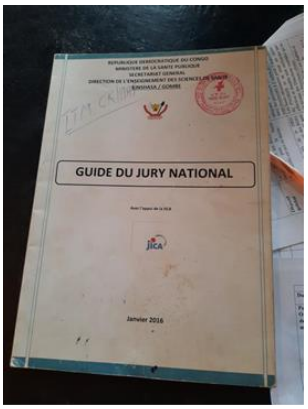
III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:
1. (National and Provincial Government) Secure the public funding (state budget) for the realization of the planned activities in the PNDRHS and the PPDRHS.
2. (National Government) Allocate the budget and endow timely the necessary resources for the execution of the national jury. There is an urgent need to support and to ensure the continuity and the sustainability in the organization of the national jury, which JICA support is gradually decreasing.
3. (National and Provincial Government) Ensure the stability of the personnel in charge of RHS, beneficiary of the achievements of PADRHS.

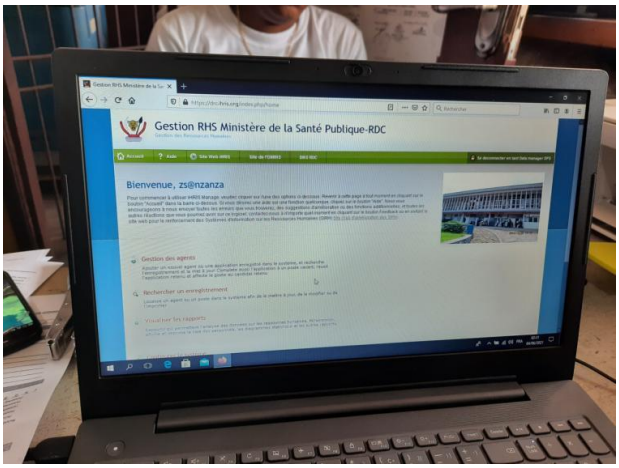
4. (National and Provincial Government) Integrate the roles of design and control of health programs/activities at both central and provincial levels for more effective design and implementation.
5. (National and Provincial Government) Involve management and other structures of MSP such as the IGS, or other key ministries such as the Ministry of Higher Education or the Civil Service in RHS planning and actions as it is a cross-cutting issue in the health sector.
6. (MSP at National and Provincial levels) Make an advocacy for the RHS agenda with political authorities (governor, provincial ministers, provincial assemblies, national ministers, National Assembly).
7. (MSP: SG, IGS, DPS and IPS) Develop the appropriate mechanisms to ensure the sustainability of the RHS development system under construction, both at the national and provincial levels: popularization of the developed tools with the actors of the system; marketing of the developed tools to politicians (presentation of PPDRHS, PNDRHS, database and its utility in the decisions making); organize the days of reflection on documents or results obtained with decision-makers.
8. (MSP: DESS) Accelerate scaling up process of the Skills-based approach (Approche par compétence: APC) to the medical schools in the country by transferring skills from the central to the provincial level, elaborating and reproducing appropriate manuals (reference documents), promoting the midwife section, and boost it through a political measure of closing the Objective-based approach (Approche par objectifs: APO) programs. Adopt an accreditation system of medical schools to improve the quality of training.
9. (MSP) Develop the capacities of RHS managers through missions of information or missions of exchange with the provinces, professional immersion, supervision, study trips, exchange of experiences between provinces. Intensify the support of the supervision by the national level to the provincial level in the RHS training at the secondary level.
10. (MSP: DRH) Take advantage of all possible initiatives assuring to collect and manage the RHS data and define a clear and formal harmonized policy of the RHS data management tools (GESPERSO or iHRIS).
11. (MSP) Develop the capacities for monitoring and evaluating the implementation of the plan (following the introduction of the culture of planning) or the tools developed (normative, regulatory or other tools) in order to continuously improve the content of the plan or the quality of these tools in their application. Improve steps C and A of the PDCA cycle of interventions.
12. (MSP) Complete the popularization of the continuing training standards, the development of joint continuing training plans in the provinces.

Lessons Learned for JICA:
1. It was a good strategy that JICA project took an integrated approach, starting from building a foundation of policy, planning, financing and legal and regulatory framework to support four pillars of RHS development, which are basic training, career management, continuing training and retention. It was different from previous RHS support focusing on financial motivation or continuing training. Many technical and financial partners, who usually support health zones and provinces, have followed JICA's footsteps not only looking at diseases but also RHS development including development of PPDRHS, development of RHS management manual and RHS database which has been used to advocate for allocation of funding.
2. This holistic approach was shared with the counterparts before starting the project and consensus was made among all members. The project was implemented under common understanding and facilitated collaboration with other relevant departments in RHS development activities. The project regularly organized meetings with all project stakeholders (each top management of the directorates) in order to plan, monitor, evaluate project activities. Joint missions were carried out in the provinces with the staff of national level. From 2010, the project made functional the framework for dialogue of the RHS thematic group at the national and provincial levels, by supporting the organization of meetings or workshops during which common subjects were discussed. The functionality of the National RHS Commission and Thematic Group has been instrumental in sustaining this momentum. JICA project was involved in these dialogue frameworks from the start. Thus, JICA played the role of leader in the RHS sub-group of Development Partners' Health Forum (Groupe inter-bailleurs santé: GIBS) and co-chair in the RHS commission. This approach was very helpful to have harmonious collaboration among three directorates and various partners. The usual practice of planning together with wide participation of staff, whether at national or provincial level in the framework of the PADRHS, has become the opportunity to strengthen the capacities of other participating staff in charge of RHS. This has given rise year after year to a certain culture of RHS planning acquired by counterparts.
3. The enhancement of the continuing training department through policy development was effective as other partners also refer to the developed standards and other JICA projects, including 5S-Kaïzen-TQM or disease control activities are operating based on it.
4. The decision made to focus on Kongo Central province was practical as its proximity to the central level made it easy to provide technical support and monitor the development of RHS in this province. One of the criteria to choose project target provinces should be easy access.
5. It is also needed to support intensively the activities related to the dissemination of knowledge and advocacy at political level, with all the evidence and results such as documents, tools and database elaborated by the Project. It helps the decision-making and also ensuring the sustainability of the change initiated by the project (PADRHS). So, based on the experience of the 2 phases, the activities of experience sharing and advocacy at political level should be considered and included in current and future pilot projects. For example, even if the database clarified the situation on RHS and, with the help of analyzes, enabled decision-making at Kongo Central; there remains a clear gap to be bridged between the evidence highlighted by the PADRHS and factual decision-making, between many of the documents or tools produced and their application, between the plans drawn up and their implementation.

