

Internal Ex-Post Project Evaluation 2015
Evaluation Report

May 2023

Japan International Cooperation Agency
(JICA)

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List of Internal Ex-post Evaluation

Type of Assistance	Project Start Year*	Type of Evaluation	Country	Sector/Theme	Project Name	Project Number
G	2004	Ex-post Evaluation	Cape Verde	Water Supply, Water Resources Development	The Project for Groundwater Development and Water Supply in rural area of Santiago Island (Projecto de Desenvolvimento de Águas Subterrâneas e Abastecimento de Água no Sector Rural na Ilha de Santiago)	0401400
G	2004	Ex-post Evaluation	Papua New Guinea	Roads	The Project for Rehabilitation of Bridges on Highlands Highway	0411000
T	2007	Ex-post Evaluation	Philippines	Environment Issue	Project on Enhancement of Local Governance and Community Empowerment on Micro-Watersheds in Misamis Oriental	200600956
T	2003	Ex-post Evaluation	Cambodia	Labor	Project on Gender Mainstreaming & Policy Development through Upgrading Informed and Research Capacity	200601307
T	2006	Ex-post Evaluation	Viet Nam	Livestock Industry	Project for Improvement of Productive Technology in Small and Medium Dairy Farms in Viet Nam	200601775
T	2007	Ex-post Evaluation	China	Livestock Industry	The Project for Protection of Natural Grassland and Nomad Settlement in Xinjiang Uygur Autonomous Region	200602104
T	2006	Ex-post Evaluation	Pakistan	Basic Healthcare	EPI/Polio Control Project	200602529
T	2005	Ex-post Evaluation	Papua New Guinea	Regional Development Planning	The Integrated Community Development Project for the Settlement Areas in National Capital District	200602786
T	2006	Ex-post Evaluation	Panama	Forestry / Forest Preservation	The Project for Participatory Community Development and Integrated Management of the Alhajuela Lake Subwatershed	200603269
T	2003	Ex-post Evaluation	Bolivia	Education	The Quality Improvement of Primary School Education (PROMECA: Proyecto de Mejoramiento de la Calidad de la Enseñanza Escolar)	200603366
T	2004	Ex-post Evaluation	Peru	Human Resources / General	The Project of Strengthening Integrated Health Care for the Population Affected by Violence and Human Rights Violation in the Republic of Peru	200603695
T	2003	Ex-post Evaluation	Ethiopia	Primary Education	Community-Based Basic Education Improvement Project	200604564
T	2004	Ex-post Evaluation	Ethiopia	Agriculture / General	Project on Strengthening Technology Development, Verification, Transfer and Adoption through Farmer Research Groups (FRGs)	200604571
T	2006	Ex-post Evaluation	Zambia	Increased Food Production Aid	Food Crop Diversification Support Project for Enhancement of Food Security	200605120
T	2006	Ex-post Evaluation	Mozambique	Water Resources Development	Project for Sustainable Water Supply, Sanitation and Hygiene Promotion in Zambezia Province	200605389
T	2006	Ex-post Evaluation	Thailand	Government / General	Project on Capacity Development in Disaster Management	200608571
T	2006	Ex-post Evaluation	Ethiopia	Roads	Capacity Development Project on Bridge Management	200608805
T	2006	Ex-post Evaluation	Bangladesh	Urban Sanitation	Project for Strengthening of Solid Waste Management in Dhaka City	200609199
T	2007	Ex-post Evaluation	Bangladesh	Agricultural Engineering	Strengthening of Activities in Rural Development Engineering Centre (RDEC) Project Phase II	200609200
T	2009	Ex-post Evaluation	China	Weather / Earthquakes	Japan-China Cooperation Plan of Earthquake First-aid Capacity Training	200613099
T	2008	Ex-post Evaluation	Indonesia	Government / General	The Strengthening of Environment Management Capacity of Local Governments in Indonesia	200613287
T	2008	Ex-post Evaluation	Nepal	Basic Healthcare	School Health and Nutrition Project	200700581
T	2008	Ex-post Evaluation	Madagascar	Social Infrastructure / General	Improvement of the rural water supply management and hygiene practice in Atsimo Andrefana region	200700711
T	2009	Ex-post Evaluation	Indonesia	Urban Planning / Land Development	Enhancement of Urban Development Management in the Mamminasata Metropolitan Area	200700850
T	2007	Ex-post Evaluation	Zambia	Water Resources Development	Sustainable Operation and Maintenance Project for Rural Water Supply (SOMAP) 2	200700919
T	2009	Ex-post Evaluation	Philippines	Rivers / Erosion Control	Strengthening of Flood Forecasting and Warning System for Dam Operation	200701090
T	2008	Ex-post Evaluation	Panama	Environment Issue	The Water Quality Monitoring Techniques Project (Phase II)	200701269
T	2008	Ex-post Evaluation	Honduras	Population / Family Planning	Project for Strengthening of Adolescent Sexual and Reproductive Health in Olancho Department in the Republic of Honduras	200701416
T	2007	Ex-post Evaluation	Burkina Faso	Agriculture / General	Project for Dissemination of Improved Seeds	200701493
T	2008	Ex-post Evaluation	Eritrea	Health / Health Care	Project for Strengthening Medical Equipment Management System for Quality Health Services	200701817
T	2008	Ex-post Evaluation	Viet Nam	Agriculture / General	The Project on Capacity Development of Participatory Agricultural and Rural Development for Poverty Reduction in the Central Highlands	200701971
T	2008	Ex-post Evaluation	Ethiopia	Primary Education	Project on Improving Access to Quality Primary Education by Community Participation	200702155
T	2008	Ex-post Evaluation	Philippines	Government / General	Autonomous Region in Muslim Mindanao (ARMM) Human Capacity Development Project	200702319
T	2008	Ex-post Evaluation	China	Health / Health Care	Project for Human Resource Development of Rehabilitation in the Central and Western Region in China	200702352
T	2009	Ex-post Evaluation	Indonesia	Water Supply	The Project for Water Supply Service Improvement in the Mamminasata Metropolitan Area	200800063
T	2009	Ex-post Evaluation	Cambodia	Roads	The Project for Strengthening of Construction Quality Control	200800169
T	2009	Ex-post Evaluation	Viet Nam	Environment Issue	Project for Strengthening Community-based Management Capacity of Bidoup-Nui Ba National Park	200800277
T	2009	Ex-post Evaluation	Pakistan	Primary Education	Project for Promotion of Student-Centered and Inquiry-Based Science Education	200800394
T	2008	Ex-post Evaluation	Papua New Guinea	Government / General	Integrated Community Development Project	200800448

Type of Assistance	Project Start Year*	Type of Evaluation	Country	Sector/Theme	Project Name	Project Number
T	2008	Ex-post Evaluation	Bolivia	Water Supply	Water is Health and Life (Phase 2)	200800574
T	2009	Ex-post Evaluation	Ghana	Primary Education	Project for Strengthening the Capacity of INSET Management	200800840
G	2008	Ex-post Evaluation	Zambia	Roads	Project for Improvement of Livingstone City Road	0803900
G	2008	Ex-post Evaluation	Cape Verde	Water Resources Development	The Project for Rural Water Supply in Santiago Island (Projecto de Abastecimento de Água às Zonas Rurais da Ilha de Santiago)	0868660
T	2009	Ex-post Evaluation	Mongolia	Education	Project for Strengthening Systems for Improving and Disseminating Child-Centered Teaching Methods	200900491
T	2009	Ex-post Evaluation	Zambia	Business Management	Zambia Investment Promotion Project-Triangle of Hope (ZIPP-ToH)	200901055
T	2009	Ex-post Evaluation	Indonesia	Business Management	Small & Medium Enterprise Human Resource Development under Economic Crisis	200903938
T	2009	Ex-post Evaluation	Sri Lanka	Water Supply	The Capacity Development Project for Non-Revenue Water (NRW) Reduction in Colombo City	200904082
G	2009	Ex-post Evaluation	Timor-Leste	Water Resources Development	The Project for Urgent Improvement of Water Supply System in Bemos-Dili (Phase 1)	0960220
G	2009	Ex-post Evaluation	Viet Nam	Health / Health Care	The Project for Improvement of Equipment in the National Hospital for Obstetrics and Gynecology	0960930
G	2009	Ex-post Evaluation	Zambia	Health / Health Care	Project for the Improvement of the Medical Equipment of the University Teaching Hospital	0960990
G	2009	Ex-post Evaluation	Marshall Islands	New / Renewable Energy, Environment Issue	The Project for Introduction of Clean Energy by Solar Electricity Generation System	0961350
G	2009	Ex-post Evaluation	Federated States of Micronesia	New / Renewable Energy, Environment Issue	The Project for Introduction of Clean Energy by Solar Electricity Generation System	0961360
G	2009	Ex-post Evaluation	Afghanistan	New / Renewable Energy	The Project for Introduction of Clean Energy by Solar Electricity Generation System	0961530
G	2009	Ex-post Evaluation	Malawi	Transportation / Traffic / General, Road Transport	The Project for Replacement of South Rukuru Bridge on the Main Road M001	0961710
G	2009	Ex-post Evaluation	Palestine	New / Renewable Energy	The Project for Introduction of Clean Energy by Solar Electricity Generation System	0961770
G	2010	Ex-post Evaluation	Montenegro	Water Supply	The Project for Urgent Rehabilitation of Water Supply System in the Capital City Podgorica	0961880
G	2010	Ex-post Evaluation	Democratic Republic of The Congo	Health / Health Care, Human Resources / General	The Project for Improvement of Medical Equipment in Kinshasa University Hospital (Le projet d'aménagement en équipements des Cliniques Universitaires de Kinshasa)	0962330
G	2010	Ex-post Evaluation	Indonesia	Education, Disaster Relief Assistance	The Project for Safe School Reconstruction in Devastated Areas of Earthquake in Offshore of Padang in West Sumatra Region	0962340
T	2011	Ex-post Evaluation	Viet Nam	Agriculture / General	Project for Climate Change Adaptation for Sustainable Agriculture and Rural Development in the Coastal Mekong Delta	201001960
G	2010	Ex-post Evaluation	Indonesia	Air Transport / Airports	The Project for Airport Security System Improvement	1060370
G	2010	Ex-post Evaluation	Timor-Leste	Water Supply, Rivers / Erosion Control	The Project for Urgent Improvement of Water Supply System in Bemos-Dili (Phase 2)	1060730
G	2010	Ex-post Evaluation	Malawi	Air Transport / Airports	The Project for the Replacement of Air Navigation System at Kamuzu International Airport	1060770
G	2011	Ex-post Evaluation	Malawi	Roads	The Project for Replacement of South Rukuru Bridge on the Main Road M001	1161500

Country Name	The Project for Groundwater Development and Water Supply in rural area of Santiago Island (Projecto de Desenvolvimento de Águas Subterrâneas e Abastecimento de Água no Sector Rural na Ilha de Santiago)
Republic of Cabo Verde	The Project for Rural Water Supply in Santiago Island (Projecto de Abastecimento de Água às Zonas Rurais da Ilha de Santiago)

I. Project Outline

Background	Cabo Verde is located in tropical Sahel dry zone of the western edge of Africa. The limited annual rainfall of about 300 mm in average causes water shortage, particularly in the dry season. Under those situations, supply of safe drinking water had been one of the prioritized national development goals since the 1990's. In order to increase the water supply coverage ratio in the country, the National Institute of Water Resources (INGRH: Instituto Nacional de Gestão dos Recursos Hídricos) elaborated the National Action Plan for Integration of Water Resource (2008). Since 1994, upon the request of the government of Cabo Verde, the government of Japan had supported development of groundwater and started the Project for Groundwater Development and Rural Water Supply Santiago Island in 2004 (hereinafter referred to as "the Groundwater Project") in order to cope with shortage of safe drinking water. However, the construction works under that project were suspended and the project was terminated without completing construction of deep wells and water supply facilities as planned except for a part of the plan. Therefore, the government of Cabo Verde requested the government of Japan a project to complete the planned water source and water supply facilities under the previous project and the Project for Rural Water Supply in Santiago Island as Community Development Grant Aid Project (hereinafter referred to as "the Rural Water Supply Project") started in 2009.				
Objectives of the Project	To stably supply safe water to the population in the target area by construction of water supply facilities with sufficient quality and quantity and institutional building for sanitation awareness activities by the residents, thereby improvement of living conditions and sanitation for the population in the target area.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: 25sites in Santiago Island: Tarrafal (1 site), São Miguel (1 site), Santa Catarina (4 sites), São Salvador do Mundo (4 sites), Santa Cruz (1 site), São Lourenço dos Orgãos (3 sites), São Domingo (7 sites), Praia (1 site), Ribeira Grande de Santiago (3 sites) 2. Japanese side: Construction of 18 water supply systems in the 25 sites (deep wells, lifting pumps, distribution reservoir, distribution pipes, and public water taps, etc.), technical assistance (training for the Peer Educators (community instructor selected from the community members) to conduct sanitation awareness building activities in the communities of the project sites) 3. Cabo Verde side: Procuring sites, land preparation, development of access roads 				
Ex-Ante Evaluation	2009 (for the Rural Water Supply Project)t	E/N Date	May 21, 2004 (the Groundwater Project)	Completion Date	December 12, 2011 (the Rural Water Supply Project)
Project Cost	E/N Grant Limit:622 million yen (for the Groundwater Project), Actual Grant Amount: 995million yen (for the both projects)				
Implementing Agency	National Institute of Water Resource Management (INGRH: Instituto Nacional de Gestão dos Recursos Hídricos), reformed to the current National Water and Sanitation Agency (ANAS: Agência Nacional de Água e Sanemamento) since 2013.				
Contracted Agencies	(For the Groundwater Project) Consultant: Japan Techno Co., Ltd., Contractor: Dorico Ltd. (For the Rural Water Supply Project) Consultant: Japan Techno Co., Ltd., Procurement Agency: Japan International Cooperation System				

II. Result of the Evaluation

<Special Perspectives to be Considered in the Ex-post Evaluation>

[Scope of this ex-post evaluation]

Since the Groundwater Project was not completed within the E/N period and the Rural Water Supply Project was implemented mainly in order to complete the construction works planned in the Groundwater Project, a scope of this ex-post evaluation covered the two projects to be evaluated as one project.

[Verification of Expected Project Effect and Baseline]

The following baselines based on the data estimated at the time of project design are used for verification of the expected effects by the project at the time of ex-post evaluation

- Indicator 1 (population access to stable and safe water): Since the project sites increased from 23 sites in the original plan of the Groundwater Project to 25 sites in the plan of the Rural Water Supply Project, the target beneficiaries of the population to be covered by the water supply facilities can be considered as around 17,000, which is estimated by the plan of the Rural Water Supply Project.
- Indicator 2 (improvement of water coverage rate): Although the original plan expected that the water coverage rate in Santiago Island would have increase by 6.5 points (from 38.6% in 2000 to 45.1% in 2010), it is difficult to verify the change made by the project contribution from the water coverage rate in 2000, because the water coverage rate in 2006 reached 81% by the implementation of other projects. Therefore, it was verified by the changes in the water coverage rate from 2006 to 2015 by the increase in the population with access to the water supply facilities constructed or rehabilitated by the project in order to clarify the project contribution to the improvement of water coverage rate in Santiago Island.

1 Relevance

Consistency with Cabo Verde's development policy at the time of ex-ante evaluation and ex-post evaluation

This project has been highly consistent with Cabo Verde's development policy prioritizing "the increase in the coverage of safe and stable drinking water to 100%" is set in policy documents such as the "Water Resource Development Master Plan (1993-2005)", "The National Action Plan for Integrated Water Resource (2008)", and "the National Vision of the Water, Life and Environment at the Horizon 2025".

Consistency with Cabo Verde's development needs at the time of ex-ante evaluation and ex-post evaluation

The project has met Cabo Verde's development needs for construction of water supply facilities to supply safe drinking water for the population in the target areas.

Consistency with Japan's ODA policy at the time of ex-ante evaluation

The project was consistent with Japan's ODA policy for Cabo Verde prioritizing support for the area of basic living environment, including water supply, at the time of ex-ante evaluation.

Evaluation result

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

2 Effectiveness/Impact

Effectiveness

The project has achieved its objective of "stable supply of safe water to the population in the target area". The population with stable access to safe water in the target 9 municipalities in Santiago Island reached to around 19,000 persons which is more than the target value of 17,000 persons. Also, the water supply coverage in Santiago Island improved by 6.5 points from the baseline in 2006 which is higher than the target value of 5.4 points. In 22 sites out of 25 sites, the water supply facilities with construction or rehabilitation of water supply facilities by the project have been well functioning and continuously supplying safe water. In the 3 sites, Pó de Saco, Tronco, Leitãozinho, the pumping systems have not operated, for example, due to cracks of a large part of the distribution pipe by runoff rainwater during the raining season 2015. However, the repair of that pipe is under preparation. According to ANAS, quality of water supplied through the water supply systems constructed by the project in the target area met the national water quality standard of Cabo Verde except Pó de Saco. The populations in the target area have improved their sanitation practices such as safe utilization of water, body hygiene, hand washing and home hygiene through the sanitation awareness activities conducted by the Peer Educators trained by the project. Also, in the 22 sites with well-functioning water supply facilities, the average water supply volume exceeded the target value of 20 liters per person per day.

Impact

The project contributed to improvement of living conditions and sanitation of the population in the target area, such as reduction of incidence of water-borne diseases as well as reduction of work burden and time for water fetching by women and children in the target area. In terms of incidence of water-borne diseases, for example, the number of cases of diarrhea under 5 children decreased in some project sites after the project completion: from 576 in 2012 to 367 in 2014 in São Miguel and from 477 to 346 for the same period in São Domingos. According to the Autonomous Water and Sanitation Service (SAAS: Serviço Autónomo de Água e Saneamento) and the water users in the project sites, the water supply facilities constructed or rehabilitated by the project shortened distance for access to drinking water that were round 3 to 5 km away from houses in the project sites and increased availability of safe water. As a result, average time for water fetching decreased from 3 hours in the project sites. Also, since the municipalities with the water supply facilities constructed or rehabilitated by the project have implemented household connections with those facilities, access to safe water became easier.

On the other hand, the ground water levels were lowered in the three sites of São Tomé, Tronco and Montanha e Fundra because of utilization of the ground water for water supply to the populations in the those sites. In order to cope with the issue, it is planned that those water supply facilities will be connected to other water source to be constructed under the future program.

No land acquisition and resettlement took place in by the project and no negative impact by the project on natural environment was not observed at the time of ex-post evaluation.

Evaluation result

In light of the above, effectiveness and impact of the project are high.

Quantitative Effects

Indicator	Before the project (2003) Baseline	Plan (2015) Target Value	Actual (2012)	Actual (2013)	Actual (2014) Target Year	Actual (2015) Ex-post Evaluation
Indicator 1*: The population with stable access to and safe water in the project sites (9 municipalities in Santiago Island)	0	Around 17,000 persons	N.A.	N.A.	N.A.	Around 19,000 persons
Indicator 2**: Improvement of the water supply coverage in Santiago Island	0 point (81.0%) (2006)	5.4 points (86.4%)	N.A.	N.A.	N.A.	6.5 points (87.5%)

Source : Ex-ante Plan Summary, Outline Design Report, Basic Design Report, information provided by ANAS and SAAS

Note 1: * Indicator 1 was verified by increase in the number of population with access to water supply through the water supply facilities in the project sites.

Note 2: ** Indicator 2 was verified by increase in the water supply coverage in Santiago Island through the project contribution of the expected increase in population of around 17,000 to be covered by the project to the estimated baseline population with access to water supply of 314,814 in 2006.

3 Efficiency

In the original plan for the Groundwater Project, construction of 19 water supply systems in 23 sites in Santiago Island were planned but the water supply systems in 6 sites¹ were completed or partially completed within the E/N period for the Groundwater Project. Upon the request by the government of Cabo Verde, the Rural Water Supply Project aimed at construction of the 18 water supply systems in 25 sites in Santiago Island in order to construct uncompleted works by the Groundwater Project and in the additional sites as well as rehabilitation of the completed works by the Groundwater Project. Since the project sites were added, the outputs of the distribution pipes were increased from the total length of 48.5km to the total length of 65.5km.

The project cost and period significantly exceeded the plan of the Groundwater Project (ratio against the plan: 160% and 475%, respectively.) The reasons of cost overrun were the increase in the number of the project sites and additional construction of new reservoir as well as rehabilitation of the existing sites. In addition, significant price escalation of energy and material prices in the international market may have attributed to the construction cost. Also, since the planned construction works were not completed within the E/N period for the grant aid project started in 2003², the project under the Rural Water Supply Project was implemented and the entire project period exceeded the original plan. Therefore, efficiency of this project is low.

4 Sustainability

Institutional aspect

Under the sector reform, INGRH was transformed to ANAS in 2013. ANAS is responsible for policy and planning for all water resources, domestic water supply, wastewater treatment and sanitation. ANAS is going to be guided by the National Water and Sanitation Council which was established in 2015, consisting of the core ministries, municipalities, private sector and civil society in order to align the sector policies with the overall policy direction of the government. For the operation and maintenance of rural water supply facilities, SAAS has been responsible at a municipality level. The number of technical staffs in ANAS increased from 40 in 2009 to 55 in 2015 and reached to a sufficient level in order to ensure proper monitoring of facilities. For SAASs, the number of staffs varies by size of municipality but it is considered as sufficient to adequately operate and maintain the water supply facilities in the project sites. Each site has at least 1 pump operator and 1 water sale person for each public tap. Except Tarrafal and São Miguel, the target municipalities have 1 or 2 Peer Educators to be engaged in the public awareness activities to improve hygiene practices, including sanitation management surrounding public taps, consumption of safe water and storage conditions at home through training sessions and conversation with the population. SAASs have continuously conducted supervision and monitoring for the Peer Educators trained by the project for implementing the sanitation awareness activities in the main sites.

Technical Aspect

The engineers and technicians of ANAS have sustained their skills and knowledge on major repair of rural water supply facilities, water quality management and delivery of trainings of maintenance for SAAS staffs through capacity building and continuous trainings by the government. Also, the technical staffs of SAAS have sustained their skills and knowledge of maintenance of the water supply facilities through the trainings by ANAS. However, ANAS has a lack of technical expertise for maintenance of the chlorination systems. The SAAS staffs have sufficient level of skills and knowledge for supervision and monitoring of the Peer Educators in order to conduct adequate sanitation awareness activities. All the Pump Operators and Water Sales Person in the project sites have been trained by ANAS and sustained sufficient level of skills and knowledge to operate and maintenance of the water supply facilities, including collection of water charge. The manuals developed by the project have been utilized by the Peer Educators, the Pump Operators and the Water Sales Persons. Although ANAS established a training system, the trainings have not been delivered on regular basis.

Financial Aspect

ANAS is able to support SAASs for major repair of the water supply facilities through the budget allocation by the government. However, the process of mobilizing necessary budget for major repair usually takes time. According to some of SAASs in the target areas, such as São Miguel, Santa Catarina, Santa Cruz, they continuously earned sufficient amount of revenue from the water sales to cover necessary O&M cost.

Current Status of O&M

As mentioned above, the water supply facilities in 22 out of the 25 project sites have been well-functioning. The main water supply facilities constructed by the project have been functioning as planned except chlorination systems that have been no longer functional in most project sites. In case of temporal malfunctioning, SAASs have been able to fix them shortly with support of ANAS if necessary, such as pump procurement.

Evaluation result

In light of the above, there are some problems observed in technical and financial aspect as well as current status of O&M. Therefore, sustainability of project effects is fair.

5 Summary of the Evaluation

The project has achieved its objective, "to stably supply safe water to the population in the target areas". Also, the project contributed to reduction of water-borne disease and work burden and time for water fetching in the target areas as well. As for sustainability, there is a concern about timely budget execution for major repair of the water supply facilities because of the time consuming process. Also, the chlorination systems installed for the water supply facilities have not been functional in most project sites. As for efficiency, the project cost and period considerably exceeded the plan due to the suspension of planned construction works under the E/N signed in 2003 and additional works required afterwards.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

[ANAS]

-It is necessary to improve planning of trainings for technician to maintain the technical level of operation and maintenance system;

-It is required to improve internal budget mobilization procedure of ANAS for major repairs to avoid long-term malfunctioning of water

¹ Curral Velho, Chã de Ponta, Bombardeiro, Entre Picos de Reda, Ribeira de Barca, and Ribeirão Almoça

² It was because the construction works had been suspended by disagreement on design changes between the consultant and the contractor and never been completed with the E/N period.

supply facilities;

-It is recommended to introduce specific training on the chlorination system installed in the project sites in order to allow technicians of ANAS and SAASs to have the expertise needed to ensure maintenance of such equipment.



Public Water taps in Sao Tome (Praia)



Water tank and machinery room in Levada (San Lorenzo dos Orgãos)

Country Name	The Project for Rehabilitation of Bridges on Highlands Highway
The Independent State of Papua New Guinea	

I. Project Outline

Background	The Highlands Highway (hereafter referred to as the “Highway”) is the single most important highway in Papua New Guinea (PNG) and is the economic backbone of PNG in terms of trade volume and value. It is the only direct road link totaling 605 km from Lae where the biggest port in terms of cargo handling volume is located via Mount Hagen to Mendi where the centers of agricultural and mining industries are situated. However, the Highway had frequently been impassable and induced high transportation cost because of deterioration of surface condition caused by improper maintenance, flooded bridges by river bed aggradation, landslide or cut slope failure, and erosion of embankment by flood. Furthermore, the old bridges on the Highway caused a serious interference for the heavy-duty cargo vehicles due to lack of load bearing ability and dangers for pedestrians passing the bridges which were a single lane with narrow carriageway.				
Objectives of the Project	To ensure stable and safe transportation of vehicles and pedestrians passing bridges by the rehabilitation of 12 bridges on the Highlands Highway between Kainantu and Goroka, thereby contributing to improvement of accessibility and mobility of the project areas in 6 Highland Provinces (Morobe, Eastern Highlands, Chimbu, Western Highlands, Southern Highlands, and Enga).				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project site: Highlands Highway between Kainantu and Goroka (80 km) 2. Japanese side: Rehabilitation of a single lane bridge to a dual lane bridge for 12 bridges on the Highlands Highway between Kainantu and Goroka, refurbishment of road pavement, refurbishment of road drainage structure 3. PNG’s side: Provision and clearance for main camp yard and temporary yard at each bridge site, relocation of utility poles affected by the works at the site, complete demolition of the existing Dirty Water Bridge and Bena Bena Bridge, compensation payment for crops affected by the works at the site 				
Ex-Ante Evaluation	2004	E/N Date	9 September 2004 (Phase I) 30 May 2005 (Phase II)	Completion Date	24 May 2006 (Phase I)
Project Cost	E/N Grant Limit: 371 million yen (Phase I) and 861 million yen (Phase II), Actual Grant Amount: 366 million yen (Phase I)				
Implementing Agency	Department of Works (DoW)				
Contracted Agencies	Consultant: Nippon Koei Co., Ltd., Contractor: Fujita Corporation				

II. Result of the Evaluation

(Constraint during the Evaluation Study)

Due to an insecure neighborhood around the project site, the field survey including a site visit for the ex-post evaluation was strictly restricted, so the data and information obtained as well as the number of people interviewed for the ex-post evaluation were strictly limited.

(Special perspective to be considered at the Ex-post Evaluation)

The project was planned to be conducted with two phases: Phase I covered 5 bridges of Orompaka, Nonompinka, Honeranka, Ofiga and Umbaka out of 12 bridges and Phase II covered 7 bridges of Kingkio, Dirty Water, Siguya, Yashifo, Parirosay, Bena Bena and Sunufamu. The E/N for Phase II was signed during the implementation of Phase I in order to conduct the 2 phases seamlessly. However, due to the occurrence of land issue and the corresponding case of assault to the contractor by a local resident during the Phase I, the Phase II was cancelled without any actual works conducted. In light of the project objective to help rehabilitating some of the bridges on the Highlands Highway, it is not relevant to evaluate include the Phase II components which were not implemented at all. Thus this ex-post evaluation focuses only on Phase I components.

1 Relevance
<Consistency with development policy of PNG at the time of Ex-ante Evaluation and Ex-post Evaluation> The project has been consistent with the development policy of PNG in that the National Transport Development Plan (2001-2010) prioritized the provision of safe and dependable transport services to all sections of the community in PNG in a cost efficient manner. The current Medium Term Transport Plan (2014-2018) also gives high priority to the development of road network as a driving force for economic growth and places the Highlands Highway including the bridges as the priority No. 1.
<Consistency with development needs of PNG at the time of Ex-ante Evaluation and Ex-post Evaluation> The project has met the development needs of the related agencies, drivers and pedestrians passing the Highway in that all the 12 bridges had a single lane with narrow carriageway and caused inconveniences for drivers and pedestrians. In addition, the agencies are responsible for ensuring the safe and stable transportation of goods and services on the Highway.
<Consistency with Japan’s ODA policy at the time of Ex-ante Evaluation> The project was consistent with the Japan’s ODA policy for PNG of which one of the five priority areas was the assistance for economic and social infrastructure development.
<Evaluation Result> In light of the above, the relevance of this project is high.

2 Effectiveness/Impact
<Effectiveness> The project largely achieved its objective. As one of the quantitative indicators “the number of traffic accidents causing injury or death of pedestrians on the 5 bridges,” no accident has occurred on the 5 bridges covered by Phase I from 2008 to 2015. This was achieved by improved conditions of the 5 bridges in which the walk ways were separated from the carriage ways and the width of bridges was widened from one way to two ways, which allows stable and safe transportation of vehicles and pedestrians. As for another indicator “expected lifetime of 5 bridges,” although the exact numerical data was not available at the ex-post evaluation since it requires very technical

calculation, the 5 bridges covered by Phase I reached the target value of 50 years at the time of project completion in 2006 and these bridges are expected to function for another 40 years given their stable conditions at the ex-post evaluation.

According to interviews with local residents (4 locals) and the Provincial Works Manager of Eastern Highlands Provincial Office of DoW, no damages were reported on vehicle tires when passing over the bridges and the safety of pedestrians and vehicles significantly improved on the 5 bridges.

<Impact>

According to interviews with the Provincial Works Manager of Eastern Highlands Provincial Office and local residents same as above, the accessibility and mobility of life goods and services were improved by the rehabilitation of the 5 bridges, for example, acceleration of agricultural activities as well as expansion of market spheres due to the improvement of transport facilities, stabilization of people's livelihoods due to the improvement of accessibility to educational and medical facilities and improved travel time/safe operation cost due to improved bridge conditions (from one lane to two lanes). On the other hand, as a negative impact of the project, a worker of the project contractor was assaulted by a local during the implementation of the project. The reason why the case occurred consists of several factors, one of which is considered to be the incident that while extra land was acquired by the project, the temporary works on one of the bridges constructed by the project went beyond the Right of Way (ROW) that is 20 meter width from the center of the road to each side and caused a destruction of private coffee gardens. This case was sorted out through the court process of PNG involving police and land officers and the compensation was made in the result. Due to this case, however, Phase II of the project was cancelled.

<Evaluation Result>

The project largely achieved its objective, to ensure stable and safe transportation of vehicles and pedestrians passing bridges on the Highlands Highway by the rehabilitation of 5 bridges on the Highlands Highway between Kainantu and Goroka. Although the project has positive impacts such as improved accessibility and mobility of life goods and services with the improved conditions of the rehabilitated 5 bridges, it experienced a serious negative impact of the case of assault during Phase I, which resulted in the cancellation of Phase II. In light of the above, effectiveness/impact of the project is fair.

<Quantitative Effects>

Indicators	2004 (Before the project) Actual value	2007 (Target year) Target value	2008 - 2015 Actual value
Indicator 1: Number of traffic accidents causing injury or death of pedestrians on the 5 bridges	(1) 1.65 per year	Decrease	0
	(2) 1.31 transportation fatalities per year	Decrease	0
	(3) 7.12 persons injured per year	Decrease	0
Indicator 2: Expected lifetime of 5 bridges	Short lifetime	50 years	-

Note: The above each data on Indicator 1 for Year 2004 is the annual average number for 5 years during 1999-2003.

Source: JICA internal documents, questionnaires/interviews with the Eastern Highlands Provincial Office

3 Efficiency

While the project cost was almost as planned (ratio against the plan: 99%), the project period exceeded the plan (ratio against the plan: 114%) since it took additional time to complete paving work of asphalt surface and lane marking of the bridge roads. Therefore, efficiency of this project is fair.

4 Sustainability

<Institutional Aspect>

The Eastern Highlands Provincial Office of DoW is in charge of the operation and maintenance of the bridges rehabilitated by the project. While the operation and maintenance works had been carried out on a force account basis by the Kassam Pass Maintenance Office and the Wabung Maintenance Office which were the sub-offices of Provincial Office at the time of project implementation, both offices were literally closed in 2012 and the key responsibilities were centered back to the Provincial Office. At present the engineering division of Provincial Office consisting of 8 technical staff takes the responsibility for any maintenance works of roads and bridges in the province and 3 qualified staff including 1 project engineer and 2 supervisors have been assigned to supervise maintenance works of the 5 bridges. According to the provincial works manager, the number of staff is sufficient and they all have a background of civil engineering works and maintenances.

<Technical Aspect>

All staff of the engineering division of Provincial Office has an engineering background and is capable of undertaking the planned maintenance activities. They have conducted regular inspections of roads and bridges in the province. In addition, there are ongoing training programs at the Madang Civil Engineering Center in which all staff participate in order to refresh their skills and knowledge to conduct proper maintenance works. DoW also runs refresh courses for culverts, bridges and roads maintenances. There are also the maintenance manuals available for proper maintenance works for roads and bridges in all provincial offices around the country and they have been used at all times for any maintenance works, but their contents are outdated and need to be updated to meet the current standards of appropriate maintenance activities. Though timing is yet to be known, DoW has a plan for updating the contents.

<Financial Aspect>

The annual budget of DoW for infrastructure maintenances (roads and bridges) are allocated yearly and it is parked at the head office of DoW. For the maintenance cost of roads and bridges, the Provincial Office needs to submit a request to the head office and the funds shall be released to the Provincial Office based upon the needs and cost identified. The annual budget of DoW for maintenance of roads and bridges increased from 0.76 million PGK (Kina) in 2012 to 1.63 million PGK in 2014 and 1.49 million PGK in 2015. Although there is no specific allocation for the maintenance of the 5 bridges on the Highlands Highway, according to the interview with the Provincial Office, the maintenance budget of DoW is sufficiently allocated annually to conduct proper maintenance activities of the 5 bridges in order to sustain their functions for the expected lifetime as planned.

<Current Status of O&M>

The 5 bridges rehabilitated by the project have been in good and stable conditions after the project completion. A private company, COVEC Construction Limited has been engaged in conducting the road upgrade and maintenance works between Kainantu and Goroka

including the planned maintenance activities for the 5 bridges. COVEC has been taking care of the operation and maintenance of the 5 bridges and the 3 assigned staff of Provincial Office has been currently engaged in other projects in the province. The procurement of materials for the maintenance and repair works of the 5 bridges has been also outlined in the existing scope of works contracted to COVEC.

<Evaluation Result>

Some problems have been observed in terms of technical aspects of the implementing agency. However they are minor ones. Therefore, the sustainability of the project is high.

5 Summary of the Evaluation

The project largely achieved its objective, to ensure stable and safe transportation of vehicles and pedestrians passing bridges on the Highlands Highway by the rehabilitation of 5 bridges on the Highlands Highway between Kainantu and Goroka. Although the project has positive impacts such as improved accessibility and mobility of life goods and services with the improved 5 bridges, it experienced a serious negative impact of the case of assault during Phase I, which caused the cancellation of Phase II. Regarding the sustainability of the project, some problems have been observed in terms of technical aspects of the implementing agency. However they are minor ones.. While the project cost was almost as planned, the project period exceeded the plan since part of construction works was not able to be completed within the assigned timetable.

In light of the above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

<Recommendations to Implementing Agency>

As mentioned above, the land acquisition by the project as part of the reasons behind the occurrence of case of assault was the major issue during the construction stage. Extra land was acquired by the project's temporary works, which went beyond the ROW (20 meters each side from the center of the road) causing the destruction of local coffee gardens and a worker of the contractor was assaulted by the local. Therefore it is recommended that DoW allocate a community liaison officer to have a close consultation and coordination with stakeholders and local communities in order to fully understand traditional land tenure system and to cope with various problems related with compensation or extra land acquisition for the smooth implementation of future projects.

<Lessons learned for JICA>

More time on land acquisition issues should have been spared for the basic/detailed design study or feasibility study in order to try to understand the local context as fully as possible and make sure that the coordination mechanism in land issues be functional between the implementing agency and local stakeholders.



Ofiga bridge with hand rail and walk way



Orompaka bridge with two-track

Country Name	Project on Enhancement of Local Governance and Community Empowerment on Micro-Watersheds in Misamis Oriental
Philippines	

I. Project Outline

Background	<p>The Province of Misamis Oriental is situated in the northern part of Mindanao Island designated as a part of “forests” which are essential areas for conservation to preserve water reservoirs. On the other hand, the Province has serious poverty situation, particularly in the mountainous areas where small pockets of watersheds (less than 10,000 hectares) are located. The poverty induced serious environmental problems on soil erosion that results to deterioration of reservoirs and quality of water sources. The central government made several efforts to conserve, preserve and protect forests but could only focus meanwhile on large watershed areas (more than 10,000 hectares). The management of micro-watersheds was decentralized to local government units (LGUs) in 1991 as mandated by the Local Government Code but LGUs have limited resources to formulate participatory barangay development plans for watershed management and implement conservation activities with active involvement of upland farmers. In addition, there was no functional watershed management system which would facilitate cooperation between LGUs and NGOs that were working with upland communities especially on participatory development planning and implementation.</p>						
Objectives of the Project	<ol style="list-style-type: none"> Overall Goal: Management of micro and small-watersheds¹ is improved in Misamis Oriental by collaboration of Local Government Units (LGUs), NGOs and communities. Project Purpose: Management of micro-watersheds is improved in the pilot barangays² by collaboration of LGUs, NGO³ and communities. 						
Activities of the project	<ol style="list-style-type: none"> Project site: 8 pilot barangays (Tugasnon, Sungay and Tula in the Municipality of Alubijid and Bakid-bakid, Murallon, Tinulongan, Kipuntos and Kalagunoy in Gingoog City) and 2 additional barangays (Sinai and Lapad) in the municipality of Laguindingan in the Province of Misamis Oriental Main activities⁴: <ol style="list-style-type: none"> 1) LGU/NGO facilitate participatory planning of barangay development plan and micro watershed management action plan. 2) LGU/NGO implement trainings of conservation farming, agroforestry and alternative livelihoods for the local people. 3) Project implements trainings of participatory planning, conservation farming and micro-watershed management for LGUs and supporting agencies. 4) The municipalities conduct Inter-barangay small-watershed action planning. 5) Project develops manuals for micro-watershed management and participatory barangay development plan. 6) The municipalities Implementation of watershed management-related activities Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Japanese Side <ol style="list-style-type: none"> 1) Experts: 4 persons 2) Trainees received: 6 persons 3) Equipment: PCs, printers, audio visual devices, GPS, GIS software, digital camera, vehicles, and so on. </td> <td style="width: 50%;"> Philippines Side <ol style="list-style-type: none"> 1. Staff allocated: 46 persons 2. Land and facilities: Project office in the Provincial Planning and Development office (PPDO) in Cagayan de Oro City, land/space for rainwater harvesting tanks in pilot barangays and in expanded barangays in Alubijid and Laguindingan municipalities 3. Cost for project activities </td> </tr> </table> 					Japanese Side <ol style="list-style-type: none"> 1) Experts: 4 persons 2) Trainees received: 6 persons 3) Equipment: PCs, printers, audio visual devices, GPS, GIS software, digital camera, vehicles, and so on. 	Philippines Side <ol style="list-style-type: none"> 1. Staff allocated: 46 persons 2. Land and facilities: Project office in the Provincial Planning and Development office (PPDO) in Cagayan de Oro City, land/space for rainwater harvesting tanks in pilot barangays and in expanded barangays in Alubijid and Laguindingan municipalities 3. Cost for project activities
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Ex-Ante Evaluation	2007	Project Period	January 2008 to January 2011	Project Cost	230 million yen		
Implementing Agency	Province of Misamis Oriental and Balay Mindanaw Foundation Inc. (BMFI)						
Cooperation Agency in Japan	IC Net Ltd.						

II. Result of the Evaluation

1 Relevance

At the time of both ex-ante evaluation and project completion, the project was found highly relevant to the Philippines' development policy of “environmental conservation and sustainable use of natural resources” as expressed by the Mid-Term Philippine Development Plan (2004-2010) and the Misamis Oriental Provincial Development and Physical Framework Plan. The project was also found consistent with the local development needs of the Province of Misamis Oriental, which emphasizes

¹ Micro-watershed is less than 1,000ha and small-watershed is 1,000 – 10,000ha

² Barangay is the smallest unit among the local government units. The others are Provinces, Cities and Municipalities. The provinces are composed of cities and municipalities. The cities and municipalities are composed of barangays.

³ The counterpart agencies are the Province of Misamis Oriental and Balay Mindanaw Foundation Inc. (BMFI) (NGO)

⁴ The activities in Gingoog City were mainly implemented by the staff of BMFI and those in the Municipality of Alubijid were implemented by the municipality with assistance from PPDO and the Provincial Environment and Natural Resources Office (PENRO) staff of the Provincial Government of Misamis Oriental.

proper watershed management to prevent forest degradation and soil erosion caused by illegal logging and slash-and-burn cultivation of most farmers in micro-watershed areas. The project was also consistent with Japan's Country Assistance Plan for the Philippines (2008) which is prioritizing cooperation areas on "supporting self-reliance of the poor" and "improvement of living conditions" at the time of ex-ante evaluation. Therefore, relevance of this project is high.

2 Effectiveness/Impact

The project aims at implementing micro-watershed management activities based on the Barangay Development Plans (BDPs) and Micro-watershed Management Action Plans (MMAPs) in 8 pilot barangays in Alubijid municipality and Gingoog City both in the province of Misamis Oriental through formulation of BDP and MMAP in pilot barangays, enhancement of knowledge and skills of staff of LGUs and NGO to be able to facilitate participatory planning as well as improvement of knowledge and skills of barangay beneficiaries on micro-watershed management.

The Project Purpose was achieved at the time of project completion. In all 8 pilot barangays, most of the micro-watershed related activities contained in the BDPs, the Annual Investment Plans (AIPs) and MMAPs, which were formulated by the project through participatory planning processes, were implemented. In Alubijid Municipality, the inter-barangay micro-watershed management planning resulted to the formulation of "the Rehabilitation and Protection of Alubijid River Project (REPRAP) which was initially implemented in 11 barangays including 2 pilot barangays. In Gingoog City, all 5 pilot barangays continued their Natural Resource Management (NRM) activities, such as nursery seeds growing to reinforce fruit trees production and thereby sustaining the promotion of agro-forestry and forest protection activities.

For the Overall Goal, all the 8 pilot barangays have been continuing the MMAP-related activities, such as tree growing, fruit tree planting, and vegetable production through the collaborative efforts of people's organizations (POs), barangays officials and municipal government personnel. The benefits deriving from those activities, such as increase in revenue, cooling farms, prevention of soil erosion and improvement of farm utilization, encouraged more participants to join those activities. In Laguindingan municipality, 11 barangays, which received planning workshop and rainwater tanks from the project, have been practicing micro-watershed management activities introduced by the project. REPRAP in Alubijid Municipality is still valid and small-watershed management practices are implemented under REPRAP.

In addition, 1 barangay each of 12 other municipalities have started micro-watershed management activities after the project completion and have sustained activities. 123 of the 171 (72%) barangay beneficiaries interviewed during the ex-post evaluation in Alubijid, Gingoog and Laguindingan municipality recognized improvement of their livelihood through such activities as fruit tree planting, vegetable growing and contour farming. The number of PO members who are engaged themselves in forest conservation and natural resource management increased after project completion owing to the increase in awareness of the need to conserve natural resources. Furthermore, according to interview with respondents, the activities introduced by the project contributed to decreased incidence of landslides and illegal logging activities. There was no negative impact observed during the ex-post evaluation.

Therefore, effectiveness/ impact of the project is high.

Total number of pilot, additional and replicating barangays in the Province of Misamis Oriental

Municipality/City	No. of barangays ⁵	During the project			After the project	Total
		Pilot	Additional	Replicating	Replicating	
Alubijid municipality	3	0	13	0	16	
Gingoog city	5	0	1	0	6	
Laguindingan	0	2	8	1	11	
Other municipalities	0	0	0	12	12	
Total	8	2	22	13	45	

Source: BMFI & PPDO of the Provincial Government of Misamis Oriental

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Improvement of micro-watershed management in the pilot barangays	Indicator1: Micro-watershed management action plans are implemented in collaboration with supporting agencies (LGUs and NGO) at more than six pilot barangays.	(Terminal Evaluation) Achieved. In all the 8 pilot barangays (3 in Alubijid and 5 in Gingoog City), most of the micro-watershed related activities were implemented. (Ex-post Evaluation) All the 8 pilot barangays have been continuing the implementation of MMAP related activities after the project completion.
(Overall goal) Improvement of micro and small-watershed management in Misamis Oriental	Indicator1: Micro and small-watershed management practices are sustained at barangay and small-watershed levels in collaboration with supporting agencies (LGUs and NGOs) in Misamis Oriental	(Ex-post Evaluation) Achieved. Watershed management practices are sustained in the following barangays: - In Alubijid, 3 pilot barangays 13 remaining barangays which formulated their own Barangay Development Plans by the end of the project. - In Gingoog city, 5 pilot barangays and the replicating barangay (Barangay Lunotan) - In Laguindingan , 2 additional barangays and 9 replicating barangays Watershed management practices are started and sustained in 13 barangays after the project.

Source : Terminal Evaluation Report, Interviews with counterparts and direct observation at the time of ex-post evaluation

⁵ There are 16 barangays in Alubijid municipality, 79 barangays in Gingoog city, and 11 barangays in Laguindingan Municipality in total.

3 Efficiency

The project was implemented within the planned period (ratio against the plan: 100%), but the project cost exceeded the plan (ratio against the plan: 123%) because the project scope was expanded to cover additional sites (2 barangays in Laguindingan municipality, 1 in Gingoog city and 13 other barangays in Alubijid municipality) to ensure larger impact and sustainability of the project. Therefore, efficiency of the project is fair.

4 Sustainability

In the policy aspect, there is no significant change in micro and small watershed management in the environment conservation program of the Province of Misamis Oriental.

Institutionally, the facilitating role for local participatory planning and monitoring of micro-watershed management activities was turned-over by BMFI to the Provincial Government of Misamis Oriental since the capability of the Provincial Government was improved through the project activities in addition to lack of funding of the provincial government for development partnerships with NGOs. Since then, the Provincial Government, in collaboration with municipal agriculture offices, took the lead in monitoring MMAP activities in pilot barangays and replicating barangays including BDP and MMAP activities in 12 other barangays of 12 other municipalities which started MMAP activities after project completion. There are only 8 trainers available for micro-watershed management in the Provincial Government (3 staff in PPDO and 5 in ENRO). However, the Provincial Government plans of conducting trainings for trainers in future to sufficiently reach out and effectively encourage all 23 municipalities and 3 cities in the province in order to implement micro-watershed management activities. The Provincial Government is also planning of requesting the Department of Interior and Local Government (DILG) to lead the processes of formulating/updating BDPs at the city/municipal and barangay levels in cooperation with related agencies and NGOs. DILG is the responsible agency tasked in recent years to collect BDPs and approve barangay governments' climate change action plans and disaster risk reduction management plans. The POs assisted by the project remain active and are still continuing most of the activities introduced by the project.

In the technical aspect, the materials developed by the project, such as two publications on micro-watershed management and manuals of NRM and BDP formulation, have been utilized as references in conducting workshops and trainings. Most of the counterpart staff of the project are still working for watershed management activities and continuously receiving related trainings that are conducted by the Department of Agriculture (DA) and the Department of Environment and Natural Resources (DENR)⁶ from time to time. The POs have been utilizing the skills learned from the project, such as contour farming, fruit and falcata⁷ growing, among others.

As for the financial aspect, the Provincial Government of Misamis Oriental has allocated sufficient budget every year for training and monitoring activities of PPDO and PENRO personnel. There is no budget allocated only for the preparation and implementation of BDPs, MMAP activities and NRM activities because the BDP implementation and NRM activities are self-help initiatives of the POs and barangay governments. Each barangay government allocates 5% of their Internal Revenue Allotment (IRA) provided by the central government every year for disaster preparedness and environmental conservation. Approximately ranging from 30,000 to 50,000 pesos every year, this amount is used by barangay governments for activities mostly related to NRM and MMAP activities. The budget for monitoring and training activities of PPDO and PENRO staff is a regular item of the annual provincial government budget.

Based on these findings, it is considered that there are some problems observed in institutional and financial aspects to sustain the project effects; therefore, sustainability of the project is fair.

5 Summary of the Evaluation

The project has achieved its purpose and overall goal through the continued implementation by 8 pilot barangays and 37 replicating barangays with most of the micro-watershed management activities introduced by the project. As for sustainability, while the micro-watershed management has been one of key issue in the province, the capacity of the stakeholders including PPDO and PENRO as well as the POs has been sufficient to implement micro-watershed management activities, and the Provincial Government continues its training and monitoring activities for participatory BDP, the institutional mechanism has not been functioning enough. That's because the partnership between the Provincial Government of Misamis Oriental and the BMFI on micro-watershed management was discontinued after project completion due to the insufficient funding. The project cost exceeded due to the expansion of project activities to 16 other barangays for the purpose of achieving larger impact and of securing sustainability.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- As most of the BDPs of pilot and replicating barangays are only having a planning horizon of 5 years and therefore expire by 2015, it is recommended that the Provincial Government of Misamis Oriental together with other supporting partner organizations⁸ first conduct participatory updating of BDPs for watershed management.

Lessons learned for JICA:

- In planning a similar project, it is important that budget to sustain collaborative support mechanism of LGU and NGO is secured so that it continues to function even after the phase out of JICA assistance. In this project, the collaboration of the Provincial Government of Misamis Oriental and BMFI was discontinued after project completion because of lack of budget to finance support activities which is necessary to facilitate continuous implementation of micro-watershed management activities in barangay levels.
- In implementing a similar project, it is important that decisions to cover additional areas be based on the budget allocated for the project or on the confirmed availability of budgets of implementing organizations. In this project, the project cost

⁶ DA and DENR are departments of central government.

⁷ "Falcata" is a kind of broad-leaf tree belonging to the family Fabaceae and genus Albizzia.

⁸ Such as NGO (BMFI), the POs which were organized by the project, DENR, DA.

exceeded from the project's plan because the Provincial Government and BMFI decided to expand project activities to new areas without securing local budgets.



Vegetable Growing in Barangay Tinulongan, Gingoog City



Fruit Tree Growing in Barangay Tugason, Alubijid Municipality

Country Name	Project on Gender Mainstreaming & Policy Development through Upgrading Informed and Research Capacity
Kingdom of Cambodia	

I. Project Outline

Background	Due to the internal conflicts which lasted from 1970 to 1993, 60% of the population aged 25 and over were female (1998). Although women played an important role in social and economic reconstruction and development, they were given a lower status socially and economically than that of men and faced various difficulties. Many of the households with women heads were poor. To tackle such gender issues, the Royal Government of Cambodia developed policies on poverty reduction strategies with gender viewpoints and gender mainstreaming in the Socio-Economic Development Plan II (2001-2005). The Ministry of Women's and Veterans' Affairs needed to upgrade their institutional capacity for promoting gender mainstreaming in the line ministries which have implemented development programs.				
Objectives of the Project	Through upgrading institutional capacity of the Ministry of Women's Affairs (MoWA) and selected target ministries* for promotion of gender equality, the project aimed at developing a mechanism for gender mainstreaming (PGM Method ¹) in order to promote gender mainstreaming. *Target ministries: Ministry of Agriculture, Forestry and Fisheries (MAFF), Ministry of Industry, Mines & Energy (MIME), Ministry of Commerce (MoC), Ministry of Rural Development (MRD), Ministry of Labor and Vocational Training (MoLVT) and Ministry of Planning (MOP). Overall Goal: Gender mainstreaming, as one of the key factors to stabilize peace and development, is promoted in the Royal Government of Cambodia. Project Purpose: Effective mechanism for gender mainstreaming is developed through upgrading institutional capacity of the Ministry of Women's Affairs (MoWA) and the selected line ministries for promotion of gender equality in the Royal Government of Cambodia.				
Activities of the project	1. Project site: Cambodia (pilot project area: Kampong Cham Province) 2. Main activities: Establishing the Policy Analysis Task Force (PATF), training of PATF members and MoWA personnel on project management, developing gender statistics, implementing pilot gender responsive projects with line ministries, etc. 1. Inputs (to carry out above activities) Japanese Side 1) Experts: 17 persons 2) Training in Japan: 30 persons 3) Equipment: vehicle, PCs, projectors, printers, etc. 4) Operation cost for travel expenses, pilot project implementation, etc.) Cambodian Side 1) Staff allocated: 37 persons 2) Land and facilities: Office space and equipment, etc. 3) Operation cost for staff salaries, office utilities, etc.				
Ex-Ante Evaluation	2002	Project Period	April 2003 to March 2008	Project Cost	(ex-ante) 400 million yen (actual) 384 million yen
Implementing Agency	Ministry of Women's Affairs (MoWA) (Restructured from the Ministry of Women's and Veterans' Affairs in 2004)				
Cooperation Agency in Japan	Gender Equality Bureau, Cabinet Office				

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

- Based on the project achievement and experience, the successor project, Project for Gender Mainstreaming Phase 2 (PGM2), was implemented (2010-2015) to strengthen furthermore the gender mainstreaming mechanism, aiming at enforcing the target line ministries' capacity for implementing women's economic empowerment activities with coordination of MoWA. As the method and manuals developed by the project were utilized by PGM2, the effects confirmed by the ex-post evaluation survey include those brought by PGM2.

1 Relevance

<Consistency with the Development Policy of Cambodia at the time of ex-ante evaluation and project completion>

The project was consistent with the Cambodian development policies, as gender-based poverty reduction strategies and gender mainstreaming were included as development principles in "the Socio-Economic Development Plan II (2001-2005)" and "the National Strategic Development Plan (NSDP) (2006-2010)".

<Consistency with the Development Needs of Cambodia at the time of ex-ante evaluation and project completion >

Due to the internal conflicts which lasted for 25 years, more than half of the population were female. Women played an important role in social and economic reconstruction and development, they were given a lower status than men. Women had other difficulties such as low literacy rate, domestic violence. Thus, there were great needs for gender equality.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The Country Assistance Program for Cambodia (2002) describes that it is necessary to pay attention to women's participation in the development process for economic development and poverty reduction, and incorporate viewpoints of gender equity in various phases of the assistance.

¹ The PGM Method is a method for gender responsive policy formulation, implementation, monitoring and evaluation, developed by the project through trial implementation with pilot projects with the line ministries. Pilot projects included a project of micro credit management for male and female farmers implemented by MRD, a project for promoting female participation in vocational training implemented by MoLVT, etc.

<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; an effective mechanism for gender mainstreaming was developed through upgrading institutional capacity of MoWA and the target ministries for promotion of gender equality. Based on the experience of trial implementation of pilot projects with the line ministries, some PGM Method manuals were developed and policy recommendations were presented to these ministries. Recommended policies include (i) a policy for MRD and its Provincial Departments on gender responsive micro-credit system resulting in reduction of the interest rate following the suggestions/request from the Village Development Committee members and borrowers, (ii) Policy for MoLVT² on women’s participation in non-traditional vocational training by exploring new skills for women and by changing social norm. Some of the recommendations were applied by the targeted ministries, which proved the effectiveness of the recommendations.

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

The mechanism for gender mainstreaming developed by the project has continued. The PGM Method has been diffused to other government agencies besides the 6 target ministries, and the Gender Mainstreaming Action Group (GMAG) has been organized in as many as 29 ministries and institutions. GMAGs conduct a gender analysis and policy recommendation, participate in the planning process, design the gender mainstreaming action plan (GMAP), and review the programs with gender perspectives. MoWA plays a role as a coordinator, facilitator and mentor in these GMAGs by encouraging them to integrate gender equality into the policies and programs.

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

The Overall Goal was achieved; Gender mainstreaming has been promoted in the country. First, NSDP (2014-2018) mentions the gender-related efforts and achievement of such ministries as the Ministry of Education, Youth and Sport (MoEYS), Ministry of Tourism (MOT), Ministry of Social Affairs, Veterans and Youth Rehabilitation (MOSAVY) and MoWA, and considers gender as one of the key cross-cutting issues. Gender perspectives are incorporated in the priority programs of the Ministry of National Assembly-Senate Relations and Inspection (MONASRI), Ministry of Justice (MOJ), Royal Cambodia Armed Forces (RCAF), and so on. Second, in the Neary Rattanak IV (2014-2018) (five-year strategic plan for gender equality and women’s empowerment of MoWA), gender relevance and women’s empowerment are underscored in all the development spheres. Third, gender perspectives have been reflected in other ministries’ policies such as the Agricultural Extension Policy in Cambodia (2015) of MAFF, the Policy on Labor Migration for Cambodia (2014) of MoLVT and the National Strategy for Rural Water Supply, Sanitation and Hygiene (2011-2025) of MRD.

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

The Super Goal of the project was set as the promotion of gender equality and equity, and the indicator was set as the Gender Inequality Index² (GII). GII of Cambodia decreased from 0.672 (2008) to 0.477 (2014), but it is very difficult to concretely verify this decrease as the project impact, because GII is calculated considering various elements and gender equality is possibly influenced by many other factors than project implementation. However, several positive impacts have reported. First, gender mainstreaming and equality have been promoted through GMAGs’ efforts. The proportion of women in the civil service increased from 32% (2007) to 39% (2015), though it varies among agencies. On the other hand, the percentage of women in the management positions has not changed much (20% in 2013 to 21% in 2015). Second, the PGM Method was applied in ADB project with the Kampong Cham Provincial Department of Agriculture for promoting women’s participation in agricultural activities, with support from the Provincial Department of Women’s Affairs (PDWA). Third, some positive impacts such as the increase of the household income, more attention to the children’s education, expansion of the women’s participation in decision-making, and the decrease of the domestic violence were reported as changes brought by the pilot projects implemented by the PGM Method, according to the completion report of PGM 2.

No negative impacts on the natural and social environment caused by the project have been observed.

<Evaluation Result>

In light of the above, the Project Purpose was achieved and has continued. The Overall Goal was achieved. In addition, some positive impacts have been observed. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Effective mechanism for gender mainstreaming is developed through upgrading institutional capacity of MoWA and the selected line ministries for promotion of gender equality in the Royal Government of Cambodia.	1. Recommendations from MoWA and PATF to the selected line ministries on incorporation of gender perspectives in their policy recognized.	(Project Completion) <u>Achieved</u> . - Policy recommendations were developed for the 5 selected ministries. Counterpart personnel and PATF members understood the contents and evaluated them practical. (Ex-post Evaluation) <u>Continued</u> . - GMAG has been organized in the 29 ministries and government institutions in coordination with MoWA.
	2. Developed method for gender responsive policy formulation, implementation, monitoring and evaluation (PGM method).	(Project completion) <u>Achieved</u> . - PGM workshop manual was developed and shared with relevant ministries by the project completion. (Ex-post Evaluation) <u>Continued</u> . - The manual was revised by JICA successor project and published in August 2015. It was distributed to all government agencies and institutions at national and sub-national level including PDWAs.
(Overall goal)	1. Developed gender responsive	(Ex-post Evaluation) <u>Achieved</u> .

2 GII was developed by UNDP. It measures gender inequalities in three important aspects of human development—reproductive health, measured by maternal mortality ratio and adolescent birth rates; empowerment, measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education; and economic status, expressed as labor market participation and measured by labor force participation rate of female and male populations aged 15 years and older.

Gender mainstreaming, as one of the key factors to stabilize peace and development, is promoted in the Royal Government of Cambodia.	policies and strategies, incorporated in NSDP and Neary Rattanak II.	<p>- In NSDP (2014-2018), the gender-related achievement in such ministries as MoEYS, MOT, MOSAVY and MOWA was mentioned. Gender is considered as one of the key cross-cutting issues, and gender perspectives are incorporated in the priority programs of MONASRI, MOJ, RCAF, etc.</p> <p>- In the Neary Rattanak IV (2014-2018), gender relevance and women's empowerment are underscored in all the development spheres.</p>
	2. The portion of gender budget allocation and disbursement.	<p>(Ex-post Evaluation) <u>Partially achieved</u>.</p> <p>- 466.6 million Cambodian riels (113.8 million USD) are budgeted for gender mainstreaming under NSDP (2014-2018) for the related ministries and institutions.</p>

Source: Interview with MoWA, MAFF, MRD, MoLVT, Kampong Cham Provincial Departments of these ministries, Provincial Training Center (PTC), and beneficiaries (including trainees at PTC, farmers, and borrowers of micro credit service). NSDP (2014-2018), Neary Rattanak IV (2014-2018), and other policy documents of the relevant ministries.

3 Efficiency

Both of the project period and cost were within the plan (ratio against the plan: 100% and 96%, respectively). Therefore, the project efficiency is high.

4 Sustainability

<Policy Aspect>

As mentioned in Effectiveness/Impact, gender mainstreaming is prioritized in NSDP (2014-2018), and gender perspectives have been reflected in MoWA and other various ministries' policies

<Institutional Aspect>

MoWA's plays a more important role than that during the project period: facilitating other ministries and institutions, civil society and private sector to integrate gender equality into their policies and programs. The Department of Gender Equality is responsible for promoting gender mainstreaming in the policies of decentralization and for coordination with GMAGs, while the Department of Planning and Statistics is responsible for planning, monitoring and evaluation (M&E) and statistics. The number of the staff is 28 and 20 (4 more staff planned to be added), respectively, and it is sufficient to perform their responsibilities, according to these two departments. MoWA has branches: PDWA and District Office of Women's Affairs (DOWA). In case of Kampong Cham Province, PDWA has 44 staff members and 22 of them work at DOWAs. The staff number is not sufficient, as several staff members were transferred to the new PDWA in Tbong Khmum Province³ and a few staff members are going to be retired soon. In 2016, MoWA is recruiting 50 more staff for PDWAs in the country and 4 will be assigned to Kampong Cham to replace with the retired staffs.

The Technical Working Group on Gender (TWG-G) functions as a cross-institutional forum, chaired by MoWA with JICA and UNDP, as co-lead development partner facilitators, 31 government agencies, 14 development partners and 15 civil society organizations. They discuss for gender-related policies, laws and strategies. TWG-G supports GMAGs' activities such as preparation of GMAPs.

<Technical Aspect>

The staff of the Department of Gender Equality and Department of Planning and Statistics was trained by the project and PGM2 and they have sufficient knowledge and skills for gender-related data collection, planning, M&E, policy recommendation in accordance with the PGM Method, as they have conducted regular training on PGM Method to MoWA and PDWA and provided technical advices to GMAGs, even since the completion of PGM2. In 2016, the departments conducted training courses for PDWAs and DOWA of Battambang, Kamport and Prey Veng Provinces with training materials developed by the project. An interviewed GMAG member (of MoLVT) answered that they still sometimes need to hire consultants to planning and implementation of gender responsive projects. However, based on the experience of the project and PGM2 and also with MoWA's support, most of GMAGs members have developed their capacity for promoting gender mainstreaming. The PGM Method manuals have been utilized for training and project formulation, as well as the gender glossary developed by the project⁴.

<Financial Aspect>

The budget of MoWA comes from the national budget for the four programs (Change of Women's Socio-Economic Status, Legal Protection for Women and Girls, Gender Mainstreaming in National and Sectoral Policies, and Institutional Management and Development. The budget including the allocation to PDWAs has steadily increased for the last five years (Table 1). Since the budget covers also the staff's salary and office operation, it is only enough to conduct training and seminars for dissemination of MoWA's policies and strategies, according to MoWA. It still depends on donor funds to implement projects for gender mainstreaming such as the project and PGM2.

Table 1. Budget of MoWA (million Riels)

	2012	2013	2014	2015	2016
Central	14,453	14,662	14,027	16,923	19,797
PDWAs	15,154	16,389	17,750	18,366	20,877
Total	29,607	30,851	31,777	35,289	40,674

Source: MoWA.

The budget for gender mainstreaming has been secured also at the line ministries. The gender responsive budget allocated to GMAGs has been increasing. For example, the budget of GMAG of MAFF has increased from 50 million riels (2012) to 120 million riels (2015), but interviewed GMAG members answered that the amounts are not sufficient. However, GMAG of MAFF cannot operate the budget flexibly, as there is no office such as the Gender Office at MAFF. In case of MoLVT, the gender responsive budget is allocated to the Gender Office under the Training Department, and the resources necessary for data collection or policy analysis depends on the donor. The budgets of MoWA and GMAGs are still far beyond the planned budget (466.6 million riels) in NSDP (2014-2018).

<Evaluation Result>

In light of the above, problems have been observed in terms of the financial aspect of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

³ Tbong Khmum Province was formerly the eastern part of Kampong Cham Province and became independent in 2013.

⁴ The glossary is released at MoWA's Facebook: <http://bit.ly/29ctlRB> (posted on 3rd July 2016).

5 Summary of the Evaluation

The effective mechanism for gender mainstreaming was developed through upgrading institutional capacity of MoWA and the target ministries for the promotion of gender equality. The PGM Method developed by the project was applied in all the government agencies. As a result, gender mainstreaming has been promoted as national policies with allocated budgets, and the gender balance has been improved at many government agencies. Regarding the sustainability, no major issues have been confirmed for continuity of MoWA's efforts for gender mainstreaming in other government agencies, except the financial aspect. Although the budgets of MoWA and other agencies have increased, they are not still sufficient to fully implement gender responsive projects.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- The situation for gender mainstreaming varies among ministries and institutions, in terms of the gender balance, budget amount, GMAG's flexibility of the budget execution, implementation of gender responsive projects, etc. In order to further foster gender mainstreaming, it is recommended for MoWA to conduct awareness raising trainings for the top management of the other government agencies. In addition, it is effective that MoWA suggests them to set up a gender audit within each agency to monitor its efforts for gender mainstreaming.

- The gender related budgets have increased but they are still far beyond the plan of NSDP (2014-2018) and insufficient for gender responsive projects. It is recommended that MoWA continues the discussion with the Ministry of Economy and Finance to secure more gender responsive budgets by emphasizing that gender is a crucial perspective in every development spheres such as education, health and economy.

Lessons learned for JICA:

- Based on the project experiences, the group for promoting gender mainstreaming has been established in as many as 29 ministries and institutions including the project target 6 ministries, and gender responsive policies and programs have been formulated and implemented. One of the biggest success factors is the project approach for preparing policy recommendations for the line ministries through implementing pilot gender responsive projects. Through the pilot projects, the local tacit knowledge was accumulated into an explicit mechanism (PGM Method) for policy formation of gender mainstreaming. This approach worked well in fostering the ownership of the line ministries and the continuity of the formulated policies, and also bringing positive impacts on the individual and organizational levels.



(Female and male participants in the training course on building electrical wiring)



(Interview with GMAG members of MRD)

Country Name	Project for Improvement of Productive Technology in Small and Medium Dairy Farms in Viet Nam
The Socialist Republic of Viet Nam	

I. Project Outline

Background	<p>In Viet Nam, agriculture consisted of about 22% of GDP and accounted for 58% of the total working population. Although rice was the center of agriculture, it had been difficult to improve livelihoods in rural areas only by depending on rice farming due to not only lowering rice price in the domestic and overseas market but also its low productivity derived from limited planting areas. For this reason, diversification of farm management was a key issue for rural development. Considering the increasing domestic needs for milk which was mostly imported from abroad, expansion of domestic milk production became an important issue in achieving the diversification of farm management as well as livelihood improvement of farmers in Vietnam. However, extension system of sustainable dairy techniques for the small and medium scale dairy farms was not well functioned. In addition to that, milk production of the northern provinces with poverty ratio higher than the southern provinces was lower than the southern provinces since dairy farming was introduced recently. Under that circumstance, Station for Training and Extension on Dairy Techniques (STED) was established under National Institute of Animal Husbandry (NIAH) in October 2005 for the purpose of extending dairy technology in the northern provinces of Viet Nam.</p>												
Objectives of the Project	<p>Through improvement of functions of STED, improvement of the training capability of STED's trainers (National Trainer: NT) to dairy technology extension workers and so forth (Local Trainer: LT), and improvement of capability of extension activities of LT towards small and medium scale dairy farms in the Project Target Areas, the project aimed at improving dairy technology extension activities in the Project Target Areas, thereby increasing milk productivity of small and medium scale dairy farms in Northern Viet Nam. The following project objectives were set forth.</p> <ol style="list-style-type: none"> 1. Overall Goal: Milk productivity of small and medium scale dairy farms in Northern Viet Nam is increased. 2. Project Purpose: Dairy technology extension activities are improved in the Project Target Areas. 												
Activities of the project	<ol style="list-style-type: none"> 1. Project site: STED, NIAH, Vinh Tuong District in Vinh Phuc Province, Moc Chau District in Son La Province 2. Main activities: 1) Development and improvement of training courses on dairy technology in STED for LT and dairy farms, 2) Training on dairy technology for NT in STED, 3) Training on dairy technology by NT to LT, 4) Monitoring activities by LT to model farms on dairy technology improvement, 5) Demonstration of suitable techniques for the small and medium sized dairy farms at the 4 demonstration farms 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Vietnamese Side</td> </tr> <tr> <td>1) Experts: 20 persons</td> <td>1) Staff allocated: 15 persons</td> </tr> <tr> <td>2) Trainees received: 21 persons</td> <td>2) Land and facilities: Office spaces, training facilities, laboratory spaces, etc.</td> </tr> <tr> <td>3) Equipment: Vehicles, generator, computers, ultra-sonic diagnosis</td> <td>3) Local cost: VND. 2,360 million</td> </tr> </table> 					Japanese Side	Vietnamese Side	1) Experts: 20 persons	1) Staff allocated: 15 persons	2) Trainees received: 21 persons	2) Land and facilities: Office spaces, training facilities, laboratory spaces, etc.	3) Equipment: Vehicles, generator, computers, ultra-sonic diagnosis	3) Local cost: VND. 2,360 million
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Ex-Ante Evaluation	2005	Project Period	April, 2006 to April, 2011	Project Cost	(Ex-ante) 360 million yen (Actual) 406 million yen								
Implementing Agency	National Institute of Animal Science (NIAS) under Ministry of Agriculture and Rural Development (MARD) *NIAH changes its name to NIAS in 2010												
Cooperation Agency in Japan	Ministry of Agriculture, Forestry & Fisheries												

II. Result of the Evaluation

<Issues to be considered at the ex-post evaluation>

[Achievement of the Project Purpose]

- As for the Indicator 2, questionnaire survey and interviews targeting much smaller numbers of beneficial farms than those at the time of the terminal evaluation were conducted in order to verify continuation of the project effect due to difficulty in collecting hundreds of samples unlike at the time of the terminal evaluation which could utilize various data obtained as a part of project activities for reference.

[Achievement of Overall Goal]

- The relevant data counting only small and medium scale dairy farms in Northern Viet Nam was not available and the share of large farms in the total number of dairy farms having 50 or more cattle in Northern Viet Nam occupied less than 1% (0.26% in 2005 by the data provided by NIAS at the time of terminal evaluation) and the number of dairy cattle raised by the large scale farms accounted for 23% (in 2005) of the total number of dairy cattle in Northern Viet Nam. Therefore, achievement of Overall Goal was evaluated based on the data which includes that of such large farms.

<Constraints on field survey for the ex-post evaluation>

[The limited size of samples for beneficiary survey to verify project effects/impacts]

- Because of the limited accessibility to the sites where the small and medium dairy farms are located in the target districts of Moc Chau and Vinh Tuong in Northern Viet Nam, the number of samples for beneficiary survey on the small and medium dairy farms was limited to 10 model farms and 10 non model farms for each target district.

[Limited accuracy of data on milk production of small and medium dairy farms in the target areas to verify the Indicator 2 for the Project Purpose]

- According to the Terminal Evaluation Report, it was impossible to make statistically significant conclusions based on the two data sets of milk production in the target areas in 2006 and 2010 because of the limited number of samples as well as the different data collection methodologies between the two data sets. Therefore, the data shown in the table of "Achievement of project purpose and overall goal" should be reference.
- Also, comparison between the data in 2006 and the ones in 2011 and 2014 cannot make statistically significant conclusions due to the same reasons.

1 Relevance

<Consistency with Development Policy of Vietnamese Government at the time of ex-ante evaluation and the project completion>

The project was consistent with the Viet Nam's development policy of livestock and dairy sector development set forth in the policy documents including the Strategy for Socio-Economic Development (2001-2010) and National Plan on Dairy Cattle Breeding (2001-2010).

<Consistency with Development Needs of Viet Nam at the time of ex-ante evaluation and the project completion>

The project met the development needs of Viet Nam to increase milk productivity of small and medium scale dairy farms in Northern Viet Nam through improving dairy technology extension activities in the Project Target Areas and the needs at the time of ex-ante evaluation still existed at the time of project completion.

<Consistency with Japan's ODA Policy for Viet Nam at the time of ex-ante evaluation>

The project was consistent with one of the priority areas of the Japan's Country Assistance Program for Viet Nam (2004) to support agricultural and rural development under one of the pillar of "improvement in livelihood and society".

<Evaluation Results> In the light above, the relevance of this 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. Through the project activities, 90% of improved technology taught by the Project was applied by the model farmers between March 2009 and March 2010. Also, the average milk production per cow of the model farms in the Project Target Areas increased by 29% from 2006 to 2010.

<Continuation Status of the Project Effects at the time of ex-post evaluation>

After the project completion, both the model farms and non-model farms in the Project Target Areas located in Vinh Tuong District (Vinh Phuc Province) and Moc Chau District (Son La Province) have continued to apply the improved dairy techniques introduced by the Project which consist of recording, farm conditions, feeding method, feed supply and milking method. At the time of ex-post evaluation, all the 5 improved dairy techniques are applied and practiced by the entire interviewed model and non-model farms in Moc Chau. 88% for model farms and 80% for non-model farms have applied the improved dairy techniques in Vinh Tuong. The average milk production per cow in the Project Target Areas increased 40.3% in 2014 compared to 2006 because of the application of the improved dairy techniques introduced by the project.

<Status of Achievement of the Overall Goal at the time of ex-post evaluation>

The Overall Goal has been achieved. Milk production in Northern Viet Nam has been continuously increasing by 318% from the baseline year of 2006 to 2014 and reached to 117,000 tons in 2014. Also, the population of dairy cattle in Northern Viet Nam has been increasing for the same period although it had decreased in 2009 because of the drastic reduction of milk sales caused by the negative impact of melamine contains in milk in China and the economic downturn. The dissemination of the improved dairy techniques introduced by the Project to other provinces in the Northern Viet Nam such as Lang Son, Phu Tho, Dien Bien and Lai Chau through trainings for extension officers and farmers provided by STED might have contributed to such increases.

<Other Positive and Negative Impacts>

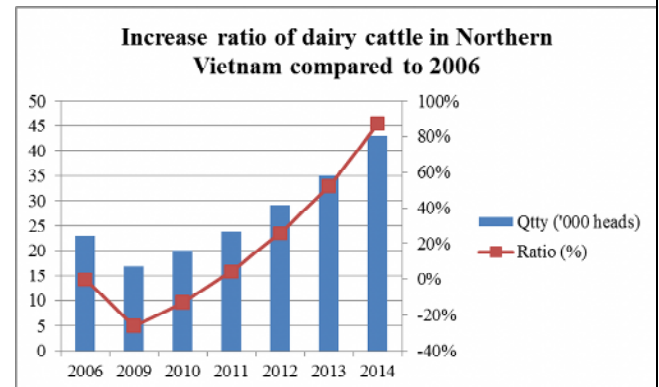
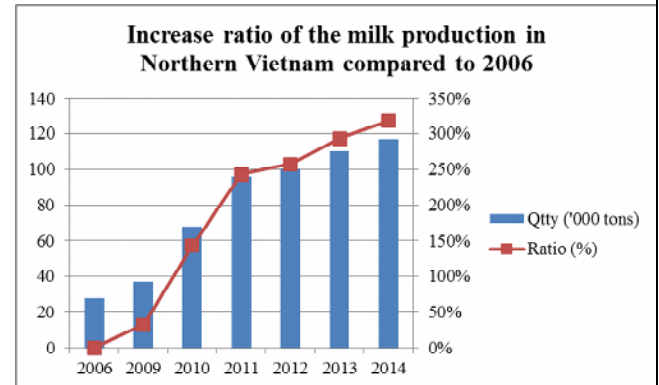
The project has brought about several positive changes in the Project Target Areas and Northern Viet Nam. The first one is the possible increase in dairy farms' income. In Moc Chau, for example, it was observed that income of existing dairy farms has been increasing as the population of dairy cattle at the time of the ex-post evaluation increased by 168% compared to 2010 while increasing ratio of the number of dairy farm was just 4.4%. This may imply that existing dairy farms have recognized dairy farming as profitable and increased their profit through production increase. Secondly, STED contributed to producing "Ba Vi Milk", which becomes one of the popular milk brands in Northern Viet Nam, through cooperating with International Dairy Production Company in organizing trainings to disseminate the improved dairy techniques and in establishing a demonstration farm for farmer training. Thirdly, many farms could reduce the cost of (chemical) fertilizer used for their own agricultural activities by using fertilizer produced by compost as well as could reduce their gas and electricity cost by utilizing biogas system made from the compost. Negative impact on natural and social environment and any other positive and negative impact by the project were not observed.

<Evaluation Results>

The project achieved the Project Purpose and the Overall Goal. Also the project brought about the positive impacts on increasing income of dairy farms through increasing their dairy production by the application of the Project introduced dairy techniques as well as on creation of regional milk brand in Northern Viet Nam. Therefore, effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Dairy technology extension activities are improved in the Project Target Areas.	(Indicator 1) 75% of improved dairy technology will be applied in model farms in the Project Target Areas.	<u>Achievement: Achieved.</u> (Project Completion) - The results of "Dairy Technology Evaluation Activity" between March 2009 and March 2010 which monitored the 20 model farms in the Project Target Areas indicate that 90% of improved technology taught by the Project was applied by model farms. (Ex-post Evaluation)



		<p>- The results of the interviews with the 20 model farms in the Project Target Areas indicate that average 94 % of improved technology taught by the Project is applied by model farms.</p> <table border="1"> <thead> <tr> <th>Target Area (District)</th> <th>Target during the project period</th> <th>2010 (from Mar 2009 to Mar 2010)</th> <th>2015 (at the time of ex-post evaluation)</th> </tr> </thead> <tbody> <tr> <td>Moc Chau</td> <td>-</td> <td>-</td> <td>100%</td> </tr> <tr> <td>Vinh Tuong</td> <td>-</td> <td>-</td> <td>88%</td> </tr> <tr> <td>Average</td> <td>75%*</td> <td>90%</td> <td>94%</td> </tr> </tbody> </table> <p>* Data from 2011 to 2014 was not available.</p>	Target Area (District)	Target during the project period	2010 (from Mar 2009 to Mar 2010)	2015 (at the time of ex-post evaluation)	Moc Chau	-	-	100%	Vinh Tuong	-	-	88%	Average	75%*	90%	94%																																
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	<p>(Indicator 2) Average milk production per cow of model farms in the Project Target Areas will increase 15%.</p>	<p><u>Achievement: Achieved.</u> (Project Completion)</p> <p>- The results of the Dairy Farm Technical Monitoring Sheet which compared the dataset collected in March 2010 with the baseline data collected in 2006 indicate that the average milk production per cow of model farms in the Project Target Areas increased 29.2% in 2010 compared to 2006.</p> <p>(Ex-post Evaluation)</p> <p>- The results of the interviews with the 10 model farms and 10 non-model small scale farms in the Project Target Areas indicate that average milk production per cow in the Project Target Areas may have increased 40.3% in 2014 compared to 2006 but the finding is not statistically significant.</p> <p>(Reference: Changes in milk production)</p> <table border="1"> <thead> <tr> <th>Target Area</th> <th>2006 (Baseline)</th> <th>2010</th> <th>2011</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Moc Chau</td> <td>4,941</td> <td>+39.8% (6,907)*</td> <td>+23.8% (6,116)*</td> <td>+47.6% (7,292)*</td> </tr> <tr> <td>Vinh Tuong</td> <td>4,118</td> <td>+16.9% (4,813)*</td> <td>+14.1% (4,698)*</td> <td>+33.0% (5,476)*</td> </tr> <tr> <td>Average</td> <td>-</td> <td>+29.2%</td> <td>+18.9%</td> <td>+40.3%</td> </tr> </tbody> </table> <p>Note 1: Sufficient data from 2012 to 2013 was not available. Note 2: * The figures are the volume of milk production (kg) per cow for 305 days. Note 3: Data set for each year has different size of samples and different data collection methodology.</p>	Target Area	2006 (Baseline)	2010	2011	2014	Moc Chau	4,941	+39.8% (6,907)*	+23.8% (6,116)*	+47.6% (7,292)*	Vinh Tuong	4,118	+16.9% (4,813)*	+14.1% (4,698)*	+33.0% (5,476)*	Average	-	+29.2%	+18.9%	+40.3%																												
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<p>(Overall goal) Milk productivity of small and medium scale dairy farms in Northern Viet Nam is increased.</p>	<p>(Indicator 1) Milk production of small and medium scale dairy farms in Northern Viet Nam will increase 80%.</p> <p>(Indicator 2) Population of dairy cattle reared in small and medium scale dairy farms in Northern Viet Nam will increase 70%.</p>	<p><u>Achievement: Achieved.</u> (Ex-post Evaluation)</p> <p>- Milk production of dairy farms in Northern Vietnam has increased by 318% in 2014 compared to 2006.</p> <table border="1"> <thead> <tr> <th></th> <th>2006 (Baseline)</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Qty ('000 tons)</td> <td>28</td> <td>37</td> <td>68</td> <td>96</td> <td>100</td> <td>110</td> <td>117</td> </tr> <tr> <td>Ratio (%)</td> <td>-</td> <td>+32</td> <td>+143</td> <td>+243</td> <td>+257</td> <td>+293</td> <td>+318</td> </tr> </tbody> </table> <p><u>Achievement: Achieved.</u> (Ex-post Evaluation)</p> <p>- Population of dairy cattle reared in dairy farms in Northern Viet Nam has increased by 87% in 2014 compared to 2006.</p> <table border="1"> <thead> <tr> <th></th> <th>2006 (Baseline)</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Qty ('000 heads)</td> <td>23</td> <td>17</td> <td>20</td> <td>24</td> <td>29</td> <td>35</td> <td>43</td> </tr> <tr> <td>Ratio (%)</td> <td>-</td> <td>-26</td> <td>-13</td> <td>4</td> <td>+26</td> <td>+52</td> <td>+87</td> </tr> </tbody> </table>		2006 (Baseline)	2009	2010	2011	2012	2013	2014	Qty ('000 tons)	28	37	68	96	100	110	117	Ratio (%)	-	+32	+143	+243	+257	+293	+318		2006 (Baseline)	2009	2010	2011	2012	2013	2014	Qty ('000 heads)	23	17	20	24	29	35	43	Ratio (%)	-	-26	-13	4	+26	+52	+87
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Source : Terminal Evaluation Report, Project Terminal Report, Questionnaires to and/or interviews with MARD, NIAS, STED, Vinh Tuong District, Moc Chau Dairy cattle Breeding Join-Stock Company, model farms and non-model farms in the Project Target Areas, General Statistics Office

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 113%) due to the increase in the number of experts dispatched in additional areas including forage crops, clinical veterinary medicine and milking hygiene and trainees received in Japan for the necessity of further capacity development. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspects>

There was no change in the policies for promotion of dairy farming. The Livestock Development Strategy to 2020 targets the increase in milk production of the whole Viet Nam to 700,000 tons in 2015 (224% increase from 216,300 tons in 2006) and the number of dairy cattle to 350,000 heads in 2015 (209% increase from 113,200 heads in 2006). However, no other specific policy to promote dairy farming apart from the Livestock Development Strategy 2020 has supported the extension activities of the improved dairy farming techniques introduced by the project.

<Institutional Aspects>

[Organizational Arrangement for the National Livestock Extension Program]

There has been no change in organizational arrangement. The Department of Science, Technology and Environment (DOSTE) of MARD is in charge of the Livestock Research Program, including dairy cattle. MARD also supports STED to upgrade their facilities for training through NIAS. The National Agricultural Extension Center (NAEC) of MARD coordinates the Livestock Production Extension Program including dairy technology. STED in the Ba Vi Center and the Provincial Department of Agriculture and Rural Development (DARD) delivers training programs for NAEC, some provinces and milk producing companies. MARD has 2 staff members in DOSTE managing the Science and Technology Program on dairy cattle research and NAEC deploys 5 staffs for the dairy cattle extension program. In addition, STED deploys 11 National Trainers (NTs) as staff for dairy extension. Despite that the 5 NTs out of 11 NTs trained by the project left STED, 6 new NTs were recruited. Although NIAS does not appoint any staff in charge of dairy extension, the sufficient number of staff will be appointed by NIAS depending on the work volume each year. No problem on the facilities provided by the project for STED was observed at the time of ex-post evaluation.

[Extension System for Dairy Farming]

Despite of differences in extension system of dairy farming by district, the extension systems within the Project Target Areas have been functioning well. In Moc Chau, 47 Local Trainers (LTs) are deployed in total as dairy farm extensionists. In addition, dairy farming is managed by Moc Chau Dairy Cattle Breeding Joint Stock Company¹. The company employs a team of full-time LTs providing training and supervision for farmers. In Vinh Tuong, there are currently 21 LTs belonging to the Vinh Tuong District Agricultural Section for provision of dairy extension services to farmers and trainings to paravets, veterinarian at commune level. In other areas in Northern Viet Nam, they have similar extension system in Vinh Tuong.

<Technical Aspects>

The NTs trained by the project and NTs employed after the project completion have participated in training courses delivered by NAEC in order to sustain and brush up their skills. The NTs trained by the project have continued to use the teaching materials and manuals. After the project completion from 2012 to 2015, 37 training courses with 1,550 participants of LTs and farmers have been delivered by NTs. At district level, in Moc Chau, the Moc Chau Company organized 2-4 training courses for new LTs and 4-6 brush-up training courses for the current LTs. Also, about once a year, NT is invited to provide the training for LTs. In terms of monitoring of the pilot farmers activities, LTs in Moc Chau have supervised the farmers in their responsible areas by using the Dairy Technology Monitoring Sheet developed by the project while LTs in Vinh Tuong have not used the Sheet but a similar monitoring sheet provided by Vinamilk. The Model farms have sustained necessary skills and knowledge about the improved dairy techniques in Moc Chau and Vinh Tuong. In terms of technical transfer at district level, farmer-to-farmer information dissemination have been carried out in Moc Chau while the new dairy farmers often learn from more experienced farmers in Vinh Tuong.

<Financial Aspects>

STED receives budget from NAEC for dairy related researches and extension activities in addition to receiving service fees from companies and other provinces for provision of training, while NTs' basic salary comes from NIAS's budget. Budgets for dairy technology training and extension activities by LTs belonging to district governments are allocated by the province or district people's committee. Financial data on STED, NAEC, NIAS, and provincial and district governments except Vinh Tuong District were not available, but there is no financial issue reported as sufficient number of NTs and LTs engage in dairy technology extension and training activities. In terms of financial data obtained from Moc Chau and Vinh Tuong between 2011 and 2015, it is observed that the total budget for dairy technique extension and training activities provided by Moc Chau Dairy cattle Breeding Joint-Stock Company has been within the range from VND 1,012 to 1,706 million, while the budget secured by Vinh Tuong District has been within the range from around VND 369 to 713 million, of which about 90% of source comes from the provincial government.

<Evaluation Results>

While institutional, technical and financial aspects are ensured, there is no policy to support the sustainability of the project, therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

This project has achieved the Project Purpose and the Overall Goal. Milk productivity of small and medium scale dairy farms in Northern Viet Nam was increased. As for sustainability, no other specific policy to promote dairy farming apart from the Livestock Development Strategy 2020 has supported the extension activities of the improved dairy farming techniques introduced by the project.. As for efficiency, the project cost exceeded the plan due to increased input for the necessity of further capacity development.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

Decision 167/2001/QD-TTG on dairy farming promotion was ended in 2010 and currently, there is no specific policy to support the development of dairy farming in Viet Nam. It is recommended that MARD will conduct review of the Decision 167 implementation and develop new policy to support dairy farming, taking into account impacts of TPP agreement on agriculture sector in general and dairy sector in particular.

Lessons Learned for JICA:

Despite of no specific policy to support extension of the improved dairy farming technologies introduced by the project, the number of cattle and the volume of milk production have continuously increased in Northern Viet Nam. It was because of profitability of milk production for small and medium dairy farms and functional extension system composed of NTs and LTs trained by the project. Therefore, in order to ensure effectiveness of the project as well as sustainability of project effects, at the project planning stage, it is essential to assess needs of farmers including profitability of farming technologies as well as organizational capacity and functionality of the existing extension system to disseminate farming technologies to be introduced by the project. In addition, it is important to introduce farming technologies to meet the farmers' needs and to enhance organizational capacity for functional extension system.

¹ It is a semi private company with 50% of stock shares owned by the state.



A dairy farm in Moc Chau (30 heads)



Training course for LT organized in Hung Yen

Country Name	The Project for Protection of Natural Grassland and Nomad Settlement in Xinjiang Uygur Autonomous Region
People's Republic of China	

I. Project Outline

Background	<p>In the Xinjiang Uygur Autonomous Region, while traditional nomadic grazing of sheep had been conducted, the devastation of natural grassland had progressed accompanying with an increase in the number of livestock (overgrazing), and over 80% of the total areas of natural grassland was at a risk of desertification at the time of ex-ante evaluation. Under such situation, the government of the Autonomous Region had been implementing a settlement project for protection of natural grassland and stabilization of nomads' livelihoods, in which an approach was taken to construct a settlement, distribute crop land, and conduct stall breeding of sheep during winter and planned grazing in accordance with an usable amount of natural grassland during other seasons. However, there was no rational livestock farming plan based on the amount of available natural and artificial grassland, protection of natural grassland and implementation of a settlement project were not organically linked, nomads who had little experience of stall breeding lacked livestock breeding skills and crop cultivation skills, which, combined with insufficient technology dissemination system of relevant administrations, prompted nomads who could not adapt to a new farming system to return to nomadic grazing.</p>				
Objectives of the Project	<p>Through the implementation of model initiatives (improvements of methods for planning, implementation and evaluation and strengthening of technical trainings) enabling the functioning of a sustainable settlement project which both protects the natural grasslands and improves the lives of nomads, the project aimed at strengthening a technological support system for settled nomadic people (Project Purpose), thereby contributing to protection of the natural grasslands and improvement of the lives of nomads in the settlement area of similar regions to the model region in northern Xinjiang. The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> 1. Overall Goal: The natural grasslands are protected and the lives of nomads are improved in the settlement area of similar regions to the model region in northern Xinjiang. 2. Project Purpose: A technological support system for settled nomadic people is strengthened through the implementation of model initiatives enabling the functioning of a sustainable settlement project which both protects the natural grasslands and improves the lives of nomads. 				
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Urumqi City, Changji City and Fuyun County in the Xinjiang Uygur Autonomous Region 2. Main activities: Formulation of an appropriate protective utilization plan of natural grassland, a land utilization plan, a farming plan and a water utilization plan according to the actual state of the model region; implementation of a pilot project; formulation of an establishment plan (including a training plan) of technological extension system (grassland management, stockbreeding, water-saving irrigation and farming etc.) in the model region; provision of trainings for administrators and personnel in charge of technological extension at city, county and township levels and nomads in the model region, etc. 3. Inputs (to carry out above activities) <ul style="list-style-type: none"> Japanese Side 1) Experts: 9 persons 2) Trainees received: 42 persons 3) Equipment: farming equipment, monitoring equipment and dairy product processing facility etc. 4) Overseas activities cost Chinese Side 1) Staff allocated: 56 persons 2) Project office (Urumqi City, Changji City and Fuyun County) 3) Local cost 				
Ex-Ante Evaluation	2007	Project Period	June 2007 – March 2013 (of which extended period: April 2012 – March 2013)	Project Cost	(ex-ante) 390 million yen (actual) 480 million yen
Implementing Agency	Department of Science and Technology of Xinjiang Uygur Autonomous Region (Center for the Protection and Utilization of Natural Grasslands in Xinjiang)				
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries				

II. Result of the Evaluation

<Special perspectives considered in the ex-post evaluation>

- While the target year for Overall Goal is not stated in PDM, it is written in the Terminal Evaluation Report, “probability of achievement of Overall Goal three years after project completion”. Thus, this project is evaluated based on an assumption that the target year for Overall Goal is 2016 (project completion is 2013).