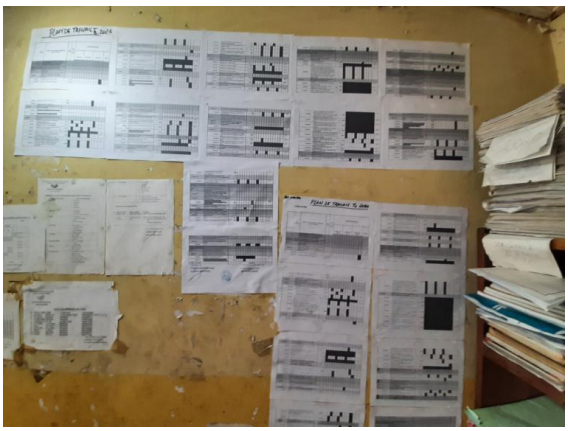
Manuals developed by the project used in the health zones



Guide of national exam of health personnel



RHS management software



Quarterly Plan of the Health Zone with a set of activities related to RHS development as formulated in the PPDRHS

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bangladesh Office: December, 2022

Country Name	**Bridge Management Capacity Development Project**
People's Republic of Bangladesh	

I. Project Outline

Background	Bangladesh experienced a firm economic growth maintaining the annual GDP growth rate of about 6 % for the recent years. Along with that, freight volume has increased by approximately 8 times in the 30 years between 1975 and 2005, and the freight volume and the number of passengers maintained an upward trend at a pace of 6-7 %. Among the major transport means in Bangladesh such as inland waterway, railway and road, the proportion of road use in both passenger and freight exceeded 80 % in 2005. However, new road constructions were not adequately implemented against an increase in the traffic volume, and conditions of existing road were deteriorating due to the incompetent capacity on roads/bridges maintenance and budgetary deficit. Those obstacles were hindering smooth transportation of passenger and freight.		
Objectives of the Project	Through developing bridge maintenance framework, bridge inspection / evaluation manual and bridge rehabilitation / strengthening manual and bridge management system, and enhancing RHD staff's knowledge of bridge management, the project aimed at improving bridge maintenance capacity of RHD, thereby contributing to enhancement of bridge management under RHD. 1. Overall Goal: Bridge management under RHD is enhanced. 2. Project Purpose: Bridge maintenance capacity of RHD is improved.		
Activities of the Project	1. Project site: the whole area of Bangladesh 2. Main activities: 1) Developing bridge maintenance framework, 2) Developing bridge inspection / evaluation manual and bridge rehabilitation / strengthening manual, 3) Developing bridge management system, 4) RHD staff's enhancement of necessary knowledge of bridge management. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 12 persons 2) Trainees received in Japan: 16 persons 3) Equipment: Computers for database with accessories and Concrete testing equipment (Re-bar detector, Concrete core sampling apparatus, Electric drill, Robot camera). Bangladesh Side 1) Staff allocated: 19 persons 2) Land and facility: an office space in RHD 3) Local expense: Travel expenses, daily allowance, accommodation, etc.		
Project Period	(ex-ante) June 2015 – November 2017 (actual) July 2015 – September 2018	Project Cost	(ex-ante) 250 million yen, (actual) 338 million yen
Implementing Agency	Roads and Highways Department (RHD) under Road Transport and Highways Division of Ministry of Road Transport and Bridges (MoRTB)		
Cooperation Agency in Japan	Japan Bridge & Structure institute, Inc. Oriental Consultants Global Co., Ltd. Japan Bridge Engineering Center		

II. Result of the Evaluation

< Special Perspectives Considered in the Ex-Post Evaluation >

- The current status of the indicators for the Project Purpose was verified by assessing the indicator 2 of the Overall Goal in case of the indicator 1 of project purpose and the technical aspects in sustainability in case of the indicator 2 of project purpose.
- Due to the terrorism incident in Dhaka in 2016, the project could not be virtually implemented and was extended 8 months of the project period. Since this extension was unexpected and unavoidable,8 months was eliminated from the project period to evaluate the efficiency.

1 Relevance

<Consistency with the Development Policy of Bangladesh at the time of Ex-ante Evaluation>

The project was consistent with the Bangladesh development policies such as "Sixth Five Year Plan" (2011-2015) in which the Government of Bangladesh defined that efficient and modern road transportation system played an important role in the road sector. "National Land Transport Policy" (2004) described that enhancing maintenance capacity, securing budgets and formulating a long-term development plan were prioritized as an important policy. "Road Master Plan" (2009) mentioned that maintaining asset value of roads and bridges was one of the aims to be focused.

<Consistency with the Development Needs of Bangladesh at the time of Ex-ante Evaluation>

The project was consistent with the Bangladesh development needs for the capacity development on bridge management.