1 Relevance

<Consistency with the Development Policy of China at the time of ex-ante evaluation and project completion>

The project has been consistent with China's development policy on 'protection of natural grassland' and 'settlement policy' etc. as set forth in “the National Ecology Development Plan (approved by the Standing Committee of the State Council in 1999)”, “the 11th Five-Year Plan (2006-2010) for National and Social Development of People's Republic of China”, “the 11th Five-Year Plan (2006-2010) of the Xinjiang Uygur Autonomous Region”, “the 12th Five-Year Plan (2011-2015) (of both the central government and the Xinjiang Uygur Autonomous Region)” and “Stockbreeding Development Plan (2011-2015)” etc.

<Consistency with the Development Needs of China at the time of ex-ante evaluation and project completion>

The model region of this project is comprised of Akeqi Village in the Miaoergou Township of Changji City and Qiabula Village in the

Dure Township in Fuyun County, which had been constructed as settlement villages for nomadic people and development of infrastructures had already been completed, and thus to select these villages under the project as targets for provision of technical cooperation after their settlement was highly relevant. Moreover, Changji City is in a good location to access to Urumqi City, which is a large consuming area, whereas Fuyun County is in a relatively bad location to access to markets, and thus each village could be a model for other similar regions and to select these villages as model villages was also highly relevant¹. At the time of project completion, as well, it was confirmed from the situation of assistance by related organizations and interviews with them that there were needs for protection of natural grassland, supporting nomads after settlement for their life improvement including livelihood and technical assistance in stockbreeding.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy on 'cooperation to cope with global issues including environmental problems', as stated as one of priorities/economic cooperation policies in the "Economic Cooperation Program for China (2001)".

<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. According to studies during project implementation, income from agriculture and stockbreeding per model nomad in 2011 (the fifth year) increased by 86.0% in Akeqi Village and 43.7% in Qiabula Village, compared with that of 2007 (when the project started) (Indicator 1). The degree of dependency on forage taken from natural grasslands among model nomad families during winter-time² in 2012 (the sixth year) was reduced by 56 points in Akeqi Village and 40 points in Qiabula Village, compared with that of 2007 (when the project started) (Indicator 2). Textbooks and manuals etc. produced under the project were used as teaching materials in trainings for nomads and trainees commented that they were practical (Indicator 3). Moreover, the number of visitors to the model region during project implementation (six years in total) reached 272 persons annually on average among Akeqi Village and Qiabula Village (Indicator 4).

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

Through technical supports for model nomads provided under the project, the survival rate and reproduction rate of livestock were enhanced due to stall breeding, and model nomad families became able to obtain higher income. After project completion, net income from agriculture and stockbreeding per model nomad has steadily been increasing. The degree of dependency on forage taken from natural grasslands among model nomad families during winter-time has been decreasing since project completion, and in particular, the degree in Akeqi Village, which has better access to Urumqi City (provincial capital) and where settlement had progressed to a certain extent before project implementation, has been significantly improved to 5% (2015). Moreover, guidance on settlement for model nomad families and guidance on management skills for stakeholders of livestock farming have been conducted since project completion, in which textbooks and manuals etc. produced under the project are still used as teaching materials. Furthermore, as a result of enhanced awareness about protection of natural grassland and settlement in the model region and surrounding villages due to a success of model nomad families, there have been many visitors to the model region since project completion, and the number of visitors reached 200 persons (the target) annually on average among Akeqi Village and Qiabula Village in 2015. According to interviews with project counterparts, there are many cases in which other nomad families who saw achievements of model nomad families adopt the same approach in both villages, and as a result of project effects having steadily spread, the degree of dependency on forage taken from natural grasslands during winter-time is considered to have decreased.

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

The Overall Goal has been achieved by the time of ex-post evaluation. The number of cases in which settlement projects have been started on a large scale utilizing outcomes of this project in similar regions in northern Xinjiang (Changji Hui Autonomous Prefecture and Altay Prefecture) was two in total during three years from 2013 to 2015 (there were also several small cases that are not included in the statistics) (Indicator 1). According to Animal Science Academy of Xinjiang Uygur Autonomous Region, this is due to the fact that trainings whose contents are the same as those implemented under the project have been conducted for related people at various levels within the Xinjiang Uygur Autonomous Region since project completion. The statistics of local governments superior to the model villages show that in both the Miaoergou Township of Changji City including Akeqi Village and the Dure Township in Fuyun County including Qiabula Village, the rate of sheep which spent a winter in a settlement village has increased by over 30 points from 2008 to 2016 (Indicator 2), and net income from agriculture and stockbreeding per nomad has also increased by 188% and 84% during the same period in the Miaoergou Township and the Dure Township respectively (Indicator 3). According to Animal Science Academy of Xinjiang Uygur Autonomous Region and Changji City, as mentioned above, the number of cases in which people who visited the project sites emulate the project activities has increased³. Consequently, it is considered that, settlement has progressed in the region, which has contributed to achievement of these indicators.

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

No negative impact on natural or social environment has been occurred under the project. As other impacts occurred due to this project, (1) the grass coverage rate in the model region and surrounding areas has increased (example: according to Animal Science Academy of Xinjiang Uygur Autonomous Region, the grass coverage rate in Changji Prefecture: 36% in 2013 to 56% in 2015), (2) as manpower

¹ However, there are problems attributable to project planning in terms of appropriateness of project design/approach, though these were not so significant to affect the relevance of the project. In selecting model villages, two villages were selected as model areas for settlement of nomadic people, which were (1) Akeqi Village, which was close to a large city (provincial capital), with good access to markets and where settlement had already been in progress, and (2) Qiabula Village, which was far from a large city, with poor access to markets and where settlement had not been started at all. It was necessary to provide more support for the Village (2) continuously by increasing inputs (assignment period of Japanese experts etc.) than for the Village (1), however, there was no facility where foreigners could stay in the Village (2), and thus Japanese experts had to stay in a neighboring city and spend more than four hours every day for traveling to and from the Village (2) by car to carry out project activities. This caused a burden on Japanese experts and their activities had to be limited. While it is difficult to conduct a rigorous verification, there is a possibility that this became a cause of partial insufficiencies of a system and technical skills required for sustainability of project effects in Village (2), as mentioned in '4 Sustainability'.

² This is a period when livestock spend time in winter farm, which is normally from late November to early April.

³ During the field survey for this ex-post evaluation, the situation in which a vast area has been settled and natural grassland has been recovered was visually confirmed from a car on the way from Urumqi City to Akeqi Village in Changji City.

required for stall breeding is less than that for nomadic grazing, males are now able to go to urban areas to work, which has increased their income, (3) livestock excretion is no longer spread to a wide area due to stall breeding, which has led to an improvement of hygienic environment in villages, and (4) females who take care of livestock are now able to obtain cash income from selling dairy products, which has advanced social status of females.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved by the time of project completion, project effects have been maintained to the time of ex-post evaluation, and the Overall Goal has been achieved. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results														
<p>(Project Purpose) A technological support system for settled nomadic people is strengthened through the implementation of model initiatives enabling the functioning of a sustainable settlement project which both protects the natural grasslands and improves the lives of nomads.</p>	<p>1. Net income from agriculture and stockbreeding per model nomad increases by 40% in real terms.</p>	<p>Status of the achievement: achieved (continued) (Project Completion) Income in real terms in 2011 was calculated based on Consumer Price Index (CPI) treating 2007 as a base year, and the result was 11,316 yuan/person in Akeqi Village in Changji City (increased by 86.0%) and 3,680 yuan/person in Qiabula Village in Fuyun County (increased by 43.7%). (Ex-post Evaluation) Net income from agriculture and stockbreeding per model nomad after project completion is as below. It has been increasing since 2011.</p> <p style="text-align: right;">(Unit: yuan/person)</p> <table border="1"> <thead> <tr> <th></th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Akeqi Village in Changji City</td> <td>12,753</td> <td>14,842</td> <td>15,963</td> </tr> <tr> <td>Qiabula Village in Fuyun County</td> <td>6,800</td> <td>7,200</td> <td>7,800</td> </tr> </tbody> </table>		2013	2014	2015	Akeqi Village in Changji City	12,753	14,842	15,963	Qiabula Village in Fuyun County	6,800	7,200	7,800		
		2013	2014	2015												
	Akeqi Village in Changji City	12,753	14,842	15,963												
	Qiabula Village in Fuyun County	6,800	7,200	7,800												
<p>2. The degree of dependency on forage taken from natural grasslands among model nomad families during winter-time is reduced by 30 points (the degree of dependency on forage: a rate against forage demand for the whole livestock for a certain period).</p>	<p>Status of the achievement: achieved (continued) (Project completion) The degree of dependency on forage taken from natural grasslands in the fifth year (2011) was improved by 56 points on average among 20 families in Akeqi Village and 40 points in Qiabula Village, compared with the figure at project commencement (2007). (Ex-post Evaluation) The degree of dependency on forage taken from natural grasslands among model nomad families during winter-time in the project final year and after project completion is as below. Although the data as of project completion especially about Qiabula Village (taken from the Summary of Terminal Evaluation that does not mention data sources) is not consistent with the data below and thus not fully comparable, the degree of dependency has been decreasing steadily.</p> <p style="text-align: right;">(Unit: %)</p> <table border="1"> <thead> <tr> <th></th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Akeqi Village in Changji City</td> <td>13</td> <td>11</td> <td>8</td> <td>5</td> </tr> <tr> <td>Qiabula Village in Fuyun County</td> <td>72</td> <td>72</td> <td>70</td> <td>70</td> </tr> </tbody> </table>		2012	2013	2014	2015	Akeqi Village in Changji City	13	11	8	5	Qiabula Village in Fuyun County	72	72	70	70
	2012	2013	2014	2015												
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<p>3. Textbooks/manuals produced under the project are utilized in trainings conducted by Department of Science and Technology (and its related groups) or Department of Animal Husbandry (and its related groups).</p>	<p>Status of the achievement: mostly achieved (continued) (Project completion) Textbooks produced under the project were used in trainings for nomads such as “Winter of Department of Science and Technology” (technical trainings in winter-time) etc. as training materials. The technical manual (preliminary version) was used for trial in the neighboring village of Akeqi Village in Changji City in December 2012, and nomads who attended the training commented that “the manual contains many charts and tables, it is practical, and its contents are new”, etc. The guideline/manual was approved in the end of January 2013 and was planned to be used in trainings conducted by Department of Science and Technology, Department of Animal Husbandry and their related groups. (Ex-post Evaluation) In Changji City, guidance on settlement has been conducted by Department of Science and Technology of Changji City for seven days per year on average for model nomad families and villagers (the number of attendants has been 160 in total), and in Urumqi City, guidance on management skills has been conducted by Department of Science and Technology of the Autonomous Region for five days per year on average for stakeholders of natural grassland and livestock farming at various levels such as city, county, township and village (the number of attendants has been 50 in total) since project completion. Textbooks and manuals produced under the project are used as teaching materials in these trainings in agricultural and livestock farming regions.</p>															
<p>4. The number of visitors to the model region reaches 200 people per year.</p>	<p>Status of the achievement: mostly achieved (mostly continued) (Project completion) The number of visitors to the model region during six years was 410 persons in Akeqi Village and 134 persons in Qiabula Village, annually on average. The average of both villages was 272 persons annually.</p>															

		(Ex-post Evaluation) The number of visitors to the model region per year after project completion is as below. While it is fewer than the number during project implementation, the average of both villages is 205 persons in 2015, which exceeds the target. (Unit: persons)																
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(Overall goal) The natural grasslands are protected and the lives of nomads are improved in the settlement area of similar regions to the model region in northern Xinjiang.	1. The number of cases in which settlement projects have been started utilizing outcomes of this project in similar regions in northern Xinjiang becomes over six.	(Ex-post Evaluation) achieved The number of cases in which settlement projects have been started on a large scale utilizing outcomes of this project in Changji Hui Autonomous Prefecture and Altay Prefecture was two in total during three years from 2013 to 2015. In addition, there have also been at least four small cases, and thus the total number of cases is over six.																
	2. In villages in the Indicator 1 above, the rate of sheep which spent a winter in a settlement village increases by 15 points (villages should be sampled).	(Ex-post Evaluation) achieved Villages could not be sampled, and instead, the transition in the whole region including model villages was analyzed (this can be an alternative indicator as settlement is progressing in the whole region). The data shows an increase by 30.5 points in the Miaoergou Township of Changji City and an increase by 35 points in the Dure Township in Fuyun County. (Unit: %)																
	3. In villages in the Indicator 1 above, net income from agriculture and stockbreeding per nomad increases by 20% in real terms (villages should be sampled).	(Ex-post Evaluation) achieved Villages could not be sampled, and instead, the transition in the whole region including model villages was an increase by 188% in the Miaoergou Township of Changji City and an increase by 84% in the Dure Township in Fuyun County. (Unit: yuan/person)																
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Source : Summary of Terminal Evaluation, Project Completion Report, Questionnaire survey and interview to Animal Science Academy of Xinjiang Uygur Autonomous Region

Note: The definition of the word “point(s)” used in the Project Purpose Indicator 2 and the Overall Goal Indicator 2 is not clearly mentioned in the available documents. For the analysis in this ex-post evaluation, it was regarded as a change of percentage (difference) based on how the word is used in those documents.

3 Efficiency

Both project cost and project period exceeded the plan (123% and 117%, respectively), as project period was extended for a year due to the fact that the dispatch of all Japanese experts was stopped for almost a year in the third year due to the insurgency that occurred in Xinjiang in July 2009 and that more time was required to enhance effects of model initiatives in Qiabula Village. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

Protection of natural grassland and settlement policy are still positioned as important issues in “the 13th Five-Year Plan (2016-2020) of the Xinjiang Uygur Autonomous Region”, which is under preparation at the time of ex-post evaluation.

<Institutional Aspect>

There has been no change to the organizational structure and division of roles among Department of Science and Technology of the Autonomous Region, Animal Science Academy, and Department of Science and Technology of City/County etc. regarding protection of natural grassland and settlement policy since project completion. The International Cooperation Division of Department of Science and Technology of the Autonomous Region is mainly responsible for coordination with related organizations and implementation of trainings organized by the government of the Autonomous Region etc., the Research Institute of Xinjiang Academy of Animal Sciences is responsible for scientific research, technological development and modeling/dissemination of technologies etc., and Department of Science and Technology of City/County is responsible for selection of participating nomad families, project implementation, and provision of trainings at the city/county level etc. The number of staff is four in the International Cooperation Division of Department of Science and Technology of the Autonomous Region, 34 in the Research Institute of Xinjiang Academy of Animal Sciences, 18 in Department of Science and Technology of Changji City, and three in the Grassland Station of Department of Science and Technology of Fuyun County. The number of staff is sufficient in all of these organizations, as the number of staff actually assigned satisfies the quota (required number of staff), and these organizations conduct technical guidance and opinion hearings for stakeholders at the township/village level and nomads over 20 days annually on average. Moreover, a facility for artificial insemination was constructed in Akeqi Village and a facility for artificial insemination and a small dairy products processing factory were constructed in Qiabula Village under the project. While each facility for artificial insemination is utilized and managed properly by a veterinarian belonging to the Veterinary Station at the township level, the small dairy products processing factory is not operational at the time of ex-post evaluation. This is due to the fact that nomads could not produce dairy products that satisfy the food sanitation standard of China and that Qiabula Village is in a location with very poor access to neighboring cities, which increases transportation cost of dairy products⁴. While a concrete answer was not provided, there is a

⁴ It was pointed out at the time of project completion that due to the delayed project activities in Qiabula Village, the production flow from cultivation of

possibility that no maintenance staff is assigned for the small dairy products processing factory at the time of ex-post evaluation.

<Technical Aspect>

At the time of ex-post evaluation, project counterparts still work for Department of Science and Technology of the Autonomous Region, Animal Science Academy, and Department of Science and Technology of City/County etc. There are eight staff with advanced technical qualification on animal science (24% of the total number of staff) in the Research Institute of Xinjiang Academy of Animal Sciences, there are 11 staff who have graduated from universities/professional schools or above (61% of the total number of staff) in Department of Science and Technology of Changji City, and technical experts in the field of agriculture and stockbreeding and water management etc. are constantly assigned at Department of Science and Technology of Fuyun County, and thus, technical skills of these organizations are sufficient for scientific research, technological development and modeling/dissemination of technologies etc. Moreover, internal trainings have been conducted to improve and maintain technical levels of staff in these organizations (the number of trainees during three years from 2013 to 2015: 20 in total in Department of Science and Technology of Xinjiang Uygur Autonomous Region, 20 in total in Department of Science and Technology of Changji City, and 60 in total in Fuyun County). Furthermore, technical skills of veterinarians responsible for managing the facility for artificial insemination are sufficient, as the facility has properly been maintained and artificial insemination has actually been conducted in Akeqi Village, however, nomads who manage the small dairy products processing factory in Qiabula Village (rural cooperatives) lack technical skills to produce dairy products that satisfy the food sanitation standard of China.

<Financial Aspect>

At the time of ex-post evaluation, the amount of budget in the above organizations (budget to conduct various trainings such as technical guidance on agriculture and stockbreeding etc.) is one million yuan per year in Department of Science and Technology of the Autonomous Region, 200 thousand yuan per year in Department of Science and Technology of Changji City, and 100 thousand yuan per year in Department of Science and Technology of Fuyun County. Moreover, 20,000 yuan is annually required for maintenance of the facility for artificial insemination in Akeqi Village, and 20,000 to 22,000 yuan has been secured annually since project completion, and thus sufficient amount of maintenance budget has been secured every year. On the other hand, no maintenance budget is secured for the small dairy products processing factory in Qiabula Village, as the facility is not in operation. Qiabula Village is requesting the County government to exempt electricity bills of the facility and provide support for acquisition of a qualification/permission on food safety and sanitation, however, what kinds of measures to be taken has not been determined yet.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional, 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, “strengthening of a technological support system for settled nomadic people through the implementation of model initiatives enabling the functioning of a sustainable settlement project which both protects the natural grasslands and improves the lives of nomads”, as planned. As for Overall Goal, settlement projects have been started utilizing outcomes of this project and positive impacts have been observed in similar regions in northern Xinjiang, and achievement of targets set in indicators have been confirmed. Regarding sustainability, some problems have been observed in terms of the institutional, technical and financial aspects of the small dairy products processing factory in Qiabula Village. As for efficiency, both 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 for Implementing agency:

Regarding the small dairy products processing factory in Qiabula Village in Fuyun County that is not in operation, Department of Science and Technology of Xinjiang Uygur Autonomous Region should, in consultation with the residents, examine problems and solutions for restarting operation and consider and provide assistance to the residents in their undertaking of necessary measures.

Lessons learned for JICA:

When selecting model regions, it is desirable to select sites which do not negatively affect Japanese experts in terms of their activities and access to the sites. In case a site needs to be selected in a location where it is difficult for Japanese experts to stay and carry out their activities for a long period of time, project activities would be limited, and thus an assignment period of experts would need to be set longer than usual. If the assignment period is limited, the project would need to be designed based on an assumption that project activities need to be limited. It might also be worthwhile to develop an implementation structure that enables appropriate technical assistance and monitoring without long-term stay of Japanese experts, for example by utilizing local resources such as local consultants.



Akeqi Village in Changji City: milk cows procured and barn constructed owing to extension of stockbreeding techniques



Akeqi Village in Changji City: noticeboard showing that this is a model nomad family of this project

Country Name	EPI/Polio Control Project
Islamic Republic of Pakistan	

I. Project Outline

Background	<p>Pakistan has been one of the countries with the highest child mortality rate. At the time of ex-ante evaluation, incidents of polio had been decreasing by donor's support. However, the regular immunization coverage in Pakistan was still not optimal and unless this coverage increased, new polio case would be reported. Therefore, regular immunization was needed to be further strengthened.</p> <p>In the province of Khyber Pakhtunkhwa (KPK), immunization coverage including polio was extremely low as there were many remote areas with limited access to health care facilities and conventionally it was difficult for women to take children to the health facilities alone. On the other hand, health education and health service provided by local Lady Health Workers (LHWs) in rural areas had been successful to some extent. Under this background, Expanded Programme on Immunization (EPI) started with LHWs as vaccinators from 2005.</p>						
Objectives of the Project	<p>The project aimed that children under the age of two are vaccinated in the target districts by (1) Training on EPI service provision to EPI technicians, Lady Health Supervisors and LHWs, and conduct of actual immunization by LHWs in the target districts, (2) Awareness raising activities for parents/caretakers and others in the target districts, (3) Training on quality control to Quality Control Laboratory (QCL)/National Institute of Health (NIH) for the improvement of quality of vaccines, and (4) Training to Federal and Provincial EPI cells on logistics and data management for the supply of appropriate vaccines, thereby contributes to reduction in morbidity due to EPI-targeted vaccine-preventable diseases in the target districts.</p>						
	<ol style="list-style-type: none"> Overall Goal: Morbidity due to EPI-targeted vaccine-preventable diseases is reduced in the target districts. Project Purpose: Children under the age of two are vaccinated in the target districts. 						
Activities of the Project	<ol style="list-style-type: none"> Project site: <ol style="list-style-type: none"> Swat, Shangla, Buner and Haripur districts (in the province of Khyber Pakhtunkhwa (KPK)) Islamabad (QCL/NIH is located) Balochistan Province, Punjab Province, Sindh Province and KPK (Training on EPI logistics and data management was implemented) Main activities: <p><Target district level></p> <ol style="list-style-type: none"> Training on EPI service provision to EPI technicians, Lady Health Supervisors and LHWs, and conduct of actual immunization by LHWs. Awareness raising activities for parents/caretakers and others (Not implemented actually due to the worsening security situation) <p><Federal level></p> <ol style="list-style-type: none"> Training on quality control to QCL/NIH for the improvement of quality of vaccines. Training on EPI logistics and on routine EPI data management for the supply of appropriate vaccines to Federal and provincial EPI Cells. Inputs <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><Japanese Side></p> <ol style="list-style-type: none"> Dispatch of experts: 13 persons Acceptance of trainees in Japan: 15 persons Provision of equipment: PCs, printers, projectors, cold chain equipment and others </td> <td style="width: 50%; vertical-align: top;"> <p><Pakistan Side></p> <ol style="list-style-type: none"> Staff allocated: 40 persons Land and facilities: project office, cost of electricity and water supply Local Cost (for whole project period): 16.2 million Pakistan Rupees </td> </tr> </table> 					<p><Japanese Side></p> <ol style="list-style-type: none"> Dispatch of experts: 13 persons Acceptance of trainees in Japan: 15 persons Provision of equipment: PCs, printers, projectors, cold chain equipment and others 	<p><Pakistan Side></p> <ol style="list-style-type: none"> Staff allocated: 40 persons Land and facilities: project office, cost of electricity and water supply Local Cost (for whole project period): 16.2 million Pakistan Rupees
<p><Japanese Side></p> <ol style="list-style-type: none"> Dispatch of experts: 13 persons Acceptance of trainees in Japan: 15 persons Provision of equipment: PCs, printers, projectors, cold chain equipment and others 	<p><Pakistan Side></p> <ol style="list-style-type: none"> Staff allocated: 40 persons Land and facilities: project office, cost of electricity and water supply Local Cost (for whole project period): 16.2 million Pakistan Rupees 						
Ex-Ante Evaluation	2006	Project Period	September 2006 - September 2011	Project Cost	388 million yen		
Implementing Agency	Federal EPI of National Institute of Health (NIH), Quality Control Laboratory (QCL) of NIH, Directorate General Health Service of Government (DGHS) of KPK, Executive District Office-Health (EDO-H) in four districts; Swat, Shangla, Buner and Haripur, and EPI cell-Provinces (Punjab, Baluchistan, Sindh)						
Cooperation Agency in Japan	International Medical Center of Japan (IMCJ), The Research Foundation for Microbial Diseases of Osaka University (BIKEN)						

II. Result of the Evaluation

Although the project was planned to be implemented in Swat, Shangla, Buner, and Haripur districts, the activities in Swat, Shangla and Buner districts were suspended in 2008 and never resumed due to the worsening security situation.

1 Relevance
<p><Consistency with the Development Policy of Pakistan at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with development policy of Pakistan at the time of both ex-ante evaluation and project completion. National Health Policy 2001 prioritized measures against infectious diseases and strengthening of the system for primary health care service provision including immunization was set as the main strategy. At the time of project completion, National Emergency Action Plan for Polio Eradication (NEAP) 2011 and other documents cited that LHWs were obliged to conduct EPI service.</p> <p><Consistency with the Development Needs of Pakistan at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with the needs for immunization measures in Pakistan at the time of both ex-ante evaluation and project</p>

completion. At the time of ex-ante evaluation, child mortality of 86/1,000 births (2003) in Pakistan was higher than other South Asian countries. Although many development partners supported immunization in Pakistan, no donors had supported activities in the project target districts except Swat district. At the time of project completion, Pakistan was one of the countries with the highest child mortality rate of infectious diseases and was also one of four countries where polio was not extinct. The regular immunization coverage in Pakistan was not sufficient.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy at the time of ex-ante evaluation, as Country Assistance Programme to Pakistan 2005 identified three prioritized areas which included "Ensuring human security and human development". "Basic health service" was included in this area.

<Evaluation Result>

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

2 Effectiveness/Impact

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

The project purpose was achieved in Haripur district by the time of project completion, as the following indicators set to measure the project purpose were attained: (i) The number of immunized children with measles and pentavalent vaccine (Combination of Hepatitis B vaccine & Hib & DPT (Diphtheria-tetanus-pertussis) vaccine)¹ under one year-old is increased, (ii) reported routine EPI coverage (Pentavalent) is increased and (iii) Drop-out (1st dose-3rd dose) rate of Pentavalent is reduced. Although the project contributed to this progress mainly by introducing LHWs' involvement in EPI service from 2009, it is difficult to attribute this results solely to the project as the number of vaccination started increasing earlier than the project implementation.

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

After the project completion, the number of children with pentavalent vaccine under one year old slightly increased in Haripur except in 2012. The coverage of pentavalent was decreased in 2012, however, was increased again in 2013 and 2014. According to the EDO-H of Haripur, the activities under the project, such as training for EPI technicians and medical doctors, textbooks for EPI technicians and monitoring mechanism developed by the project, review/evaluation of outreach activities and others, contributed to the performance. As to the drop-out rate, although it was increased from 2011 to 2013, it was decreased in 2014.

LHWs keep providing vaccination services at their Health Houses where they are assigned approximately 200 households for taking care of their immunization, while Fix and Outreach activities are task of medical officers and EPI technicians. Vaccination of measles and BCG by LHWs is restricted. The number of vaccination of measles was decreased in 2014. This was not only because there was a shortage of vaccine but also LHWs' visits to outreach destination were restricted due to their active involvement in other assignment. LHWs have not been trained yet on vaccination of BCG to children. BCG is technically skillful task and needs intensive training. Secondly there are more chances of wastage, therefore only trained vaccinators perform BCG vaccination.

The Iceland refrigerators supplied to Haripur district are functional, but proper maintenance is not carried out.

As to the improvement in logistics and data management for the supply of appropriate vaccines, the stock-out days of vaccines and maximum interval of vaccine have been improved in all provinces. Although the project does not directly influence the improvement, the recording forms introduced by the project are still used by the provincial stock keepers and facilitate the procurement of vaccines.

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

The overall goal has been mostly achieved in Haripur district at the time of ex-post evaluation. Basically, Haripur district has been Polio free since the completion of the project. Conduct of quality campaigns and efficient and strong routine immunization was the main contributing factor. The incidence of neonatal tetanus is reduced in Haripur as a result of better coverage by LHWs. Also timely awareness raising campaign was the main contributing factor. The incidence of measles in Haripur had been reduced during the project period. Although, there was an upsurge in 2012 and 2013, it was reduced in 2014 again. The issues of vaccine procurement created instability in the KPK province. Furthermore, bureaucratic delays in operating the program in the field along with delays in supply of vaccine from federal to provincial government were responsible for the sudden increase of cases in 2012 and 2013.

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

No negative impact on natural environment has been observed. No land acquisition and resettlement occurred under this project.

<Evaluation Result>

The project mostly has achieved its project purpose and overall goal in Haripur district. However, it is difficult to judge whether they were achieved in Swat, Shangla and Bruner because intervention was actually not carried out in these target districts². Therefore, effectiveness/impact of the project are fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results					
(Project Purpose) Children under the age of two are vaccinated in the target districts.	1. The number of immunized children with measles and pentavalent vaccine under one year-old is increased.	Status of achievement: Achieved in Haripur district					
		(Project Completion)					
		1) pentavalent vaccination					
		1st dose		2nd dose		3rd dose	
		Number	%	Number	%	Number	%
2006	18,608	62.5	18,500	62.1	16,757	56.3	
2007	23,283	72.6	21,018	65.6	21,295	66.4	
2008	27,537	90.7	26,291	86.6	25,975	85.5	

¹ Indicators were DPT in 2006, Combination of Hepatitis B vaccine and DPT (2007-2008) and Pentavalent (2009-2010). The indicators changed since the types of vaccines in EPI in Pakistan changed from time to time.

² The data on project purpose and overall goal in Swat, Shangla and Bruner district is not presented in this report since intervention was not made in these districts and therefore, the achievement/non-achievement of the project purpose and overall goal in these districts are irrelevant to the project. In these districts, lack of social mobilization/awareness was found.

2009	26,454	85.2	25,430	81.9	25,603	82.5
2010	31,111	111.5	31,189	111.8	30,692	110.0

2) Measles Vaccination

	2006	2007	2008	2009	2010
Number	Not available	21,061	24,404	26,788	26,153
%	Not available	84%	86%	88%	84%

(Ex-post Evaluation)

1) Pentavalent vaccination *:

	1st dose		2nd dose		3rd dose	
	Number	%	Number	%	Number	%
2011	31,329	99	30,674	98	30,827	99
2012	27,020	77	27,183	77	27,020	77
2013	30,489	84	31,162	85	30,489	84
2014	31,517	88	32,290	100	31,517	88

*These figures are official information, though there are some discrepancies (including discrepancies with other indicators). The reason for discrepancies was not answered by the counterpart.

2) Measles Vaccination

	2011	2012	2013	2014
Number	27,927	28,589	32,221	30,202
%	88%	81%	89%	84%

2. Reported routine EPI coverage (Pentavalent) is increased.

Status of achievement: Achieved in Haripur district

(Project Completion)

- The coverage is shown in the table in the Indicator 1.
- Although the coverage expanded, interpretation of this figure should be made very carefully as the coverage (immunized population/target population) in Haripur district showed over 100%. The reason of the cause can be assumed that the population data for coverage calculation may be lower than actual number based on the census in 1998.

(Ex-post Evaluation)

- The coverage is shown in the table in the Indicator 1.
- The coverage was decreased in 2012, however, was increased again in 2013 and 2014.

3. Drop-out rate of Pentavalent is reduced.

Status of achievement: Achieved in Haripur district

(Project Completion) Drop-out rate had been decreased from 2008; The number of drop-out was decreased from 851 cases into 419 cases from 2009 to 2010.

(Ex-post Evaluation)

	2011	2012	2013	2014
Drop-out rate (1 st dose-3 rd dose/1 st dose) in Haripur	1.65%	5.97%	7.12%	5.00%

*The District Haripur provided the "rate" only.

(Overall Goal) Morbidity due to EPI-targeted vaccine-preventable diseases is reduced in the target districts.

1. Polio free is maintained.

Status of achievement: Achieved in Haripur district

	2006	2007	2008	2009	2010	2011	2012	2013	2014
The number of polio cases	0	0	0	0	0	0	(1) *	0	0

* The single case of wild poliovirus in 2012 came from an Afghan Settlement Camp. There was a possibility that a child might have brought the virus from Afghanistan during his parent's migration to Pakistan. So it is established fact that at least Haripur's local population has been polio-free since the completion of the project in 2011.

2. The incidence of measles is reduced.

Status of achievement: Partially achieved in Haripur district

	2006	2007	2008	2009	2010	2011	2012	2013	2014
The incidence of measles	2	250	17	12	1	116	336	360	107

3. The incidence of neonatal tetanus is reduced.

Status of achievement: Achieved in Haripur district

	2006	2007	2008	2009	2010	2011	2012	2013	2014
The incidence of neonatal tetanus	0	2	2	4	0	1	0	0	0

Source : JICA internal documents, questionnaire survey and interviews with the counterparts, WHO Pakistan Office, Islamabad

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan:

105%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The project is supported by the current policy as National EPI Policy 2014 and other policy documents support effective utilization of LHWs including immunization of children and pregnant women.

<Institutional Aspect>

After the devolution, each provincial government has more authority and responsibility for EPI implementation while the federal government still has the role of developing policies and guidelines for provinces. The KPK provincial cell is headed by one deputy director with three assistant directors and has various support staffs. Four EPI technicians are arranged to EDO-H of Haripur and at least four staffs are arranged to each EPI center. Nevertheless, the number of staff including EPI vaccinators/technicians of KPK province is insufficient compared to the population.

<Technical Aspect>

Most of the staff of the KPK provincial cell and EDO-H of Haripur have necessary skills, however, there is little chance to brush up their skills. In addition, though they have capacity to deal with logistics and data management, further enhancement of technical capacity is necessary as any kind of refresher training has not been conducted.

<Financial Aspect>

The budgets of both of the KPK provincial EPI cell and EDO-H of Haripur are insufficient. However, the World Bank will implement National Immunization Support Project of approximately US\$ 400 million including support for KPK province and all its districts in next 5 years.

<Evaluation Result>

Some problems have been observed in terms of institutional, technical and financial aspects. Therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

The project has mostly achieved its project purpose and overall goal in Haripur district as the number of children immunized with measles and pentavalent vaccine has been increased and the Polio free has been maintained, and incidence of measles and neonatal tetanus has been reduced. However, the activities of the project could not be implemented in the rest of the target areas due to the security reason. Therefore, effectiveness/impact of the project are fair. Although the project period was as planned, the project cost exceeded the plan. Therefore, efficiency of the project is fair. Some problems have been observed in terms of institutional, technical and financial aspects. Therefore, sustainability of the project effects is fair. In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for Implementing Agency>

1. An adequate amount of budget should be allocated to the provincial government for the refresher training of the LHWs, especially on improvement of their skills for BCG and measles vaccination.
2. The Iceland refrigerators provided to Haripur district have been in use for five years. Although they are still functional, EDO-H of Haripur should introduce proper maintenance manuals and assign persons who should check preserving condition constantly so that vaccines shall be stored at proper temperatures.
3. The districts should request the provincial government to assign personnel preferably female for the services of social mobilization, who will pay weekly visits to the communities to convince them of importance of immunizing their children and adverse consequences of neglecting this important lifesaving task.

<Lessons Learned for JICA>

The suspension of activities in the three project districts (Swat, Shangla and Buner) should have been reflected in the revised PDM. This could have showed appropriate evaluation results in terms of revised scope of the project. It could have been better if JICA had selected three another districts replacing the districts in which project activities were closed.



Meeting with the Health Authorities



Checking the data

Country Name	The Integrated Community Development Project for the Settlement Areas in National Capital District
Independent State of Papua New Guinea	

I. Project Outline

Background	In Papua New Guinea (PNG), the number of migrants from rural to urban area significantly increased. As of 2004 approximately 100,000 people lived in 70 city slums referred to as “settlements” located in the nation’s capital in Port Moresby. In settlements, opportunities of employment for residents are limited, and in particular, public services such as education and health care services are not provided. Therefore, residents in settlements are isolated both economically and socially. Government agencies such as the Department for Community Development (DFCD) and National Capital District Commission (NCDC) did not have specific policies related to these settlements resulting in these problems been unsolved.				
Objectives of the Project	Through (i) establishing an organizational arrangement for the Integrated Community Development Project (ICDP) management, (ii) having DFCD/NCDC officials and settlement leaders determine and recognize appropriate approaches for community development, (iii) improving planning, monitoring and evaluation capacity of DFCD/NCDC officials, (iv) improving implementation skill of DFCD/NCDC officials, (v) improving accountable community leadership, and (vi) sharing knowledge and information on community development stakeholders, the project is aimed at enhancing the overall capacity of DFCD/NCDC officials and settlement leaders for community development. (Project Purpose), and thereby contributing to the application of ICDP (Integrated Community Development Project) approach in community development initiatives (Overall Goal). The project objectives set forth are as follows:				
	<ol style="list-style-type: none"> 1. Overall Goal: ICDP approach¹ is applied in community development initiatives. 2. Project Purpose: Overall capacity of DFCD/NCDC officials and settlement leaders for community development is enhanced. 				
Activities of the project	<ol style="list-style-type: none"> 1. Project site: 11 settlements in Port Moresby (National Capital District (NCD)) 2. Main activities: <ul style="list-style-type: none"> (1) The project team supports the establishment of Joint Implementation Committee (JIC)² and Joint Coordinating Committee (JCC) and the performance of their roles and responsibilities; (2) The project team determines appropriate approach for community development and conducts workshop for JIC members and settlement leaders; (3) The project team provides training on Project Cycle Management (PCM, Participatory Planning), conducts Rapid Social Survey (RSS) and participatory workshops for target settlements, and formulate an implementation plan for pilot projects; (4) The project team establishes task force for pilot projects and communication system among JIC, NGO, Technical Support Team (TST) which provides technical support to the pilot projects and settlement leaders for pilot projects, finalizes PDM and PO for pilot projects, procures necessary resources for pilot projects, and implements pilot projects in cooperation with community residents; (5) The project team provides training on PCM (Monitoring and Evaluation), monitors, supervises and evaluates pilot projects, and compiles lessons and suggestions on community development in settlements; (6) The project team supports settlement leaders achieve leadership and accountability to settlement residents through pilot projects and workshops; and (7) The project team conducts awareness activities to disseminate knowledge on community development through workshops, publications and media etc., and studies on establishment of disclosure system of the knowledge. 3. Inputs (to carry out above activities) <ul style="list-style-type: none"> Japanese Side <ol style="list-style-type: none"> 1. Experts: 10 persons 2. Training in Japan: 8 persons, Training in Indonesia: 4 persons, Training in Sri Lanka: 4 persons 3. Equipment: computers, printer, video camera etc. 4. Others: Cost for local staff, cost for Third Country Training, cost for pilot projects, cost for local NGO PNG Side <ol style="list-style-type: none"> 1. Staff allocated: 13 persons 2. Land and facilities: Project office 3. Local cost: pilot projects 				
Ex-Ante Evaluation	2004	Project Period	April 2005 – March 2008 (Extension period: April 2007 – March 2008)	Project Cost	278 million yen
Implementing Agency	Department for Community Development (DFCD), National Capital District Commission (NCDC)				

II. Result of the Evaluation**1 Relevance**

¹ Community development through participatory planning, implementation monitoring and evaluation

² JIC is a main actor to carry out needs assessment, select pilot areas, build consensus among stakeholders and carry out monitoring and evaluation of pilot projects. Members are staff from DFCD and NCDC, local NGOs and settlement leaders.

<Consistency with the Development Policy of PNG at the time of ex-ante and project completion>

The Integrated Community Development Project for Settlement Areas in NCD is consistent with PNG's development policy objectives for rural development specified in the Medium Term Development Strategy 2003-2007 and 2005-2010. An assessment of PNG Government development policies implemented since 2004 all promoted economic development in rural communities in the areas of agriculture and fisheries. The Government of PNG also prioritized social development programs in health and education particularly in improving water and sanitation in local communities through integrated community development programs. The Integrated Community Development supported by JICA was an important mechanism in achieving economic and social development objectives of PNG Government by providing basic services in the settlements such as water and sanitation and constructing market infrastructure to enable efficient buying and selling of agricultural goods. The project is also consistent with Integrated Community Development Policy enacted in 2007 which aims at promoting voluntary development by communities and strengthening access to opportunities for learning and development.

<Consistency with the Development Needs of PNG at the time of ex-ante and project completion>

An assessment of the relevance of the Integrated Community Development Project for Settlement Areas in NCD both at ex-ante and completion confirmed that the project was generally consistent with Papua New Guinea's development needs. Prior to the commencement of the ICDP Project, DFCD and NCDC were not able to take actions to address issues in the settlement areas. This was due to budget constraints and the lack of sufficient human capacity within these organisations to manage social responsibilities for settlement residents. On the part of settlement residents, they recognized the needs for self-reliant efforts, and thus the participatory approach was very much needed. At the time of project completion, an expansion of ICDP to other regions was planned for the next phase of the Integrated Community Development Project.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>At the time of ex-ante evaluation a key aspect of the Government of Japan's ODA policy to Papua New Guinea was social development of PNG in areas including health, education, rural development and social security. The Integrated Community Development Project is consistent with this priority area as it supported basic water facilities, funded small piggery projects as well as constructed community youth halls, police post and mini markets. These pilot projects contributed in reducing poverty in urban areas.

<Evaluation Result> In light of the above, the relevance of the project is considered to be high

2 Effectiveness/Impact

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

The project purpose was partially achieved at completion. DFCD/NCDC officials and settlement leaders understood the participatory planning approach, however, there is very little evidence to confirm that focal points in these organization applied what they learnt to community development projects piloted in the settlements. It is partially because the operating environment for the community development pilot projects was not conducive to fully realize positive outcomes for settlement residents. The operating environment in Papua New Guinea is very complex particularly with the expansion of illegal settlements. There are two underlying issues which contribute to the challenge in addressing this emerging urban development issue: (1) Residents of un-authorized settlements cannot afford the high cost of housing in the city and therefore have settled on occupied land in the city (2) Settlement residents understand the need for basic services but for obvious reasons prefer that the government provide services for free due to their under-privileged status (poor and un-employed). In reality these settlement residents have rebelled against the Government, which results in the unfavorable operating environment for donor intervention programs..

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

An evaluation of project activities confirmed that the ICDP focal points were not resourced well to practically demonstrate technical skills for several reasons including budget constraints within PNG Government. Furthermore limited ownership from local settlement residents due to low income generating opportunities coupled with ongoing social and security issues has affected the implementation of pilot projects in the selected settlement areas. After the project completion, regular reporting or communication between DFCD/NCDC and the settlement leaders in the settlements (pilot project sites) were not conducted. Although most of the facilities constructed under the project were completed, ongoing maintenance was a challenge for most pilot project sites. Site inspections were conducted for 4 out of the 10 pilot project sites including Savaka Water Kiosk, Vadavada Community Hall, Erima Youth Centre, Tete Police Post. Most of the pilot projects are not operating with the exception of the Savaka Water Kiosk. The Savaka Water Kiosk is functioning well with good leadership from the water committee chairman; however, the water kiosk is maintained with little or no user fees which is an issue that needs to be addressed. The water project committees did not actively collect contributions from local settlement residents as the project intended. This was due to the income level of the local residents. The Vadavada Community Hall has not been used after the project initiator passed away in 2012. Although the hall is currently managed by the family members of the project initiator, there are disputes over the ownership of the hall. The Erima Youth Centre was in good condition until July 2015, when it was partially burned down as a consequence caused by a fight amongst youths in the area. While the building was used by the youth members to engage in small income earning activities, it was also used as their home, which was not the original intended purpose. The Tete Police Post ceased operations in 2006 after the settlement was demolished by the police due to law and order problems. Results from the project site inspections confirmed that most of the pilot projects are not operating.

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

The progress towards achieving the overall goal and purpose of the project was slow. It was noted that knowledge and information on the project were disseminated to other staff which is positive however practical implementation of the integrated community approach is still lacking.

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

No land acquisition occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

The project partially achieved the project purpose at the time of completion, as capacities of DFCD/NCDC officials as well as community leaders were enhanced to some extent, however, insufficient budget and institutional weakness affected the continuation of the project effects. Therefore, effectiveness/ impact of the project is fair.

Aim	Indicators	Results
(Project Purpose) Overall capacity of DFCD/NCDC officials and settlement leaders for community development is enhanced.	(Indicator 1) DFCD/NCDC officials become to plan and manage pilot projects by participatory approach.	<u>Status of achievement: Partially achieved at the project completion</u> (Project Completion) Knowledge and technical skills of JIC members improved which confirms that some technical transfer occurred. Some problems were observed among JIC members regarding preparation of PO, procurement and management of equipment/materials and level of understanding level of PCM Monitoring and Evaluation. (Ex-post Evaluation) No additional community development activities were implemented in the National Capital District and others. In other words very little was done after project completion.
	(Indicator 2) DFCD/NCDC officials are able to apply the acquired skill and knowledge for community development.	<u>Status of achievement: Partially achieved at the project completion</u> (Project Completion) Several officials utilized acquired skills and knowledge in other works including projects supported by JICA and other development partners. In the NCDC social work and public health personnel was moved to the Waste Management Division to support JICA Project for solid waste management that rehabilitated the Port Moresby's dump site. (Ex-post Evaluation) Very little opportunity available to demonstrate the skills obtained through the project.
	(Indicator 3) Settlement leaders are able to communicate efficiency with DFCD/NCDC officials and settlement residents	<u>Status of achievement: Partially achieved at the project completion</u> (Project completion) Settlement leaders for Nine Mile and Erima (pilot sites) were replaced as their performance was not rated well. Settlement leaders of Tete and Momokoura were highly evaluated by Japanese experts and Project Manager. However, NGO staff pointed out that participation of settlement leaders in the implementation of the pilot projects was limited due to financial constraints and cooperation and support from settlement residents was lacking. (Ex-post Evaluation) Ongoing monitoring of pilot projects from the DFCD is lacking due to social law and order issues in the settlement areas.
(Overall goal) ICDP approach is applied in community development initiatives.	(Indicator 1) ICDP approach becomes familiar in DFCD/NCDC and utilized in other projects.	<u>Status of achievement: Partially achieved</u> (Ex-post Evaluation) Knowledge and Information on ICDP were disseminated to other staff in DFCD and NCDC.
	(Indicator 2) The Some of community in NCD is able to apply community development to the any donor/aid by their initiatives.	<u>Status of achievement: Not achieved.</u> (Ex-post Evaluation) Almost all the projects supported under the project are no longer operating due to the following reasons: 1. Budget constraints 2. Institutional weaknesses within DFCD and NCDC 3. Limited ownership from local residents in settlement areas 4. Lack of ongoing monitoring from DFCD As a result, no additional community development activities were implemented after the project was completed..