<Consistency with Japan's ODA Policy at the time of Ex-ante Evaluation>

The project was consistent with the Japan's ODA policy for Bangladesh. "The Country Assistance Policy for Bangladesh" (2012) set "acceleration of economic growth which all people can benefit from toward becoming a middle-income country", including "development of transportation infrastructure", as one of the priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. Bridge maintenance cycle was commenced in Manikganj Division (one division out of 65 divisions of RHD) and it was going to commence in other divisions after the rainy season (Indicator 1). Divisional training course based on institutional capacity development plan in bridge maintenance management standard (draft) was carried out in 65 divisions of RHD (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been continued at the time of project completion. The current status of the indicators for the Project Purpose was verified by assessing the indicator 2 of the Overall Goal in case of the indicator 1 of project purpose and the technical aspects in sustainability in case of the indicator 2 of project purpose.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been partially achieved at the time of ex-post evaluation based on the data collected for two indicators.

Actual ratio of bridge inspection conducted by RHD is only 10% due to lack of human resources (Indicator 1). The bridge maintenance cycle has been completed in some bridges. Primarily routine inspection has been done. Then other steps of the bridge maintenance cycle have been followed (Indicator 2).

<Other Impacts at the time of Ex-post Evaluation>

Some positive impacts related to gender were observed. As a direct impact, a number of female employees engaged in the training programs for bridge maintenance. Almost all the female officers received training on the bridge management cycle. The trained female field officers trained their subordinate and/or peer staff accordingly. As an indirect or long-term impact, the number of female engineers has increased, which has improved the status of women in the organization.

As another positive impact, mindsets of the training participants has been changed regarding bridge inspection and maintenance. Although RHD's normal practice was simply to replace damaged bridges with new ones until this Project began, retrofitting and maintenance of bridges have recently got substantial recognition importance in a strategy of RHD. Funding of bridge maintenance has also been increased, especially in the fiscal year of 2022.

The project also benefitted to ODA loan bridge development projects, such as Eastern Bangladesh Bridge Improvement Project, Western Bangladesh Bridge Improvement Project, The Kanchpur, Meghna, Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project, whose development and maintenance work falls in jurisdiction of RHD. At the time of the ex-post evaluation, Master Trainers (MTs) and their subordinate trainees were assigned to development and ex-post maintenance work of the above-mentioned projects and fully utilized what they learned about bridge maintenance through the project.

Negative impacts were not observed at the time of ex-post evaluation.

<Evaluation Result>

In the light above, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th><th>Source</th></tr>
<tr><td>(Project Purpose)
Bridge maintenance capacity of RHD is improved.</td><td>Indicator 1: Bridge maintenance cycle is commenced by RHD.</td><td><u>Status of the Achievement: Achieved (Continued)</u>
(Project Completion)
• 75 MTs of RHD learned bridge maintenance cycle and trained inspection, evaluation, BMS operation, planning and rehabilitation with model area (Manikganj Division). As a result, bridge maintenance cycle commenced in Manikganj Division (one division out of 65 divisions of RHD).
• In other divisions, a divisional training course was completed by Executive Engineers (EE). Bridge maintenance cycle across the country was prepared and it was going to commence from inspection after the rainy season.
(Ex-post evaluation)
Refer to the Indicator 2 of the Overall Goal. Bridge maintenance cycle has been completed in some bridges.</td><td>Project Completion Report</td></tr>
<tr><td></td><td>Indicator 2: Necessary training based on the institutional capacity development plan is conducted by Master Trainers (MT).</td><td><u>Status of the Achievement: Achieved (Continued)</u>
(Project Completion)
• A divisional training course based on institutional capacity development plan in bridge maintenance management standard (draft) was carried out in 65 divisions of RHD by MT. (The institutional capacity development plan was updated and finalized based on the project result, and was approved during 5th Joint Coordination Committee: JCC.)
(Ex-post Evaluation)
Refer to the technical aspects in sustainability. Although institutional development plan has not been complied fully after the project completion, MTs along with individual consultants have trained the officers and staffs of all the 65 divisions.</td><td>Project Completion Report</td></tr>
<tr><td>(Overall Goal)
Bridge management under RHD is enhanced.</td><td>Indicator 1: Actual ratio of bridge inspection conducted by RHD is increased to 50%.</td><td><u>Status of the Achievement: Not Achieved</u>
(Ex-post Evaluation)
• 8,000 bridges needed inspection, out of which only 873 bridges were put into practice by RHD from 2018 to 2020. Lack of human resource for inspection is the primary reason.
[Actual Ratio of Bridge Inspection Conducted by RHD]
<table>
<tr><th></th><th>2018 (Actual)</th><th>2019 (Actual)</th><th>2020 (Actual)</th></tr>
</table>
</td><td>Questionnaire to RHD</td></tr>
</table>

		No. of Planned Inspection: 8000 No. of Actual Inspection: 837 (According to BMS database) Actual Ratio: 0.1046	
	Indicator 2: Bridge maintenance cycle is conducted by RHD.	Status of the Achievement: Partially achieved (Ex-post Evaluation) • Bridge maintenance cycle has been completed in some bridges. Primarily routine inspection has been done. Then other steps of Bridge maintenance cycle have been followed.	Questionnaire to RHD

3 Efficiency

Both the project period and the project cost exceeded the plan (ratios against the plan: 130%,135%) because of combined factor. Outputs were produced as planned. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

The bridge maintenance has been recognized as a highly prioritized policy area, since the Road Master Plan (2009 – 2029), which highlights it as one of major challenges while discussing its goals, benefits, and economic implications, was released in 2009.