Source : JICA internal documents, questionnaire survey and interviews with counterparts

3 Efficiency

Both project cost and project period exceeded the plan (ratio against the plan: 146%, 150%). Project cost exceeded the plan mainly due to design changes of facilities of pilot projects. Project was extended mainly because (1) the number of pilot projects increased, (2) the participatory planning process took longer time than expected, (3) NCDC staff withdrew from the project for six months³. Therefore, efficiency of the project is fair.

4 Sustainability

The sustainability of the Integrated Community Development Project in Settlement Areas was assessed in terms of the likeliness of the continuation of the project benefits after completion and factors that affected the ongoing benefits of the project. The assessment of project sustainability looked at four important aspects critical to ensuring sustainability:

- Policy Aspects:** It is positive to note that rural and social development is still a priority of the PNG Government under the Medium Term Development Strategy 2011-2015 and Development Strategic Plan 2010-2030. If Government policies support this initiative then the project will more likely be sustainable in the long term.
- Institutional Aspects:** The organizational structure of DFCD and NCDC are appropriate for the implementation of the integrated community development approach. However, staff allocation is not sufficient for each organization. The DFCD and NCDC negotiate with the Department of Personnel and Department of Finance for further staff allocation, however these agencies are not allowed to recruit additional staff unless approval is granted through the normal budget process at the national level. Furthermore, financial and social constraints of local communities hinder institutional sustainability.
- Technical Aspects:** Technical capacity of officials from the DFCD and NCDC were enhanced through ongoing capacity

³ Reasons for the withdrawal of NCDC staff from the project; (1) reporting on the project to the City Manager of NCDC (Deputy Project Director of the project) was not conducted properly; (2) communication within NCDC was insufficient; (3) human resources within NCDC that were capable to handle the work volume required in the project were insufficient; and (4) NCDC's commitment to the project was weak.

development activities facilitated by the project team, however practical demonstration of these skills in implementing further development activities is lacking because of budget constraints within PNG Government, limited ownership from local settlement residents due to social and financial problems and on-going security issues. Some technical transfer to other staff members was observed but the internal monitoring and training systems in DFCD and NCDC are generally in-effective to verify the results.

4. **Financial Aspects:** DFCD and NCDC did not secure sufficient budget to promote the Integrated Community Development approach. It is unlikely that increased amounts of funding from PNG national budget will be allocated to support this project unless there is ownership from local communities. A key issue for Papua New Guinea is that its overall budget envelope is not substantial to address a wide range of social issues. As a result, some key sector programs lack sufficient budget from the Government. Unfortunately, community development has been one of those sectors that have lacked Government funding.

The main contributing factors that affected the sustainability of the project effects include budget constraints and limited ownership from local communities in the settlements. Project sustainability is considered to be low.

5 Summary of the Evaluation

The project goal and purpose were partially achieved at completion with some level of technical transfer observed in officials at DFCD and NCDC. The overall implementation of the project was affected by budget constraints within PNG Government, institutional weaknesses within DFCD and NCDC and limited ownership from local communities, particularly from the settlements areas where the pilot projects were implemented. Project sustainability was rated low mainly due to financial and institutional aspects. In terms of project efficiency, both project cost and project period exceeded the plan. As a result, the overall rating of the Integrated Community Development Project is “unsatisfactory”

III. Recommendations & Lessons Learned

Lessons learned for JICA

1. Ongoing security and social law and order problems in the settlements is a big challenge both for JICA and PNG Government. The Tete police post at Gerehu and Erima Youth Center are good examples of this. Future design of pilot projects for community development must consider the ongoing security challenges faced at the settlements in NCD as well other issues including land ownership and social issues which are only best understood by Papua New Guineans
2. JICA’s future investment for community development must consider the political economy of PNG Government. For example, the PNG Government were reluctant to support settlement areas in NCD. JICA decided to invest but strongly demanded PNG Government for ownership which did not work positively for JICA. For future project implementation, sufficient level of local ownership from PNG Government must be ensured and guaranteed before any commitment from the Government of Japan is made.



Erima Youth Centre Before the July Incident



Erima Youth Centre After the July Incident

Country Name	The Project for Participatory Community Development and Integrated Management of the Alhajuela Lake Subwatershed				
Republic of Panama					
I. Project Outline					
Background	<p>The area of the Alhajuela Lake subwatershed, located in the east of the Panama Canal Watershed and in the Chagres National Park and its buffer zone, is an important area particularly from the biological and socio-economical perspective. However, the factors such as growing population, expansion of agriculture land, and swidden cultivation had been causing deforestation and soil degradation which brought about deterioration of function of water reserve. Since 1975, the government of Panama designated 40% of the eastern basin of the Canal as a national park in order to preserve the natural environment within the park. On the other hand, there have been inhabitants in the area of the national park before the designation and they have been engaged in productive activities, including swidden cultivation. While regulations by the National Environment Authority (ANAM: Autoridad Nacional del Ambiente) to control logging and swidden cultivation by the local inhabitants induced complains of the local inhabitants, environment conservation had been limitedly progressed. Therefore, the government of Panama faced a keen issue how to guide production technologies harmonized with environment for the local inhabitants in order to realize improvement of their livelihoods as well as environmental conservation.</p>				
Objectives of the Project	<p>Through introduction of environment-friendly production techniques, elaboration and implementation of farmland-use plans as well as implementation of environmental education and sensitization activities through group activities organized by the project, the project aimed to practice sustainable production techniques by the group members organized by the project, thereby contributing to practices of the environment-friendly and sustainable production in the target area. The project objectives are as follows:</p>				
	<ol style="list-style-type: none"> Overall Goal: The environment- friendly and sustainable production is practiced in middle and lower watershed of Alhajuela Lake. Project Purpose: Sustainable production techniques implemented using environment- friendly and participatory methods are practiced by the established group members through extension system of ANAM. 				
Activities of the project	<ol style="list-style-type: none"> Project Site : Middle and lower watershed of Alhajuela Lake covering 37 communities Main Activities: 1) Organizing groups for production activities in the target area, 2) Delivering trainings and farmer-to farmer exchange on environment-friendly production techniques for the groups organized by the project, 3) Elaborating and implementing farmland-use plans by the groups organized by the project, 4) Implementing reforestation activities in the critical areas, 5) Delivering technical trainings for the extension teams of ANAM, 6) Implementing environmental education and sensitization activities by the groups organized by the project, school teachers, ANAM staff and Chagres national Park (PNCh) staff 				
	Japanese Side		Panama Side		
1. Dispatch of Experts: 8 persons		1. Staff allocated: 19 persons			
2. Acceptance of trainees in Japan: 11 person		2. Land and facilities: Project office			
3. Provision of equipment: Vehicles, dugout boat, outboard engines, PCs, etc.		3. Local cost: Cost of boat and vehicles, cost for office appliance, fuel cost for vehicles			
Ex-Ante Evaluation	2006	Project Period	August, 2006 – July, 2011	Project Cost	(Ex-ante) 370 million JPY (Actual) 365 million JPY
Implementing Agency	National Environment Authority (ANAM: Autoridad Nacional del Ambiente) (the currently, the Ministry of Environment (MIAMBIENTE: Ministério del Ambiente)				
Cooperation Agency in Japan	Forest Agency, NTC International Co., Ltd.				

II. Result of the Evaluation

<Special Perspectives to be Considered in the Ex-post Evaluation>

[Verification of achievement level of the Overall Goal]

As for the indicator 1 for the Overall Goal of an increase in the number of community members practicing the environment-friendly techniques promoted by the project, it was verified by the changes in the number of community members practicing the environment-friendly techniques by the promoted by the project in the prioritized 14 communities where the farmers' groups had been organized by the project since the environment-friendly techniques had supposed to be extended through the farmers' group activities. Also, due to constraints on the site survey for the ex-post evaluation, including limited accessibility to the target communities and the limited time and budget for the site survey, the coverage of the site survey was limited to the prioritized 14 communities.

[Follow-up cooperation by JICA and sustainability of the project effects]

Since JICA carried out a Follow-up cooperation in 2012 and 2013 aiming at strengthening organizational, administrative and technical capacities of the target communities and dispatched the Japan Overseas Cooperation Volunteers (JOCV) specializing in vegetable production, marketing, environmental education in those communities, and also carried out the third country training "International Course on Participatory Integrated Watershed Management(2014-2016)" to widely diffuse the experience and knowledge of the Alhajuela Project, this ex-post evaluation carefully analyzed how those cooperation affect impacts of this project as well as sustainability of the project effects.

<p>1 Relevance</p> <p><Consistency with Development Policy of Panama Government at the time of ex-ante evaluation and the project completion> The project was consistent with the Panama’s development policy of “conservation of the Panama Canal watershed” as set forth in the policy documents, including “the National Environment Strategy (1999-2005), “Environment Management of Sustainability (2008-2012)” and “the Chagres National Park Management Plan (2005-2025).</p> <p><Consistency with Development Needs of Panama at the time of ex-ante evaluation and the project completion> The project met the development needs of Panama to conservation of water and soil in the Panama Canal watershed at the national level and to improve livelihood of local people through stable agricultural production in the target area at the community level.</p> <p><Consistency with Japan’s ODA Policy for Panama at the time of ex-ante evaluation> The project was consistent with the Japan’s ODA policy for Panama based on the policy dialogue in 2005, prioritizing environmental conservation, including conservation of natural environment</p> <p><Evaluation Results> In the light above, the relevance of this project is high.</p>
<p>2 Effectiveness/Impact</p> <p><Status of Achievement of the Project Purpose at the time of project completion> The Project Purpose was achieved by the time of project completion. Out of 40 types of environment-friendly techniques introduced by the project, 97.5% (39 types) of them were utilized by the members of 14 groups organized by the project in the 14 prioritized communities for the project activities. Also, all the 14 groups organized by the project prepared their action plans incorporating the environmental friendly techniques.</p> <p><Continuation Status of the Project Effects at the time of ex-post evaluation> The project effects have been continued since the project completion.</p> <p>In terms of environment-friendly techniques, according to the group interviews in the 14 communities, more than 20 environment-friendly techniques introduced by the project, such as organic fertilizer, live and dead barriers, terraces and so forth, have been practiced in the communities where the groups had been organized by the project, despite the fact that they have not prepared and implemented the Farmland Use Plans (PUFs: Plan de Uso de Finca). Out of 14 groups organized by the project, 8 groups have still been functioning. In the communities where the groups were disbanded, most of the ex-members have also continued to practice the techniques individually. In addition, after the project completion, a group was organized in a new community of Cerro Azul in order to promote the activities implemented by the project. According to the PNCh Management office, two extension officers are assigned to support farmers’ groups and they visit each group once a month and individual farms every 3 or 4 month following the exit strategy which was prepared by the project. Also, PNCh Management Office has provided workshops to promote the environment-friendly techniques to the 8 groups.</p> <p>Environmental education activities have been carried out in 16 primary schools annually in the target area by the PNCh Management Office. Also, the Directorate of Protected Areas of MIAMBIETE, the Chagres Foundation, the Panama Canal Authority (ACP: Autoridad del Canal de Panamá) and the Ministry of Agriculture and Development (MIDA: Ministerio de Desarrollo y Agricultura) have been working on environmental education in the target area.</p> <p>In addition, the areas reforested by the project have been sustained. According to the study of ACP in 2013, the vegetative growth has been confirmed. The vegetative growth in the PNCh watershed area in 2013 was 101,334.2 ha which increased from 97,810.8 ha. According to the PNCh Management Office, the reforested areas have been maintained by the committed groups and individuals to be part of PNCh community since they have good understanding on the importance of soil conservation of their land by reforestation. Also, the environmental education conducted by the MIAMBIENTE and ACP officers focuses the importance to avoid swidden cultivation and to apply alternative useful measures such as planting fruit trees and coffee trees for not only soil conservation but also income generation. Furthermore, according to the interviews with the famers’ groups, 11 groups out of 14 have continued the plantation activities though they hold no track record of the number of new trees planted. It was because of their environmental conservation and self-interest in income generation by planting cash crop trees. Also, the government replanting promotion, such as ACP’s coffee tree planting program, has encouraged them to continue plantation activities.</p> <p><Status of Achievement of the Overall Goal at the time of ex-post evaluation> The Overall Goal has been partially achieved. The number of the community members in the 14 prioritized communities for the project activities¹ who practice at least two techniques promoted by the project decreased from 133 in 2011 to 72 in 2015 because ANAM/MIAMBIENTE did not continue on the extension service in the target area in accordance with the exit strategy after the project. However, according to the interviews with the farmers’ groups, 72 farmers continue to practice farming activities in accordance with PUF of farmland management plan. Since MIAMBIENTE does not have human and economic resources to support preparation of PUF or farmland management plan, no PUF or farmland management plan was newly prepared in other areas. Also, although the PNCh Management Office has made efforts to follow up the existing PUF and farmland management plan, it is difficult to follow up all the individual farmers in order to implement PUF or farmland management plan.</p> <p><Other Positive and Negative Impacts> There are some positive impacts by the project. Despite of no quantitative data, the PNCh Management Office estimates that the traditional agricultural practice of swidden cultivation has been replaced by the environment-friendly techniques introduced by the project. At the time of ex-post evaluation, 13 farmers’ groups out of 14 answered that they no longer practice swidden cultivation. Furthermore, 64% of the farmers in the target areas have improved their income by utilization of the environmental friendly farming techniques introduced by the project. Since the application of those techniques requires smaller space with more crops, it brings about more varieties of production and higher productivity to contribute to more income generated. For example, “Madroñal” group was able to increase their annual group income from 600 dollars to 6,000 dollars. In addition, 4 farmers groups have implemented their business plan, which had been prepared at the completion of the project, to keep improving their activities by the Follow Up Cooperation Program of JICA in 2013. For example, the group of “San Juan de Pequeni” produced hot chili sauce with a greater quantity and</p>

¹ The following communities were prioritized to organize the farmers’ groups for the project activities: Boquerón Arriba, San Juan de Pequeni, Victoriano Lorenzo, Boquerón Abajo, Chilibrillo, Salamanca, Salamanquita, Nuevo Vigía, Santa Librada, Peñas Blancas, Tranquilla, Quebrada Ancha, Madroñal, and Santa Cruz

obtained the health registration for the product. The members of other 3 groups participated in the business plan creation training by the Micro, Small and medium Business Authority (AMPYME). The 4 Japanese volunteers supported 14 groups in total for environmental education, vegetable production and marketing activities in order to reinforce the environment-friendly techniques during the period from 2012 to 2015.

The Extension Guideline developed by the project is currently applied by MIAMBIENTE nationwide for 9 other watersheds. MIAMBIENTE also introduced the Guideline to the national environmental authorities in 10 Latin American countries through the third country training of “the International Course on Participatory Integrated Watershed Management (2014-2016)” and the projects in Honduras and Paraguay. The Guideline was presented at a seminar in Mexico.

No negative impact on environment and other aspects has been observed.

<Evaluation Results>

The Project Purpose was achieved and the project effects, such as application of the environment-friendly techniques in the target area, implementation of environmental education and reforestation activities, have been sustained by the members of the farmers’ groups in the target area. The Overall Goal of the extension of the environment-friendly techniques has partially been achieved. In addition, continuation of the activities introduced by the project brought about reduction of swidden cultivation, expansion of reforested areas and improvement of income generation of the group members. Therefore, effectiveness/impact of this project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Sustainable production technique implemented using environment- friendly and participatory methods are practiced by the established group members through extension system of ANAM.	(Indicator 1) The members of the groups use, as a whole, at least 75% of the techniques promoted by the Project*. *40 types of environmental friendly techniques were introduced by the project.	<u>Status of achievement: Achieved</u> (Project Completion) • 97.5% of the techniques promoted by the project were utilized by the group members as necessary. (Ex-post Evaluation) Partially continued. • Out of 40 types of environmental friendly techniques, more than 20 types have been practicing by the group members, including the groups ceasing their activities.
	(Indicator 2) At the end of the project, 80% of the groups have an action plan for coming 3 to 5 years that incorporates environment friendly techniques.	<u>Status of achievement: Achieved</u> (Project Completion) • 100% of the groups (14) prepared an action plan incorporating environment-friendly techniques. (Ex-post Evaluation) Partially continued. • 8 groups out of the 14 keep practicing the environment-friendly techniques introduced by the project. • Individual farmers from the other 6 groups ceased have been practicing the techniques at individual level.
(Overall goal) The environment-friendly and sustainable production is practiced in middle and lower watershed of Alhajuela Lake.	(Indicator 1) The number of the community members practicing at least two techniques promoted by the project is increased more than two times from the time of the project implementation.	<u>Status of achievement: Not achieved</u> (Ex-post Evaluation) • The number of the community members in the target area practicing at least two techniques promoted by the project is only 72 in 2015, which decreased from 133 at the time of project completion.
	(Indicator 2) By 2014, the number of community members who practice farming activities according to PUF (Plan for Use of Farmland) or “farmland management plan” reaches at least one hundred in the Chagres National Park.	<u>Status of achievement: Partially achieved</u> (Ex-post Evaluation) • 72 farmers practicing the farming activities in accordance with PUF of farmland management plan in 2015 in the Chagres National Park

Source : Terminal Evaluation Report, Interviews with PNCh, MIAMBIENTE, APC and the farmers’ groups in the target area at the time of ex-post evaluation

3 Efficiency

The project cost and period were within or as planned (ratio against the plan: 99%, 100%, respectively). Therefore, efficiency of this project is high.

4 Sustainability

<Policy Aspects>

There is no change in the environmental policy regarding to the conservation of Alhajuela Lake watershed in “the National Plan for Integrated Water Resources of the Republic of Panama 2010-2030”.

<Institutional Aspects>

In order to continue the activities introduced by the project, including extension service, in the target area, the exit policy² for the post project period was formulated by MIAMBIETE as recommended by the terminal evaluation.

[Extension of environment-friendly techniques]

Although 2 extension officers who have been engaged in the follow-ups of the extension services in accordance with the exit strategy in the target areas, have been deployed in the PNCh Management Office, the number of the extension officers has not been sufficient to conduct necessary extension services for all the 14 farmers’ groups in the target areas as the farmers did not reach (or

² The exit policy includes the recommendations by the terminal evaluation, such as clear divisions of responsibilities of ANAM and PNCh for extension services in the buffer zones, additional deployment of officers for PNCh, deployment of extension officers in watersheds other than the project area by ANAM, and so on.

maintain) the maturity level of the technique and they are not independently conducting the production activities with those techniques.

[Environmental Education]

The Directorate of Watersheds (the counterpart of the project) of MIAMBIENTE is no longer in charge of environmental education in the target area. However, MIAMBIENTE assigned one officer for supervising environmental education in the target area and two officers for environmental education and sensitization activities in the PNCh Management Office in accordance with the environmental education plan of PNCh. The number of officers is sufficient to cover environmental education in the target area. In addition, from 2012 to 2015, 2 JOCVs specialized in environmental education collaborated for implementation of the activities in the target area. Also, the Chagres Foundation (NGO) has been collaborating with the PNCh Management Office for environmental education.

[Farmers' Groups]

8 farmers' groups (Chiribrillo, Madronal, Nuevo Vigia, Santa Cruz, Salamanca, Salamaquita, Santa Librada, Tranquilla) out of 14 groups organized by the project continue to hold weekly meetings in order to sustain the group activities despite of the decrease in the number of members. Other 6 groups were disbanded as mentioned above. One group (Cerro Azul) was formed after the project completion. The main reason why the number of the groups decrease is that MIAMBIENTE has not proactively taken roles to promote and expand the extension service of the environment-friendly techniques in PNCh after the project completion following the exit strategy as mentioned above.

<Technical Aspects>

[Extension Officers]

The Extension Guideline developed by the project has not been institutionalized for the extension service for new farmers' groups to practice the environment-friendly techniques in the target area because of no commitment of MIAMBIENTE and the limited number of the extension officers deployed by the PNCh Management Office. The extension officers of the PNCh Management Office, who have been trained by the project, have sustained their skills and knowledge for the extension services as well as environmental education and sensitization activities.

[Farmers' Groups]

The farmers' groups trained by the project have sustained their knowledge and skills on the environment-friendly techniques. As mentioned above, the farmers' groups have continuously practiced the environment-friendly farming techniques which they had learned through the project.

<Financial Aspects>

MIAMBIENTE has secured the own budget to assign 2 extension officers and 2 environmental education officers in the PNCh Management Office in the target area. Also, the budget for the activities has been secured for not only the follow up work in the target area but also other activities in the PNCh. However, the PNCh Management Office considers that the budget is not sufficient to fully cover the follow up work of the project in the target area, to train other new extension workers and to expand the extension activities to other areas. In addition, according to the interviews with the 14 farmers' groups, 8 groups obtained funds to implement their action plan or to receive trainings through the JICA's follow up cooperation in the fiscal year of 2012. However, most of the 14 groups did not obtain necessary funds to practice the environment-friendly techniques in order to achieve the self-sufficient level.

<Evaluation Results>

Some problems have been observed in institutional, technical and financial aspects. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose and partially achieved the Overall Goal due to the limited extension activities of the environment friendly techniques introduced by the project. However, the project brought about the positive impacts of reduction of swidden cultivation, expansion of reforested areas and improvement of livelihood in the target communities. As for sustainability, since MIAMBIENTE did not continue the extension activities in the target areas following the exit strategy (less human/financial resources to support the area) after the completion of the project, the number of the farmers/ communities that practiced the environment-friendly production techniques decreased by the time of ex-post evaluation.

In the light above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations:

[For MIAMBIENTE]

- In case where MIAMBIENTE aspires to expand the use and application of the Extension Guidelines, it is necessary first to institutionalize the Extension Guidelines and to secure adequate financial resources, via its budget, to carry out these programs.

[PNCh Management Office]

- In order to keep motivating and expanding the farmers' groups, it is recommended to retake the work of reinforcing the PUF and farmland management plan. To retake this work, workshops/trainings for newly incoming PNCh officers (park rangers too) by MIAMBIENTE and PNCh officers who have the experience of this project are encouraged.

Lessons learned for JICA

[Preparation of a more realistic exit strategy for the post project period]

- Although the exit strategy for the post project period was prepared for ensuring continuation of the activities of the farmers groups organized by the project, including practices of the environment-friendly farming techniques, some of the groups were disbanded and the extension of the environment-friendly farming techniques has not been proactively promoted by ANAM/MIAMBIENTE. In order to ensure sustainability of the activities introduced by the project, it was necessary to prepare more realistic exit strategy for ANAM/MIAMBIENTE, incorporating not only activities based on self-motivation of the farmers but also necessary technical and budgetary support by ANAM/MIAMBIENTE.

[Takeover of project effects by the successors of the implementing agency through the third country trainings]

- On the other hand, the project effects of the Extension Guidelines for the environment-friendly techniques, as a part of experience

from the 3 technical cooperation projects supported by JICA for integrated watershed management, have been disseminated to other Latin American countries through the third country trainings (2014-2016) supported by JICA. Although the personnel of MIAMBIENTE working with JICA for the trainings were not involved in the project, they were able to take over the experience of this project through implementation of the third country trainings. Effective extension guidelines can be helpful to disseminate technical knowledge and skills through trainings conducted by personnel of an implementing agency, even for those who are not directly involved in the project.



Community Meeting (Quebrada Ancha)



Plant nursery (Tranquilla)

Country Name	The Quality Improvement of Primary School Education
The Plurinational State of Bolivia	(PROMECA: Proyecto de Mejoramiento de la Calidad de la Enseñanza Escolar)

I. Project Outline

Background	<p>In Bolivia, the educational reform has been promoted since 1994. The educational reform achieved improvement of accessibility to primary education, including the enrollment rate. However, there were still various issues to be tackled, including curriculum development reflecting multiculturalism, efficient educational administration and human resource development. In order to cope with those issues, the Ministry of Education elaborated “Strategy for Education 2004-2008” as a new policy for the educational reform. Under the situation, the Japanese Government has been assisting Bolivia through grant aid project of primary school construction (1998-2001) and dispatch of long-term experts (supporting and promoting the educational reform). Based on the results of the project formation study conducted by JICA in 2002, the government of Bolivia requested the government of Japan a technical cooperation project to support improvement of school and class management and teaching method at primary school.</p>																																							
Objectives of the Project	<p>The project aimed at improving performance of teachers to promote “Student Centered learning” at the target schools through delivery of trainings for teachers, implementation of open class and education research in classroom as “the Study Class” as well as introductory seminars for the Teachers Training Schools, thereby improving education quality based on the concept of “Student Centered learning” at the classroom level in Bolivia. The following project objectives were set forth in the project plan.</p>																																							
	<p>1. Overall Goal : Improvement on education quality, based on the concept of “Student Centered Learning” is promoted at the classroom level in Bolivia. 2. Project Purpose : Performance of the teachers to promote “Student Centered Learning” at the target schools of the project is improved.</p>																																							
Activities of the project	<p>1. Project site: Bolivia 2. Main activities: 1) Developing modules and materials for training of teachers, 2) Conducting trainings for department officers, municipal officers, school directors and teachers, 3) Implementing open class (clase abierta) and educational research in classroom, 4) Implementing departmental meetings, national conferences of teachers, 5) Implementing introductory seminars for the Advanced Schools of Teachers Training (ESFM: Escuela Superior de Formación de Maestros) 3. Inputs (to carry out above activities)</p> <table border="0"> <tr> <td>Japanese Side</td> <td colspan="4">Bolivian side</td> </tr> <tr> <td>(1) Dispatch of experts: 25 experts</td> <td>(1)</td> <td colspan="3">Counterpart personnel: 3 persons at central level and 215 MM at local level</td> </tr> <tr> <td>(2) Acceptance trainees in Japan: 66 persons</td> <td>(2)</td> <td colspan="3">Land and Facilities: Project office, space of trainings</td> </tr> <tr> <td>(3) Provision of equipment: PCs, copy machines, printers, etc.</td> <td>(3)</td> <td colspan="3">Local Cost: Cost for project activities including travel expenses</td> </tr> <tr> <td>(4) Dispatch of experts from the third country (Brazil): 4 experts</td> <td></td> <td colspan="3"></td> </tr> <tr> <td>(5) Regional cooperation trainings: 34 persons</td> <td></td> <td colspan="3"></td> </tr> <tr> <td>(6) Local cost: Cost for material development, trainings and local consultants</td> <td></td> <td colspan="3"></td> </tr> </table>					Japanese Side	Bolivian side				(1) Dispatch of experts: 25 experts	(1)	Counterpart personnel: 3 persons at central level and 215 MM at local level			(2) Acceptance trainees in Japan: 66 persons	(2)	Land and Facilities: Project office, space of trainings			(3) Provision of equipment: PCs, copy machines, printers, etc.	(3)	Local Cost: Cost for project activities including travel expenses			(4) Dispatch of experts from the third country (Brazil): 4 experts					(5) Regional cooperation trainings: 34 persons					(6) Local cost: Cost for material development, trainings and local consultants				
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Ex-Ante Evaluation	2003	Project Period	July 2003 to July 2010	Project Cost	(Ex-Ante) 260 million yen (Actual) 715 million yen																																			
Implementing Agency	Ministry of Education																																							
Cooperation Agency in Japan	Osaka University, Kansai University, Kyoto City Board of Education, Koei Research Institute (KRI) International Corporation																																							

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-post Evaluation>

[Changes in PDM and expansion of the project scale]

This project was composed of the 2 year pilot stage (2003-2005) and the 5 year full implementation stage (2005-2010) in order to carefully apply the Japanese approach in primary education in Bolivia. The scale of the project was dramatically expanded from 8 pilot schools in the 2 target municipalities for the pilot stage of the project to 500 target schools in all the 9 departments in Bolivia. It can be considered that the expansion of inputs (the project cost) has been reasonable for the extension of the target schools nationwide. Therefore, this ex-post evaluation verified whether the project activities using the inputs could have produced outputs to sustain “Student Centered Learning” in the 500 target schools or not, not only from the aspects of effectiveness/impacts but also from “efficiency of the project” from the aspects of efficient use of the inputs to produce the sustainable outputs. 54 schools in 7 departments (La Paz, Cochabamba, Chuquisaca, Santa Cruz, Potosí, Tarija and Oruro) out of the 500 target schools, which had been accessible within the limited time and budget for the field survey of this ex-post evaluation, were surveyed by the ex-post evaluation.

[Policy change and organizational change of Departmental Offices of Ministry of Education (SEDUCAs) and personnel turnover]

In accordance with the New Law on Public Education 070 enacted in December, 2010, SEDUCA was changed to the Departmental Directorate of Education (DDE) in 2010 and their responsibilities were changed and have not covered continuous trainings of teachers anymore which had been closely linked to the activities introduced by the project. In addition, the education system, including curriculum of primary school teachers and the institutional

structure for teacher trainings, was changed in 2010 and 2011. Therefore, this ex-post evaluation carefully analyzed how the policy changes and the organizational change of SEDUCA affect effects and impacts of the project as well as their sustainability. In addition, due to the high personnel turnover, there was difficulty to collect data from the personnel and staff having participated in the project activities. Therefore, the effects and impacts of the project as well as their sustainability were verified by information from the personnel and the staff who are currently engaged in the activities for “Student Centered Learning” in Bolivia.

1 Relevance

<Consistency with Development Policy of Bolivian Government at the Time of Ex-ante Evaluation and the Project Completion>

The project was consistent with the Bolivia’s development policy of “quality improvement of the current teachers” and “quality education for equal opportunities” as set forth in the policy documents including the Supreme Decree No. 23950 of 01 (1995) and a series of Ministerial Resolutions concerning curriculum and teacher training, the National Development Plan (2006-2010) and the Strategic Institutional Plan (2010-2014).

<Consistency with Development Needs of Bolivia at the Time of Ex-ante Evaluation and the Project Completion>

The project met the development needs of Bolivia to enhance capacity development of teachers in order to improve quality of education at the both times of ex-ante evaluation and the project completion.

<Consistency with Japan’s ODA Policy for Bolivia at the Time of Ex-ante Evaluation>

The project was consistent with the Japan’s ODA policy toward Bolivia, agreed in the policy dialogue in April 2001, to support one of the prioritized areas of basic needs including education.

<Evaluation Results> In the light of the above, the relevance of this 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. According to the detailed self-evaluation of 20 schools conducted by the project, the average evaluation points for the schools with 4 or more year experience in the project based on the evaluation criteria¹ were as expected by the project. The average points of self-evaluation were as follows: 2.14 for elaboration of study guidance, 2.11 for implementation of study guidance, 2.23 for motivation of pupils, 2.03 for practice of “Student Centered Learning” and 2.13 for overall evaluation. While it was expected to take 4 years in order to implement all the modules developed by the project, schools dedicated to the improved methodologies could realize improvement of the 4 items elaborated by the project through the improved training skills of the Department Implementation Team (EDI: Equipo Departamental de Implementación) officers, improvement of the training materials as well as vitalization of the District Team of Technical Support (ETAD: Equipo Técnico de Apoyo al Distrito) activities.

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

After the project completion, the activities introduced by the project have been partially continued. The activities by ETADs, composed of technical officers of the former SEDUCAs, school directors and teachers of the target schools, including technical support and monitoring of schools, continued until 2011 but stopped due to changes in district and department managers by institutional process. However, support teams similar to ETADs were organized unofficially and voluntarily by the Teams of Language in all the 9 departments and Mathematics in the 2 departments of La Paz and Sucre in order to support their own colleagues in their own schools and others. The in-service trainings introduced by the project have not been delivered by DDEs anymore because the new functions of DDEs under the Supreme Decree No.813 issued in 2011 do not include the continuous training of teachers. The in-service trainings were delivered by the Special Unit of Continuous Education (UNEFCO: Unidad Especializada de Formación Continua) until 2013 but no training was conducted after that since the mission of UNEFCO has changed to monitoring teachers in their classroom. During the period from 2011 to 2013, 342 courses of in-service training developed by UNEFCO were executed for 76,783 teachers. Since 2012, under the Complemental Training Program (PROFOCOM: Programa de Formación Complementaria) aiming at in-service trainings for teachers, additional trainings for teachers have been delivered in service.

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

The Overall Goals have been partially achieved by the time of ex-post evaluation. For the Indicator 1, among 54 target schools surveyed by this ex-post evaluation, 48 schools have been continuously but partially practicing the activities introduced by the project, such as structured board and using slogans, though they adjusted them to their needs. According to 185 teachers interviewed by the ex-post evaluation, most of them have used those methodologies partially while 29% of them have applied more. The main reasons why the methodologies introduced by the project have been applied partially are a) the new educational model under PROFOCOM since 2012, b) the lack of support and follow-up by DDEs and district offices, c) the lack of materials, d) high stringency of the PROMECA methodology regarding planning and organizing time, e) misconception that there is no necessity to continue full implementation of the methodologies and strategies developed by the project. For the Indicator 2, the in-service training system based on the concept of “Student Centered Learning” has not been sustained because topics of training have been changed and mainly cover the new Law on Education and education system, native languages, alternative and special education, Education Management and Community Environment Improvement under the new curriculum. For the Indicator 3, the teachers’ conference at the national level, which had been introduced by the project, has been held every year since 2011 in order to outreach and disseminate experiences among the teachers based on the Teams of Language.

<Other Positive and Negative Impacts>

There were some positive impacts observed at the time of ex-post evaluation. ESFM’s have incorporated themes of “the Study Class” in the area of Educational Research and Knowledge Production (IEPC) to their curriculums. Also, the Adequacy of Support Materials for Teacher Training Project (Proyecto Adecuación de Materiales de Apoyo para la Formación Docente: AMA-FD Project)² has been implemented based on PROMECA under the JICA’s cooperation. No negative impact was observed.

¹ The evaluation criteria were as follows:

- Less than 1.0 point: unsatisfactory level
- 1.0 point and more and less than 2.0 points: level improved
- 2.0 points and more and less than 3.0 points: expected level
- 3.0 points and more: more than expected level

² AMA-FD Project aimed at revisions and elaboration of teacher training materials for the graduates of ESFM’s in order to be certified as the bachelor’s

<Evaluation Results>

The Project Purpose was achieved and the Overall Goal has been partially achieved because the activities and methodologies based on “Student Centered Learning” introduced by the project have been continued not fully but partially after the start of the new educational model in 2012. Therefore, effectiveness/Impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																																							
(Project Purpose) Improvement of performance of the teachers to promote “Student Centered Learning” at the target schools	(Indicator 1) By June, 2010, classes of the target schools of the project with 4 year experience in the project are improved to the level* determined by MEC and the JICA team in terms of elaboration of study guidance, implementation of study guidance, motivation of pupils and practice of “Student Centered Learning”. * Evaluation criteria: less than 1 point: insufficient, 1<2: improved, 2<3: level to be expected, more than 3: more than expected	<u>Status of Achievement: Achieved.</u> (Project Completion) ● According to the detailed self-evaluation of 20 schools (15 schools with 4 or more year experience in the project and 5 schools without it (with about 2 years of experience)), the average evaluation points for the schools with 4 or more years of experience were as the ones expected by the Project. (Ex-post Evaluation) ● Due to changes in district and departmental managers by the organizational restructuring by the Supreme Decree No. 813 (March, 2011), the activities of ETADs, including technical support and monitoring for schools, stopped after the project completion. ● The methodologies based on the concept of “Student Centered Learning” have been partially applied by the teachers participating in the project.																																																							
(Overall goal) Improvement on education quality based on “Student Centered Learning” at classroom level in Bolivia	(Indicator 1) 70% of the target schools of the project are going to implement the activities introduced by the project in 2015	<u>Status of Achievement: Achieved.</u> (Ex-post Evaluation) [No. of Target Schools Practicing “Student Centered Learning”] <table border="1"> <thead> <tr> <th></th> <th>No. of target schools for the project (a)</th> <th>No. of schools visited or contacted (a')</th> <th>No. of target schools practicing at the time of ex-post evaluation (2015) (b)</th> <th>% of the target schools practicing (b)/(a')</th> </tr> </thead> <tbody> <tr> <td>La Paz</td> <td>115</td> <td>14</td> <td>13</td> <td>92.8%</td> </tr> <tr> <td>Cochabamba</td> <td>100</td> <td>10</td> <td>9</td> <td>90.0%</td> </tr> <tr> <td>Chuquisaca</td> <td>55</td> <td>8</td> <td>8</td> <td>100.0%</td> </tr> <tr> <td>Santa Cruz</td> <td>50</td> <td>5</td> <td>4</td> <td>80.0%</td> </tr> <tr> <td>Potosí</td> <td>60</td> <td>6</td> <td>5</td> <td>83.3%</td> </tr> <tr> <td>Tarija</td> <td>50</td> <td>6</td> <td>5</td> <td>83.3%</td> </tr> <tr> <td>Oruro</td> <td>35</td> <td>5</td> <td>4</td> <td>80.0%</td> </tr> <tr> <td>Beni</td> <td>25</td> <td>0</td> <td>--</td> <td>--</td> </tr> <tr> <td>Pando</td> <td>10</td> <td>0</td> <td>--</td> <td>--</td> </tr> <tr> <td>Total</td> <td>500</td> <td>54</td> <td>48</td> <td>88.9%</td> </tr> </tbody> </table>		No. of target schools for the project (a)	No. of schools visited or contacted (a')	No. of target schools practicing at the time of ex-post evaluation (2015) (b)	% of the target schools practicing (b)/(a')	La Paz	115	14	13	92.8%	Cochabamba	100	10	9	90.0%	Chuquisaca	55	8	8	100.0%	Santa Cruz	50	5	4	80.0%	Potosí	60	6	5	83.3%	Tarija	50	6	5	83.3%	Oruro	35	5	4	80.0%	Beni	25	0	--	--	Pando	10	0	--	--	Total	500	54	48	88.9%
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Source : Terminal Evaluation Report, statistics of UNEFCO, Interviews with Directorate General of Teachers Training (DGFM: Dirección General de Formación de Maestros), DDEs, UNEFCO, teachers, etc.

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 275%) because the project outputs was scaled up from the pilot stage for the first 2 years with 8 target schools in 2 municipalities to the full implementation stage for the last 5 years with 500 target schools nationwide. At the time of project planning, while the project period was planned as 7 years including both of the 2 year pilot stage and the 5 year full implementation stage, the project cost in the original plan did

degree and was implemented for the period from July, 2013 to June, 2014.

not include the cost covering the number of target schools for the full implementation stage. However, at the mid-term review in October, 2007 after starting the full implementation stage, the project cost was recalculated to covers the cost for activities at the 500 target schools nationwide based on the actual cost for the activities in the pilot stage. Since the increase in the project cost was reasonably resulted by the expanded outputs with the scaled up activities at the 500 target schools the ratio against the plan for the project cost can be considered as 100%. Therefore efficiency of the project is high.

4 Sustainability

<Policy Aspects>

According to the new Law No. 070, the new educational model has been formulated. Although the PROMECA methodologies, including the Student Centered Learning, is not explicitly incorporated in the new model, the elements and contents of them, such as in-service training for teachers and community participation in the educational process, have been considered and reflected in the new model.

<Institutional Aspects>

As mentioned above, in accordance with the Supreme Decree No.813 issued in 2011, SEDUCAs were transformed into DDEs in 2012. After the transformation, the DDE officials support UNEFCO but are not engaged in trainings for teachers nor monitoring and supervision of teachers because their current missions are transparent and timely implementation of educational policies and curriculum management in their department, as well as administration and management of resources within their scope, powers and functions. Since 2012, PROFOCOM, which is the outreach program aiming at in-service training for teachers to provide complementary higher degree in two year study started, the UNEFCO' mission was changed from delivery of continuous trainings for teachers to monitoring teachers in their classroom. UNEFCO has expanded their scope and created national coordinators for continuous education for teachers in each department who work through a network of the Centers of Continuous Teacher Education for Teachers (CFCM: Centros de Formación Continua para Maestros) in capitals of departments and intermediate cities. The current number of UNEFCO staff (36 technicians and 13 administrative staffs) is sufficient for coordinating activities in each department except departments with large population of teachers, such as La Paz and Santa Cruz. ETADs have been partially functional after the project completion due to no formalization of their activities and no budget. In some schools whose teachers had participated in the Team of Language or those with teachers in the language area, the activities based on PROMECA have been continued for promoting educational research in classroom such as "the Study Class", sharing or exchanging experience and research in the area of communication and languages in order to improve and strengthen teaching practice. Although ETADs have not been in operation, the Teams of Language in 9 departments and the Teams of Mathematics in 2 departments are operating the ETADs models. Among the teachers of the schools surveyed by this ex-post evaluation³, 29% have continuously implemented the activities introduced by the project but 58% have not done continuously⁴, because no team has been formed to apply the PROMECA methodologies in school without support by ETADs and EDIs and new teachers have no chance to know them. In addition, the regular education curriculum was transformed during the period from 2011 to 2013.

<Technical Aspects>

For UNEFCO officers, no training to update their skills or knowledge regarding the PROMECA methodologies was delivered due to the new law for teachers' training. Also, for DDE technical officers, there was no chance to update their skills or knowledge about the PROMECA methodologies because of the institutional changes. Through the National Meetings of Language under the participation of ex-Japanese experts for the project who have voluntarily visited Bolivia after the project completion, the active members updated and refreshed their skills and knowledge. The target schools do not apply in the full EPI methodologies or school management introduced by the project. The Open Class introduced by the project has been conducted in 6 schools surveyed by this ex-post evaluation. All of them are those that the directors had participated in the project. Under the technical support by the ex-Japanese experts for the project and the Japan Overseas Cooperation Volunteers (JOCVs), the teachers applied and updated the PROMECA methodologies by their own initiative and motivation. For example, 50% of the teachers surveyed by the ex-post evaluation continued the teaching practice introduced by the project. Some of the training materials have been continuously used for initial teacher training, such as structuring of the board, use of notebook, slogans and so on. Also, ESFMs use the Class Study Method, the educational research in class room, which was introduced by the project, for the curricular area of the Educational Research and Knowledge Production (IEPC: Investigación educativa y producción de conocimiento), which is a basis for development of graduation thesis. However, "Student Centered Learning" introduced by the project have not been incorporated in the curriculums and the textbooks explicitly though some elements such as the methodological strategy of EPI may have been incorporated. Also, mathematics textbook for primary level courses published by the Municipal Government of La Paz is based on some Japanese teaching technique introduced by the project.

<Financial Aspects>

The Ministry of Education allocated budget for UNEFCO to conduct trainings of the Cycle of Classroom in Community Environment Management including 5 courses. The trainings were delivered in 9 departments for the period between 2010 and 2012. The budget sources were the General Treasury and the International Cooperation Basket Fund. After the transformation from SEDUCAs to DDEs, no budget has been allocated for in-service training for teachers as DDEs are not responsible for it. At municipal level, although some District Directorates, such as Cochabamba, Chuquisaca and Potosí, requested budget to continue the project activities, the approval and allocation of fund have been hindered after the transformation to DDEs. On the other hand, teachers of the Language and Mathematics teams have raised fund for the National Meetings through delivery of trainings to other teachers from different schools.

<Evaluation Results>

In the light of the above, there have been problems observed in all the aspects of the political, institutional, technical and financial aspects of sustainability. Therefore, sustainability of the project is low.

5 Summary of the Evaluation

The Project Purpose was achieved through the improved performance of teachers in the target schools by practicing "Student Centered Learning". However, the Overall Goal has been partially achieved because the PROMECA methodologies have not been incorporated in the new educational model explicitly after the new Law was enacted. As for sustainability, while the teachers have been continuously made efforts for application and improvement of teaching methodologies based on the PROMECA methodologies under their own initiative at

³ 54 schools and 185 teachers in La Paz, Cochabamba, Chuquisaca, Potosí, Tarija, Oruro and Santa Cruz were surveyed by this ex-post evaluation.

⁴ 13% of the teachers surveyed by this ex-post evaluation did not respond.

school level, there are concerns about continuation of the project effects because the in-service trainings for teachers and budget allocation have not been sufficiently ensured.

In the light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[Ministry of Education]

Since it was observed that the teacher trainings had been effective to improve quality of education through implementation of the project, it is recommended the Ministry of Education reallocate the budget for teacher trainings to a responsible entity (UNEFSCO) in order to improve quality of education continuously through continuous in-service trainings for teachers.

[DDEs and districts]

Despite of no support by ETADs at district level and EDIs at departmental level for applying the PROMECA methodologies, some teachers have sustained their network to promote educational research and to share their experiences for improvement of teaching practices based on the PROMECA methodologies. Therefore, it is recommended DDEs and districts to reinstall a function to support teachers in order to practice the PROMECA methodologies for improving quality of education.