<Institutional/Organizational Aspect>

Bridge management is appropriately managed under the head of Bridge Management Wing (BMW) in RHD. RHD has already submitted to approving authorities re-organogram proposal to solve lack of resource and improve bridge maintenance capability, although the number of staff members for bridge management is still insufficient.

<Technical Aspect>

MTs of BMW together with local individual consultants, who assisted the technical cooperation, have provided field training to the zonal officers, circle officers and staff. As the result, over 800 bridges have been inspected by RHD internal resources. Manuals and guidelines have been leveraged widely by BMW to follow bridge management cycle. Inspectors as well as RHD officers have been trained appropriately by MTs. During the time of 2020 when such trainings have not been conducted due to COVID-19 restrictions, RHD has maintained technical levels to conduct bridge maintenance by utilizing their skills and experiences acquired at the trainings by 2019.

<Financial Aspect>

BMW has estimated bridge maintenance budget based on the inspection plan and a trend analysis using previous actual maintenance costs. Although budget size is still below BMW's expectation, a certain amount of budget has been planned.

[Budget for bridge maintenance] (Billion BDT)

2016 (Actual)	2017 (Actual)	2018 (Actual)	2019 (Actual)	2020 (Actual)	2021 (Actual)	2022 (Plan)
1,35	1,6	1,77	2.0	3.0	3.3	5.0

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and partially achieved the Overall Goal to enhance bridge management under RHD, through improving bridge maintenance capacity of RHD. Regarding sustainability, although there had been slight problems in assigning the sufficient number of staff for the bridge maintenance that resulted in low inspection rate in recent years, manuals/guidelines have been leveraged widely by BMW to follow bridge management cycle and inspectors as well as RHD officers have been trained appropriately by MTs. As for efficiency, the project cost and period exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

Currently, RHD is trying to increase the inspection rate by contracting out inspection work to the private sector. Since RHD has the capability to provide training programs, RHD should extend their training programs for not only internal resources, but also for local contractors and local consultants in order to ensure sufficient number of engineers who are able to engage in the proper road and bridge maintenance works based on the cycle introduced by the project.

Also, in course of time, this training program can be included as regular/routine training program at RHD as bridge inspection and maintenance is routine activity of RHD.

In two times of overseas training taken place in 2016 and 2017 in Japan, RHD visited around many places including laboratories and companies which had researched and developed a variety of cutting-edge technologies of bridge maintenance, and then learned their usefulness through on-site exercises and in-class lectures. RHD is recommended to upgrade the Standard Technical Specifications for Bridge maintenance in order for RHD itself and local companies to disseminate and make a full use of such advanced technologies in Bangladesh.

Lessons Learned for JICA:

During project design, JICA should consider and set outputs with indicators on not only technical aspects (such as development of the manual, development of bridge maintenance system, etc.), but also institutional mechanisms for securing the necessary financial and human resources for sustainable bridge maintenance. In case where the financial and human resources are limited in an EA, JICA should support the EA to develop the prioritization system to utilize the limited resources and the alternative methods of technology transfer (e.g. use of video/e-learning which as efficiency and effectiveness with limited financial and human resources.

Joined bridge inspection training session near Ranir Bandar

Site visits at Mohosthan Bridge
(old bridge with retrofitting and new bridge)

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Cambodia Office: May,2022

Country Name	the Project for Expansion of Lower Secondary Schools in Phnom Penh
Kingdom of Cambodia	

I. Project Outline

Background	Education infrastructure in Cambodia was devastated due to a reduction in the number of teachers, abolishment of school facilities, disposal of textbooks and teaching materials, and others, which were induced by the civil war since 1970s. With subsequent efforts for reconstruction and improvement of the education, primary education produced positive results, such as the increase in the net enrollment rate up to 96.4% (2011/12). On the other hand, the net enrollment rate for lower secondary education was limited to 35%. It was an inhibitor to increase the enrollment rate for upper secondary education and higher education indispensable for industrial human resources development. Particularly, in Phnom Penh, the capital of Cambodia, with the high need for industrial human resources development, the number of facilities for lower secondary education was lacked against the recent rapid population growth. The number of students per class was 95.7, which significantly exceeded the national average of 61.5. As a result, a three-shift and two-shift system were reluctantly adopted, and the lack of class hours and others caused the reduction in the quality of education. It was an urgent issue to expand the number of classrooms.					
Objectives of the Project	To improve learning environments through the enhancement of access to lower secondary education and the alleviation of overcrowded classrooms by expanding lower secondary schools that are in short supply in Cambodia's capital Phnom Penh where the population soar, thereby contributing to industrial human resources development in the future.					
Contents of the Project	1. Project Site: Phnom Penh Capital Administration (PPCA) 2. Japanese side: (1) Civil work and procurement of equipment: 8 schools with 165 classrooms (14,256 m^2), 7 toilet booths (333.3 m^2), tables and chairs for teachers and students, etc. (2) Soft component: detail design and construction management 3. Cambodian side: Land levelling, preparatory work for demolition of existing buildings and others.					
Project Period	E/N Date	June 30, 2014	Completion Date (ex-ante)	March 2017 (34 months)	Completion Date (Actual)	January 26, 2018 (56 months)
	G/A Date	July 14, 2014				
Project Cost	E/N Grant Limit / G/A Grant Limit: 851 million yen, Actual Grant Amount: 834 million yen					
Executing Agency	Department of Education, Youth and Sport, Phnom Penh Municipality (PPDoEYS)					
Contracted Agencies	Main Contractor(s): Deum Penh Construction Co., Ltd., Ly Chhuong Construction & Import Export Co., Ltd. Main Consultant(s): Mohri, Architect & Associates, Inc. Agent: Japan International Cooperation System					

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

According to the ex-ante evaluation, the ex-post evaluation expected to be implemented 3 years after the completion. However, it was actually done 2 years after the completion due to the delay of the project.

1 Relevance

<Consistency with the Development Policy of Cambodia at the Time of Ex-Ante >

The project was consistent with development policy of Cambodia. "National Strategic Development Plan 2009-2013" set "capacity development and human development" as one of the important strategies and emphasized the importance of education. "Education Strategic Plan 2009-2013" aimed at "enhancement of quality and efficiency of secondary education" and specified the promotion of constructing new schools to strength equitable access to education.

<Consistency with the Development Needs of Cambodia at the Time of Ex-Ante >

The project was consistent with development needs of Cambodia. In Phnom Penh, the number of facilities for lower secondary education was lacked against the recent rapid population growth, and the number of students per class was 95.7, which significantly exceeded the national average of 61.5.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA Policy. "The Country Assistance Policy for Kingdom of Cambodia" (2012) set "promotion of social development", including "improvement of the quality of education", as one of the priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project objectives have been achieved. The capacity of the target 8 schools, namely the number of students received, increased from 5,236 in 2013 to 12,179 in 2020 (Indicator 1). The number of students per class in the target 8 schools decreased from 98 to 44.25 for the same period (Indicator 2). The level of student-class ratio reached the national standard of 40-50 students per classroom.

As for qualitative effects of the project, the educational environment has been enhanced after abolishing the three-shift system as can be seen by the longer teaching and learning hours and the fewer absentees and drop-out students. The 4 target schools which borrowed the classrooms have enough classrooms after the project.

<Impact>

The project has contributed to industrial human resource development since the project completion. The project has supported the development needs by providing the fundamental facility and equipment for the possible education process at the school level. The lower

secondary graduation and upper secondary enrolment rates have been achieving nearly 100%. The students' knowledge in science subjects have increased. This expects that the upper secondary graduates to enter the labor market or higher education in engineering fields will increase.

Other positive/negative impacts were not observed at the time of ex-post evaluation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Baseline 2013 Baseline Year	Target 2020 2 Year(s) after Completion	Actual 2018 Completion Year	Actual 2019 1 Year after Completion	Actual 2020 2 Years after Completion	Source
The capacity of the target 8 schools (no. of students)	5,236	12,496	10,250	11,294	12,179	Response to Questionnaire by PPDoEYS
The number of students per class in the target 8 schools	98	72	40	44	44.25	Response to Questionnaire by PPDoEYS

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 98%), the project period significantly exceeded the plan (ratio against the plan: 165%). The main reason was that local procurement procedure under the scheme of the Grant Aid for Community Empowerment had been new to the Cambodian side. It took time to review every contract and bidding documents, and sometimes required the translation into the national language. Therefore, the project efficiency is fair.

4 Sustainability

<Institutional/Organizational Aspect>

The existing organizational structure has managed to sustain the project effect by the time of ex-post evaluation. PPDoEYS oversees the Operation and Maintenance (O&M) of schools for Primary to Secondary levels, while students, teachers, and principals in target schools implement the daily O&M. In six of eight target schools, sufficient numbers of teachers have been assigned. In the other two schools, the number of teachers has not been sufficient due to the expansion of school enrolment boundary.

<Technical Aspect>

The technical knowledge about O&M of the school facilities and equipment installed by the project have been shared to the concerned staff through the distribution of the O&M Manual, which was produced by "the Project for Construction of Primary Schools in Phnom Penh" (2010, Grant Aid). Therefore, the target schools have been able to perform the routine O&M since the project completion. At the school level, the students and teachers have cleaned the classrooms and toilets every day.

<Financial Aspect>

The financial condition of the target schools has been secured by the allocated budget of the governments. This budget has been sufficient for the basic and routine O&M. In the case of large-scale maintenance, the schools need to request the external supports to the authorities such as the School Management Committee, the PPCA or the Ministry of Education, Youth and Sport (MoEYS). After receiving the budget support, each school needs to contract out with private contractors.

<Current Status of Operation and Maintenance>

The target schools have sustained appropriate O&M of the facilities and equipment installed by the project at the time of the ex-post evaluation. The facility and equipment have been in good condition and utilized in accordance with their intended purposes. The spare parts and consumables have been procured in a timely manner. The target schools have been also able to manage and fix the minor problems as in the case of clogging the drainage pipe.

<Evaluation Result>

In the light above, slight problems have been observed in terms of the institutional/organizational aspect. Therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

The project achieved the project objectives to improve learning environments through the enhancement of access to lower secondary education and the alleviation of overcrowded classrooms by expanding lower secondary schools. The project has contributed to industrial human resource development since the project completion. Regarding to the sustainability, although there had been slight problems in assigning sufficient number of teachers, the existing organizational structure has managed to sustain the project effect. As for efficiency, the project period significantly exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- The financial conditions of target schools have been improved in the last three year, and should be maintained by the PPCA and the MoEYS. The government expenditure has been reduced the less prioritized costs in the last two years during the COVID-19 pandemic. The schools at all levels have been completely closed until November 2021. After school re-opening, the target schools require budget for preparation, including O&M. Thus, the budget allocation from the PPCA to schools for O&M must be secured and/or shall be increased for emergency needs in 2022.

Lessons Learned for JICA:

- The project was the first project in Cambodia under the Grant Aid for Community Empowerment by Japan. Based on its implementation structure, the contractor was selected locally with the supports of the Procurement Agent. At the initial stage, the Agent Agreement must

be made between the Government of Cambodia and the Procurement Agent. During this process, it took longer time than expected for discussion and negotiation until the agreement was signed because Cambodian side was very skeptical with the agreement and took very detail points and wordings, and also required to translate into the national language. Furthermore, the procurement and bidding documents required checking by bureaucratic offices until the final approval by the Governor of the Phnom Penh Capital. Therefore, in case where the grant aid project is implemented under the new scheme, it is necessary for both JICA and recipient country to check the necessary process in advance when JICA conducts the preparatory survey or the outline design survey.