Lessons learned for JICA:

[Necessity of rational change in project scope and follow-up support]

The new law on education was on the table during the project period, but the New Law on Education No. 070 was enacted only after the project completion. Although the project made efforts to incorporate elements of the PROMECA methodologies introduced by the project in the new educational model defined under the new law, they were not explicitly incorporated because of the institutional transformation from SEDUCA to DDEs with change in their mission, the change in responsibilities of UNEFSCO, and high turnover of personnel in DDEs and district offices as well as teachers. After the project completion, it has been very difficult to continue and disseminate activities related to the PROMECA methodologies by the limited number of personnel and teachers who participated in this project without policy and financial support. On the other hand, the Language and Mathematic teams, formed during the implementation of the project, continued their activities based on the PROMECA methodologies with their own funding. In the case of policy change and/or institutional reform during the project period, it can be predictable to some extent that the project effects and their sustainability can be affected by those changes. Therefore, it is necessary to rationally change or modify the project scope for seeking to incorporate key elements of system or approach introduced by the project to the new strategy or model under the new regime in order to ensure sustainability of project effects. In particular, it is essential to come up with realistic strategy how to sustain and disseminate key concept and components introduced by the project in the changing situation with high turnover of counterpart personnel. Also, it is preferable to consider follow-up support for continuation and dissemination of effective activities introduced by the project when the persons having participated in the project are keen to conduct those activities.



Mathematics open class in the 3rd grade of primary school in the Educational Unit Valentin Abecia in Sucre



Language class in the 2nd grade of primary school in the Educational Unit Esteban Arce in Tarata, Cochabamba

Country Name	The Project of Strengthening Integrated Health Care for the Population Affected by Violence and Human Rights Violation in the Republic of Peru
Republic of Peru	

I. Project Outline

Background	<p>In Peru, during the period between 1980 and 2000, the massive destructions were caused by the conflicts between the government of Peru and terrorist groups, in particular, in the rural areas where the poor population concentrated. As a result, the victims of the violence and their families had been suffered from not only the poverty but also the Post-Traumatic Stress Disorder (PTSD). According to the Commission of Truth and Reconciliation (CVR: Comisión de Verdad y Reconciliación), which was established in 2001, the majority of the victims were women and children and their damages were extremely serious. Under such situation, the government of Peru requested the government of Japan to support implementation of a project aiming at establishment of environment for the people affected by the violence to receive better quality service and to realize physical, mental and social health.</p>														
Objectives of the Project	<p>The project aimed at promotion of Integrated Health Care services by the people affected by violence in the pilot sites in the 9 target regions through trainer's trainings and delivering trainings for the health service providers and the health promoters on the integrated health care for the people affected by violence and mother and child care in the pilot sites, thereby improvement of the condition of the people's health in the pilot sites affected by violence. The following project objectives were set forth in the project plan.</p> <ol style="list-style-type: none"> 1. Overall Goal : The condition of people's health in the pilot sites affected by violence is improved comprehensively. 2. Project Purpose : People affected by violence in the pilot sites come to receive Integrated Health Care services*. <p>*Integrated Health Care: A concept of comprehensive health care for people affected the violence, putting stress not only on the curative medical care but on preventive medicine, people participatory activities, etc, in consideration of gender issue, human rights, and cultural issue, aiming to have a better life as a human being, as an individual and as a group.</p>														
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Regional Health Office (DISA: Dirección de Salud) East Lima (Micro-network (MR: Micro-red) Huaycan), DISA Ayacucho (MR Belen), DISA Cusco (MR Techo Obrero), DISA Junín (MR San Martín de Pangóa), DISA Huancavelica (MR Ascención) , and DISA Loreto, DISA Cajamarca, DISA Huanuco and DISA Ancash targeted for the Output 3 (Maternal-child health) 2. Main activities: 1) Development of curriculum, syllabus and teaching materials for training program on the integrated health care to the people affected by violence for the academic courses of the National Major University of San Marcos (UNMSM) and trainer's training for the UNMSM professors and Ministry of Health (MINSa) health professionals in the USA; 2) Development of diploma course materials on the integrated health care for the health service providers, trainers' trainings for the UNMSM professors and MINSa health professionals in the USA, delivering trainings for the health service providers; 3) Development of course materials on mother and child care for the health service providers, trainer's trainings for the UNSMS professors and MINSa health professionals in the USA; 4) Conducting social resource mapping, trainings for the bilingual health promoters, NGOs and CBOs, and sensitization workshops and development of community health activities. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Peruvian side</td> </tr> <tr> <td>1) Dispatch of experts: 10 persons</td> <td>1) Counterpart personnel 53 persons</td> </tr> <tr> <td>2) Training in the third country (USA): 50 persons</td> <td>2) Land and Facilities Project office (space, service charges, office materials) and training venue</td> </tr> <tr> <td>3) Provision of equipment: PC, projector/screen, color printer, etc.</td> <td>3) Equipment and materials necessary for training courses</td> </tr> <tr> <td>4) Cost for contracting with Harvard Program in Refugee Trauma (HPRT) and Cayetano University</td> <td></td> </tr> </table> 					Japanese Side	Peruvian side	1) Dispatch of experts: 10 persons	1) Counterpart personnel 53 persons	2) Training in the third country (USA): 50 persons	2) Land and Facilities Project office (space, service charges, office materials) and training venue	3) Provision of equipment: PC, projector/screen, color printer, etc.	3) Equipment and materials necessary for training courses	4) Cost for contracting with Harvard Program in Refugee Trauma (HPRT) and Cayetano University	
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Ex-Ante Evaluation	2005	Project Period	March, 2005 – March, 2008	Project Cost	(Ex-Ante) 370 million yen (Actual) 411 million yen										
Implementing Agency	Ministry of Health (MINSa: Ministerio de Salud), National Major University of San Marcos (UNMSM: Universidad Nacional Mayor de San Marcos)														
Cooperation Agency in Japan	System Science Consultants Inc.														

II. Result of the Evaluation**<Special perspectives of evaluation to be considered>**

[Verification of achievement of the Project Purpose]

Although the terminal evaluation report and the project completion report did not clearly mention the achievement level of indicators for the Project Purpose, the judgement on achievement of the indicators are based on the following targets. The judgments on achievement level of the indicators were confirmed by both sides of MINSa and the JICA Peru Office at the time of ex-post evaluation.

- Indicator 1: More than 80% of identified victims of violence in the pilot sites who visited the public health institution
- Indicator 2: More than 80% of identified victims of violence in the pilot sites who received integrated health care

[Verification of achievement of the Overall Goal]

- Due to difficulty of data collection at MR level, the indicator 1 and 2 for the Overall Goal about the mental health conditions of the victims of violence in the pilot sites and the number of reported cases of domestic violence in the pilot sites was verified by data at regional level where the pilot sites are located. In addition, the following points were considered by this ex-post evaluation in order to verify achievement of the Overall Goal through contribution of the project. Indicator 1: Since the “victims of violence” are broadly covered, there is no standardized indicator to verify the mental health conditions of the victims of violence. Therefore, the indicator 1 was verified by each region according to its definition of “victims of violence” and “mental health conditions”. Indicator 2: This indicator verifies an indirect expected impact of this project in longer term through contribution of the model of the integrated health care for the victims of violence to improvement of reporting the domestic violence for the public health institutions it was too early to verify decreases in the number of reported cases of domestic violence at the time of this ex-post evaluation. In addition, the project did not directly address reduction of domestic violence in the project activities, Hence, this ex-post evaluation assesses not only the number of reported cases of domestic violence but also the contribution of the model of the integrated health care introduced by the project to improvement of reporting the cases of domestic violence.

1 Relevance

<Consistency with Development Policy of Peruvian Government at the time of ex-ante evaluation and the project completion>

The project was consistent with the Peru’s development policy prioritizing importance of actions to support for victims of violence from the mental aspect as set forth in the policy documents including “the Action Guidelines on Mental Health 2004 by MINSa and the National Sanitary Strategy for the Mental health and Culture of Peace” (2004) which were effective at the time of ex-ante and the project completion.

<Consistency with Development Needs of Peru at the time of ex-ante evaluation and the project completion>

The project met the development needs of Peru to provide the victims affected by violence with proper health care, including mental care as well as maternal and child health care.

<Consistency with Japan’s ODA Policy for Peru at the time of ex-ante evaluation>

The project was consistent with the Japan’s ODA policy “the Country Assistance Plan for Peru” in 2000 prioritizing the basic human needs sector and the social sector including improvement of maternal child health.

<Evaluation Results> In the light of above, the relevance of this project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of project completion>

The Project Purpose was mostly achieved by the project completion. The number of victims identified in the pilot site increased from 2,404 in 2005 to 14,546 in 2007 and the number of victims attended by health care facilities in the pilot sites also increased from 1,935 to 9,935 for the same period. In addition, the number of victims having the integrated health care services grew from 2,310 to 13,832 for the same period as well. While the proportion of the victims visiting public health institutions among the ones identified did not reach 100% by the end of the project, the proportion of the total number victims having the integrated health care services among the total number of victims identified for the period from August 2005 to December 2007 was around 96%.

<Continuation Status of the Project Effects at the time of ex-post evaluation>

After the project completion, the number of victims identified in the project sites in total dramatically increased from 3,665 in 2010 to 46,087 in 2014. Also, the number of health centers providing the integrated health care for victims of violence in the pilot sites has increased from 1,305 in 2010 to 5,196 in 2014 and the number of victims attended expanded to 50,387 in 2014. The main reason for improvement of coverage by the health care facilities for the victims of violence in the pilot sites is dissemination and sensitization of the integrated health care not only for the population but also the health professionals. Also, MINSa included the mental health treatment as a part of the health integral insurance package, the Public Health Insurance for the poor people (SIS: Seguro Integral de Salud). In addition, the total number of health centers providing the Maternal and Child Health (MCH) care introduced by the project in the 4 target areas of DISA Loreto, Cajamarca, Huanuco and Ancash expanded from 1,754 in 2010 to 1,928 in 2014 as well.

<Status of Achievement of the Overall Goal at the time of ex-post evaluation>

The Overall Goals have been mostly achieved at the time of ex-post evaluation. In terms of the indicator 1 of mental health conditions of the victims of violence in the target regions, according to the health professionals interviewed by the survey for this ex-post evaluation, they have been getting better due to the increase in the number of patients receiving the mental health treatment which have been improved by the health professionals trained by the project. For the indicator 2 of the number of reported cases of domestic violence in the target regions, it has not decreased rather increased during the period from 2010 to 2014. A reason of the increase in the number of domestic violence reported is that the population who used to live with fear of domestic violence now recognize their rights. Now they have better access to the health care services through nationwide dissemination and implementation of the model of the integrated health care for the victims of violence developed by the project in all 25 regions. The fact indicated that the project has contributed to improvement of identification of victims of violence as well as reporting of domestic violence cases. Therefore, MINSa does not consider the fact as negative but as positive because it implies that the population has been more sensitized about the victims of domestic violence. In terms of MCH, the project has contributed to the preparation and implementation of technical regulations¹ in order to improve the quality of the maternal child treatment by incorporating a violence screening test when a pregnant woman visits the health center. The number of delivery at public health institutions tends to increase in three regions of Loreto, Huanuco and Ancash among the 4 target regions of the project for the period from 2010 and 2014. The infant mortality rate and the under 5 mortality rate in the target regions except Cajamarca has improved for the same period due to the various health programs implemented by MINSa. According to the interviews with health professionals, health promoters and population, the maternal child health conditions in the pilot sites have improved.

<Other Positive and Negative Impacts>

There are some positive impacts of the project observed at the time of the ex-post evaluation. The model of the integrated health care services for the population affected by violence has been disseminated to all the 25 regions in Peru as mentioned above. It is applied at the national level through the Supreme Resolution No. RM 464-2011. Since the project completed in 2008 and their effectiveness of the model has been confirmed by the Government of Peru, MINSa has decided to implement it nationwide.

¹ These technical regulations are: a) RM 142-2007 Standard indicators for the quality of attention, b) RM 141-2007 Technical Guidelines for the comprehensive attention of people affected by violence based on gender

<Evaluation Results>

The project has mostly achieved the Project Purpose and the Overall Goal. Also, the model of the integrated health care services for the victims of violence has been disseminated nationwide and the identification of victims of violence as well as the access to the integrated health care services for the victims of violence has improved. Therefore, effectiveness/Impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																			
<p>(Project Purpose) People affected by violence in the pilot sites come to use Integrated Health Care services.</p>	<p>Indicator 1: Identified victims of the violence in the pilot sites visit the public health institution by March 2008.</p>	(Project Completion) Partially achieved.																																			
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			they protect their children, take care of their physical appearance, participate in community actions		implementation of productive projects ²
	Junin		The victims attend social meetings and participate in community actions. Some victims became as Community leaders	Good	Through the implementation of productive projects
	Huancavelica		The victims are organized, share responsibilities in their communities and attend social meetings	Good	Working with the community, visiting patients, multi sector alliances

Indicator 2: The number of reported cases of domestic violence in the pilot sites is decreased in the long run. (Ex-post Evaluation) Partially achieved.

- The number of reported cases of domestic violence in the pilot sites increased from 2010 to 2014 but the numbers of cases reported fluctuated year by year during the period from 2010 to 2014.
- The fact of the increases in the number of reported cases of domestic violence in 2014 indicates that dissemination of the model of the integrated health care for the victims of violence has contributed to sensitization of the population about domestic violence as well as improvement of reporting the cases of domestic violence..

[Number of domestic violence reported]

	2010	2011	2012	2013	2014
East Lima	1,841	2,041	4,065	1,542	7,594
DISA Ayacucho	691	1,175	4,707	677	4,591
DISA Cusco	4,077	2,877	5,889	4,949	20,567
DISA Junín	948	2,166	3,257	2,006	13,292
DISA Huancavelica	2,666	1,971	3,181	820	4,343

Indicator 3: Maternal Child Health (MCH) Condition is improved. (Ex-post Evaluation) Achieved.

[Indicators of MCH]

	Number of delivery at public health institution		Infant Mortality Rate (per 1000 live birth)		Under 5 Mortality rate (per 1000 live birth)	
	2010	2014	2010	2014	2010	2014
DISA Loreto	72,949	73,927	43	30	61	40
DISA Cajamarca	73,004	89,399	24	24	29	29
DISA Huanuco	66,611	59,694	23	17	34	21
DISA Ancash	62,188	65,006	19	15	24	18

Source : Terminal Evaluation Report, Data provided by MINSA

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 111%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspects>

MINSa issued in 2006 the “National Plan of Mental Health” mentioning: a) Identified problems, b) Objectives and c) Strategies. Mental health care has been still considered as an important issue as the Government of Peru has endorsed various regulations and strategies to increase the attention to the victims of violence since the project completion. The Annual Operative Plan of Mental Health Office of the Government of Peru has incorporated psychosocial accompaniment to the victims of violence and their follow-ups and monitoring in the integral plans of reparation in prioritized regions. Also, MINSa issued resolutions in 2008 and 2009 to put a priority on the attention to the victims of violence. Furthermore, the nationwide dissemination of the model of the integrated health care services for the population affected by violence to all the 25 regions has been endorsed at the national level through the Supreme Resolution No. RM 464-2011

<Institutional Aspects>

[The integrated health care system for victims of violence]

As mentioned above, the model of the integrated health care service including MCH for the victims of violence has been extended and implemented nationwide and the vulnerable population who live in poverty, including victims of violence, have been covered by the health integral insurance (SIS) provided by MINSa. In addition, the Ministry of Economy and Finance (MEF) has established a goal to provide reparation to the victims of terrorism and human rights in the prioritized regions, including the population covered by SIS. At the local level, the health centers and the local communities have been working closely in activities such as training programs and workshops related

² ”Productive project” is a project aiming at giving victims an opportunity to improve their skills for earning a sustainable income.

to the victims of violence and MCH through the participation of the health promoters. Since the Office of Mental Health of MINSA started to strengthen capacities of health professionals to detect more cases of mental health disorder at national level. To respond to the demand, the number of psychologist of DIRESA/DISA in the 5 target areas has increased from 166 in 2012 to 423 in 2015. Also, the number of psychiatrists increased from 4 to 59 but 47 out of them are in East Lima. The number of health staff engaged in the integrated health care services for victims of violence in the 5 target areas dramatically increased to 7,794 in total for the same period while the number of health promoters engaged in the integrated health services for victims of violence has decreased in the 5 target areas. All health promoters work as volunteers and they receive neither salary nor benefits in return. In this regard, when the extractive industries have flourished in different regions in Peru, especially mining industry at highlands, most of the mining companies have offered jobs and provided of materials for the population nearby the project area. As a result, it is said that most of the population, including the health promoters, were accustomed to receive additional incomes or other benefits just for living around the area and some of the health promoters have not been willing to work voluntarily without payment and have been willing to devote their time to generating incomes. Despite the increase in the number of health professionals engaged in the health services for the victims of violence in the target regions, according to the interviews with the health professionals, many of them considered that still it was not sufficient to cover the demand of the victims of violence, in particular for psychiatrists and psychologists. The referral system has been sustained in the target areas. Various institutions, such as other ministries of Education, Woman and Justice, schools and NGOs, collaborate to detect cases of victims of violence at multi-sectoral level and refer those cases to psychiatrists and psychologists in order to improve identification of the people affected by violence.

[MCH service]

MINSA included intercultural attention in provision of MCH services through the issue of a technical norm (RM No.278-2008-MINSA) in which the health professionals were trained to keep a good relationship with communities and provide technical advice on contraceptive methods. Furthermore, visiting pregnant women in their district to advice on matters of health and hygiene during pregnancy began in 2008. However, it is observed in the interview that many of the health professionals are considering that the number of health professionals is still insufficient. Although DIRESA/DISA have initiated hiring process for health professionals but not all available positions are covered due to the geographical distance and low salary paid by MINSA.

[Human resource development]

Regarding the permanent training program run by UNMSM, which was developed by the project, the number of UNMSM faculties who teach in those courses has increased from 19 in 2008 to 27 in 2014. On the other hand, the diploma course and the permanent training program had to be suspended recently by UNMSM due to the low number of participants in the last years. While, there are number of cases where the health technicians are needed to temporarily replace mental health professionals because of the limited number of health professionals in the most regions, the qualification to be admitted into the Diploma course is too high for the health technicians who have needs for the diploma in mental healthcare. Although UNMSM has not implemented any diploma course since 2011 or permanent training program since 2014, UNMSM has been sharing knowledge of integral attention to victims of violence and child health in workshops and congress at various universities and hospitals. UNMSM has also supported 10 universities to incorporate the curriculum on integral health care for victims of violence.

<Technical Aspects>

Regarding the ability and knowledge of health professionals at health centers and hospitals, despite their frequent rotation, they constantly receive training for capacity building in psychological attention to victims of domestic violence, alcoholics, and drug addicts, and maternal child health care. In fact, many health professionals and patients have asserted in their interviews that they are satisfied with the ability and knowledge as well as technical level of those professionals in detecting cases and providing medical attention. Health promoters have also obtained adequate skills and abilities to communicate with their community and health center, as well. The training system developed by the project has been sustained and utilized in the target areas. Also the materials and forms designated in the project have been still in use. UNMSM has assessed their abilities of those professionals through evaluations. Every year, UNMSM carry out workshops, conferences and courses, for the integrated health services of victims of violence. Through these training, the faculties sustained their knowledge and skills. In addition, the health professionals have disseminated their skills and knowledge not only to health promoters but also to other health professionals. In the 11 regions prioritized³, the training is carried out weekly or monthly. According to MINSA, in regard to increase of the number of identified victims of violence as well as the number of victims treated by health centers, the community plays a part of the important role in the improvement of health condition of the population. Since the health promoters accomplish an important role of “bridge” between the community and the health centers, MINSA has been training them on different issues (i.e first aid, health promotion) through workshops. The health promoters can be the first one to identify patients in the community and take them to the health center. As they are able to be close and supportive to the community, people in the community trust them for their ability to listen their advices.

<Financial Aspects>

The budget for mental health issues has been increased by MINSA after the project completion. However, according to the interviews with the health professionals, most of them considered that the budget is still not sufficient, even though Peruvian political initiative has given priority to integrated health care for victims of violence. Financial sources have been well managed to this date; however, future prospects are not very clear. MINSA has been ensuring the minimum budget to promote the integrated health care services for victims of violence. For example, the budget of 1,380,800 soles was secured for integral plan of reparations every year until 2014. In 2015, it was decreased to 1,010,330 soles. Instead, MINSA created budget of 7,264,683 soles for integral health insurance and increased the budget for attention to the addicted from 2,765,189 soles to 3,028,807 soles in 2014 to meet more needs of population. In some regions, the budget for medical attention to victims of violence was more than doubled in 2014, such as Cusco and Huancavelica. However, apart from Lima Region, the budget is barely allocated in the other regions in 2014 because their governments no longer place their priority on medical attention to victims of violence. To address the issue, MINSA recouped the budget of 150,000 soles in Ayacucho, for example. Besides, the budget of trainings is still low, the regional governments allocate on average about 0.2% of their resources. These leave some uncertainty in the future prospects. UNMSM has confirmed that the necessary budget to sustain the Diploma course and the permanent training program was ensured. The financial source is the tuition fees paid by the participants of the Diploma and permanent training program.

<Evaluation Results>

³ Ayacucho, Cusco, Junin, Huancavelica, Puno, Pasco, Apurimac, Huanuco, Ucayali, San Martin and Ica

In the light above, there has some problems observed in the institutional and financial aspects of sustainability. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

The Project Purpose and the Overall Goal have been mostly achieved through improvement of identification and treatment of victims of violence in the target areas and improvement of their mental conditions. Furthermore, the model of the integrated health care services introduced by the project has been disseminated nationwide. As for sustainability, the number of health professionals and the budget for delivering the integrated health care services have not been sufficient yet in order to cover the demand of the population affected by the violence despite of the government efforts to enhance the system. As for efficiency, the project cost exceeded the plan.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

[For Ministry of Health]

- Consider additional human resource development and/or budget allocation as necessary in order to assign professionals in accordance with the demand. Since every Region has its own budget plan, they are considered as decentralized autonomous organizations. In this regard, Regional Governments request their budget every year to the Ministry of Economy and Finance (MEF) in which the health sector is included. However, most of the Regions prioritize physical diseases rather than mental diseases. Moreover, health professionals related to mental health treatment such as psychiatrists and psychologist are not sufficiently requested in terms of the number recommended by MINSA. Thus, MINSA is recommended to improve the supervision to Regional Governments as well as to develop a financial incentive scheme to the Regional Governments that encourage them to achieve mental health treatment, for instance, to increase the budget for mental health service.
- Continue the capacity building system for the health professionals and health promoters in order to maintain their skill and apply the latest knowledge and technology. MINSA has to prepare and disseminate technical handbook more frequently. The dissemination of materials implies the implementation of a training system for key professionals in a national training program. These professionals should share their knowledge with their colleagues in their health centers with the supervision of MINSA. MINSA can effectively utilize some tools such as videoconference and web camera to monitor the progress of the training.

[For UNMSM]

UNMSM is recommended to reconsider relaxing their requirement for admissions into the Diploma course or to prepare other modality, such as on-line graduate program, to deliver the Diploma course to regions away from Lima since UNMSM found few demand of the Diploma course in Lima. Since there are needs for the Diploma course in other regions, in particular for the health technicians, UNMSM needs to be flexible to redesign and deliver the Diploma course in mental health care introduced by the project for the necessary health staffs working in the public health care centers in order to disseminate the necessary skills and knowledge in the mental health care services furthermore.

Lessons learned for JICA

- It is unavoidable that some of the human resources, who were trained by JICA's project, change their occupations. Therefore, it is essential to develop a system that can disseminate their knowledge to other professionals, in order to assure the impact of the project to be continued. At the planning stage, system ensuring dissemination of their knowledge by the trained professionals to other health professionals should be considered as one of alternative project component to ensure sustainability. Also, development of training system using videoconference or uploading the training program on the web can be effective tools to support learning process and to provide durable solutions for promotion of knowledge sharing among the health professionals in addition to development of training materials, technical manuals and guidelines..
- In order to identify people affected by violence and improve their health status, the active participation of national and local institutions (Ministry of Education, Ministry of Justice, National Police, Schools and Municipalities) is important. Through the involvement of local institutions, a greater dissemination of health care services and health promotion can be increased. One of the key factors for the successful dissemination of the model introduced by the project was the total support of the Peruvian Governments (Central and Regional Governments) and the priority that this project had for the authorities. At the planning stage, it is critical to assess priority and importance of models to be introduced by the project in policies and strategies at national level. In addition, at the implementation stage, it is important to make key stakeholders, including local governments, be involved in project and incorporate the models in their operations. .



Interviews with victims (Ayacucho)



Records of victims (East Lima)

Country Name	Community-Based Basic Education Improvement Project
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	In Ethiopia, although there had been a significant increase in the primary education enrollment, further approaches needed to be explored in order to provide education for all the children regardless of their gender, localities, economic conditions of their families, etc. Under Education Sector Development Program II (ESDP II) in 2002, new modalities and mechanisms involving both communities and the government were strongly expected to be established in order to expand access to primary education as well as to improve the quality and internal efficiency such as improvement of the enrollment rate in remote rural areas, utilization and expansion of alternative basic education, and strengthening of educational planning and management capacities of Woreda Education Offices (WEOs) in accordance with the promotion of decentralization.											
Objectives of the Project	<p>1. Overall Goal: 1) The school-aged population of the selected woredas has better access to basic education. 2) The ManaBU model is applied in the selected woredas.</p> <p>2. Project Purpose: The ManaBU model is developed in the selected woredas.</p> <p>Note 1: The “ManaBU (Mana Barnoota Ummataa (Community School)) model” refers to the combination of the three parts of planning, construction and management and model should have the following two features: 1) collaboration between the government and community; and 2) good-quality and cost-effective school construction that meets the MOE’s standard. The project explored for the ManaBU model based on the actual experiences and practices.</p> <p>Note 2: Woredas (districts) are parts of zones which form the region. Woredas consist of kebles.</p>											
Activities of the project	<p>1. Project site: Oromia Region (in total 9 woredas in Arsi, West Harerge and North Shoa zones)</p> <p>2. Main Activities: 1) training personnel of WEOs in planning and management related to the construction and operation of ManaBU schools in the selected 9 woredas, 2) constructing ManaBU schools which are managed and maintained in partnership with WEOs and communities, 3) training teaching staff in order to provide quality-ensured basic education to students enrolled in the ManaBU schools.</p> <p>3. Inputs (to carry out above activities)</p> <table border="0"> <tr> <td>Japanese Side</td> <td>Ethiopian Side</td> </tr> <tr> <td>1) Experts: 9 persons</td> <td>1) Staff allocated: 39 persons</td> </tr> <tr> <td>2) Trainees received: 12 persons</td> <td>2) Land and facilities: provision of offices for the project</td> </tr> <tr> <td>3) Equipment: school furniture, stationeries, etc.</td> <td></td> </tr> </table>				Japanese Side	Ethiopian Side	1) Experts: 9 persons	1) Staff allocated: 39 persons	2) Trainees received: 12 persons	2) Land and facilities: provision of offices for the project	3) Equipment: school furniture, stationeries, etc.	
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Ex-Ante Evaluation	2003	Project Period	November 2003 – March 2008 (Extension period: November 2007 – March 2008)	Project Cost	(ex-ante) 300 million yen (actual) 391million yen							
Implementing Agency	Oromia Education Bureau (OEB)											
Cooperation Agency in Japan	-											

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Ethiopia at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with development policy of Ethiopia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, ESDP II (2002/03-2004/05) set new challenges for the next three year period and two of its four major goals were: 1) To realize the goal of achieving universal primary education through expanding access and coverage of primary education with equity and improved quality; and 2) To build the capacity within education system for sustainable development of the system through organizational capacity building for program implementation, continuous innovation, and quality leadership at various levels. At the time of project completion, ESDP III (2005/06-2009/10) stated that “provision of access to primary education for all school-aged children will entail a heavy burden for the government and the community over the coming years, but the reward will be great. The community will contribute labor, local materials and cash, based on its own capacity, for the construction of schools.”</p> <p><Consistency with the Development Needs of Ethiopia at the time of ex-ante evaluation and project completion ></p> <p>The project was consistent with the needs for education for all in Ethiopia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, in order to follow ESDP II, WEOs were required to construct new schools and expand existing ones by encouraging community participation. At the time of project completion, local governments were required to encourage communities to actively participate in constructing new schools, expanding and renovating existing ones and in providing other inputs.</p> <p><Consistency with Japan’s ODA Policy at the time of ex-ante evaluation></p> <p>The project was consistent with Japan’s ODA policy. The Ministry of Foreign Affairs set out education as one of the five priority sectors in its foreign aid policy towards Ethiopia, according to ODA Databook 2003. It attached special importance to the improvement</p>

of access to basic education in remote areas and the construction and management of primary schools through community participation.

<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 partially achieved by the time of project completion. After constructing 20 schools, indicator 1 “Validity and relevance of the developed model” was deemed to be achieved as the ManaBU model was developed and demonstrated in the selected woredas, though the management part was not fully developed. Although some kebeles, local level administration, made requests to WEOs for school construction, no data on the number of requests was obtained (Indicator 2).

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

Data and information collected through interviews and observations in the targeted woredas showed that the school environment has been improved by utilizing the ManaBU model. It showed that the ManaBU model introduced self-help attitude in the community. The ManaBU model also helped solve the problem of inaccessibility of primary schools and the model showed the possibility of having schools nearby by one’s own capacity and effort. 20 schools constructed under the project are continuously under operation at the time of ex-post evaluation.

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

The overall goal was partially achieved. As to the overall goal 1, there is significant increase in gross enrollment rate (GER) of the target woredas between 2005/06 and 2014/15 because of the construction of schools under the project that enabled significant number of children to get access to the nearby school for their primary education. The overall goal 2 is somewhat achieved. Although the precise data is not obtained, existing schools in some woredas have applied the ManaBU model for constructing additional classrooms. Also, schools which utilize the ManaBU model have been newly constructed every year.

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

No land acquisition and resettlement occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

In light of the above, the project purpose was partially achieved as the ManaBU model was developed and has been recognized as effective. Overall goal was partially achieved as schools in the target woredas have applied the model. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																																									
(Project Purpose) The ManaBU model is developed in the selected woredas.	Indicator 1: Validity and relevance of the developed model	<p><u>Status of the Achievement: partially achieved (partially continued)</u> (Project Completion) Active community participation as well as active involvement of WEOs were observed, and the ManaBU model was one of the effective ways for WEOs to collaborate with communities for planning, construction and management of a school. By and large, the ManaBU model was developed and demonstrated in the selected woredas. However, due to the delay in the development of planning and construction process, the management part was not fully developed as a guideline. (Ex-post Evaluation) At all 9 target woredas, the governments observed that the school environment has improved by utilizing ManaBU model. For example, the model has led to growth of enrollment and reduction of drop-out rate according to interviews to government officials.</p>																																																									
	Indicator 2: Number of requests for guidelines in OEB and the selected woreda	<p><u>Status of the achievement: partially achieved (not continued)</u> (Project Completion) Some kebeles, which were near or next to the kebeles where the ManaBU schools were built, have witnessed the ManaBU project’s approach, and made requests to WEOs for school construction. However, no data on the number of requests was collected in the project. (Ex-post Evaluation) The guidelines are not referred/utilized.</p>																																																									
(Overall Goal) 1. The school-aged population of the selected woredas has better access to basic education	Indicator 1: GER and NER of primary education in the selected woredas *GER: Gross Enrollment Rate, NER: Net Enrollment Rate	<p><u>Status of the Achievement: partially achieved</u> (Ex-post Evaluation) GER for Grade 1-8:</p> <table border="1"> <thead> <tr> <th rowspan="2">Zone</th> <th rowspan="2">Woreda</th> <th rowspan="2">2005/06 GER (%)</th> <th colspan="3">2014/15 GER (%)</th> </tr> <tr> <th>Male</th> <th>Female</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Arsi</td> <td>Dodota</td> <td>47.7</td> <td>94.1</td> <td>88.3</td> <td>91.2</td> </tr> <tr> <td>Sire</td> <td>58.7</td> <td>93.7</td> <td>86.7</td> <td>90.2</td> </tr> <tr> <td>Diksis</td> <td>72.4</td> <td>98.4</td> <td>95.2</td> <td>96.8</td> </tr> <tr> <td rowspan="3">West Harerge</td> <td>Kunni</td> <td>63.4</td> <td>98.1</td> <td>92.7</td> <td>95.4</td> </tr> <tr> <td>Chiro</td> <td>77.6</td> <td>101.3</td> <td>95.3</td> <td>98.3</td> </tr> <tr> <td>Gemachis</td> <td>56.2</td> <td>94.2</td> <td>88.4</td> <td>91.3</td> </tr> <tr> <td rowspan="3">North Shoa</td> <td>Degem</td> <td>57.8</td> <td>90.1</td> <td>84.5</td> <td>87.3</td> </tr> <tr> <td>Wuchale</td> <td>58.7</td> <td>91.8</td> <td>84.4</td> <td>88.1</td> </tr> <tr> <td>Jida</td> <td>11.4</td> <td>93.5</td> <td>87.3</td> <td>90.4</td> </tr> </tbody> </table> <p>*NER data could not be collected.</p>	Zone	Woreda	2005/06 GER (%)	2014/15 GER (%)			Male	Female	Total	Arsi	Dodota	47.7	94.1	88.3	91.2	Sire	58.7	93.7	86.7	90.2	Diksis	72.4	98.4	95.2	96.8	West Harerge	Kunni	63.4	98.1	92.7	95.4	Chiro	77.6	101.3	95.3	98.3	Gemachis	56.2	94.2	88.4	91.3	North Shoa	Degem	57.8	90.1	84.5	87.3	Wuchale	58.7	91.8	84.4	88.1	Jida	11.4	93.5	87.3	90.4
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2. The ManaBU model is applied	Indicator 2-1: Number of existing schools that apply	<p><u>Status of the Achievement: partially achieved</u> (Ex-post Evaluation) Information is not well documented during the survey. However, officials at the woreda level</p>																																																									

in the selected woredas.	ManaBU model	understood the new initiatives are taken as construction of additional class rooms besides existing class rooms in the schools with community participation. Although the data may not be conclusive, significant number of schools have constructed additional one or two class rooms including teachers house with community participation.																																																																																					
	Indicator 2-2: Number of newly built schools that apply ManaBU model	<p>Status of the Achievement: partially achieved* (Ex-post Evaluation)</p> <p>Number of schools that were newly built by utilizing the ManaBU model</p> <table border="1"> <thead> <tr> <th>Woreda</th> <th>2008/09</th> <th>2009/10</th> <th>2010/11</th> <th>2011/12</th> <th>2012/13</th> <th>2013/14</th> <th>2014/15</th> </tr> </thead> <tbody> <tr> <td>Dodota</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Sire</td> <td>1</td> <td>1</td> <td>2</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>Diksis</td> <td>5</td> <td>2</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>Kunni</td> <td>9</td> <td>1</td> <td>3</td> <td>4</td> <td>9</td> <td>0</td> <td>7</td> </tr> <tr> <td>Chiro</td> <td>N/A</td> <td>N/A</td> <td>1</td> <td>0</td> <td>1</td> <td>1</td> <td>4</td> </tr> <tr> <td>Gemachis</td> <td>3</td> <td>1</td> <td>3</td> <td>10</td> <td>0</td> <td>6</td> <td>1</td> </tr> <tr> <td>Degem</td> <td>0</td> <td>0</td> <td>2</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>Wuchale</td> <td>N/A</td> <td>N/A</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> <td>2</td> </tr> <tr> <td>Jida</td> <td>5</td> <td>4</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>*As no target was set, the actual results cannot be judged as “achieved”.</p>							Woreda	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Dodota	1	1	2	1	1	0	0	Sire	1	1	2	0	1	0	1	Diksis	5	2	1	0	0	0	2	Kunni	9	1	3	4	9	0	7	Chiro	N/A	N/A	1	0	1	1	4	Gemachis	3	1	3	10	0	6	1	Degem	0	0	2	1	0	1	0	Wuchale	N/A	N/A	2	1	1	1	2	Jida	5	4	1	0	0	0
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Source : JICA internal documents, questionnaires and interviews with Zonal and Woreda Education Offices, school visit and interview with school directors¹

3 Efficiency

Both the cost and the project period exceeded the plan (ratio against the plan: 130%, 108%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

Currently ESDP V (2016-2019) is under implementation, and the program reinforces and encourages access to the basic education and the community participation. Percentage of schools with active Parent Student Teacher Association (PSTA) is expected to reach 90% in the end of ESDP V in 2019.

<Institutional Aspect>

OEB has developed its own local ESDP V and has SIP (School Improvement Program) directorate which coordinates with PSTA in the region. However, it is under staffed to provide support across the region. SIP directorate is not directly in a position to sustain the effects of the project, but some elements of the project like girls' education drop out measures are treated by SIP directorate of OEB.

At each WEO, generally, one person from planning section is engaged in following up school construction at community level.

In coordination with OEB, Zonal Education Offices organize Educational Conference at the beginning of every academic year to mobilize the community to apply the ManaBU model. Similar Educational Conferences are also held at woreda level and kebele level as well as at specific school level. Communities in the target areas keep contributing lands for schools or contributing labor to school construction except Degem where involvement of WEO is limited according to schools.

<Technical Aspect>

Although some activities for applying the ManaBU model are conducted as mentioned above, technical capacity both of OEB and woredas is not sufficient to sustain the effects of ManaBU model at a larger scale (woreda level and beyond) in an organized manner because of high staff turnover with limited knowledge and skill of ManaBU model, lack of attention and budget to implement the training. Most schools and communities do not refer to the guideline, or even they are not well aware of the existence of the guideline.

<Financial Aspect>

No specific budget is allocated at woreda level for disseminating the ManaBU model. Although the overall budget allocated to each Woreda is showing an increasing trend, the budget goes for teachers' salary, and the remaining money goes to administration costs for existing schools. However, the ManaBU model has been somewhat continuously applied with the financial, material and labor contribution from communities.

<Evaluation Result>

In light of the above, challenges have been observed in terms of the institutional, technical and financial aspects. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project purpose was partially achieved as the ManaBU model was developed and has been recognized as effective. Overall goal was partially achieved as schools in the target woredas have applied the model. As for sustainability, there are some challenges in institutional, technical and financial aspects. For 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:

Though OEB has adopted the ManaBU model and took part in the planning and managing and constructing schools during the project implementation period, it is further recommended to institutionalize the model to the lower level within its system so as to follow-up and support the community in constructing schools at grass root level.

OEB need to officially delegate one of its directorates to be responsible to sustain the project effects at a wider scale in the region.

¹ In Ethiopia, most of the officials and directors are male at local level and out of 20 interviewees, six were women.

OEB should facilitate experts, who acquired exposure/training (either in Japan or with Japanese counterparts) during project implementation, to provide training on ManaBu for other new staffs so as to sustain the project effects.

Lessons Learned for JICA:

All 20 schools constructed under the project are providing service for basic education, however, some of the project outputs, or guidelines for planning, constructing and managing schools, are not properly kept or being utilized from the view of sustainability of the project effects. The major reason found out to be for lesser sustainability is a lack of measures for ensuring it during the project, such as obtaining commitment by OEB to approve the guideline and putting a system of training on the guidelines on cascading to lower level and assigning a responsible person in place within OEB structure.



(Partial view of ManaBU School)



(Students learning at ManabBU School)

Country Name	Project on Strengthening Technology Development, Verification, Transfer and Adoption through Farmer Research Groups (FRGs)
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	<p>In Ethiopia, according to the World Bank national accounts data, the agricultural sector accounted for 42.3% of the Gross Domestic Production (GDP) and 79% of the labor force was engaged in agriculture in 2004, at the time of ex-ante evaluation. On the other hand, for the period between 1992 and 2002, the annual growth rate of the agricultural sector limited to 2.8% in average which was lower than the ones of the industrial sector (6.1%) and the service sector (8.3%). As a result, the country had been faced crisis of food shortage for many years. In order to improve those situations, it was essential to increase agricultural productivity through introduction of improved technologies for small scale farmers who produced 97% of agricultural production in the country. Since late 1990's, the Ethiopian Institute of Agricultural Research (EIAR) introduced a Farmer Research Group (FRG) approach, which was a research approach to attempt development and improvement of agricultural technologies through collaboration of farmers, researchers and extension officers. However, the existing FRG activities had not attained their essential goal because the extension by demonstration in a top-down manner was not able to meet farmers' needs. In addition, the technologies utilized by the farmers remained at low level since the insufficient linkage among the researchers, the extension officers, the FRG farmers and the other farmers constrained efficient extension activities. Therefore, establishment of technology development system and enhancement of extension system for appropriate technologies with participation of farmers through improvement of the FRG system was urgent issue.</p>														
Objectives of the Project	<p>Through preparation of the FRG guideline and trainings for the Development Agents (DAs)*, the project aimed at establishment of the improved FRG approach in the East Shewa Zone, thereby contributing to improvement of production of the target commodities and livelihood of the target FRG members as well as adoption of the FRG approach in other research centers.</p> <ol style="list-style-type: none"> Overall Goal: 1) Livelihood of the target FRG members is improved. 2) Production of target commodities in the target area is increased. 3) FRG approach is adopted and utilized in other research centres. Project Purpose: FRG approach is established as one of the core methods of research and extension in the East Shewa Zone. <p>*DAs: Extension officers</p>														
Activities of the project	<ol style="list-style-type: none"> Project Sites: Research areas of Melkassa Agricultural Research Center (MARC) and Adami Tulu Agricultural Research Center (ATARC) in the East Shewa Zone and a part of Arsi Zone (Oromia Regional State) Main activities: 1) Preparation of the FRG guideline based on review of the improved FRG approach, 2) Delivery of trainings on appropriate technologies for the researchers and FRGs, 3) Preparation of training materials and extension materials, On the Job Trainings for Development Agents (DAs), and seminars and workshops for FRGs, 4) Compiling project experiences and lessons learned from the FRG approach., etc. Inputs (to carry out above activities) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Ethiopian Side</td> </tr> <tr> <td>1) Experts: 20 persons</td> <td>1. Staff allocated: 13 persons</td> </tr> <tr> <td>2) Acceptance of trainees in Japan: 31 persons</td> <td>2. Land and Facilities: Office spaces</td> </tr> <tr> <td>3) Acceptance of trainees in the Third Country (Kenya and Thailand): 34 persons</td> <td>3. Equipment: Vehicles and office equipment</td> </tr> <tr> <td>4) Equipment: Vehicle, motorcycles, PC, digital cameras, etc.</td> <td></td> </tr> </table> 					Japanese Side	Ethiopian Side	1) Experts: 20 persons	1. Staff allocated: 13 persons	2) Acceptance of trainees in Japan: 31 persons	2. Land and Facilities: Office spaces	3) Acceptance of trainees in the Third Country (Kenya and Thailand): 34 persons	3. Equipment: Vehicles and office equipment	4) Equipment: Vehicle, motorcycles, PC, digital cameras, etc.	
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Ex-Ante Evaluation	2004	Project Period	July, 2004 – July, 2009	Project Cost	(Ex-ante) 470 million yen (Actual) 544 million yen										
Implementing Agency	Ethiopian Institute of Agricultural Research (EIAR), Melkasa Agricultural Research Center, Oromia Agricultural Research Center (OARI), Adami Tulu Agricultural Research Center														
Cooperation Agency in Japan	None														

II. Result of the Evaluation

<Constraints on Evaluation>

- Security issues: The anti-government protests mainly in the regional states of Amhara and Oromia where the project sites are located resulted in violent clashes between demonstrators and government security forces in November, 2015 and the protests have become more intense since July, 2016. Therefore, the field survey of this ex-post evaluation to collect data was limited to Adami Tulu Woreda, Adama Woreda and Dodota Woreda.
- Availability of data: Since the ex-post evaluation was conducted 7 year later from the project completion in 2009, some data could not be available.
- Turnover of some researchers at the research centers: Since some researchers who were involved in the project have already left the research centers, there was limited access to the ex-counterpart staffs or the researchers who had been involved in the project activities.

< Special perspectives considered in the ex-post evaluation >

- Verifiable Indicator for the Overall Goal
 - Some of the verifiable indicators for the Overall Goal are not clearly defined by the target values. For these indicators, achievement levels were verified by comparison between the baseline at the time of project completion and the performance at the time of ex-post evaluation.
 - In terms of the household income of the target farmers, it was verified by agricultural revenue of the target farmers in order to assess contribution of the project to the increase in the household income.

1 Relevance

<Consistency with the Development Policy of Ethiopia at the time of ex-ante evaluation and project completion>

The project was consistent with the Ethiopia's development policy of "Food Security Program (1996)", "Sustainable Development and Poverty Reduction Program (SDPRP) (2002/03-2004/05)" and "A Plan for Accelerated and Sustained Development to End Poverty (PASDEP), (2005/06-2009/10), which aimed at development of new technologies and improvement of extension service as measures to solve the problem of food shortage.

<Consistency with the Development Needs of Ethiopia at the time of ex-ante evaluation and project completion >

The project was consistent with the Ethiopia's development needs of applicable research activities for farmers and the improved FRG approach to meet the farmers' needs in order to increase agricultural production.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with the Japan's ODA policy to support food, agriculture and rural development, as one of the 5 priority areas, confirmed by the policy dialogue between Ethiopia and Japan in June, 2003.

<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 mostly achieved by the project completion. According to the project completion report, the number of FRG increased from 18 to 80 by the project completion. However, it was difficult to measure the number of "well-functioning FRGs" which defined by the project because self-evaluations by the FRGs were not available at the time of project completion. On the other hand, production volumes of the target commodities per household, such as teff¹, maize, haricot beans, onion, tomato and pepper, dramatically increased by far beyond of 15% from the baseline year of 2004 to the end year of 2009. Also, land productivity (production volume per ha) for each target commodity improved by more than 15% from 2004 to 2009 except onion and pepper. Although land productivities for onion and pepper dramatically increased from 2004 and 2007, they dropped in 2009 because of unfavorable weather conditions and erratic rainfalls.). There was another reason of shrinking of land size for small scale farmers because it was allocated to sugar cane plantation particularly in Adama and Dodota woredas. Due to the significant improvement of household production volumes and land productivities of the target commodities, it was confirmed that the number of farmers who were adopting new or improved technologies developed by the FRG activities increased to more than 5 times of the members of the target FRGs at the Achievement Workshop for the terminal evaluation.