Chamroeun Phal School in Phnom Penh

Classroom in Chamroeun Phal School

conducted by Fiji Office: March 2022

Country Name	the Project for Improvement of Equipment for Disaster Risk Management
Republic of Fiji	

I. Project Outline

Background	The Fiji Meteorological Service (FMS), which oversees meteorological-related operations in Fiji, was designated as the Regional Meteorological Center for Tropical Cyclone Programme (RSMC for TCP) by the World Meteorological Organization (WMO) in 1995. It had played a vital role in forecasting cyclones not only in Fiji but also in the southwestern Pacific region issuing warning, as well as performing weather forecasting in the Pacific region. It also played a central role in developing human resources in the weather area of the Pacific region. The FMS observation network was not sufficiently developed, and there were rooms for improvement in terms of disaster risk management such as high accuracy forecasting for tide levels and cyclones, information analysis, and information Transmission systems.			
Objectives of the Project	To observe abnormal tide levels such as storm surges due to cyclone, heavy rains, lightning strikes and collect observation data to FMS in near real time by installing meteorological and oceanographic observation and communication equipment, thereby contributing to development and strengthening of a system for observing factors of disasters in the country.			
Contents of the Project	1. Project Site: whole nation 2. Japanese side: Installation of: Tide Observation System (1 set), VSAT (Very Small Aperture Terminal) Satellite Communication System (5 sets), Wind Profiler System (1 set), Automatic Weather Station (AWS) (1 set), Calibration Equipment (1 set), Lightning Detection System (4 sets) 3. Fiji side: Removal of existing equipment and logistics			
Project Period	E/N Date	April 20, 2012	Completion Date	February 27, 2015 (Completion of installation)
	G/A Date	April 20, 2012		
Project Cost	E/N Grant Limit / G/A Grant Limit: 300million yen, Actual Grant Amount: 300 million Yen			
Executing Agency	Fiji Meteorological Service (FMS)			
Contracted Agencies	Main Contractor(s): NBK CORPORATION Main Consultant(s): Yachiyo Engineering Co., Ltd Agent: Japan International Cooperation System (JICS)			

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

"Effectiveness/Impact" is judged based on the target year (2018), while "Sustainability" is judged as at the time of ex-post evaluation (2021).

1 Relevance

<Consistency with the Development Policy of Fiji at the Time of Ex-Ante Evaluation>

The project was consistent with the development policy of Fiji. Based on the "National Disaster Management Plan" prepared in 2006, FMS drafted a business plan (Fiji Meteorological Service Business Plan 2012 January-December), updated weather observation equipment, and made observation data online. It aimed to establish a system that enables more accurate and more prompt observation through automatic creation of meteorological maps.

<Consistency with the Development Needs of Fiji at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Fiji for disaster management. As stated above ("Background"), the FMS observation network was not sufficiently developed, and there were many issues to be improved for disaster control systems such as high accuracy forecasting for tide levels and cyclones, information analysis, and information transmission systems.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA Policy. Climate Change and Environment including disaster risk reduction is one of the priority areas of assistance to Fiji[1].

<Appropriateness of project design/approach>

Some equipment were damaged and repairs were not undertaken. More attention should have been given to the selection of equipment (to procure equipment for which spare parts are available in Fiji) and also more technical support is required for FMS to be able to effectively repair and maintain the equipment. Nonetheless, project design/approach/measures are mostly appropriate to address development issues, as most of the equipment was functional at the target year of the ex-post evaluation as of 2018 and is being effectively used in daily observation and operations of the FMS.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project partially achieved the objective of "to observe abnormal tide levels and collect observation data to FMS in near real time".

As for the tide observation interval (Indicator 1), the gauge procured under the project in Vatia, Viti Levu transmitted data at 10 minute intervals. During Tropical Cyclone (TC) Winston (February 2016), the system was very robust and continued its services hence there was no damage to the system where the eye of the cyclone crossed.

[1] ODA Country Databook 2012

All sets of VSATS were good and operational condition as of 2018. With VSAT introduced under the project, communication with the remote islands became more reliable and the network has increased as expected (Indicator 2).

After the introduction of the wind profiler system, the wind data has been displayed for forecasters daily use to provide real time data. (Indicator 3). The wind profiler was first of its kind installed in Fiji. The innovative technology helped to improve quality of forecasting especially for the wind profiler that was installed at the Nadi International Airport and this was evaluated as a great asset to the forecasters to provide critical aviation related products to the busiest international airport in Fiji. The equipment is in a good working condition and is well maintained by FMS.

Under this Project one AWS was provided and this was the only AWS in Fiji. With the installation of the AWS, the data is well received on hourly basis at FMS for daily use and observations have been available from the Weather Station automatically as expected (Indicator 4). FMS with the assistance of UNDP has installed 3 more additional AWS.

All sets of the lightning detection system are functional and observation data can be transmitted to FMS HQ properly. (Indicator 5).

Overall, it has been noted that accuracy of information provided has improved and the real time observation and automatic data collection become possible under this project and the expected quantitative effects were achieved at the time of ex-post evaluation. The equipment provided by this project met FMS's standard in verifying data against other observation data. This verification process ensures provision for quality data.