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

The project effects have been mostly continued since the project completion. Although the number of FRGs in the project sites decreased from 80 in 2009 to 16 in 2010, it increased to 17 in 2012 and 13 FRGs has been sustaining since 2014. The number of FRG members dramatically increased from 45 in 2010 to 195 in 2014 and remains the same number of members in 2016. All the existing FRGs in 2016 are well functioning in accordance with the judgment on performance of the group activities by researchers of the research centers and observation during ex-post evaluation. For example, the Dairy Group in West Arsi area and seed multiplication group in Melkasa area shows good examples of the group activities. These groups have continued their group activities such as, production by group, group saving, and group marketing. In addition, the most of members of the existing FRGs have continued to individually practice the technologies introduced by the project. Although production volumes of the target commodities by the FRG members in the project sites differed due to weather conditions, incidence of crop diseases and fluctuation of market prices, according to the farmers and the researchers surveyed by this ex-post evaluation, the new or improved technologies introduced by the project and other government extension supports after the project completion have continuously contributed to increases in the production volumes. Also, according to the DAs and researchers, land productivities of the target commodities have continuously improved because of better application of inputs and technologies such as improved seeds and fertilizer. Since the improvements of production volumes and productivities by the project have stimulated the farmers in the project sites, the number of farmers adopting the new or improved technologies introduced and extended by the project increased from 80 in 2009 to 160 in 2016.

In addition, a number of projects used the FRG approach to disseminate test technologies with farmers. FRG is one of the approaches to work with farmers in EIAR.

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

Three Overall Goals were set for the project.

[Overall Goal 1: improvement of livelihood of the target FRG members]

The Overall Goal 1 has been achieved. Availabilities of grains at the end of the year, such as maize and haricot bean, increased by more than 15% in many years from 2010 despite they decreased by 50% from the previous year in 2015. The household income from agriculture in the target FRG members increased by 1,200% during the period from 2010 to 2015. Also, the number of improved animals at the target FRG households increased by more than 15% after the project completion. In addition, the number of school children going to school in the project sites increased by 14.7% from 2012 to 2016.

[Overall Goal 2: Increase in production of target commodities in the target area]

The Overall Goal 2 has been partially achieved. While the production volumes of teff, haricot beans, tomato, and pepper in the target area considerably increased by more than 15% for the period between 2011 to 2015 in despite of slight fluctuation, the production volume of maize decreased year by year and the production volume onion changed year by year for the same period. In 2015, a drastic drought occurred in the last 10 years. Still it worth mentioning 50% production fall was occurred in FRG areas while the drought caused much more high devastation in similar agro-ecologies to that of the FRGs. Namely, the fact indicates such resilience in FRG areas (farmers) as

¹ Teff is a fine grain mainly produced in Ethiopia and a staple food for Ethiopian people.

compared to non-FRG areas rather than showing the only the failures of -50% yield. On the other hand, reduction of maize production could happen as more competitive crop substitution (beans and wheat) is being pushed and also climate change demanded early maturing crops in central rift valley.

[Overall Goal 3: Adoption and utilization of FRG approach in other research centers]

The Overall Goal 3 has been achieved. The number of research centers adopting the FRG approach improved by the project increased from 9 in 2009 to 29 in 2012 and it has been sustaining by the time of ex-post evaluation in 2016. The research centers have considered the FRG approach as appropriate and useful for their outreach programs since it has encouraged farmers active to participate in introduction of new technologies for their farming activities. Also, the number of well-functioning FRGs increased from 3 in 2010 to 18 in 2016 because of the continuous supports by the research centers, higher motivation of the FRGs by highly profitable activities for the farmers, and other projects supported by World Bank to enhance the FRG activities².

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

No other positive impact and no negative impact was observed at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, the project mostly achieved the Project Purpose and the project effects introduced by the project has been mostly continued, and achieved two of the three Overall Goals while one of the Overall Goal has been partially achieved. The improved FRG approach has been extended in the target area and has encouraged the farmers to practice the new and improved technologies which enable to improve their agricultural production and livelihoods. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																																																																				
(Project Purpose) FRG approach is established as one of the core methods of research and extension in the East Shewa Zone.	(Indicator 1) The number of well-functioning FRG* increases up to 70% of FRGs.	<p><u>Status of the achievement: Partially achieved</u></p> <p>(Project Completion)</p> <ul style="list-style-type: none"> The number of FRGs' members increased from 18 to 80. But it was difficult to measure the number of well-functioning FRGs without self-evaluation by the FRGs at the time of terminal evaluation though the wide range of level of functioning FRGs was observed by the site visits conducted by the Terminal Evaluation Team. <p>(Ex-post evaluation) Continued.</p> <ul style="list-style-type: none"> The number of FRGs sustained 13 in 2016 though it decreased from 17 in 2012. The number of well-functioning FRGs reached to 100% since 2013. The level of well-functioning FRGs was assessed by the researchers in both Melkasa and Adami Tulu Agricultural Research Centers based on their observation of the group's activities and performance. <p>[No. of FRGs in the target area]</p> <table border="1"> <thead> <tr> <th></th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>FRGs</td> <td>16</td> <td>16</td> <td>17</td> <td>12</td> <td>13</td> <td>13</td> <td>13</td> </tr> <tr> <td>FRG farmers</td> <td>45</td> <td>45</td> <td>165</td> <td>180</td> <td>195</td> <td>195</td> <td>195</td> </tr> <tr> <td>Well-functioning FRGs</td> <td>3</td> <td>3</td> <td>11</td> <td>12</td> <td>13</td> <td>13</td> <td>13</td> </tr> </tbody> </table>		2010	2011	2012	2013	2014	2015	2016	FRGs	16	16	17	12	13	13	13	FRG farmers	45	45	165	180	195	195	195	Well-functioning FRGs	3	3	11	12	13	13	13																																																				
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(Indicator 2) Production of target commodities is increased by 15% in the FRG farmers.		<p><u>Status of the achievement: Achieved</u></p> <p>(Project completion)</p> <ul style="list-style-type: none"> Productions of all the target commodities by the FRG farmers increased by more than 15%. <p>[Production of target commodities by FRG farmers] [Unit: qt/household]</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>2004 (baseline) (a)</th> <th>2007</th> <th>2009 (end line) (b)</th> <th>Change (%) (a)to(b)</th> </tr> </thead> <tbody> <tr> <td>Teff</td> <td>6.16</td> <td>13.9</td> <td>13</td> <td>111.0%</td> </tr> <tr> <td>Maize</td> <td>8.54</td> <td>40.9</td> <td>23</td> <td>169.3%</td> </tr> <tr> <td>Haricot beans</td> <td>5.61</td> <td>11.4</td> <td>12</td> <td>113.9%</td> </tr> <tr> <td>Onion</td> <td>31.45</td> <td>76.1</td> <td>79.8</td> <td>153.7%</td> </tr> <tr> <td>Tomato</td> <td>19.32</td> <td>64.9</td> <td>78</td> <td>303.7%</td> </tr> <tr> <td>Pepper</td> <td>10.48</td> <td>14.1</td> <td>16</td> <td>52.7%</td> </tr> </tbody> </table> <p>(Ex-post Evaluation) Continued</p> <p>[Production of target commodities by FRG farmers] [Unit: qt/household]</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Teff</td> <td>13</td> <td>14</td> <td>14</td> <td>16</td> <td>16</td> <td>14</td> </tr> <tr> <td>Maize</td> <td>23</td> <td>25</td> <td>30</td> <td>33</td> <td>33</td> <td>35</td> </tr> <tr> <td>Haricot beans</td> <td>15</td> <td>14</td> <td>14</td> <td>15</td> <td>16</td> <td>16</td> </tr> <tr> <td>Onion</td> <td>83</td> <td>83</td> <td>79</td> <td>117</td> <td>125</td> <td>135</td> </tr> <tr> <td>Tomato</td> <td>80</td> <td>81</td> <td>104.2</td> <td>112</td> <td>78</td> <td>61</td> </tr> <tr> <td>Pepper</td> <td>17</td> <td>25</td> <td>22.01</td> <td>23.01</td> <td>23.3</td> <td>18</td> </tr> </tbody> </table>	Crop	2004 (baseline) (a)	2007	2009 (end line) (b)	Change (%) (a)to(b)	Teff	6.16	13.9	13	111.0%	Maize	8.54	40.9	23	169.3%	Haricot beans	5.61	11.4	12	113.9%	Onion	31.45	76.1	79.8	153.7%	Tomato	19.32	64.9	78	303.7%	Pepper	10.48	14.1	16	52.7%	Crop	2010	2011	2012	2013	2014	2015	Teff	13	14	14	16	16	14	Maize	23	25	30	33	33	35	Haricot beans	15	14	14	15	16	16	Onion	83	83	79	117	125	135	Tomato	80	81	104.2	112	78	61	Pepper	17	25	22.01	23.01	23.3	18
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² The projects supported by WB are the Pastoralist Community Development Project (PCDP) and the East African Agricultural Productivity Improvement Project.

<p>is increased by 15% in the FRG farmers.</p>	<p>● In terms of 4 of the 6 target commodities, their productivity by the FRG farmers increased by more than 15%.</p> <p>[Productivity of target commodities by FRG farmers] [Unit: qt/ha]</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>2004 (baseline) (a)</th> <th>2007</th> <th>2009 (end line) (b)</th> <th>Change (%) (a)to(b)</th> </tr> </thead> <tbody> <tr> <td>Teff</td> <td>6.9</td> <td>9.2</td> <td>13</td> <td>88.4%</td> </tr> <tr> <td>Maize</td> <td>10.0</td> <td>21.0</td> <td>23</td> <td>130.0%</td> </tr> <tr> <td>Haricot beans</td> <td>7.8</td> <td>11.7</td> <td>12</td> <td>53.8%</td> </tr> <tr> <td>Onion</td> <td>90.05</td> <td>166.7</td> <td>79.8</td> <td>-11.3%</td> </tr> <tr> <td>Tomato</td> <td>63.91</td> <td>214.0</td> <td>78</td> <td>22.0%</td> </tr> <tr> <td>Pepper</td> <td>59.09</td> <td>174.2</td> <td>16</td> <td>-72.9%</td> </tr> </tbody> </table> <p>(Ex-post Evaluation) Achieved</p> <p>[Productivity of target commodities by FRG farmers] [Unit: qt/ha]</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Teff</td> <td>13</td> <td>13.21</td> <td>14.13</td> <td>13.00</td> <td>18.49</td> <td>23.83</td> </tr> <tr> <td>Maize</td> <td>25</td> <td>31.09</td> <td>33.04</td> <td>33.00</td> <td>44.57</td> <td>35.37</td> </tr> <tr> <td>Haricot beans</td> <td>14</td> <td>14.55</td> <td>16.24</td> <td>20.02</td> <td>18.78</td> <td>21.87</td> </tr> <tr> <td>Onion</td> <td>115</td> <td>140</td> <td>135</td> <td>176</td> <td>176</td> <td>180</td> </tr> <tr> <td>Tomato</td> <td>85</td> <td>90</td> <td>100</td> <td>95</td> <td>115</td> <td>105</td> </tr> <tr> <td>Pepper</td> <td>23</td> <td>20</td> <td>20</td> <td>25</td> <td>30</td> <td>28</td> </tr> </tbody> </table>	Crop	2004 (baseline) (a)	2007	2009 (end line) (b)	Change (%) (a)to(b)	Teff	6.9	9.2	13	88.4%	Maize	10.0	21.0	23	130.0%	Haricot beans	7.8	11.7	12	53.8%	Onion	90.05	166.7	79.8	-11.3%	Tomato	63.91	214.0	78	22.0%	Pepper	59.09	174.2	16	-72.9%	Crop	2010	2011	2012	2013	2014	2015	Teff	13	13.21	14.13	13.00	18.49	23.83	Maize	25	31.09	33.04	33.00	44.57	35.37	Haricot beans	14	14.55	16.24	20.02	18.78	21.87	Onion	115	140	135	176	176	180	Tomato	85	90	100	95	115	105	Pepper	23	20	20	25	30	28	<p>(Indicator 4) The number of the farmers adopting new/improved technologies increase around the target FRG.</p> <p>Status of the achievement: <u>Achieved</u> (Project completion)</p> <ul style="list-style-type: none"> ● The result of the Achievement Workshop indicated that the number of farmers who were adopting new/improved technologies increased more than 5 times of the members of the target FRGs. ● 61% of the sample non-FRG farmers (N=129) indicated that they learnt one or more of the technologies. <p>(Ex-post Evaluation) Continued</p> <p>[No. of FRG farmers adopting the new/improved technologies through the FRG activities in the target area]</p> <table border="1"> <thead> <tr> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>80</td> <td>100</td> <td>110</td> <td>115</td> <td>115</td> <td>132</td> <td>150</td> <td>160</td> </tr> </tbody> </table>	2009	2010	2011	2012	2013	2014	2015	2016	80	100	110	115	115	132	150	160
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2) Production of target commodities in the target area is increased.	(Indicator 2) Production of target commodities in the target area is increased by 15%	<p><u>Status of the achievement: Partially achieved</u> (Ex-post Evaluation)</p> <p>[Production of target commodities in the target area] [Unit: ton]</p> <table border="1"> <thead> <tr> <th>Crop</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>Changes to 2015*</th> </tr> </thead> <tbody> <tr> <td>Teff</td> <td>280.25</td> <td>286.928</td> <td>288.7</td> <td>306.1</td> <td>416.3</td> <td>48%</td> </tr> <tr> <td>Maize</td> <td>286.3</td> <td>220.4</td> <td>130.36</td> <td>114.36</td> <td>176.9</td> <td>-38%</td> </tr> <tr> <td>Haricot beans</td> <td>41.67</td> <td>48.3</td> <td>52.11</td> <td>84.1</td> <td>70.38</td> <td>69%</td> </tr> <tr> <td>Onion</td> <td>n/a</td> <td>1260</td> <td>1462.8</td> <td>1465.5</td> <td>1275.2</td> <td>1.2%</td> </tr> <tr> <td>Tomato</td> <td>n/a</td> <td>306</td> <td>310.4</td> <td>713.578</td> <td>615.251</td> <td>101%</td> </tr> <tr> <td>Pepper</td> <td>n/a</td> <td>34.2</td> <td>41.036</td> <td>58.666</td> <td>42.82</td> <td>25.2%</td> </tr> </tbody> </table> <p>Source: Adami Tulu Woreda and Adama Woreda Agriculture office Note: *Since no data is available at the project completion in 2009, the baseline data is 2011 for teff, maize and haricot beans and 2012 for onion, tomato and pepper.</p>	Crop	2011	2012	2013	2014	2015	Changes to 2015*	Teff	280.25	286.928	288.7	306.1	416.3	48%	Maize	286.3	220.4	130.36	114.36	176.9	-38%	Haricot beans	41.67	48.3	52.11	84.1	70.38	69%	Onion	n/a	1260	1462.8	1465.5	1275.2	1.2%	Tomato	n/a	306	310.4	713.578	615.251	101%	Pepper	n/a	34.2	41.036	58.666	42.82	25.2%
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Source : Project completion report, data provided by ATARTC and MARC, interviews with researchers, DAs and farmers in the target sites, FRG and non- FRG farmers, Agriculture Offices (Adama and Adami Tulu woreda), Livestock Office, Woreda Education Office, questionnaire surveys with MARC and ATARC

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 115%) due to the additional activities including workshops and seminars in the last part of the project as preparation for the next phase of the project (the FRG project phase 2). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The FRG approach and activities improved by the project has been endorsed by the Agricultural Growth Program (2015/16-2019) including establishment of the Farmer Research Extension Group for generation, adaptation and dissemination technologies among farmers based on the experiences of the project. Also, the government uses the FRG approach in the Pastoralist Community Development Project. Although there is no specific policy for extension of the FRG approach itself, the approach has been mainstreamed in the government programs supporting farmers.

<Institutional Aspect>

There has been no change in organizational structures at the central level (the Ministry of Agriculture and Natural Resource: MoANR³ and EIAR) and the research center level (MARC, OARI and ATARC). For dissemination of the FRG approach improved by the project, MARC and ATARC have the sufficient number of researchers trained (12 for MARC and 4 for ATARC) while MoANR and OARI do not (0 for MoANR and 2 for OARI) due to the frequent turnover of researchers. At the village level, the sufficient numbers of DAs have been deployed and engaged in the FRG activities: 741 DAs for East Shwa Zone and 996 for Arsi Zone. Although the network among the FRGs and other stakeholders supporting them has not continued in an organized manner as it was during the project period, communications between the FRGs and NGOs and universities have been continued on an ad hoc basis when they need. Implementation of projects such as the Rural Capacity Building Project (RCBP), PCDP, and the Agricultural Growth Project (AGP) has contributed to continuation of the network established by the project.

<Technical Aspect>

As for researchers of EIAR, MARC, OARI and ATARC, they have sustained necessary skills and knowledge about the improved FRG approach to be engaged in the FRG related activities including delivery of trainings for other research centers, universities and NGOs, provision of technical supports for farmers and introduction of new technologies for farmers. On the other hand, the DAs in the target area have not sustained the skills and knowledge on the FRG activities improved by the project since several DAs trained by the project have

³ MoANR was transformed from the Ministry of Agriculture and Rural Development (MOARD) in October, 2015

changed their positions and there is no system for technical transfer from the trained DAs to the newly assigned ones. For the newly assigned DAs, the research centers provide chances of technical transfer about the improved FRG activities. For the FRG members in the target area, they have maintained their skills on the agricultural activities including practice of the new and improved technologies through the FRG activities. Also, some of them became resource persons or leaders to share their experiences or to deliver training or technical support for other farmers. In addition, the non-FRG farmers with the technologies transferred by the FRG members have sustained their skills through continuous observation on changes of the FRG members and the FRG activities.

<Financial Aspect>

Although no data on specific budget for the FRG activities has been available, the total budget of MoANR increased from 5.4 billion ETBs in 2009 to 9.6 billion ETBs in 2016. Also, the budget of EIAR increased from 160.9 million ETBs in 2010 to 491.7 million ETBs in 2016. In addition, at the research center level, the budget for MARC, OARI, and ATARC have increased for the same period. In particular, the increase in the budget of OARI was noteworthy: 10.9 million ETBs in 2010 to 78.8 million ETBs in 2016. Those increases in the budgets have helped to maintain the FRG activities. It is expected that the increasing budget for the research centers will help to support the FRG activities since the FRG activities have been mainstreamed in the research activities.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional and technical 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 mostly achieved the three Overall Goals for better FRG approach contributing to improvement of agricultural production and livelihoods of farmers. The FRG approach and activities improved by the project have been mainstreamed in the government programs for agricultural extension services. As for sustainability, the numbers of researchers at MoARD and OARI to be engaged in the FRG related activities have not been sufficient and DAs in the target areas have not sustained necessary skills and knowledge on the improved FRG activities due to the lack of the technical transfer among DAs. As for efficiency, the project cost exceeded the plan due to the additional activities for preparation of the next phase of the project.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency: The linkage between FRG type of research activities and government extension service should be strengthened. For that, the two institutions should take the following actions:

- 1) The Extension Wing at MoANR should strengthen its collaboration with research centers by: disseminating the research outputs (techniques introduced by FRG approach) to other farmers, by using the FRG approach as one of extension method for dissemination of technologies, by utilizing extensions materials produced by the FRG project, establishing FRG focal point within the extension team.
- 2) Research Centers should strengthen their collaboration with Extension Wing at MoANR through: Joint planning, implementation and evaluation of the FRG related research activities, providing technical support on FRG approach for experts and farmers, sharing results of FRG related research outputs with extension team at MoANR, compiling and sharing the best practices and lessons learnt in FRG approach to extension.
- 3) Since FRG is a group extension approach and the government of Ethiopia is also promoting group or cluster approach, technology generation and problem identification per se need to focus on this approach beyond strengthening the linkage with MOANR. The approach is being sustained in practice and this shows there is a policy to use it as an approach.

Lessons learned for JICA:

The research activities of the project were relevant for the community activities to improve their income. The community appreciated the project because it had introduced some techniques which helped them to improve their income. The project involved farmers on planning process and farmers interest was considered for the designing of activities. As a result, the project brought about the sustainable FRG activities introduced by the project as well as the mainstreaming of the FRG approach in the government extension service. Therefore, involvement of farmers as the target beneficiaries in the project planning and designing process, including selection of research topics and identification of techniques for improving their income, should be a key for introduction and mainstreaming of effective and sustainable agricultural research and extension activities.



The house of the target FRG farmer before the project
in Anano Shisho Village, Adami Tulu Woreda



The house of the target FRG farmer after the project
in Anano Shisho Village, Adami Tulu Woreda

Country Name	Food Crop Diversification Support Project for Enhancement of Food Security
Republic of Zambia	

I. Project Outline

Background	Food shortages in Zambia resulted from high dependency on rain-fed cultivation where drought usually entailed a food crisis. This was particularly serious among small scale farmers, where prevalence of the monoculture of maize production (at the expense of crops tolerant to drought) exacerbates the impact of damages caused by adverse weather, in particular drought, on food situation. Since maize is susceptible to drought, compared to other crops, agricultural production can be dramatically low in case of short-term adverse weather conditions as well as longer term climate changes. Under these circumstances, the Government of Zambia requested the Government of Japan for a technical cooperation project to enhance multiplication and extension of crops resistant to drought as well as to increase of production and consumption of such crops by small scale farmers.													
Objectives of the Project	1. Overall Goal: Food security and income at household level are improved in target areas. 2. Project Purpose: Food crop diversification is realized in selected communities.													
Activities of the project	<p>1. Project site:</p> <p>(1) Foundation seed production sites: Mutanda Research Station (North Western Province), Mansa Research Station (Luapula Province)</p> <p>(2) Primary multiplication sites: Mount Makulu Research Station (Lusaka Province), Msekera Research Station (Eastern Province), Nanga Research Station (Southern Province)</p> <p>(3) District and community level: 8 districts in 4 provinces - Western Province (Sesheke District), Southern Province (Sinazongwe District and Siavonga District), Lusaka Province (Chongwe District and Luangwa District) and Eastern Province (Nyimba District, Petauke District and Mambwe District) (Among 8 districts above, there are two categories of activities (i) Development of district level secondary multiplication field at Farmer Training Institute at Chongwe, Petauke and Mambwe District) (ii) Extension (seed distribution and training) to farmers in all 8 districts</p> <p>2. Main activities: (1) The project establishes foundation, primary and secondary sites for multiplication of cassava and sweet potato planting materials, and produces and distributes planting materials at different levels. (2) The project establishes seed multiplication fields for alternative crops and supports their production through provision of seeds and training to farmers. (3) The project conducts training for extension officers and farmers on target food crops. (4) The project disseminates technologies for processing, preservation and utilization of target food crops.</p> <p>3. Inputs (to carry out above activities)</p> <table border="0"> <tr> <td>Japanese Side</td> <td>Zambian Side</td> </tr> <tr> <td>1. Experts: 5 persons</td> <td>1. Staff allocated: 5 persons</td> </tr> <tr> <td>2. Training in Japan:</td> <td>2. Land and facility: Project office and land for demonstration farm,</td> </tr> <tr> <td>3. Equipment: Pickup trucks, tractors, PCs and others</td> <td>3. Local cost: equipment</td> </tr> <tr> <td>4. Facilities: Installation and rehabilitation works of irrigation facilities were carried out at 6 sites (Mansa, Nanga, Mt. Makulu, Msekera, Masumba, Chalimbana) and new nurseries were set-up at one site (Nyimba).</td> <td></td> </tr> </table>				Japanese Side	Zambian Side	1. Experts: 5 persons	1. Staff allocated: 5 persons	2. Training in Japan:	2. Land and facility: Project office and land for demonstration farm,	3. Equipment: Pickup trucks, tractors, PCs and others	3. Local cost: equipment	4. Facilities: Installation and rehabilitation works of irrigation facilities were carried out at 6 sites (Mansa, Nanga, Mt. Makulu, Msekera, Masumba, Chalimbana) and new nurseries were set-up at one site (Nyimba).	
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Ex-Ante Evaluation	2006	Project Period	October 2006 –February, 2012 (Follow-up period: October 30, 2011-29 February, 2012)	Project Cost	(ex-ante) 250 million yen (actual) 287 million yen									
Implementing Agency	Implementing agency: Zambia Agricultural Research Institution (ZARI), Department of Agriculture (DOA) of Ministry of Agriculture and Cooperatives (MACO) (Currently, Ministry of Agriculture) *Implementing structure: (1) ZARI is responsible for overall project management and multiplication at foundation and primary multiplication sites. (2) DOA carries out extension services (from secondary multiplication to farmers) (Actual extension activities are carried out by District offices)													
Cooperation Agency in Japan	The Ministry of Foreign Affairs, The Ministry of Agriculture, Forestry and Fisheries													

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Zambia at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with Zambia's development policy both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, under National Agriculture Policy 2004-2015 and the Fifth National Development Plan (under preparation), food security at national and household level was prioritized and diversification of crops was regarded as the strategy to achieve the food security. At the time of project completion, the 6th National Development Plan 2011-2015 promoted development of an efficient, competitive sustainable agricultural sector which assures food security and increased income. It implied that the diversification of agricultural production is one of the strategies for achieving the sector's vision.</p> <p><Consistency with the Development Needs of Zambia at the time of ex-ante evaluation and project completion ></p>

The project was consistent with the needs for food security in Zambia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, Zambia was highly dependent on rain-fed cultivation which led to the food crisis during droughts. At the time of project completion, while experiencing good harvesting years, Zambian farmers, particularly small-scale farmers, were still facing a number of challenges such as growing crops without reliable irrigation, erratic and insufficient supply of farm inputs and underdeveloped rural infrastructure. As a result, the risk of food shortage still existed.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy as, according to the ODA Databook 2006, support for poverty reduction through primarily rural development was prioritized area of ODA to Zambia as of 2006.

<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 following indicators set to measure the project purpose were attained: Cultivation areas (ha) and production of target food crops are increased (indicator 1), Number of households planting target food crops is increased (indicator 2), Quantity of target food crops consumed by farmers and/or purchased by enterprises is increased (indicator 3) and Crop Diversification Index (CDI) value decreased (indicator 4).

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

Although district-wise data for most indicators were not obtained, according to the farmer interviews at four districts¹, project effects have continued after project completion to some extent. The observation by farmers was backed up by district officers. Generally, production of cassava, cowpeas and sweet potato have continued and increased, while production of beans and some sorghum variety did not increase. Beans were affected by droughts. As for sorghum, it was found that the red variety introduced by the project was not preferred and hence the production declined. Similar trends were observed among the number of households which grow the crops targeted under the project, and the consumption. However, situations differ by district for different crops. Production for cassava and sweet potato have increased in Chongwe, because the market is available; while some stagnation was found for these crops in Sesheke and Petauke largely due to limited market², as well as diseases and pests. Sesheke experienced some increase in white sorghum, sweet potatoes and cowpeas, for which demands were observed from Namibia. In the case of Sinazongwe, though there was some declining trend for beans due to droughts, there are some positive results as production and consumption of the crop continued albeit at low levels. However, cassava declined due to droughts and termite in the district. CDI suggests that the crops have been diversified; at the end-line survey the index was 0.65 in 2011, compared to 0.37 in 2009, suggesting improved diversification.

The foundation sites, whose activities were enhanced by the Project, have continued to produce cassava and sweet potato after the project completion. On the other hand, most secondary multiplication sites (district sites) were not functional due to limited funding. Training for the target crops have continued after the project ended, though at reduced rates due to limited funding.

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

The overall goal was partially achieved. The food security situation was reportedly having improved by 76 % of the farmers. They explained that the improvement was seen in the form of being able to eat three meals; improved diversity in the diet with protein rich foods like beans; better access to seed for food crop production and improved income through sales. The farmer survey shows that 78.9 % of the respondents reported that their income increased as the project linked farmer groups to buyers. Farmers and district officers observed that limited market access, poor rainfall patterns, disease and pests have, to some extent, affected the food security and income level in Sesheke and Sinazongwe.

The data on malnutrition was not readily available. However, in some place it was reported that nutrition for their children improved (e.g. access to proteins by consuming beans in Sinazongwe).

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

The Project did not have unforeseen adverse impacts. For example no land acquisition and resettlement occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

In light of the above, the project purpose was achieved at the time of project completion as food crop was diversified and diversification has continued to some extent after project completion. Overall goal was partially achieved as food security and income have improved. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results				
(Project Purpose) Food crop diversification is realized in selected communities.	Indicator 1: Cultivation areas (ha) and production of target food crops are increased.	Status of the achievement: achieved (partially continued)				
		(Terminal evaluation)				
		Crops	2009 (n=318)		2011 (n=280)	
			% of Grower	Average area (ha)	% of Grower	Average area (ha)
		Cassava	2.5	0.01	46.4	0.22

¹ During the ex-post evaluation survey, site visits were carried out at community level multiplication sites in four districts (Petauke in Eastern Province, Chongwe in Lusaka Province, Sinazongwe in Southern Province and Sesheke in Western Province). Chipata (Msekera Research Station) and Mambwe (Technical Assessment Site) were also visited.

² Initially, the market was facilitated by the project in Petauke, however, the market growth has not been sustained.

Sweet potato	7.2	0.02	26.1	0.07
Sorghum	13.8	0.12	15.4	0.07
Rice	0.6	0.00	2.5	0.01
Beans	7.9	0.02	6.1	0.02

(Ex-post Evaluation)

Cassava

District	Average Areas and production	2013	2014	2015
Sesheke (n=11)	Area (ha)	0.18	0.07	0.02
	Production (50kg Bag)	2.6	1.1	0.6
Chongwe (n=7)	Area (ha)	0.27	0.19	0.34
	Production (50kg Bag)	11.0	10.7	13.1
Petauke (n=9)	Area (ha)	0.41	0.41	0.37
	Production (50kg Bag)	29.2	25.7	18.4

Note: During the project implementation, the number of beneficiaries who planted cassava was minimal in Sinazongwe.

Sweet Potato*

District	Average Areas and production	2013	2014	2015
Sesheke (n=11)	Area (ha)	0.3	0.2	0.2
	Production (50kg Bag)	5.5	3.7	4.9
Chongwe (n=7)	Area (ha)	0.1	0.3	0.4
	Production (50kg Bag)	11.1	20.0	15.1
Petauke (n=9)	Area (ha)	0.03	0.03	0.03
	Production (50kg Bag)	1.11	0.89	0.78

* The camp visited in Sinanzongwe was not the target for Sweet Potatoes vines. However, the assessment from the District Agriculture Coordinator (DACO) indicated that there was an increase of sweet potato production and consumption in the district.

Beans/cowpeas

District	Average Areas and production	2013	2014	2015
Sesheke (n=11)	Area (ha)	0.14	0.16	0.12
	Production (50kg Bag)	22.8	8.55	8.52
Sinazongwe (n=11)	Area (ha)	0.18	0.20	0.17
	Production (50kg Bag)	18.40	14.60	15.50

Sorghum

District	Average Areas and production	2013	2014	2015
Sesheke (n=11)	Area (ha)	0.01	0.01	0.03
	Production (50kg Bag)	0.0	0.0	0.14

Note: For other districts there were no data on sorghum in the selected camps.

The assessment by the District Agriculture Coordinator revealed that Sorghum production and consumption declined in Chongwe, Nyimba and Petauke despite seed having been distributed by the project. According to one of the implementing counterparts, sorghum was not culturally popular in the Eastern part of Zambia (Chongwe, Petauke, and Nyimba) and hence the declining trend. In Sesheke, the district assessment shows that the production of white sorghum increased whereas the red sorghum distributed to farmers declined due to limited market/demand. Our observation in the field also revealed a lot of white sorghum in Sesheke. In Sinazongwe, the camp visited received no sorghum; however, the district picture assessed by the DACO's projected an increase of sorghum.

Indicator 2: Number of households planting target food crops is increased.

Status of the achievement: achieved (partially continued)

(Project completion)

Beneficiary No. of households by Crop

(Unit: Household)

	Cassava (7 districts)	Sweet potato (8 districts)	Sorghum (7 districts)	Beans (5 districts)

No. of beneficiaries	2,417	1,660	3,200	681
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(Ex-post Evaluation)

Average number of growers in Sesheke, Chongwe and Petauke

(Unit: Household)

	2013	2014	2015
Cassava	2,454	4,031	2,617
Sweet Potato	253	415	333
Beans/Cowpeas	900	1,563	1,087
Sorghum	2,358	3,975	2,748
Rice	8	13	8

Note: the average was based on data provided by the District Agriculture Officers. The quantitative data was not provided by Sinazongwe.

Indicator 3: Quantity of target food crops consumed by farmers and/or purchased by enterprises is increased

Status of the achievement: achieved (Partially Continued, although declining for some crops such as sorghum in Eastern part and red sorghum in Sesheke)

(Terminal evaluation)

Statistics were not available; however, the following events show that quantity of target food crops consumed by farmers and/or purchased by enterprises is increased.

- According to interviews with farmers in the target areas, they are now consuming more of the target food crops, especially cassava and sweet potato.
- Local farming households and a NGO started to buy products from one of the beneficiary farmers in Sesheke; they bought 20 bundles of cassava.
- A beneficiary in Siavonga has established a link with a food company.
- A women association in Chongwe has started processing cassava at the plant and selling products to local traders

(Ex-post Evaluation)

Percentage of those that observed increase in consumption

(Unit:%)

District	Cassava	Sweet Potato	Beans/ Cowpea	Sorghum	Rice
Sesheke (n=11)	54.5	81.8	81.8	45.5	9.1
Chongwe (n=7)	100.0	85.7	28.6	0.0	0.0
Petauke (n=9)	33.3	0.0	0.0	0.0	0.0
Sinazongwe (n=11)	0.0	0.0	72.7	0.0	0.0
Overall (n=38)	42.1	39.5	50.0	13.2	2.6

Source: Farmer survey, 2016

The data on the assessment on consumption were also compiled from the DACOs.

Generally the data by the DACO and that from farmers tallied. In few cases of discrepancy, this could be explained by some micro-geographical variations of the selected camps, compared to the overall picture seen by the DACO. Camps could have micro and specific situations which do not represent the full picture.

Differences are evident in Sesheke with respect to sweet potatoes, where 81 % of the farmers observe an increase while the DACO noted a decline. Another situation is Sinazongwe where the DACO saw an increase, while farmers in Sinadabbwe camp saw no change (justifiably so) because they did not participate in this crop under the project.

Indicator 4: Crop Diversification Index value decreased.

Status of the achievement: achieved (partially continued)

(Terminal evaluation)

Data source	CDI (Beneficiary)	CDI (Non-beneficiary)	Deviation
2009 baseline	0.79	0.70	-0.09

		2011 end-line	0.65	0.69	+0.04
		Change	-0.14	-0.01	
		The reduction in CDI value suggests a progress in diversification; the lower the index, the higher the diversification *CDI was calculated based on the two year average area planted.			
		(Ex-post Evaluation)			
			2013	2014	2015
		CDI	0.38	0.34	0.37
		As the data source for the Ex-post evaluation is different from that for the terminal evaluation, it is difficult to make a simple comparison between them. However, we could say CDI has improved as the CDI at the ex-post evaluation alone shows the declining trend. (2013-2015).			
(Overall goal) Food security and income at household level are improved in target areas.	Indicator 1: Number of households in the target areas which are food insecure reduced.	(Ex-post Evaluation) partially achieved Number and percentage of those who report food security improved.			
		District	Number	Percentage (%)	
		Sesheke (n=11)	7	63.6	
		Chongwe (n=7)	7	100	
		Petauke (n=9)	9	100	
		Sinazongwe (n=11)	6	54.5	
		Total (n=38)	29	76.3	
	Indicator 2: Number of people classified as malnourished reduced.	(Ex-post Evaluation) partially achieved No data was available for the malnutrition. However, in some place (Sinazongwe), it was reported that nutrition for their children improved. In Petauke it was also reported that food availability improved, implying improved security.			
	Indicator 3: Household income level is improved in target areas.	(Ex-post Evaluation) partially achieved Number and percentage of those who report income improved.			
		District	Number	Percentage (%)	
		Sesheke (n=11)	6	54.5	
		Chongwe (n=7)	7	100	
		Petauke (n=9)	9	100	
		Sinazongwe (n=11)	8	72.7	
		Total (n=38)	30	78.9	

Source : JICA internal documents, questionnaires and interviews with counterparts, and farmer survey.

3 Efficiency

Both project period and project cost slightly exceeded the plan (ratio against the plan: 115% and 107% respectively). The follow up was implemented in order to provide the bridging backstopping activities towards the development for the successor project, Food Crop Diversification Project focusing on Rice Production (2012- 2015) .

Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

There are established policies which secure the effects of the project to continue. The Revised Sixth Development Plan (2013-2016) prioritizes the diversification of crops.

<Institutional Aspect>

Roles and responsibilities for seed multiplication, distribution and extension are adequately assigned within ZARI and DOA respectively, and demarcation among these organizations is also clear. ZARI is basically responsible for multiplication and DOA is responsible for distribution and extension. At ZARI, Crop Improvement and Agronomy division is responsible for seed multiplication, while the Farming Systems Research and Social Sciences Division is responsible for trying out the technologies at the farm level. At DOA, Agriculture Extension provides advice to farmers on how to grow crops. They are spread in all districts with the Senior Agriculture Officer heading extension services at the district. The sub district level is broken down into blocks and then camps. The extension officers that provide advice to farmers in agricultural camps (the smallest unit for extension). The number of staff at ZARI is sufficient. According to ZARI, the number of research staff increased after the project completion; Diploma and Degree holders increased from 232 in 2013 to 255 in 2016.

The number of staff is insufficient as some camps were not filled up; according to discussions with a senior officer (at least Deputy Director) the Department requires approximately 1,700 staff but only 1,350 (or 79.4%) were in place. The situation was confirmed with the DOA district offices, among the five districts visited, three districts indicated the number is sufficient as they had staff in all camps, on the other hand, the other two districts did not have extension staff in all camps. On the positive side, the department indicated that the situation of staffing had improved compared to the time of the project completion because some staff had been employed. The complete filling of the gap was hampered by funding shortages.

<Technical Aspect>

Staff in DOA and ZARI are generally well trained and manuals developed by the project are well utilized and on demand. As to

extension officers, training in cultivation of specific aspects needs to be implemented, as some officers were not familiar with disease control for the target crops. Failure to identify and control diseases could jeopardize the continued growing of the crops. There is no regular training for extension staff due to the budget limitations. At the time of the Ex-post Evaluation it was found that the Department had requested Cabinet Office to employ a Principal Seed Officer to spearhead the seed distribution and extension activities, with a view to further enhance the technical capacity of the Department. The project produced manuals for rice, cassava, beans and sweet potato production which are still being utilized. The Ministry was in the process of updating some of the manuals in August 2016, with support from the Smallholder Productivity Promotion Project (S3P) under funding of International Fund for Agricultural Development (IFAD).

<Financial Aspect>

Financing for seed multiplication by the government is not only short but unpredictable. Only 20% of the approved budget was disbursed to ZARI in 2015 and budget released to DOA in each year is estimated to be 30-40% of the approved amount. However, the continued implementation has been complemented through the support from other the development partners such as International Institute of Tropical Agriculture (IITA), USAID and Food and Agriculture Organization (FAO).

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional, technical and financial aspects. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project purpose was achieved at the time of project completion as food crop was diversified and diversification have continued to some extent after project completion. Overall goal was partially achieved as food security and income have improved. As for sustainability, there are some challenges in the institutional, technical and financial aspects. For efficiency, both project period and 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:

1. The Ministry of Agriculture should continue to print manuals of the crops that were promoted (Cassava, Sweet potatoes, Sorghum, Beans/Cowpeas and Rice) to be distributed in camps where farmers are growing the crops.
2. The Ministry of Agriculture should address some aspects of sustainability such as budgeting or mobilizing financial resources to train farmers and ensuring that trained staff are available in all project camps.
3. The Ministry of Agriculture should have plans for replacing planting materials over time to address the possible declining potency of seed at farmer level from time to time say after 5 years; whereas the materials were available at farmer level, most secondary sites (district) were non-functional. This means that if materials diminished at farmer level due to disease, pests and loss of potency, the project effects could be jeopardized.

Lessons learned for JICA:

1. It is important to ensure access to sustainable market linkages for sustained growing of crops in the design as we promote diversification. The market has been important in sustaining growing of cowpeas and sorghum in Sesheke; and cassava and sweet potatoes in Chongwe.
2. It is important to first try out many crops/varieties and then identify those that are acceptable to the communities before promoting diversification. Although red sorghum was promoted under the project, it was abandoned as it was not as popular as the white sorghum.
3. When implementing similar projects at the multiplication of seed, there is need to build staff capacity for disease and pest identification for continuous inspection of seed for disease and pests to ensure that quality planting materials are distributed sustainably. There should be an in-service training programme for Camp Extension staff in identification of Pest and Diseases, as well as the control measures.
4. Capacity also needs to be built in disease and pest identification among farmers who receive materials. Given that beneficiary farmers were expected to share or pass-on materials to others in their areas, the training will mitigate the danger of the farmers disseminating materials that are contaminated with diseases and pests.



Mr. Chimbamulonga, farmer cassava seed (stem cutting) producer in Mambwe: Continued seed multiplication at farmer level.



Ms. Beatrice Mufwabi showing her newly planted cassava in Sesheke District. The seed is near the household to control animal destruction.

Country Name	Project for Sustainable Water Supply, Sanitation and Hygiene Promotion in Zambézia Province
Republic of Mozambique	

I. Project Outline

Background	<p>Zambézia Province was the most populous province in Mozambique; nevertheless, social infrastructure was under developed. The average rate of the access to safe water in Zambézia was 28%, which was largely lower than the national average of 43% (UNDP, 2004). Also the under-five mortality rate in Zambézia was 321 per 1,000 live births. To improve this situation, about 150 deep wells with hand pumps were constructed in the northern part of Zambézia under a Japanese grant aid project, which contributed to provide facilities for safe water in eight target districts. However, it was realized that the capacity enhancement of communities to operate and maintain borehole is necessary to increase sustainable use of safe water. Under this context, sanitation infrastructure, improvement in hygiene practices, and awareness rising should be implemented in the appropriate manner to maximize the effectiveness of health status of the population in target areas.</p>											
Objectives of the Project	<p>This project aims to realize sustainable water use of existing water supply facilities constructed by Japanese Grant Aid, and improve sanitation and hygiene practice in the four target districts of Zambézia Province through the capacity development of provincial and district officers and strengthening the operation and maintenance (O&M) capacity of local communities, thereby, contributing to increase the number of functioning water supply facilities and reduce water borne disease incidence in the target districts. The project objective is set forth as follows.</p>											
	<ol style="list-style-type: none"> Overall Goal: (i) Water borne diseases incidence at target communities in the four districts in Zambézia Province are reduced, (ii) The number of functioning water supply facilities is increased in the four target districts in Zambézia Province. Project Purpose: Sustainable water use of existing water supply facilities and sanitation and hygiene practice are improved in the four target districts. 											
Activities of the project	<ol style="list-style-type: none"> Project site: <ol style="list-style-type: none"> Target district: 4 districts (Mocuba, Ile, Gile, Alto-Molocue) in Zambézia Province Target communities: 20 communities (4 in Mocuba, 6 in Ile, 4 in Gile, 6 in Alto-Molocue) Target school: 15 schools (4 in Mocuba, 3 in Ile, 4 in Gile, 4 in Alto-Molocue) Main activities: Provision of training to provincial and district officers, Participatory Community Education (PEC) animators ^(Note 1), communities and local mechanics on O&M of water supply facilities, hygiene promotion activities, establishment of models of supply chain network of spare parts, and construction of sanitation facilities (latrine) in the target schools. <p>(Note 1) PEC animators (Programa de Educação Comunitária (Program of Community Education)) are employed on contract basis by the provincial governments for capacity building of Water and Sanitation Management Committees, Maintenance Group and hygiene promoters as well as schools regarding O&M of water supply facilities and promotion of hygiene and sanitation education. PEC animators are employed from private companies and local NGOs.</p> Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Mozambique's side</td> </tr> <tr> <td>1) Dispatch of experts: 5 persons</td> <td>1) Counterpart personnel: 39 persons</td> </tr> <tr> <td>2) Acceptance of trainees in Mozambique and Brazil: Total 13 persons (2 in 2008, 2 in 2009, 9 in 2010)</td> <td>2) Land and facilities: project office</td> </tr> <tr> <td>3) Provision of equipment: Vehicle, motorcycle, survey equipment, office equipment</td> <td>3) Local cost: allocation of counterpart personnel, operation and maintenance expense for motorcycle for monitoring activities.</td> </tr> </table> 				Japanese Side	Mozambique's side	1) Dispatch of experts: 5 persons	1) Counterpart personnel: 39 persons	2) Acceptance of trainees in Mozambique and Brazil: Total 13 persons (2 in 2008, 2 in 2009, 9 in 2010)	2) Land and facilities: project office	3) Provision of equipment: Vehicle, motorcycle, survey equipment, office equipment	3) Local cost: allocation of counterpart personnel, operation and maintenance expense for motorcycle for monitoring activities.
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Ex-Ante Evaluation	2006	Project Period	February 2007 – July 2011	Project Cost	(Ex-Ante) 450 million yen (Actual) 382.6 million yen							
Implementing Agency	National Directorate of Water (DNA), Ministry of Public Works and Housing Department of Water and Sanitation (DAS), Provincial Directorate of Public Works and Housing (DPOPH) - Zambézia											
Cooperation Agency in Japan	None											

II. Result of the Evaluation

<Issues to be considered at ex-post evaluation>

Sub-indicators for Project Purpose

- In order to supplement the original indicators of project outputs and project purpose stated in the Project Design Matrix (PDM), the terminal evaluation set sub-indicators and utilized them to assess the achievement of outputs and the project purpose. The sub-indicators utilized in the terminal evaluation were not reflected to the latest PDM (PDM Ver5). Based on the above fact, this ex-post evaluation used the same sub-indicators for examining the achievement of the project purpose in order to supplement the indicators contained in the PDM.

1 Relevance

<Consistency with Development Policy of Mozambican Government at the time of ex-ante evaluation and the project completion>

This project was consistent with Mozambique's development policy "to improve the average water supply ration" as set forth in the

policy documents including the Action Plan for the Reduction of Absolute Poverty II (2006-2009), the National Water Policy (2007), and the Strategic Plan of Rural Water Supply and Sanitation (PRONASAR) (2006-2015).

<Consistency with Development Needs of Mozambique at the time of ex-ante evaluation and the project completion>

This project met the development needs of Mozambique to improve health status as well as to improve the accessibility of safe water and to decrease the child mortality rate of population in communities in the country.

<Consistency with Japan's ODA Policy for Mozambique at the time of ex-ante evaluation>

The project was consistent with Japan's ODA Policy for Mozambique at the time of 2006 addressing the development of social sector (basic human needs and basic infrastructure) including education, health and medical, water supply and hygiene, and road and bridge as one of the priority areas.

<Evaluation Results>

In the light of above, the relevance of this 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. The key indicators such as (i) the percentage of households using potable water sources for drinking water, (ii) the percentage of households practicing appropriate hand washing, (iii) the percentage of households using sanitary latrine and (iv) the percentage of people practicing hand washing with running water after defecation achieved or mostly their respective target values in the four target districts by the project completion (see the table below for detailed information). For example, the percentage of households using potable water sources for drinking water increased in the four districts and mostly achieved the target values in 2011. In the entire four districts, the percentage of households practicing appropriate hand washing increased from 5.5% in 2007 to 48.0% in 2011, and the percentage of households using sanitary latrine increased from 31.3% in 2007 to 60.6% in 2011. Regarding the percentage of the target communities in which households use potable water sources for drinking water, the target was achieved in the four target districts. One of the reasons why some communities did not use potable water sources for drinking was that a distance from home to the water source of the project facilities was longer than the distance from home to the alternative water sources nearby such as river or hand dug wells.

<Continuation Status of the Project Effect at the time of ex-post evaluation>

The five key indicators for project purpose have shown the constant improvement in the target four districts after project completion. For example, in the entire target four districts in 2013, 60% of the households practiced appropriate hand washing and 70% of the households used sanitary latrine. Focusing on 20 target communities in the four districts, more than 80% of the target communities confirmed that households use potable water sources for drinking water in their communities in 2013. In addition, the percentage of people practicing hand washing with running water after defecation reached more than 90% in 2013 in the four target districts. The main reason for the above positive results is that the campaign for community awareness on hygiene good practices including PEC activities has been implemented continuously under PRONASAR.

<Status of Achievement of the Overall Goal at the time of ex-post evaluation>

The overall goal has been achieved. The percentage of people affected by diarrheal diseases in all four target districts reduced from 17.1% in 2007 to 6.0% in 2013 and reached the target values in all the four target districts by 2013. The number of functional water supply facilities has increased significantly as result of PRONASAR and projects of other donors such as African Development Bank (AFDB) despite the problem of acquisition of spare parts. As the percentage of functional water supply facilities increased by 29-45 percent point between 2008 and 2014 in each target district, it was confirmed that 88% of water supply facilities are operational in the entire target four districts in 2014, which met the target value. However, there is a small number of obsolete water facility equipment corresponding to 1 to 3% of the total number of facilities due to their lifetime. On the other hand, it was found that there was some limitation of the local residents' knowledge regarding safe measures to avoid water contamination in their house. Although the hygiene education was included in the PEC activities, most of the households still did not adequately cover their water containers to avoid contamination by flies, dust and other particles or microbes, and also they did not have appropriate latrine cover or in some cases there was no cover at all. Natural disasters such as flood and the condition of existing primary healthcare services in the target districts have not affected the realization of the overall goal.

<Other Positive and Negative Impacts>

The project has contributed in dissemination of PEC activities to other areas. After the project completion, PEC activities have been carried out in all districts of the Zambézia Province using the knowledge and experiences of this project as well as experiences of other donors' projects¹. No negative impact on natural environment was observed and no land acquisition and resettlement of local residents occurred by the project.

<Evaluation Results>

Both the project purpose and overall goal were achieved and a positive impact was observed. Therefore, effectiveness/Impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results					
(Project Purpose) Sustainable water use of existing water supply facilities and sanitation and hygiene practice are improved in the four target district.	(Indicator 1) The percentage of households using potable water sources for drinking water increases from 45.0% and 27.5% in Mocuba and Ile respectively to 80%, and from 39.2% and 47.5% in Alto Molocue and Gile respectively to 70%	<u>Status of achievement: mostly achieved</u> (Terminal evaluation/Ex-post evaluation) (Unit: %)					
		Target district	Target (2011)	2007	2011	2012	2013
		All	N.A.	38.5	N.A.	N.A.	N.A.
		Mocuba	80	45.0	75.0	89.4	83.5
		Ile	80	27.5	50.0	67.0	75.0

¹ For example, a program called PEC-Zonal program was launched under PRONASAR-AFDB which aimed to cover 70 communities for each district. The activities of this program focused on raising awareness to the local communities in order to improve their operation and maintenance of water sources as well as their hygiene conditions.

	in both of rainy and dry seasons by 2011.	<table border="1"> <tr> <td>Alto Molocue</td> <td>70</td> <td>39.2</td> <td>78.0</td> <td>80.0</td> <td>90.0</td> </tr> <tr> <td>Gile</td> <td>70</td> <td>47.5</td> <td>68.0</td> <td>76.0</td> <td>83.0</td> </tr> </table>	Alto Molocue	70	39.2	78.0	80.0	90.0	Gile	70	47.5	68.0	76.0	83.0																														
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	(Indicator 2) The percentage of households practicing appropriate hand washing increases from 3.8% and 2.5% in Mocuba and Ile respectively to 40%, and from 12.5% and 1.3% in Alto Molocue and Gile respectively to 30% by 2011.	<p>Status of achievement: achieved (Terminal evaluation/Ex-post evaluation) (Unit: %)</p> <table border="1"> <thead> <tr> <th>Target district</th> <th>Target (2011)</th> <th>2007</th> <th>2011</th> <th>2012</th> <th>2013</th> </tr> </thead> <tbody> <tr> <td>All</td> <td>N.A.</td> <td>5.5</td> <td>48.0</td> <td>53.0</td> <td>60.0</td> </tr> <tr> <td>Mocuba</td> <td>40</td> <td>3.8</td> <td>43.0</td> <td>48.5</td> <td>55.0</td> </tr> <tr> <td>Ile</td> <td>40</td> <td>2.5</td> <td>52.0</td> <td>59.7</td> <td>62.0</td> </tr> <tr> <td>Alto Molocue</td> <td>30</td> <td>12.5</td> <td>41.3</td> <td>50.0</td> <td>57.1</td> </tr> <tr> <td>Gile</td> <td>30</td> <td>1.3</td> <td>58.0</td> <td>60.0</td> <td>66.2</td> </tr> </tbody> </table>	Target district	Target (2011)	2007	2011	2012	2013	All	N.A.	5.5	48.0	53.0	60.0	Mocuba	40	3.8	43.0	48.5	55.0	Ile	40	2.5	52.0	59.7	62.0	Alto Molocue	30	12.5	41.3	50.0	57.1	Gile	30	1.3	58.0	60.0	66.2						
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(Overall goal) (i) Water borne disease incidence at target communities in the four districts in Zambézia Province are reduced, (ii) the number of functioning water supply facilities is increased in the four target districts in Zambézia Province.	(Indicator 1) The percentage of persons affected by diarrheal diseases decreases from 17.1% to 10% in the target communities by 2014.	<p>Status of achievement: achieved (Ex-post Evaluation) (Unit: %)</p> <table border="1"> <thead> <tr> <th>Target district</th> <th>Target (2014)</th> <th>Base line (2007)</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>All</td> <td>10</td> <td>17.1</td> <td>8.6</td> <td>7.0</td> <td>6.0</td> <td>N/A</td> </tr> <tr> <td>Mocuba</td> <td>10</td> <td>27.7</td> <td>13.0</td> <td>8.5</td> <td>7.0</td> <td>N/A</td> </tr> <tr> <td>Ile</td> <td>10</td> <td>15.2</td> <td>11.0</td> <td>6.2</td> <td>4.7</td> <td>N/A</td> </tr> <tr> <td>Alto Molocue</td> <td>10</td> <td>15.7</td> <td>4.5</td> <td>7.0</td> <td>5.0</td> <td>N/A</td> </tr> <tr> <td>Gile</td> <td>10</td> <td>12.2</td> <td>6.8</td> <td>6.0</td> <td>9.3</td> <td>N/A</td> </tr> </tbody> </table>	Target district	Target (2014)	Base line (2007)	2011	2012	2013	2014	All	10	17.1	8.6	7.0	6.0	N/A	Mocuba	10	27.7	13.0	8.5	7.0	N/A	Ile	10	15.2	11.0	6.2	4.7	N/A	Alto Molocue	10	15.7	4.5	7.0	5.0	N/A	Gile	10	12.2	6.8	6.0	9.3	N/A
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Source: Terminal evaluation report, interview with counterparts.

3 Efficiency

Both the project cost and project period were within the plan (85% and 100%), and activities of the project were also completed. Therefore, efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The Government of Mozambique has continued to support the sustainable use of all water supply facilities and improving the hygiene and sanitation under PRONASAR together with the assistant of AFDB.

<Institutional Aspect>

(1) O&M of water supply facilities

Three parties such as district government, community and local mechanics are responsible for O&M of water supply facilities. District Services of Planning Infrastructure (SDPI) of the target four districts is in charge of monitoring and maintenance of water supply facilities by local mechanics. Each community is responsible for minor repair and replacement of consumable items of water supply facilities. In addition, the local mechanics support the community for repair of water supply facilities including arrangement of spare parts. The number of district government officers who engage in monitoring of O&M of water supply facilities (Mocuba: 4, Ile: 2, Alto Molocue: 6, Gile: 2) is limited in order to cover the huge extension of the province and the large number of communities in the target area. At community level, Water and Sanitation Management Committees and Maintenance Group were established at target 20 communities for maintenance of the facilities. They are in charge of regular cleaning, instructing users to respect the rule, collection of contribution for maintenance, bookkeeping, holding regular meeting with the users, sharing information about maintenance funds, etc. The number of local mechanics is sufficient at all communities as there are 10-12 mechanics at each district.

(2) Sensitization of hygiene and sanitation practices

Regarding the sensitization of hygiene and sanitation practices, the works are conducted by PEC animators who are employed by Department of Water and Sanitation, Provincial Directorate of Public Works and Housing (DAS/DPOPH) of Zambézia Province, and SDPI of the target four districts monitors the sensitization activities implemented by PEC animators. The sensitization activities are mostly about hygiene practices such as appropriate use of toilets and hand wash. The frequency of activities depends on the availability of the allocated budget. At the time of ex-post evaluation, PEC animators have been employed continuously by the provincial government.

(3) Supply chain network of spare parts

The project established the model of supply chain networks and identified local mechanics to whom technical training was provided. In this model, the stocks of spare parts were to be stored at each of the maintenance group, local mechanic and district government office. However, the above supply chain network did not work as expected because the salesmen who committed to supply the spare parts stopped the spare parts business due to its low profitability and embraced more profitable items. This resulted in difficulties in procurement of spare parts to be imported from neighboring countries. With respect to this issue, the district governments together with the central government and development partners including JICA have been studying the best mechanism to establish a spare part supply chain in referring to the good practice in other countries. Currently, JICA has been implementing a technical cooperation project for “Promoting Sustainability in Rural Water Supply, Hygiene and Sanitation in Niassa Province (PROSUAS) (2013-2017)”. In this project, the structure of spare parts supply chain is proposed, in which donors and cooperation partners are responsible for the acquisition/supply of spare parts stock to the central government, instead of the local mechanics and salesman who prioritize profits. This new mechanism is expected to mitigate the issue of securing supply of the spare parts.

<Technical Aspect>

The government officers of the three target districts such as Ile, Alto Molocue, and Gile districts visit the target communities once a month for monitoring of O&M of water supply facilities and hygiene promotion activities, but Mocuba district discontinued the monitoring activities by the time of ex-post evaluation. Due to limited number of staff and shortage of means of transportation, the monitoring activities have not been conducted in appropriate timing, and sometimes the governments of the target districts are unable to make an effective intervention to solve the problem of the local communities. The members of Water and Sanitation Management Committee and Maintenance Group maintain the sufficient knowledge and skills for minor repair of water supply facilities by mutual learning among members. While the knowledge and skills of the local mechanics are insufficient due to the fact that the training sessions that they initially attend only taught how to fix the most common and frequent damages and did not include the subjects on how to encounter more complex and new types of damages. The promotion of hygiene and education activities in the target schools are being done through the creation of hygiene groups which include students of 3rd, 4th and 5th grades. Several training program have been provided for the government offices as well as Water and Sanitation Management Committee members and local mechanics to maintain and upgrade the knowledge and technical skills for monitoring and O&M of water supply facilities. The manuals for water sources maintenance prepared by the project are being utilized.

<Financial Aspect>

Although no quantitative data for the annual budget of district and provincial government was available, it was confirmed that there is no sufficient budget for monitoring and maintenance of water supply facilities provided by the government except the budget for PEC activities. This resulted in the shortage of government staff and transport, etc. Though local communities have established a stable revenue source from annual user fee (average of annual user fee of 20 communities: MZN 2,602/year²) and utilized it for minor repair of the facilities, they still face difficulties in procurement of spare parts due to non-functional supply chain network. Regarding the shortage of government budget, the Government of Mozambique is requesting the financial support to the development partners.

<Evaluation Results>

Some problems have been observed in institutional and technical aspects and major problems were identified in financial aspect. Therefore, sustainability of the project is low.

5 Summary of the Evaluation

This project has achieved the project purpose and overall goal. The five indicators for project purpose either achieved or mostly achieved their respective target values in the four target districts by project completion. After the project completion, the above five key indicators have shown the constant improvement mainly because the campaign for community awareness on good hygienic practices including PEC activities has been implemented continuously. The percentage of people affected by diarrheal diseases in the target communities decreased to 4.7-9.3% and reached the target value of 10% in all four target districts by 2013. The number of functional water supply facilities has increased significantly and 88% of water supply facilities were operational in 2014 as a result of PRONASAR and other donors' projects. The project has contributed on dissemination of PEC activities to other areas.

Regarding sustainability, there are some problems in institutional, technical and financial aspects due to shortage of district government staff, malfunction of supply chain networks of spare parts, insufficient technical capacity of local mechanics, and shortage of budget.

In the light of above, this project is evaluated to be satisfactory.

² 1 Mozambique Metical (MZN) = JPY 2.363 (As of March 2016).

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- It is recommended to undertake the following measures in order to ensure the sustainability of the project:
 - a) As there is a need to increase the number of monitoring visits to the communities to avoid the reduction on their performance, it is necessary to allocate sufficient budget to the Zambézia Provinces and the target districts for the monitoring and O&M of the water supply facilities including the cost for employment of PEC animators and transport cost as well as to increase the number of the government staff who are in charge of the above monitoring activities.
 - b) As there is a need to upgrade the technical capacity of local mechanics, it is necessary to implement periodical trainings for the local mechanics which should include the subjects on how to encounter more complex and new types of damages of water supply facilities.
 - c) It is recommended to introduce the best mechanism to establish a spare parts supply chain in referring to the good practice in other countries in collaboration with the district governments and development partners. In this respect, it is expected to exchange the information with the on-going JICA technical cooperation project PROSUAS and learn their experiences and outcomes regarding development of new spare parts supply chain mechanism proposed by the project.

Lessons learned for JICA

- Given the limitation of the district governments to conduct frequent monitoring activities due to the lack of human and financial resources, it is recommended that JICA discuss with the counterparts and define a suitable monitoring approach at the beginning of the project to avoid the abandonment of good practices by the community members.
- It was identified that the establishment of payment sheets for water source maintenance proved an efficient method to record the most frequent breakdown and statistic data in this project. Apart from that, other practices are already in use in many different communities. Therefore, at the beginning of similar projects, it is proposed that JICA discuss with the counterparts a standard model of an efficient monitoring sheet to facilitate data collection on incidences of malfunctions and conditions of water sources.



Water supply facility provided by the Japanese grant aid project in Vacha Community, Alto Molocue



Water and Sanitation Management Committee members (on the right) in Macuelia Community, Ile district



Hygiene group and the Director of Nampevo Primary School in Ile district

Country Name	Project on Capacity Development in Disaster Management												
Kingdom of Thailand													
I. Project Outline													
Background	<p>The Indian Ocean tsunami in December 2004 caused serious damage to Thailand. Under this circumstance, the Government of Thailand requested a technical cooperation project to Japanese government in 2006. It intended to strengthen the capacity of disaster management of the Department of Disaster Prevention and Mitigation (DDPM) of the central government, as well as the capacity of disaster management of the local government and communities.</p> <p>The Government of Thailand (Ministry of Education ; MOE) also focused its attention on the role of schools which can activate disaster preparedness programs at provincial and community levels and requested a technical cooperation project for school-based education for disaster preparedness. Thus, the Japanese government decided to conduct technical cooperation project combining two requests, aiming high efficiency and synergistic effect.</p>												
Objectives of the Project	<p>By (i) developing GIS database and hazard maps for two of the pilot provinces (Mae Hong Sorn, and Chumporn) for disaster management information collection and utilization, (ii) supporting DDPM to formulate “White Paper” and National Disaster Prevention and Mitigation Plan, and (iii) developing e-learning materials and formulating master plan on natural disaster of Disaster Prevention and Mitigation Academy (DPMA), the project aimed at enhancing capacity of DDPM (Project purpose 1 level) to thereby contribute to that DDPM becomes able to grasp situation and problems regarding disaster management and take or promote necessary countermeasures in cooperation with related organizations (Overall goal level).</p> <p>The project also aimed at enhancing capacity of local disaster management administration in three pilot sites and improving people’s capacity for disaster management (Project purpose 2 level) by (iv) supporting mainly two pilot project areas (Mae Hong Sorn, and Chumporn)¹ to develop community-based early warning system and mainly Community Based Disaster Risk Management (CBDRM), and (v) developing training curricula for teachers on disaster preparedness etc., to thereby contribute to improving disaster management administration and capacity of disaster management of community at other areas (Overall goal level).</p> <p>The project objectives set forth are as follows:</p>												
	<ol style="list-style-type: none"> Overall Goal: To enhance the capacity for disaster risk management against future disasters at central, provincial, district and community levels in Thailand. Project Purpose : (1) Capacity of DDPM is enhanced as a principal national government agency to carry out the tasks and responsibilities of disaster management, (2) People’s capacity for disaster management is improved through the enhancement of national and local educational services, as well as strengthening the regional organizations of DDPM and MOE. 												
Activities of the Project	<ol style="list-style-type: none"> Project site (Pilot province): Phuket (Tsunami), Mae Hong Sorn (Landslide) and Chumporn (Flood). Main activities: <ul style="list-style-type: none"> (1) The project develops GIS database and hazard maps for Chumporn province and Mae Hong Sorn province for disaster management information collection and utilization, (2)The project supports DDPM to formulate “White Paper” and National Disaster Prevention and Mitigation Plan, (3) The project develops e-learning materials and formulating master plan on natural disaster of DPMA, (4) The project supports mainly 2 pilot project areas to develop community-based early warning system and CBDRM, and (5) The project develops training curricula for teachers on disaster preparedness, supplementary reading and teachers’ guide for flood, landslide and tsunami for model schools in pilot project areas. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Thai Side</td> </tr> <tr> <td>1. Experts: 25 persons</td> <td>1. Staff allocated: 94 persons</td> </tr> <tr> <td>2. Training in Japan: 23 persons</td> <td>2. Land and facilities: project offices at DDPM and Ministry of Education (MOE)</td> </tr> <tr> <td>3. Facilities and equipment: GIS software, transceiver, rain gauge and others</td> <td>3. Local cost: costs for travelling allowance for field surveys and training and workshops</td> </tr> </table> 					Japanese Side	Thai Side	1. Experts: 25 persons	1. Staff allocated: 94 persons	2. Training in Japan: 23 persons	2. Land and facilities: project offices at DDPM and Ministry of Education (MOE)	3. Facilities and equipment: GIS software, transceiver, rain gauge and others	3. Local cost: costs for travelling allowance for field surveys and training and workshops
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Ex-Ante Evaluation	2006	Project Period	August 2006-August 2008	Project Cost	260 million yen								
Implementing Agency	Department of Disaster Prevention and Mitigation (DDPM), Ministry of Education (MOE)												
Cooperation Agency in Japan	Earth System Science Co., Ltd.												

II. Result of the Evaluation**I Relevance**

<Consistency with the Development Policy of Thailand at the time of ex-ante and project completion>

The project was consistent with development policy of Thailand both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, National Disaster Management Strategic Plan for the year 2005 was drawn up to take measures for disaster management. At project completion, the 10th Socio Economic Development Plan of Thailand (2007-2011) indicated the necessity of the

¹ In Phuket province, Disaster Imagination Games (DIG) and some activities on CBDRM were conducted, but activities on community-based early warning system were not conducted as the warning system based on National Disaster Warning Center was already established in Phuket.

establishment of a natural disaster management and prevention system. In addition, National Education plan of MOE clearly states that education for disaster management should be promoted, especially in disaster-prone areas.

<Consistency with the Development Needs of Thailand at the time of ex-ante and project completion>

The project was consistent with the development needs of Thailand for disaster management as the tsunami in 2004 highlighted the needs for taking measures for disaster management. In accordance with the National Disaster Prevention and Mitigation Act of 2007, which stipulates that DDPM is a responsible core organization for disaster prevention and mitigation in Thailand, continuous capacity enhancement of DDPM was needed.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy, as after tsunami in 2004, a basic policy document "Cooperation plan for reconstruction after tsunami disaster in Thailand (draft)" was drawn up, and natural disasters was regarded as one of the areas for cooperation under Japan's Economic Cooperation Program for the Kingdom of Thailand (2006).

<Evaluation Result>

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

2 Effectiveness/Impact

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

The project purpose was achieved by the time of project completion, as the following indicators set to measure the project purpose were attained: (i) Disaster Management Annual Report "White Paper" is published, (ii) Village people know the appropriate response to emergency situation, and (iii) Workshops and lectures are conducted by teachers at each model school.

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

After the project completion, although there are project outputs which have not been directly continued after the completion of the project, such as publication of the annual White Paper, knowledge, skill, and knowhow transferred to DDPM during the project have been utilized to enhance the capacity of DDPM. Disaster Annual Reports which contain the techniques and content transferred have been issued by DDPM in cooperation with other concerned agency. Some of the outcomes of this project were also further improved and/or utilized during the implementation of the succeeding project (Phase II, 2010-2014) to enhance the capacity for disaster management of DDPM. For example, GIS database development has been applied in the pilot projects under the Phase II project.

The project has improved the capacity of the target people on disaster management. Disaster Prevention and Mitigation Provincial Offices (DPMPOs), Village Disaster Prevention Management Committees (VDPMs), and model schools of the pilot project areas recognized the benefits and have continued to utilize the methods/ tools/ activities introduced by the project after the project completion. For instance, DPMPO Chumphorn has conducted CBDRM at 206 of total 703 villages in the province by 6 resource persons of DPMPO who were involved with the project and also joined the training conducted by the Phase II project. In Phuket Province, DPMPO holds CBDRM trainings at least once a year. At school level, in Chumphorn and Mae Hong Sorn Provinces, workshops and lectures on disaster preparedness have been regularly conducted after project completion. School disaster education plans have been developed annually.

The community-based early warning system and VDPM are still functional in pilot provinces. However, in Mae Hong Sorn Province, both of two rain gauges provided by the project have not been utilized as the persons in charge (house owners where the gauges were installed) did not pay much attention, though the rain gauge is still an effective tool to monitor the flood risk, according to DPMPO.

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

Capacity for disaster risk management against future disasters has been enhanced at national, provincial/district, and community level through the development of disaster management plans, utilization of analytical and planning systems/methods/ tools, promotion of disaster preparedness education at schools, and other approaches. Outcomes of the phase I project have contributed to the achievements combined with the outcomes of the phase II project. For example, introduction of CBDRM and the table-top-exercise have been applied to develop the plans. However, the percentage of the communities with CBDRM accounts for approximately still 30% of communities with high disaster risk.

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

The positive impact was observed. Participatory and/or logical thinking process/tools, such as table-top-exercise, and Disaster Imagination Game (DIG), have provided chances to improve the capacity of each target group of the project beyond the disaster management issue. For instance, the model school at Chumphorn Province reported that students enhanced their awareness to consider the outcome of the activities more systematically through the practice of DIG.

There is no negative impact on natural environment. No land acquisition and resettlement occurred under this project.

<Evaluation Result>

The project achieved its project purpose as the capacity of DDPM as well as local administration and communities was enhanced, which has continued after the project completion. The overall goal was partially achieved as the project contributed to expanding the capacity development on disaster management in other areas of Thailand to a certain extent. Therefore, effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) (1) Capacity of DDPM is enhanced as a principal national government agency to carry out the tasks and responsibilities of disaster management,	(Indicator 1-1) Disaster Management Annual Report "White Paper" is published	<u>Status of achievement: Achieved</u> (Project Completion) The white paper was published under the cooperation of Task Force Member organizations, DDPM working group and the JICA expert team. (Ex-post Evaluation) Although new editions of the White Paper have not been published since the completion of the project, techniques and contents transferred during the project for making the White Paper have been integrated into the formulation of Disaster Annual Report, which has similarities with the White Paper.
	(Indicator 2-1) Village people know the appropriate response to emergency situation.	<u>Status of achievement: Achieved</u> (Project Completion) According to the village chief and Tambon officers, there are some behavioral changes which suggest the villagers understand appropriate activities against

management is improved through the enhancement of national and local educational services, as well as strengthening the regional organizations of DDPM and MOE		emergency situations. For example, villagers themselves became voluntarily prepared for the evacuation based on the information from radio or TV after the project implementation. (Ex-post Evaluation) Community-led early warning system and VDPM have been functional at Chumporn and Mae Hong Sorn Provinces.
	(Indicator 2-2) Workshops and lectures are conducted by teachers at each model school.	<u>Status of achievement: Achieved</u> (Project Completion) Teachers at model school have acquired know-how to conduct workshops and lectures on disaster preparedness. (Ex-post Evaluation) In Chumporn and Mae Hong Sorn Provinces where the field visits were conducted during the ex-post evaluation, workshops and lectures on disaster preparedness have been regularly conducted
(Overall Goal) To enhance the capacity for disaster risk management against future disasters at central, provincial, district and community levels in Thailand.	(Indicator 1) Disaster management plans at central, regional and community levels are developed.	<u>Status of achievement: Partially Achieved</u> (Ex-post Evaluation) Disaster Management Plans have been developed at central, provincial and community levels. - The latest National Disaster Prevention and Mitigation Plan was issued in 2015. - The disaster management plans have been developed in all 76 provinces. The templates developed by the project are utilized and JICA experts gave suggestions for improvement during the implementation of Phase II. - At the community level, disaster management plan was formulated at 10,510 communities as a part of CBDRM. This number of the communities with CBDRM accounts for about 30% of communities with high disaster risk.
	(Indicator 2) DDPM becomes able to grasp situation and problems regarding disaster management and take or promote necessary countermeasures in cooperation with related organizations.	<u>Status of achievement: Achieved</u> (Ex-post Evaluation) - Disaster database was developed in cooperation with related organizations to integrate and share disaster information at all provinces. - Hazard maps have been also prepared for all provinces.
	(Indicator 3) Each related organization at central, regional and community levels becomes able to prepare and respond to disasters based on the disaster management plan at each level.	<u>Status of achievement: Achieved</u> (Ex-post Evaluation) Disaster Management Plans have been developed, reviewed, and revised at each level and implemented to prevent and mitigate disaster impacts. The project outcomes, such as CBDRM Manual, CBDRM Facilitator's Guide, and Guidebook for the utilization of hazard map, have been utilized and contributed to preparing and responding to disasters.

Source : JICA internal documents, questionnaire survey, interviews with the counterparts

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: 104%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

There are effective policies on disaster prevention and mitigation at the national level to support expansion and sustainability of the project effects, such as the 11th Socio Economic Development Plan (2012-2016), National Disaster Prevention and Mitigation Plan (2010-2014) (completed) and National Disaster Prevention and Mitigation Plan 2015.

<Institutional Aspect>

DDPM and MOE have remained key players for further expanding/ sustaining the project effects at central, provincial, and community levels in cooperation with other ministries/ organizations and local resources, such as VDPM, schools, and civil defense volunteers.

<Technical Aspect>

DDPM and MOE have technical establishments for disaster management through the development and utilization of manual, guideline, and other tools to sustain the project effects. These tools for disaster management have been disseminated and utilized nationwide. However, DDPM is required to enhance technical capacity on information technologies against disaster management plan further. At the pilot project sites, VDPMs and model schools have gained sufficient skill to sustain the project effects.

<Financial Aspect>

Budgets on the disaster management and education for disaster management at the central and local levels are provided with increasing trends. However, the budget for DDPM is limited relative to the overall budget the Ministry of Interior or the national budget, and actual allocated budget is much smaller than the applied budget. Therefore, the budget is still insufficient to conduct effective and efficient disaster risk reduction. Local financial sources, such as budgets from local administrations, are available for conducting activities on disaster management. On the part of MOE, Office of the Basic Education Commission (OBEC) has been undertaking its roles and responsibilities to promote education for disaster preparedness in accordance with the allocated budget. However, the budget for education for disaster preparedness is limited.

<Evaluation Result>

Some problems have been observed in technical and financial aspects to support and expand disaster management. Therefore, sustainability of effects of the project is fair.

5 Summary of the Evaluation

The project achieved its project purpose as the capacity of DDPM as well as local administration and communities was enhanced, which has continued after the project completion. The overall goal was partially achieved as the project contributed to expanding the capacity development on disaster management in other areas of Thailand to a certain extent. As for sustainability, some problems have been

observed in technical and financial aspects to support and expand disaster management. As for efficiency, the project cost slightly exceeded the plan.

In light of the above, this project is evaluated to be satisfactory.

III Recommendations/Lessons Learned :

<Recommendations for Implementing Agency>

1. CBDRM Manual and CBDRM Facilitator's Guide, which were developed during this project (Phase I) and revised with the support of Phase II, have been effectively disseminated and utilized especially in provinces that have faced natural disasters such as flood. However, CBDRM has been conducted at only about 30% of villages with high disaster risk. It is recommended that DDPM should conduct CBDRM at the remaining high risk areas to promote disaster prevention and mitigation in these areas by allocating more budget and facilitators. Cooperation with JICA technical cooperation utilizing a follow-up cooperation scheme can be also considered for the further implementation of CBDRM.

2. Model schools at the pilot project sites in Chumporn Province and Mae Hong Sorn Province have been conducting education for disaster preparedness since the completion of the project. These schools have also improved and expanded activities on the education for disaster preparedness based on teachers' active involvement, and strong collaboration between schools and communities and disaster prone areas. It is recommended that OBEC should re-acknowledge these schools as good models for school disaster education and learn from their practices for dissemination.

<Lessons Learned for JICA>

1. Rain gauges installed at the pilot sites of Mae Hong Sorn Province have not been properly utilized/ maintained by the households where the rain gauges were installed. The evaluation team understood that the house owners, mostly village key persons, did not keep their interests to monitor the equipment regularly for the disaster risk which they have not faced often. At the same time, as recognized by DPMPO staff, the rain gauge is still considered as a useful tool for the community to provide early warning for flood and other rain related disasters in the high risk area. For provision of equipment to a community, it is necessary for a project to carefully select candidate sites for installation as well as prospective personnel who will be in charge of operation and maintenance of the equipment. Accordingly, capacity building should be appropriately designed and provided to those personnel, in order to enable them to efficiently and effectively operate and maintain the equipment in a sustainable manner. Moreover, closer communication and dialogue among stakeholders should be promoted.

2. It is considered the outputs of the project on the education for disaster preparedness have contributed to the nationwide expansion of the education with the policy of MOE. The education for disaster preparedness at the model schools in the pilot project areas has been also continued. However, the outputs and effects of the project, not only those of the project phase I but also those of the project phase II which was just completed last year, are not well recognized by OBEC. Key persons involved in the project phase I as well as the project phase II from OBEC have been retired or transferred, and their experience with the projects including training in Japan has not been left in the organization. In the case of Chumporn and Mae Hong Sorn Province, the model schools in the areas have been conducting disaster management education by using their own ideas and utilizing the assets of the project. The selection of candidates for training in Japan could have been carried out more carefully and effectively, targeting more at officers from local government and school teachers, unless mainstreaming of disaster management education is adopted as the ministry's policy.



Meeting with officials of DPMPO at Chumporn Province



Meeting with villagers at Mae Hong Sorn Province

Country Name	Capacity Development Project on Bridge Management
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	Ethiopia is an agricultural country with 84% of the population living in rural area. Since road transport accounts for 90-95% of inter-urban freight and passenger movements, it is considered essential to improve the road network, especially bridges, in order to achieve the socio-economic development and food security of the country. With support from JICA experts, the Ethiopian Roads Authority (ERA) has developed system and manuals with regard to bridge inspection and management. However, the institutional and individual capacity for bridge maintenance had remained limited. The project was launched for further ERA's capacity development in bridge management.						
Objectives of the Project	Through the trained personnel of the implementing and related agencies, developed manuals and computer-based management system, the project aimed at strengthening ERA's capacity in bridge management, thereby contributing to the improvement of the road network.						
	Overall Goal: Appropriate maintenance and rehabilitation of bridges are implemented, which contributes to the improvement of service level of Ethiopian road network. Project Purpose: Capacity of bridge management in Ethiopia improves.						
Activities of the project	<p>1. Project site: Whole Ethiopia</p> <p>2. Main activities: 1) Training on the bridge management cycle, bridge inspection, quality control of bridge rehabilitation to ERA, Rural Road Agencies (RRAs), MRA and private companies, 2) Development of the manuals for bridge management, establishment of ERA-BMS (Ethiopian Road Authority - Bridge Management System), introduction of BMSS¹ (Bridge Management Support Service), etc.</p> <p>3. Inputs (to carry out above activities)</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Japanese Side</p> <p>1) Experts: 9 persons</p> <p>2) Training in Japan: 6 persons</p> <p>3) Training in the third country: 2 persons</p> <p>4) Equipment: PC, printer, handy GPS, vehicle, etc.</p> <p>5) Operation cost: 11 million yen</p> </td> <td style="width: 50%; vertical-align: top;"> <p>Ethiopian Side</p> <p>1) Staff allocated: 8 persons</p> <p>2) Land and facilities: Office space and equipment, training facility, etc.</p> <p>3) Operation cost for BMSS introduction, travel expenses for C/P, contract-out with private companies, etc.</p> </td> </tr> </table>					<p>Japanese Side</p> <p>1) Experts: 9 persons</p> <p>2) Training in Japan: 6 persons</p> <p>3) Training in the third country: 2 persons</p> <p>4) Equipment: PC, printer, handy GPS, vehicle, etc.</p> <p>5) Operation cost: 11 million yen</p>	<p>Ethiopian Side</p> <p>1) Staff allocated: 8 persons</p> <p>2) Land and facilities: Office space and equipment, training facility, etc.</p> <p>3) Operation cost for BMSS introduction, travel expenses for C/P, contract-out with private companies, etc.</p>
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Ex-Ante Evaluation	2006	Project Period	January 2007 to July 2012 (Extended period: December 2010 to July 2012)	Project Cost	(ex-ante) 250 million yen (actual) 271 million yen		
Implementing Agency	Ethiopian Roads Authority (ERA)						
Cooperation Agency in Japan	None.						

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

- For verification of the achievement of the Overall Goal at the ex-post evaluation, the conditions of the rehabilitated bridges were used as it was set in the ex-ante evaluation sheet; although, the indicator established in the PDM was set as "FBRP (Federal Bridge Rehabilitation Program) is authorized and launched."

1 Relevance
<Consistency with the Development Policy of Ethiopia at the time of ex-ante evaluation and project completion> The project was consistent with Ethiopian development policies, as the government's principles in bridge management were clearly described in the Road Sector Development Plan (RSDP) III (2007-2010) and RSDP IV (2010-2015).
<Consistency with the Development Needs of Ethiopia at the time of ex-ante evaluation and project completion > The road network, especially bridges, is very crucial in Ethiopia where the terrain is complex due to the rift valley and the rain is heavy during the rainy season. However, 32% of the bridges needed to be reconstructed or improved (2006). Thus, there were great needs for bridge rehabilitation and maintenance.
<Consistency with Japan's ODA Policy at the time of ex-ante evaluation> In the "Country Assistance Program for Ethiopia" drafted in 2006, development of transport infrastructure was considered important for facilitating trading of agricultural products and inputs.
<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> It is judged that the Project Purpose was not achieved, because rehabilitation and replacement of bridges were conducted as per the

¹ Under BMSS, ERA concludes a 3-year agreement with three private consultancy companies. Under the contract, the contracted companies inspect, evaluate, and conduct prioritization of bridge construction/rehabilitation under supervision of respective RNMDs. The actual bridge construction and rehabilitation works are assigned to a different company by ERA.

priority list, but the achievement was far less than the plan (42.2% and 37.8%, respectively). This is because the budget was not sufficient to cover all the bridges which needed to be rehabilitated or replaced. Another reason was that the government put more emphasis on new construction.

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

The project effects have partially continued. Bridges have been rehabilitated and replaced, though the achieved number has been far less than planned. The ratio of achievement was far from planned, because the plan shows the number of the bridges which need to be rehabilitated or replaced, rather than the the number of the bridges which is annually estimated based on the secured budget. The reason for insufficient budget is the same as that during the project period; budget shortage for rehabilitation and replacement due to more emphasis on new construction of the bridges. The number of the rehabilitated bridges drastically increased in 2015/16 from the previous year, because the budget for rehabilitation has been increased.

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

The Overall Goal has been partially achieved. The Federal Bridge Rehabilitation Program (FBRP) was launched in 2011 with the aim of upgrading 80% of the bridges in good condition by 2015/16. According to ERA and the Road Network Management Directorate (RNMD) of Jimma, 62.5% (2014/15) of the bridges were evaluated “good,” which means more than 90% of that bridge condition is “not defective” or having none or only minor deterioration of structural elements.

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

Firstly, rehabilitated or replaced bridges have brought benefits to the nearby residents. For example, a rope bridge was replaced by the Mormora Bridge (steel bridge) in Oromia Region and now students can travel safely to school even when it rains. As another example, women have more job opportunities, as most of the contracted bridge rehabilitation is conducted by micro and small enterprises whose staff are mainly women, according to RNMD of Shashemene. Secondly, the rehabilitated bridges have made vehicle passage easier. As examples, the rehabilitated Gibe Bridge in Oromia Region accommodates transport of heavy equipment for Gilgel Gibe Hydro Power Station, and the vehicle speed increased from 30 km/h to 50km/h on Addis Jimma Road after Simini Bridge was replaced in Oromia Region. Third, the manual on concrete bridge management has been used in the master’s course at Addis Ababa University.

No negative impacts on the natural and social environment have been produced by the project.

<Evaluation Result>

In light of the above, the Project Purpose (bridge rehabilitation and replacement as per the plan) was not achieved by the project completion, but the effects have partially continued. The Overall Goal (improvement of the bridge condition) has been partially achieved, but some positive impacts have been confirmed. Therefore, the effectiveness/impact of the project is fair.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results																																								
(Project Purpose) Capacity of bridge management in Ethiopia improves.	1. Annual bridge maintenance and rehabilitation plan based on ERA-BMS and bridge management cycle is practiced.	(Project Completion) <u>Not achieved</u> . - The number of the rehabilitated and replaced bridges was less than the plan in 2012/13. (Ex-post Evaluation) <u>Partially continued</u> . - After the project completion (2013/14), the implementation rate of rehabilitation and replacement against the plan has been decreasing. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th colspan="2"># of the bridges to be rehabilitated</th> <th colspan="2"># of the bridges to be replaced</th> </tr> <tr> <th></th> <th>Plan</th> <th>Actual</th> <th>Plan</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>2010/11</td> <td>N.A.</td> <td>N.A.</td> <td>N.A.</td> <td>N.A.</td> </tr> <tr> <td>2011/12</td> <td>N.A.</td> <td>N.A.</td> <td>29</td> <td>12 (41.4%)</td> </tr> <tr> <td>2012/13</td> <td>443</td> <td>188 (42.2%)</td> <td>37</td> <td>14 (37.8%)</td> </tr> <tr> <td>2013/14</td> <td>555</td> <td>170 (30.6%)</td> <td>25</td> <td>3 (12.0%)</td> </tr> <tr> <td>2014/15</td> <td>728</td> <td>160 (30.0%)</td> <td>31</td> <td>2 (6.5%)</td> </tr> <tr> <td>2015/16</td> <td>1,324</td> <td>240 (18.1%)</td> <td>21</td> <td>N.A.</td> </tr> </tbody> </table>		# of the bridges to be rehabilitated		# of the bridges to be replaced			Plan	Actual	Plan	Actual	2010/11	N.A.	N.A.	N.A.	N.A.	2011/12	N.A.	N.A.	29	12 (41.4%)	2012/13	443	188 (42.2%)	37	14 (37.8%)	2013/14	555	170 (30.6%)	25	3 (12.0%)	2014/15	728	160 (30.0%)	31	2 (6.5%)	2015/16	1,324	240 (18.1%)	21	N.A.
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	2. Necessary funds for planned rehabilitation measures under the annual bridge maintenance and rehabilitation plan are secured and the selected bridge rehabilitation works are implemented.	(Project completion) <u>Not achieved</u> . - The necessary funds were not secured for rehabilitation of all the prioritized bridges in each year. (Ex-post Evaluation) <u>Partially continued</u> . - The budget has not been sufficient for rehabilitation and replacement, because the government places more emphasis on new construction.																																								
(Overall goal) Appropriate maintenance and rehabilitation of bridges are implemented, which contributes to the improvement of service level of Ethiopian road network.	1. Evaluation of the conditions of the rehabilitated bridges on the federal road (Good, fair, bad)	(Ex-post Evaluation) <u>Partially achieved</u> . - 62.5% of the rehabilitated bridges were evaluated “good” in 2014/2015. <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td>Good: More than 90% of the bridge condition is not defective (range from no problems to only minor deterioration of structural elements)</td> <td>62.5%</td> </tr> <tr> <td>Fair: Defect range of the bridge is between 10-15% (Minor section loss, deterioration, cracking or scour)</td> <td>21.3%</td> </tr> <tr> <td>Bad: The defect of the bridge is more than 15% (deficiency such as section loss, deterioration, cracking scour or seriously affected primary structural components)</td> <td>16.2%</td> </tr> </tbody> </table> <p>Source: ERA and Jimma RNMD</p>	Good: More than 90% of the bridge condition is not defective (range from no problems to only minor deterioration of structural elements)	62.5%	Fair: Defect range of the bridge is between 10-15% (Minor section loss, deterioration, cracking or scour)	21.3%	Bad: The defect of the bridge is more than 15% (deficiency such as section loss, deterioration, cracking scour or seriously affected primary structural components)	16.2%																																		
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Source: ERA, RNMD and SNNP Rural Roads Authority

3 Efficiency

Both the project period and cost exceeded the plan (ratio against the plan: 137% and 108%, respectively). The project period was

extended to strengthen BMS. Another reason was the delay of the inspection work due to the shortage of the engineers of the District Engineering Division and delayed dispatch of some JICA experts. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

The development of the road network including bridges is prioritized in the Growth and Transformation Plan II (2015/16-2019/20) and RSDP V (2016-2020).

<Institutional Aspect>

There has been some organizational restructuring of ERA, but the function for maintaining the road network has been kept. RNMDs and RRAs conduct bridge inspection, evaluation and prioritization for rehabilitation and replacement, and manage the contracts for rehabilitation and replacement works. The Bridge Management Team (BMT) of ERA assists these responsibilities of RNMDs and RRAs and manages ERA-BMS. BMT supervises RNMDs work through monitoring, meeting and review of the documents submitted by RNMDs. BMT provides training for RNMDs and RRAs in the areas of inventory, inspection, use of BMS software, etc. BMT has 4 engineers against the supposed number (7). The reason of the shortage is the high turnover, and the government provides opportunities for getting the master's degree to retain the young staff. Interviewed staff answered that it is an incentive to remain in ERA. Four of the surveyed five RNMDs answered that the number of the personnel is sufficient. At RRAs, the figures were not available, but they answered that the staff number is sufficient, as they are assigned as planned. According to ERA and RNMDs, BMSS has been still effective for bridge management due to high quality work of the contracted companies which have better skills than themselves. The consultants under BMSS enter the data base of ERA-BMS after annual inspection and every three year detailed inspection.

<Technical Aspect>

According to ERA, the staff of BMT has sufficient knowledge and skills on data management but not quality control of bridge management because they are not given any specific training though newly joined staff receives introductory trainings on ERA. As for RNMDs, only half of the interviewed staff answered that they have sufficient knowledge and skills on bridge management, though trainings are conducted once or twice per year. Training topics include surveying with the total station, GPS, etc. and laboratory work such as material test and asphalt mix design. The bridge inspection manual developed by the project was revised in 2013 by BMSS consultants and distributed to RNMDs including their satellite offices and RRAs. The manual is also utilized for bridge inspection by RNMDs and BMSS consultants and training for RNMDs staff. Also the manual on concrete bridge maintenance developed by the project has been used by RNMDs, RRAs and contractors.

<Financial Aspect>

The budget of ERA comes from the Federal Government and has increased (21,835 million ETB in 2012/13 to 46,394 million ETB in 2016/17). The budget for BMT allocated from ERA and the Road Fund has increased to (991,170 ETB in 2013/14 to 1,393,340 ETB in 2015/16). However, the budget for RNMDs has been on a slightly decreasing trend (931,150,000 ETB in 2012/13 to 889,148,375 ETB in 2015/16), because it is affected by the annual amount of the Road Fund which is collected from the fuel levy, license renewal fees and tax from the fuel sell. Thus, while the budget for expansion of the whole road network has been increasing, the budget for bridge rehabilitation and replacement has not been sufficient, as earlier mentioned.