In terms of availability of spare parts, FMS does not have any spare parts and neither these spare parts are available locally in the market therefore it is difficult for FMS to replace or to repair the equipment. The officials that were trained under the project have moved to the headquarters of Ministry of Infrastructure and Meteorological Services while the other staff has migrated. Hence staff from other Divisions were posted to fill in the positions who had little knowledge on the maintenance of the equipment. The Staff had on-site training provided by the Consultants who installed the equipment however there was no in-depth training provided. FMS's technical staff through the hands-on training have been trying to rectify issues faced with the equipment and try to carry out minor repairs.

<Impact>

It was expected that anomalous tide level and meteorological information are conveyed to citizens promptly and accurately after the completion of the project. As a result of this project, the daily marine forecast for Fiji and the South West Pacific is issued to the public, while the Marine Weather Bulletin covers the whole South West Pacific area. Weather Bulletin is issued twice daily. Therefore, during the cyclone season and adverse weather conditions, the public has been adequately for-warned. Timely marine weather bulletin is issued for mariners to ensure that they refrain from going out to sea for fishing or sailing. In addition, the timely bulletins has also increased air-safety as vessels and aircrafts operations have been issued with timely warnings from FMS specially for sever weather and thunder storms.

In terms of other project impacts, vacant sites were selected for installation of all the equipment under the project and no resettlement was required accordingly. As for the site for tide observation system at Vatia in Viti Levu, a memorandum of understanding with a private company was signed for the use of site. No negative impact on natural environment was observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

	Baseline (2012) Baseline Year	Target (2018) 3 Years after Completion	2015 Year of Completion	2018 3 Year after Completion (Ex-post evaluation)
Indicator 1-1 Tide Observation and interval time	60 minutes	30 minutes	10 minutes	10 minutes
Indicator 1-2 Number of tide observation stations	2 sites	3 sites	1[2]	3
Indicator 2 Locations within satellite telecommunication network	0 (Currently communication through telephone/radio)	5	5	5
Indicator 3-1Wind Profiler System	Radiosonde: 1	Wind Profile System :1 Radiosonde: 1	Wind Profile System :1 Radiosonde: 1	Wind Profile System :1 Radiosonde: 1
Indicator 3-2 Frequency of wind profile	2 times per day	1 time per 10 minutes	Real time data	Real time data
Indicator 4 AWS in capital area	0	1	1	1
Indicator 5: Lightning Detection System	Just only within 56 km radius from Nadi international airport	Approximately whole areas of Viti Levu and Vanua Levu islands	Approximately whole areas of Viti Levu and Vanua Levu islands are covered	Approximately whole areas of Viti Levu and Vanua Levu islands are covered

[2] The Tide gauge installed by FMS before 2012 were broken before 2015 and Secretariat of the Pacific Community (SPC) installed 2 more tide gauge in Suva and Lautoka

Source： FMS

3 Efficiency

Although the project cost was as planned (the ratio against the plan: 100%), the project period slightly exceeded the plan (109%). Therefore, the efficiency of the project is fair.

4 Sustainability

< Institutional/Organizational Aspect>

FMS, as the country's only meteorological organization, has performed tasks such as observation, forecasting, and warning on weather, therefore, it is responsible for the operation and maintenance (O&M) of the equipment installed under the project. FMS have six (6) divisions namely, “Corporate”, “Hydrology”, “Climatology”, “Forecasting”, “Computing Information System” and “Reporting, Network and Facilitates”. The Reporting Network and Facilities Division is responsible for the operation and maintenance of all the FMS equipment including the equipment that was provided under this Project.

The number of staff at FMS is 125 as of February 2020. According to FMS, it has sufficient number of staff to carry out work as required by FMS network including operation and maintenance of equipment.

However, some observations were made on the equipment which is not in operational now, especially due to the damage from massive Tropical Cyclone in 2019. In April 2020 during TC Harold with the maximum Category 5 did some damages to the equipment. The tide observation sustained damages during this Cyclone thus it became nonfunctional. The other equipment that was damaged was the tidal gauge wind profiler (air cooling system), 1 lighting detector and 1 lighting sensor and server for disaster recovery site. FMS has been liaising with Japan Meteorological Agency (JMA) to assist with the repairs of these equipment therefore it could continue with the services it provides.

<Technical Aspect>

The staff of FMS were provided basic training on the maintenance and operation before handing over of the equipment. Moreover, additional training including calibration of equipment were provided by the technical cooperation project which was implemented following to this project. In addition to this, manuals were made available with the equipment and these have been well kept. Occasionally these are utilized by FMS’s technical staff in order to rectify issues faced with the equipment and try to carry out minor repairs.

However, the trainings provided only focused basic skills and technical officers understood the basic frontline maintenance. Therefore, FMS technicians do not have much knowledge on which parts of the equipment needs replacement or repairs. And in results, the equipment has been repaired for a long period of time. Thus additional training has been requested to JICA especially on tide gauge, wind profiler and lighting detector and at the same time, Technicians try to improve their skills on their own.

In terms of the internal training for new staff, most of the technicians have learned through on job training and FMS has not had structured internal training program for any other activity apart from observer training conducted by FMS trainers.

<Financial Aspect>

In recent years, FMS receives an annual budget of 60,000 Fijian dollars (FJD) for maintenance of all meteorological equipment. The budget had been utilized in buying spare parts of priority and critical equipment such as AWS (Airports/Airstrips/WIGOS Stations). This budget is not sufficient in carrying out repairs for the equipment provided in this project as the replacement cost of equipment is relatively high and spare parts needs to be procured from Japan to replace or repair the equipment. In the preparatory study of the project, it is proposed that the maintenance plan of the equipment that incorporates not only the maintenance cost for new and existing equipment but also the cost of periodic equipment upgrading by increasing government subsidy, however, it is not easy to increase government budget.

Based on the Ministry of Infrastructure, Transport, Disaster Management and Meteorological Services Strategic Plan 2019-2022, the Operation Budget of FMS for 2020-2021 is FJD8.46M and for 2021-2022, the estimated Operation Budget will be FJD8.46M. Out of it, the estimated Capital project budget for 2020-2021 will be FJD6.8M. With the project budget, FMS is trying to allocate budget to carry out replacement and repairs of the equipment provided in the project. Due to COVID-19 pandemic in Fiji, all the Government Ministries and Departments budget were reduced as this budget was directed towards the pandemic. In addition to that, FMS and JICA has started to discuss on the JICA’s follow up program for repairing the equipment as well as the additional trainings.

<Current Status of Operation and Maintenance>

FMS has been maintaining and operating equipment by their own. AWS inspection and maintenance has been carried out based on the plan by FMS. However at the time of ex-post evaluation, FMS has not been able to purchase spare parts for equipment which is not operational.

Regarding VSAT, 1 set was installed in Matuku Island that was damaged by storm surge event during TC Sarai in Dec 2019 and no repairs were carried out by FMS as of 2021 due to budget issues faced by COVID -19 pandemic and network not working efficiently. FMS had replaced VSATs with local mobile network in 2020 and 2021. FMS is currently discussing with Vodafone regarding the replacement of VSAT that is currently not working. An agreement between FMS and Vodafone will be concluded for the maintenance and service fee which will be borne by FMS.

One set of lightning detection system which has been installed in Nadi has been working well. The others installed in Lautoka, Ba, Labasa are facing some operational issues with data logger and data transmission due to the communication network changes after 2019. FMS technicians were not able to carry out maintenance and rectify the issues.

No planned maintenance has been scheduled for the tidal gauge nor the wind profiler. The equipment under the project was procured from Japan therefore no dealers in Fiji are selling spare parts of the equipment provided under the project. Technical skills and knowledge which is required for the repairs of such system configuration for AWS, Lighting Detector, Wind Profiler and Tide Gauge is not available as the FMS staff trained under the project are no longer employed. Therefore the newly assigned staff needs to be trained to be able to identify parts required and the repair works which needs to be undertaken.

<Evaluation Result>

Some serious problems have been observed in terms of the technical and financial aspect. Therefore, sustainability of the project effects is low.

5 Summary of the Evaluation

The project achieved its target at the timing of ex-post evaluation (2018, three years after the completion of the project). However, due to

the impact of severe Tropical Cyclone which hit Fiji in 2019, some equipment was damaged. Therefore, the project partially achieved the objective "to observe abnormal tide levels and collect observation data by FMS in near real time". In addition, the tide observation interval has been shortened as communication become more reliable with the increased network thus the wind data is displayed at real time and the data from AWS is released now on hourly basis.

One out of four lighting detectors procured under the project is operational while 3 is not operational due to VSAT network upgrade at the sites. FMS was also not successful in changing the configurations of these VSAT's as a result data transmission had stopped.

As the impact of the project, anomalous tide level and meteorological information have been conveyed to citizens promptly and accurately. As for the sustainability, some problems have been observed in terms of the institutional/organizational, technical, and financial aspect. Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- FMS needs to secure sufficient budget for operation and maintenance of equipment as proposed at the time of project planning. The request for budget for necessary cost for maintenance needs to be submitted by FMS to the government at the time of budget preparation. Some of the equipment became non-operational from 2019 and 2020 and FMS could not secure any budget to carry out any repairs or replacement of the equipment.
- The officials that were trained on the maintenance and operation of these equipment are no longer employed with FMS and very little handing over or training was provided to other technicians who have taken over. It is requested that FMS to take more responsibility of these equipment provided for sustainability by utilizing the manuals provided as well as conducting internal training.
- FMS only requested JICA to support in maintenance of equipment when this evaluation was carried out. The issues could have been identified earlier and measures undertaken as soon as the equipment related issues were identified.
- The equipment at FMS is critical in ensuring effective weather forecasting and needs capacity in strengthening and managing of all the equipment and make recommendations to Senior Management for repairs or replacement as required. FMS should also make arrangements in securing sufficient budget for any repairs or replacement of the equipment.

Lessons Learned for JICA:

1.Selection of equipment based on the conditions in each country:-

Some equipment provided in this project was very unique, therefore, FMS had difficulty to procure spare parts in Fiji. For the selection of equipment, it is important to study and analyze the technical and financial capacities of the executing agency, as well as the domestic market for equipment and its parts and to consider appropriate specifications during the preparatory stage.

2. Enhancement of institution and capacity for operation and maintenance

In order to provide meteorological services in appropriate and effective manner, it is necessary for the executing agencies to properly operate and maintain the installed equipment for a longer period. However, it has been observed that the Government Ministries and Departments do not allocate budget for maintenance of equipment donated by development partners or even bought by the Ministries. In addition, high turnover of staff is very common in the Pacific. Therefore, for a sustainable use and maintenance of the equipment, a feasible O&M and monitoring plan including the training and finance needs to be discussed with the implementing agency at the planning stage of the project. If necessary, concluding an Agreement or Minutes for proper monitoring and maintenance of equipment is effective after the completion of Project. As for the financial plan, it is important to examine and discuss its future budget plans of the executing agency. Lastly, depending on the organizational resource and capacity, it is advisable to consider including adequate training on O&M in the soft component to facilitate the entire agency to acquire the necessary knowledge. (eg: Equipment for which spare parts are not available in the country or that is being introduced for the first time in the country, intensive training through OJT needs to be provided on maintenance that enable trained staff to acquire enough knowledge to conduct TOT.)

Tide Gauge, Vatia Wharf

Digital barometer calibration namely (PTB series) JICA provided Tough Book HP laptop and calibration equipment.