<Evaluation Result>

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

5 Summary of the Evaluation

The Project Purpose (bridge rehabilitation and replacement as per the plan) was not achieved by the project completion, but the project effects have partially continued. In other words, bridge rehabilitation and replacement have been conducted based on the plan, though the achievement was less than the plan. The reason was the budget shortage for rehabilitation and replacement as the government has put more emphasis on new construction. Regarding the sustainability, some issues have been confirmed such as the staff shortage at BMT and insufficient budget allocation for road rehabilitation and replacement. As for the efficiency, both of the project period and cost exceeded the plan. The project period was extended to strengthen BMS and make up the delayed inspection work.

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 develop a feasible road maintenance plan for each year, and clearly indicate how many bridges need to be rehabilitated/replaced and how many bridges will be rehabilitated/replaced in the following year based on the actual achievements in the previous years.

Lessons learned for JICA:

- In the project, the concept of "bridge management cycle" which covers the bridge inspection, evaluation, prioritization, and formulation of annual maintenance and rehabilitating plan was introduced to the implementing agency and the personnel was trained for operation based on this concept. As a result, the implementing agency successfully developed the priority list for maintenance, but not all the plan could not be realized due to the unrealistic plan. In the projects for road/bridge maintenance, there should be capacity development of the counterpart organization so that it can set a practical plan with the given budget based on the assessment of the maintenance achievement.



(Wabe Bridge in Southern Nation Nationalities and Peoples Region before replacement)



(Wabe Bridge in after replacement)

Country Name	Project for Strengthening of Solid Waste Management in Dhaka City
People's Republic of Bangladesh	

I. Project Outline

Background	<p>The capital city of Bangladesh, Dhaka, had faced a huge social challenge of Solid Waste Management (SWM) due to its rapid population and economic growth. Although Dhaka City Corporation (DCC) was in charge of SWM of the city, SWM was not conducted adequately due to its weak institutional capacity and lack of planning, equipment, and awareness of residents on sanitation. The Government of Bangladesh requested to the Government of Japan for a study and formulation of a master plan on SWM in 2002. Japan International Cooperation Agency (JICA) conducted a development study from November 2003 to March 2006, and Clean Dhaka Master Plan (M/P) with a target year of 2015 was formulated. DCC actively promoted in its own ways to implement the proposals made in the M/P. However, there were problems in technical, institutional and management aspects as DCC officers did not have enough capacity and experiences for planning and implementing despite their willingness to implement the programs.</p>																
Objectives of the Project	<p>Through improving capacities for management and coordination of SWM activities and Waste Management Department (WMD) of DCC, participatory SWM program and Ward Based Approach (WBA)¹, solid waste collection and transportation, operation and management of final disposal and financial management on SWM, the project aimed at improving SWM services of DCC, thereby contributing to improving the sanitary environment of Dhaka city. The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> 1. Overall Goal: The solid waste management services of Dhaka City Corporation are sustained and the sanitary environment of the city is improved. 2. Project Purpose: The solid waste management services of Dhaka City Corporation are improved. 																
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Dhaka City 2. Main activities²: (1) Prepare Annual Activity Plans, review and modify Clean Dhaka M/P, conduct public relations campaigns on SWM and develop SWM network among city corporations; (2) Develop Ward SWM Guideline, organize community people and support community level SWM activities and support Primary Collection Service Providers (PCSP) to improve their services; (3) Conduct surveys and analyses for improvement of collection efficiency and improve the system of repair and maintenance of equipment; (4) Conduct environmental monitoring and evaluate landfill operation improvement; (5) Develop financial reports, prepare proposal of financial plans and improve procurement and payment processes; and (6) Conduct trainings/seminars for staff of WMD, PCSP, communities and others and establish external monitoring system for SWM activities etc. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Bangladeshi Side</td> </tr> <tr> <td>1) Experts: 15 persons</td> <td>1. Staff allocated: 145 persons</td> </tr> <tr> <td>2) Trainees received in Japan: 30 persons</td> <td>2. Office space</td> </tr> <tr> <td>3) Training in the third countries: 16 persons</td> <td>3. Local cost</td> </tr> <tr> <td>4) Equipment: desktop computers, printers, gas measure equipment, water quality measure equipment etc.</td> <td></td> </tr> <tr> <td>5) Local cost</td> <td></td> </tr> </table> 					Japanese Side	Bangladeshi Side	1) Experts: 15 persons	1. Staff allocated: 145 persons	2) Trainees received in Japan: 30 persons	2. Office space	3) Training in the third countries: 16 persons	3. Local cost	4) Equipment: desktop computers, printers, gas measure equipment, water quality measure equipment etc.		5) Local cost	
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Ex-Ante Evaluation	2006	Project Period	February 2007 – February 2013 (Extension Period: February 2011 – February 2013)	Project Cost	(ex-ante) 300 million yen (actual) 601 million yen												
Implementing Agency	Dhaka City Corporation (DCC) (Waste Management Department (WMD))																
Cooperation Agency in Japan	Yachiyo Engineering Co., Ltd.																

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of Bangladesh at the time of ex-ante evaluation and project completion> The project has been consistent with Bangladesh's development policy on 'improving SWM' as set forth in "Poverty Reduction Strategy Paper (PRSP) (2005)" and "Sixth Five Year Plan (2011-2015)".
<Consistency with the Development Needs of Bangladesh at the time of ex-ante evaluation and project completion>

¹ Ward is the smallest unit of local administration. WBA is an approach to strengthen SWM by each ward. Components of WBA: (WBA 1) Construction/renovation of ward SWM offices and strengthening of their functions; (WBA 2) Provision of safety gears and workers' manual to improve working environment; (WBA 3) Promotion of participatory SWM (planning and implementation of SWM activities by the community); and (WBA 4) Introduction of new collection system/improvement of existing collection system.

² In parallel with the technical cooperation activities, the Government of Japan supported other SWM activities in DCC. Improvement and expansion of Matuail landfill site and the construction of Amin Bazar landfill site were implemented using the Japan Debt Cancellation Fund (JDCAF). Japan Overseas Cooperation Volunteers (JOCVs) have been dispatched for environmental education and waste management. For improving transportation of waste material, 100 collection vehicles and the construction of a workshop for them has been provided by Environmental Grant Aid Program (EGAP).

At the time of ex-ante evaluation, various problems were found in primary disposal of waste, collection and transport of waste and final disposal of waste. At the time of project completion, environmental and sanitary issues caused by the waste were still prevailing widely in Dhaka city and threatening the health and sound living environment of residents. Therefore, there has been a high demand for the improvement of the SWM services of DCCs.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy on SWM, as stated in the Country Assistance Program for People's Republic of Bangladesh (2006).

<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 mostly achieved by the time of project completion. According to the results of the Waste Amount Survey conducted by Dhaka North City Corporation (DNCC), Dhaka South City Corporation (DSCC)³ and Japanese Expert Team (JET), the waste amounts transported to the landfill sites were 98% of the target in June 2012 and 94% of the target in September 2012.

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

The project effects have been partially maintained since project completion. The waste amounts transported to the landfill sites have been more than the target since project completion⁴. WBA has still been an official approach of SWM, and nine wards SWM offices have been additionally constructed since project completion, which means there are 26 wards SWM offices among 92 wards in total at the time of ex-post evaluation (WBA1). While DSCC has occasionally provided safety gears (uniforms, gloves, and masks etc.) to cleaners, DNCC has not provided them as cleaners rarely wear them (motivating cleaners to wear gears is still a continuous process) (WBA2). While data on how many wards have practiced participatory community-based SWM since project completion is not available, many wards have continued, some wards have discontinued and some wards (at least nine wards) have newly started participatory community-based SWM (WBA3). The waste collection system has significantly been improved after project completion, due to well-functioning of nearly all the collection vehicles and compactors, secondary transfer stations⁵ having been constructed and operated, Community Action Plans⁶ (CAP) having been formulated and strict and regular monitoring having been conducted by Conservancy Inspectors/ Conservancy Officers in some wards etc. (WBA4). Revision of Clean Dhaka M/P based on the actual population of service areas after the split of DCC to DNCC and DSCC in 2011, which was recommended in the terminal evaluation of this project, has not been done yet. It is expected that under a new technical cooperation project "Project for Strengthening of Solid Waste Management in Dhaka North City, Dhaka South City and Chittagong City" (2016-2019) would include the revision of the M/P.

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

The Overall Goal has been achieved by the time of ex-post evaluation. As stated above, the amount of wastes transported to the landfill sites has been more than the target (the waste amounts transported to the landfill sites in 2015 was 106% of the target for Overall Goal). During the extension period, the project promoted (1) Waste collection vehicles maintenance and management, (2) Landfill site management system, (3) Management system and function of the Waste Management Department and (4) Segregation of waste. Those supports contributed to strengthen organizational abilities of WMD and WBA implementation system, and contributed to achieve the overall goal. Factors contributed to the achievement are the synergic effects of various cooperation including JDCF, EGAP and JOCV as well as this technical cooperation project, which were implemented in coordination with each other.

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

No negative impact on natural environment has been observed and no land acquisition and resettlement has been occurred under the project, though DSCC has only partially conducted environmental monitoring and DNCC has not conducted environmental monitoring for landfills since project completion as newly recruited/ transferred DNCC landfill management staff have their hands full managing increased waste distribution in the remaining limited area of the landfill sites.

As the primary collection system improved, many road side dustbins/ containers/ compactor/open trucks are moved to the secondary transfer station. As a result, less wastes are being dispersed all over the city, and the sanitary environment of Dhaka city has been improved. The establishment and operation of WMD, capacity development of staffs, and SWM systems/approaches developed and introduced by the project etc. have contributed to the improvement.

<Evaluation Result>

In light of the above, through the project, the target set in the indicator for the Project Purpose was mostly achieved by the time of project completion, and while the project effects have not been fully maintained since project completion, the target set in the indicator for the Overall Goal has been achieved by the time of ex-post evaluation. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) The solid waste management services of Dhaka City Corporation	More than 2,540 ton/day (or 58% of total amount of waste) of wastes is transported to landfill sites and disposed properly by the end of extension period.	Status of the achievement: mostly achieved (continued) (Terminal Evaluation) Both DCCs and JET conducted a series of surveys to count incoming vehicles at both landfills (Waste Amount Survey) in July 2010, February 2012, June 2012 and September 2012. The waste amounts transported to the landfill sites were estimated by the number of trips and the

³ On the 29th of November 2011, the parliament passed a bill to split DCC into two city corporations - North and South - with a view to ensuring 'better service delivery' to approximately 1.2 million persons living in the metropolis.

⁴ DNCC has been able to ensure all the collection vehicles to pass through the weighbridge in the landfill, while DSCC has been able to ensure only partial (28%) collection vehicles to use the weighbridge. DSCC estimated the total amount of waste transported to the landfill daily as sum of weighbridge records and the amount of waste carried by bypassing vehicles. The waste amount carried by bypassing vehicles is estimated from the sample measurement of each type of vehicles in different seasons at the weighbridge.

⁵ A confined space where secondary collection vehicles or containers collect waste from primary collection and street sweeping.

⁶ CAP should be prepared by the DNCC and DSCC officials for their wards to manage the waste in an organized way with the participation of the community.

<p>are improved.</p>		<p>unit loading amount. The waste amount in June 2012 is 98% of the target and that of September 2012 is 94% of the target.</p> <p>[Waste Amount at Matuail and Amin Bazar Landfills] (Unit: ton/day)</p> <table border="1"> <tr> <td>2005</td> <td>Jul 2010</td> <td>Feb 2012</td> <td>Jun 2012</td> <td>Sep 2012</td> </tr> <tr> <td>1,193</td> <td>2,004</td> <td>2,244</td> <td>2,492</td> <td>2,385</td> </tr> </table> <p>(Ex-post Evaluation) The amount of wastes transported to landfill sites in jurisdiction areas of DNCC and DSCC has been more than the target since project completion. As for the percentage of transported amount of waste, it requires a full-fledged study to estimate the current generation. However, BRAC⁷ Institute of Governance and Development (BIGD) carried out a study in 2015 that shows the waste generation amount of Dhaka is 6,110.47 ton/day. That results present collection is close to 74%.</p> <p>[Waste Amount in Landfills in Jurisdiction Areas of Both DCCs] (Unit: ton/day)</p> <table border="1"> <tr> <td>Year</td> <td>2013</td> <td>2014</td> <td>2015</td> <td>2016</td> </tr> <tr> <td>Matuail Landfill (DSCC)</td> <td>1,838</td> <td>1,991</td> <td>1,788</td> <td>2,047</td> </tr> <tr> <td>Amin Bazar Landfill (DNCC)</td> <td>958</td> <td>1,356</td> <td>1,450</td> <td>2,456</td> </tr> <tr> <td>Total</td> <td>2,796</td> <td>3,347</td> <td>3,238</td> <td>4,503</td> </tr> </table>	2005	Jul 2010	Feb 2012	Jun 2012	Sep 2012	1,193	2,004	2,244	2,492	2,385	Year	2013	2014	2015	2016	Matuail Landfill (DSCC)	1,838	1,991	1,788	2,047	Amin Bazar Landfill (DNCC)	958	1,356	1,450	2,456	Total	2,796	3,347	3,238	4,503
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<p>(Overall goal) The solid waste management services of Dhaka City Corporation are sustained and the sanitary environment of the city is improved.</p>	<p>(Supplemental Information 1) Whether the number of wards which practice participatory community-based SWM has increased since project completion and whether DNCC and DSCC have used knowledge/experience gained from this project to promote participatory community-based SWM.</p> <p>(Supplemental Information 2) Whether the waste collection system has improved at ward level after project completion and whether DNCC and DSCC have used knowledge/experience gained from this project to improve the collection system.</p>	<p>Status of the achievement: (partially continued) (Ex-post Evaluation) The data on how many wards have practiced participatory community-based SWM since project completion is not available. Many wards have continued, some wards have discontinued and some wards (at least nine wards) have newly started participatory community-based SWM with the help of NGO, DNCC and DSCC. Both DNCC and DSCC commented that they are using knowledge/ experience gained from this project to promote participatory community-based SWM.</p> <p>Status of the achievement: (continued) (Ex-post Evaluation) The collection system has significantly been improved after project completion, as nearly all the vehicles provided under EGAP are still functional, higher primary collection triggers higher secondary collection of waste, DSCC and DNCC have newly formulated CAPs in some wards⁸ and conducted strict and regular monitoring, secondary transfer stations have been constructed and operated, etc. Both DNCC and DSCC commented that they are using knowledge/ experience gained from this project to improve the collection system through collection planning, allocating necessary budget, involving the communities, better management of vehicles, using weighbridge etc.</p> <p>(Ex-post Evaluation) achieved As stated above, the amount of wastes transported to landfill sites in jurisdiction areas of DNCC and DSCC has been more than the target.</p>																														

Source: Project Completion Report, questionnaire survey and interview to relevant persons, site visit

Note: Continuous implementation of WBA, the SWM approach introduced by this project, is an important factor to show contribution of this project to increase in the amount of wastes transported to landfill sites and disposed properly. Thus, use of WBA after project completion is checked as supplemental information in this ex-post evaluation.

3 Efficiency

Expected goal and outputs were almost achieved by the end of the original period. Additional activities such as collaboration with JDCF, EGAP increased project cost for the original period (100% and 150% against the plan, respectively). Project period extension further increased both project period and project cost (150%, 200% against plan, respectively). Those additional inputs incurred during the extension period highly contributed to achievement of the overall goal and further secured sustainability of project outputs that had been mostly achieved during the original period. Inputs for the extension period can be thus assumed to have been for pursuing additional outputs, and evaluation judgment for the efficiency does not consider the extension period's term and cost. Overall, the efficiency is judged as fair.

4 Sustainability

<Policy Aspect>

The policies that are effective at the time of ex-post evaluation, such as "The Seventh Five Year Plan (2016-2020)", "Sector Development Plan, Water Supply and Sanitation in Bangladesh (2011-2025)" and "Perspective Plan of Bangladesh 2010-2021, Making Vision 2021 a Reality" etc., state the need for improvement of SWM.

⁷ Bangladesh Rural Advancement Committee (an NGO).

⁸ DSCC, DNSS and ward officials have formulated CAP in total 9 wards as mentioned in "4 Sustainability" in addition to 5 wards where CAP was formulated during the project implementation.

<Institutional Aspect>

There have been no major changes in organizational structures of SWM in Dhaka city since project completion. The number of staffs assigned in WMDs in DNCC and DSCC is not sufficient, as there are vacant posts in WMDs at the time of ex-post evaluation (approximately 22% and 68% of posts are vacant at DNCC and DSCC, respectively). The number of staffs assigned in Landfill Management Unit (LMU) of Matuail (DNCC) and Amin Bazar (DSCC) landfill sites is also not sufficient, as approximately 26% and 54% of posts are vacant at these sites, respectively. Moreover, regarding the recommendation made in the terminal evaluation that drivers of collection vehicles need to be transferred from Transport Department to WMD, while drivers have been transferred to WMD in DNCC, DSCC has not been able to ensure yet. Staffs are not recruited or assigned properly due to lack of leadership to solve recruitment related problems stemming from frequent changes of top management, complexity in organogram, qualification and scale inconsistency etc. Nonetheless, targeted amount of waste has been transported to landfill sites and disposed properly since project completion, and thus both DCCs have made efforts to maintain project effects with limited number of staffs. On the other hand, there is sufficient number of staffs in workshops of DNCC and DSCC, especially mechanics who maintain and repair collection vehicles. While it is not clear how many Community Unit Working Groups (CUWGs)⁹ are functional in jurisdiction areas of DNCC and DSCC at the time of ex-post evaluation, almost all wards have several types of associations or organizations that can be recognized as CUWGs.

<Technical Aspect>

Almost all the project counterparts, except for those who have retired, still work in WMDs of DNCC and DSCC at the time of ex-post evaluation. Trainings were confirmed to be provided to workshop mechanics only, and the skill level of staffs in workshops of DNCC and DSCC (especially mechanics) is sufficient to maintain and repair collection vehicles, as almost 100% of vehicles are functional with sufficient spare parts, repair and maintenance. While no training was confirmed to be provided to staffs in WMDs, the skill level of staffs in WMDs in DNCC and DSCC is mostly sufficient to manage and coordinate SWM activities including periodically collecting and analyzing landfill weighbridge data and promoting WBA activities etc., as shown in the regular undertakings of those activities and the management staffs' good understanding of the waste management situation that was revealed from the interviews with them. Similarly, based on the observation and interviews the skill level of LMU staffs can be considered to be mostly sufficient to properly operate and maintain landfill sites. With assistance from NGOs, DNCC formulated CAPs in five wards and DSCC formulated CAPs in four wards during 2015 to 2016, in which similar methodologies were used as those used in the project. Manuals and guidelines developed by the project are partially utilized. For example, DSCC follows instructions in the landfill operation manual for vehicle flow control, leachate treatment and disposal operation etc., and both DNCC and DSCC collect weighbridge records regularly as stipulated in the landfill operation manual.

<Financial Aspect>

DNCC and DSCC have sufficient amount of SWM budget, as the budget allocation and expenditure are increasing every year and the allocated budget is always more than the expenditures.

<Evaluation Result>

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

5 Summary of the Evaluation

Through the project, the target set in the indicator for the Project Purpose was mostly achieved by the time of project completion, and while the project effects have not been fully maintained since project completion, the target set in the indicator for the Overall Goal has been achieved by the time of ex-post evaluation. As for sustainability, slight problems have been observed in terms of the institutional, technical and financial aspects. As for efficiency, project cost against the original period highly 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. All the vacant posts in WMDs, particularly executive level officers such as Additional Chief Waste Management Officer (CWMOs), Deputy CWMOs, Executive Engineers and zone level management officers of Assistant CWMOs, need to be filled with permanent staffs, and transfer of drivers and equipment from Transport Department to WMDs also needs to be confirmed.
2. The number of permanent LMU staffs in Matuail and Amin Bazar landfills needs to be increased.
3. Clean Dhaka M/P must be revised immediately, and both DNCC and DSCC need to prepare middle to long term master plans in a collaborative manner.
4. Ward SWM offices should be constructed in all wards.
5. Planning and periodical implementation of environmental monitoring for both Matuail and Amin Bazar landfills are highly recommended.
6. WMDs should provide safety-gears to cleaners timely and continuously, and confirm that they are properly used.
7. In order to further promote community awareness raising and participatory approach for SWM, mass media should be utilized.

Lessons learned for JICA:

This project has integrated other cooperation schemes such as EGAP, JDCF and JOCV into its activities and it became to constitute a program resulting in significantly better achievements based on "Clean Dhaka Master Plan". However, it was not formally and strategically designed as a program. To address any sector long term program approach as necessary, it may start with a short and long term planning of improving any sector followed by preparation of an umbrella implementation plan incorporating all kinds of schemes i.e., Technical Cooperation, Grant and Loan to efficiently address different issues of a certain sector and achieve the maximum project effect.

⁹ CUWG is a community unit which is a central actor of WBA3.

Before the Project



Present Situation



Matuail Landfill



Meeting with Primary waste collectors

Country Name	Strengthening of Activities in Rural Development Engineering Centre (RDEC) Project Phase II
People's Republic of Bangladesh	

I. Project Outline

Background	Rural development has been one of the highly prioritized sectors in order to tackle with poverty reduction in Bangladesh, and infrastructure development is regarded as a critical factor to improve people's social and economic conditions in the rural area. However, rural infrastructure development has been still insufficient. The Local Government Engineering Department (LGED) has been implementing programs of rural infrastructure development such as roads, small-sale irrigation facilities, and village markets. On the other hand, LGED did not have a technically standardized system for implementing programs. As a part of Japanese ODA loan project "Northern Rural Infrastructure Development Project," the government established the Rural Development Engineering Center (RDEC) under LGED as a technical core center, and JICA supported the start-up of RDEC by implementing the technical cooperation "Strengthening of Activities in RDEC Project Phase I (2003-2006)". The project supported RDEC activities in development and accumulation of technical information and reinforcement of the training section. However, further capacity development of LGED engineers was needed.																
Objectives of the Project	The project aimed at strengthening RDEC's implementation capacity for rural infrastructure development, in order that LGED implements rural infrastructure projects using technical standards developed by the project.																
	<ol style="list-style-type: none"> Overall Goal: LGED implements rural infrastructure projects using technical standards developed by the project. Project Purpose: Implementation capacity of RDEC for rural infrastructure development is strengthened. 																
Activities of the Project	<ol style="list-style-type: none"> Project site: Bangladesh (Whole of the country) Main activities: i) Training given by Japanese experts to RDEC engineers on planning and design of the rural infrastructure (roads and bridges), ii) Training given by Japanese experts to RDEC engineers on quality control (QC) of the rural infrastructure, iii) Verification of the introduced techniques in the Bangladeshi context, iv) Development of the guidelines and manuals for planning, design, and QC of the rural infrastructure, v) Development of the database of the training history of LGED engineers. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Bangladeshi Side</td> </tr> <tr> <td>1) Experts: 19 persons</td> <td>1) Staff allocated: 31</td> </tr> <tr> <td>2) Training in Japan: 9 persons</td> <td>2) Land and facilities: Office space for Japanese experts, meeting room, etc.</td> </tr> <tr> <td>3) Training in the third country: 6 persons</td> <td>3) Local Cost: 20.1 million BDT</td> </tr> <tr> <td>4) Equipment: Computers, software tools, GPS equipment, etc.</td> <td></td> </tr> <tr> <td>5) Local operation cost: 18.3 million BDT</td> <td></td> </tr> </table> 					Japanese Side	Bangladeshi Side	1) Experts: 19 persons	1) Staff allocated: 31	2) Training in Japan: 9 persons	2) Land and facilities: Office space for Japanese experts, meeting room, etc.	3) Training in the third country: 6 persons	3) Local Cost: 20.1 million BDT	4) Equipment: Computers, software tools, GPS equipment, etc.		5) Local operation cost: 18.3 million BDT	
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Ex-Ante Evaluation	2007	Project Period	September 2007 to September 2011	Project Cost	(Ex-ante) 326 million yen (Actual) 311 million yen												
Implementing Agency	Local Government Engineering Department (LGED), Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C)																
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries																

II. Result of the Evaluation

<Special perspectives considered in the ex-post evaluation>

- Indicator 2 of the Overall Goal "target areas and population of beneficiaries of developed infrastructure" was not used as it does not describe a change of the group/area caused by the implemented programs.

1 Relevance

<Consistency with the Development Policy of Bangladesh at the time of ex-ante evaluation and project completion>

The project objectives were consistent with Bangladeshi development policies, as agriculture/rural development and infrastructure development were positioned as priority areas for economic development in the Poverty Reduction Strategy Papers (2005-2007, 2008-2010) and National Strategy for Accelerated Poverty Reduction (NSAPR) II (2010-2011).

<Consistency with the Development Needs of Bangladesh at the time of ex-ante evaluation and project completion >

In agriculture/rural development, infrastructure was considered important for improved social and economic situations in the rural area where half of the population lived under the poverty line. Many projects had been planned and implemented by the consultants hired by the donors, but technical capacity development of LGED were needed.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

In the Country Assistance program (2006), one of the priority sectors was economic growth and agriculture/rural development was considered as important means.

<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; RDEC strengthened its implementing capacity for rural infrastructure development. The guidelines and manuals on design, QC and maintenance of rural infrastructure were developed, and through other project efforts such as on- and

off-the job training, LGED core engineers acquired knowledge and skills to the extent that they could function as trainers for the regional laboratories.

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

The project effects have mostly continued. Firstly, most guidelines and manuals have been used, although the use frequency depends on each. Those on slope protection, field CBR¹ test, soil cement technology, etc. are widely used. QC manuals are revised and updated by LGED. One manual which is not much used is that on cold asphalt mixture because still only few companies produce the mixture. Other ones are some on the geographical information system (GIS) since GIS unit does not have such positions and adequate logistics and therefore still counts on the outsourced contractors. GIS unit uses the manual only on a test basis. Most guidelines and manuals have been distributed to the field offices and used. Some offices reproduced them by photocopying in black and white, when the distributed copies are not sufficient. Secondly, LGED has conducted training for the field staff on planning, design, QC and maintenance of the rural infrastructure based on the annual calendar and budget. For 2015/2016, 476,994 engineers and directors were trained, which is more than the previous year, with the government budget and project support from donors including the Asian Development Bank.

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

The Overall Goal was achieved, as the number of infrastructure development programs has increased with the use of the techniques standardized by the project. Implemented programs vary--agricultural infrastructure, water supply, cultivation aids such as deep tube well, irrigation canals, crop storage centers, marketing facilities, etc. LGED has constructed more than 16,000km roads and improved 28,000km roads since the project completion (October 2011) until 2015. RDEC officials consider that this proves improved efficiency of LGED works. They also answered that the work efficiency has been improved due to application of the techniques standardized by the project, such as rotary drilling rig machines for sub soil investigation and simple field CBR test for instant laboratory quality tests.

<Other Positive and Negative Impacts>

There are some positive impacts. Firstly, based on the guidelines and manuals, new policy on rural road and bridge maintenance was drafted which awaits for the government approval. Secondly, the project experience and outputs (manuals and guidelines) are shared with the Integrated Water Resource Management Section of LGED.

There was no negative impact on the natural environment or land acquisition and resettlement.

<Evaluation Result>

The Project Purpose was achieved; RDEC strengthened its implementing capacity for rural development. Most manuals and guidelines are utilized at both the central and field level. Technical training for the field staff has been annually conducted. Using the techniques standardized by the project, more programs have been implemented, covering various types of rural infrastructure development. Therefore, effectiveness/impact of the project is high.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Implementation capacity of RDEC for rural infrastructure development is strengthened.	1. Two Design, one Quality Control, and one Maintenance Guidelines are developed by the end of the project	(Project Completion) <u>Achieved</u> . - 1 guideline on design, 1 guideline on QC and 1 guideline on maintenance were developed. The developed design guideline includes the planned two guidelines on design standards for single lane and double lane roads. - Besides, 13 guidelines and manuals related to design, QC, maintenance and training were developed. * A guideline provides overall guidance to the actions, while a manual is a handbook for the users. (Ex-post Evaluation) <u>Continued</u> . - LGED has referred to most manuals and guidelines developed by the project in its program implementation.
	2. The number of LGED core engineers who learned the applied technology for planning, design, and quality control and maintenance can disseminate their new knowledge & skills to field engineers.	(Project Completion) <u>Achieved</u> . - Four engineers of the Design Unit, 2 of the GIS Unit, 1 of Maintenance Unit and 3 of the QC Unit performed as trainers for the regional laboratories. (Ex-post Evaluation) <u>Continued</u> . - The number of the core trainers was not available, but sufficient to operate the training with its own personnel. <Supplementary information> LGED annually conducts the training to the field staff on planning, design, QC, and maintenance or the rural infrastructure. For 2014/2015, 4,395 were trained with the government budget and 299,788 were trained with the project support. For 2015/2016, 3,955 and 473,039 will be trained, respectively.
(Overall Goal) LGED implements rural infrastructure projects using technical standards developed by the project.	1. Types and numbers of developed infrastructure.	(Ex-post Evaluation) <u>Achieved</u> . - Since the project completion, rural infrastructure development programs has been continuously implemented with use of the standardized techniques introduced by the project: 78 in 2011, 75 in 2012, 80 in 2013, 91 in 2014 and 88 in 2015. Implemented programs vary--agricultural infrastructure, water supply, cultivation aids such as deep tube well, irrigation canals, crop storage centers, marketing facilities, etc.

Source: LGED.

3 Efficiency

Both the project cost and period were within the plan (ratio against the plan: 95% and 100%, respectively). Therefore, efficiency of the project is high.

¹ CBR stands for California bearing ratio. It is a penetration test for evaluation of the mechanical strength of road subgrades and base courses.

4 Sustainability

<Policy Aspect>

Development of rural infrastructure is emphasized in the Perspective Plan of Bangladesh 2010-2021: Making Vision 2021 a Reality. Also in the Rural Road and Bridge Maintenance Policy 2013² which awaits for the approval, construction and maintenance of rural infrastructure are described.

<Institutional Aspect>

LGED is responsible for implementing rural infrastructure development, and RDEC implements activities on development of technical information and technical standards, training and planning. The number of LGED personnel has increased at both central and field levels, by internalizing support staff who worked on a temporary basis. In particular, the training unit has been strengthened, while some posts of GIS unit are vacant. The number of RDEC personnel has remained same since 2013, which is not sufficient to cover ever growing workloads. 10-15% of the approved positions are vacant due to the slow recruitment and transfer and retirement. Regarding the training, necessary information and records are maintained with the Training Management System introduced by the project. LGED used to depend on the outsourced trainers, but now it conducts training with its own core trainers who have a sufficient field experience, although the number is not sufficient. The last training needs assessment was done in 2010, and the next was planned in 2015 but it has not been conducted as of December 2015. Equipment procured by the project including GIS packages, CBR equipment and CAD has been used.

<Technical Aspect>

Senior and mid-level engineers of LGED are trained on supervision and monitoring of infrastructure development and proficient in delivering these services. RDEC personnel have sufficient knowledge and skills; They have been trained on the software of GIS and design and CBR test equipment. Also, the field staff have sufficient competencies to conduct GIS, design, QC and maintenance of the infrastructure, according to the training database and interviewed LGED personnel. The manuals and guidelines developed by the project were distributed to the field offices, except that on GIS which has no specific field implication. At some offices, some manuals are lost or damaged, but the second round printing has not been undertaken due to the budget constraints.

<Financial Aspect>

The planned expenditure of LGED (including that of RDEC) for 2015 is 87,499 million BDT, much increased from that for 2012 (49,897 million BDT). Among these, the funds as donors' assistance for 2012 and 2015 were 7,574 million BDT and 3,829 million BDT, showing that LGED has been less dependent on the external sources. LGED has sufficient budget for purchasing consumables and spare parts for the procured equipment, according to QC unit. Budget for infrastructure development is requested by each field office and after the check of the headquarters it is adequately disbursed.

<Evaluation Result>

Some problems have been observed in terms of the institutional and technical aspects of the implementing agency. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

RDEC strengthened its implementing capacity for rural development. Since the project completion, most manuals and guidelines are utilized at both the central and field levels. Technical training for the field staff has been annually conducted. Using the techniques standardized by the project, more programs have been implemented, covering various types of rural infrastructure development. For corresponding increasing needs for rural infrastructure development, LGED faces slight issues such as personnel insufficiency and lack of the manuals in some field office.

In light of the above, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for LGED>

1. It is recommended to regularly update and re-print the developed manuals for the field offices, so as to provide a reference for the field staff undertaking works.
2. It is necessary to conduct the training needs assessment on a regular basis (every 2-3 years) and more frequently than every 5-year assessment to reflect the needs of LGED personnel and prepare the annual training calendar, so that the training would continue to be more practical and effective.

<Lessons Learned for JICA>

1. In Bangladesh, dozens of plans and strategies are developed through donors' support. In the project, techniques for rural infrastructure development were standardized by developing manuals and guidelines and training the trainers for the personnel capacity development. However, some manuals and guidelines have not been utilized much because necessary materials are not sufficiently available or some works are outsourced to the consultants. Another reason is that LGED lacks adequate logistics to realize the developed techniques. When new techniques are introduced, it is necessary to carefully analyze the current availability of materials and outsourcing of the works and forecast their changes in the future, as well as the capacity of utilizing the techniques. Also, it is important to monitor and support this institutionalization process even after the project completion. Training needs assessment was conducted during the project period, but it has not continuously undertaken. This should be regularly conducted to understand how the developed techniques could be introduced and entrenched in LGED's development works.

² There is no specified timeframe. Upon necessity, it is reviewed by LGED.



(RDEC laboratory established with the Project support)



(Concrete strength testing facility in RDEC laboratory)

Country Name	Japan-China Cooperation Plan of Earthquake First-aid Capacity Training
People's Republic of China	

I. Project Outline

Background	<p>Earthquake disaster prevention had been China's important policy since 2006. At the time of ex-ante evaluation, China Earthquake Administration, which is responsible for handling emergencies during earthquake disasters, was promoting human resource development of junior researchers at National Earthquake Response Support Service (NERSS), which is a direct subordinate organization of the Administration, and planning to strengthen emergency response capacity¹ of regional staff through trainings. The Chinese government also constructed China National Training Base for Urban Search and Rescue (CNSART) in the suburb of Beijing City as a training base under NERSS, and was making efforts to strengthen rescue capability of local earthquake emergency relief teams through trainings. However, there was a room for improvement regarding the training implementation system and guidance system. Moreover, after the Wenchuan Great Earthquake (Sichuan Earthquake) in May 2008, it was reaffirmed that strengthening of emergency response capacity and rescue capability is the most important and urgent issue.</p>						
Objectives of the Project	<p>Through activities aiming at strengthening teaching ability of core staff and instructors of rescue techniques at NERSS, strengthening emergency response capacity of local administrative officers in model provinces, and strengthening training capacity on rescue techniques of top officials in local earthquake emergency relief teams in model provinces, the project aimed at strengthening training capacity of NERSS on emergency response capacity and rescue techniques (Project Purpose), thereby contributing to dissemination of a system and a mechanism of emergency response and relief to provinces other than model provinces (Overall Goal). The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> 1. Overall Goal: The system and know-how for emergency response and relief is spread to provinces other than the model provinces. 2. Project Purpose: The capacity of the NERSS for emergency response and rescue skills training is strengthened. 						
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Beijing City (where NERSS is based), Yunnan Province/Hebei Province/Jiangsu Province (the emergency response area), the Inner Mongolia Autonomous Region/Shandong Province/Shaanxi Province/Guangdong Province (the rescue area) (the sites other than Beijing City are model provinces) 2. Main activities: activities to strengthen teaching ability of core staff and instructors of rescue techniques at NERSS, trainings for administrative officers in model provinces, and trainings for top officials in local earthquake emergency relief teams etc. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Japanese Side 1) Experts: 4 persons (long term), 36 persons (short term) 2) Trainees received: 116 persons 3) Equipment: fire pumps, life detection systems using electromagnetic waves, underground sound detectors, ladders etc. 4) Cost for trainings in China, overseas activities cost </td> <td style="width: 50%; vertical-align: top;"> Chinese Side 1) Staff allocated: 50 persons 2) Assignment of administrative staff 3) Project office 4) Training expenses, project implementation cost </td> </tr> </table> 					Japanese Side 1) Experts: 4 persons (long term), 36 persons (short term) 2) Trainees received: 116 persons 3) Equipment: fire pumps, life detection systems using electromagnetic waves, underground sound detectors, ladders etc. 4) Cost for trainings in China, overseas activities cost	Chinese Side 1) Staff allocated: 50 persons 2) Assignment of administrative staff 3) Project office 4) Training expenses, project implementation cost
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Ex-Ante Evaluation	2009	Project Period	October 2009 – March 2013	Project Cost	(ex-ante) 360 million yen (actual) 361 million yen		
Implementing Agency	China Earthquake Administration (National Earthquake Response Support Service (NERSS), China National Training Base for Urban Search and Rescue (CNSART))						
Cooperation Agency in Japan	Fire and Disaster Management Agency, Tokyo Fire Department, departments of disaster management in local governments						

II. Result of the Evaluation

<Constraints on Evaluation>

- Evaluation Judgment was made by analyzing the information/data collected by questionnaire and interviews through telephone/email. Site surveys were not conducted under this ex-post evaluation. Reasons are that admittance of foreign stakeholders in model provinces requires complicated procedures, accompanying by staff of China Earthquake Administration is also required, and trainings on emergency response and relief are not always conducted and thus it was difficult to control the timing of field visit.

1 Relevance

<Consistency with the Development Policy of China at the time of ex-ante evaluation and project completion>

The project has been consistent with China's development policy on 'strengthening capacity to deal with earthquakes' and 'provision of appropriate services to disaster victims' etc. as set forth in "the National Plan for Seismic Isolation and Disaster Reduction (2006-2020)"

¹ Emergency response capacity is an overall capacity to handle a situation from immediately after an occurrence of a disaster until functions of administrative agencies recover from the disaster. China and Japan have different systems, as an agency in charge of emergency handling needs to handle wide range of disasters such as human-caused disasters as well as natural disasters including wind and flood damages and earthquakes in Japan, on the other hand, in China, China Earthquake Administration needs to respond to disasters limited to earthquakes only according to the country's laws.

and “the National Earthquake Contingency Plan (revised in December 2012)”.

<Consistency with the Development Needs of China at the time of ex-ante evaluation and project completion>

The Law of the People’s Republic of China on Protecting Against and Mitigating Earthquake Disasters was amended at the end of 2008, which states that China Earthquake Administration has the centralized control over earthquake emergency response and relief and coordinates with relevant organizations as a head office. However, there was a room for improvement in its emergency response capacity and rescue capability, particularly in intangible aspects. At the time of project completion, China was in process of starting evaluations of rescue agencies in each region, based on which the continuing needs for trainings were expected from organizations related to emergency response and relief in provinces.

<Consistency with Japan’s ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan’s ODA policy on ‘cooperation to cope with global issues including environmental problems’, as stated as one of priorities/economic cooperation policies in the “Economic Cooperation Program for China (2001)”.

<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. The standard curriculum for emergency response capacity and rescue techniques was completed (Indicator 1), and the number of fostered senior instructors who can teach other instructors emergency response techniques (Indicator 2) and that of fostered senior instructors who can teach other instructors rescue techniques (Indicator 3) increased to 19 and 16, respectively, at NERSS.

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

After project completion, trainings on emergency response capacity and rescue techniques have been conducted by NERSS for regional provinces, in which the curriculum produced under the project (including prompt estimation of the extent of damages caused by an earthquake, preparation and validation of a list of assumed emergency response (time scheduling), method of map simulation, and rescue rope technique etc.) has been utilized. At the time of ex-post evaluation, there are 17 senior instructors of emergency response techniques and 15 senior instructors of rescue techniques at NERSS. Moreover, in model provinces of the emergency response area (Yunnan, Hebei and Jiangsu Provinces), a map simulation has been conducted by local administrative officers more than once a year, in which a scenario of a map simulation has been revised every time, and an earthquake emergency response plan at each level in these provinces has been revised based on the concept of time scheduling learned under the project and a map simulation has been conducted based on the plan. In model provinces of the rescue area (the Inner Mongolia Autonomous Region, Shandong, Shaanxi and Guangdong Provinces), trainings for staff of local earthquake emergency relief teams have been conducted by top officials more than once a year, in which search techniques, rescue techniques and medical aid techniques etc. learned under the project have been utilized.

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

The Overall Goal has been mostly achieved by the time of ex-post evaluation. While NERSS conducted overall post-earthquake evaluations of the Gansu Earthquake (2013) and the Ludian Earthquake in Yunnan (2014) etc., a verification result of emergency response and relief in the Sichuan Earthquake could not be obtained, which makes it unable to conduct a comparative verification (Indicator 1). However, emergency response in the Ludian Earthquake was evidently improved compared with that in the Sichuan Earthquake and Relief teams were promptly mobilized in order, while volunteer workers rushed to affected areas, which created a confusion in a part of affected areas and thus, a problem was observed in terms of management of volunteer workers. Regarding the exercise on emergency response in provinces other than model provinces, it was confirmed that the exercise was conducted for nine times in total from 2015 to 2016 in Guangdong Province, Xinjiang, Guangxi, Tianjin City and Fujian Province (Indicator 2). Regarding the rescue training in provinces other than model provinces, it was conducted in 2015 and 2016 in Fujian Province and Gansu Province (Indicator 3). The training was conducted based on systematized techniques and evaluation criteria of the International Search and Rescue Advisory Group (INSARAG), however, a part of the curriculum, manuals and teaching materials produced under the project was also utilized.

In this way, although one of the three indicators was not verifiable, an improvement of emergency response, the aim of that indicator, was confirmed to a certain extent, and the other two indicators met the targets. Therefore, it can be said that the Overall Goal was mostly achieved as a whole.

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

No negative impact on natural or social environment has been occurred under the project.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved by the time of project completion, project effects have been maintained to the time of ex-post evaluation, and while an issue was found the Overall Goal has been mostly achieved. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) The capacity of the NERSS for emergency response and rescue skills training is strengthened.	1. The standard curriculum for emergency response capacity and rescue techniques is prepared.	Status of the achievement: achieved (continued) (Project Completion) The standard curriculum for both emergency response and rescue techniques was completed. (Ex-post Evaluation) NERSS conducted training on emergency response capacity for Shanghai City Earthquake Administration in April 2014, and training on rescue techniques for armed police, firefighters and provincial earthquake administrations nationwide in March, June and July 2015. Moreover, trainings on emergency response capacity and rescue techniques for top officials have been conducted in Shandong Province and the Inner Mongolia Autonomous Region with provincial or autonomous region’s budget. The curriculum produced under the project is utilized in these

		trainings.																							
	2. More than 15 senior instructors who can teach other instructors emergency response techniques are fostered.	Status of the achievement: achieved (continued) (Project completion) In the emergency response area, 19 senior instructors were cultivated to be able to teach other instructors. (Ex-post Evaluation) There are 17 senior instructors in total.																							
	3. More than 15 senior instructors who can teach other instructors rescue techniques are cultivated.	Status of the achievement: achieved (continued) (Project completion) 16 senior instructors who can teach other instructors rescue techniques were cultivated. However, among them, two instructors were transferred to Gansu Province Earthquake Administration and Sichuan Province Earthquake Administration, and thus the number of senior instructors belonging to NERSS at the time of terminal evaluation was 14. (Ex-post Evaluation) There are 15 senior instructors in total.																							
	(Supplemental Information 1) In model provinces, a map simulation is conducted more than once a year, and a scenario of a map simulation is revised every time.	Status of the achievement: (continued) (Ex-post Evaluation) Frequencies of map simulation conducted by regional administrative officers in model provinces are shown below. The exercise has been conducted more than once a year and a scenario has been revised every time in all provinces. In Jiangsu Province, simulations led by the provincial earthquake administration are conducted particularly at a high pace in a number of locations following the new revision of the earthquake emergency response that started at the end of 2012.																							
		<table border="1"> <thead> <tr> <th rowspan="2">Model Province</th> <th colspan="3">Number of Times Map simulation Implemented</th> </tr> <tr> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Yunnan Province</td> <td>3</td> <td>3</td> <td>4</td> </tr> <tr> <td>Hebei Province</td> <td>4</td> <td>3</td> <td>2</td> </tr> <tr> <td>Jiangsu Province</td> <td>3</td> <td>20</td> <td>23</td> </tr> </tbody> </table>	Model Province	Number of Times Map simulation Implemented			2013	2014	2015	Yunnan Province	3	3	4	Hebei Province	4	3	2	Jiangsu Province	3	20	23				
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	(Supplemental Information 2) In model provinces, trainings for staff of local earthquake emergency relief teams are conducted more than once a year.	Status of the achievement: (continued) (Ex-post Evaluation) Frequencies of trainings for staff of local earthquake emergency relief teams conducted by top officials in model provinces are shown below. The training has been conducted more than once a year in all provinces.																							
		<table border="1"> <thead> <tr> <th rowspan="2">Model Province</th> <th colspan="3">Number of Times a Training Implemented</th> </tr> <tr> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>The Inner Mongolia Autonomous Region</td> <td>3</td> <td>5</td> <td>5</td> </tr> <tr> <td>Shandong Province</td> <td>Several</td> <td>Several</td> <td>Several</td> </tr> <tr> <td>Shaanxi Province</td> <td>1</td> <td>1</td> <td>2</td> </tr> <tr> <td>Guangdong Province</td> <td>2</td> <td>1</td> <td>2</td> </tr> </tbody> </table>	Model Province	Number of Times a Training Implemented			2013	2014	2015	The Inner Mongolia Autonomous Region	3	5	5	Shandong Province	Several	Several	Several	Shaanxi Province	1	1	2	Guangdong Province	2	1	2
Model Province	Number of Times a Training Implemented																								
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Shaanxi Province	1	1	2																						
Guangdong Province	2	1	2																						
(Overall goal) The system and know-how for emergency response and relief is spread to provinces other than the model provinces.	1. Overall post-earthquake evaluations of actual earthquakes (evaluation on emergency response and relief) receive higher results compared with a validation result of the Sichuan Earthquake.	(Ex-post Evaluation) Not achieved (not verifiable) While a validation on handling of the Sichuan Earthquake was conducted comprehensively at the national level, a validation result on emergency response and relief could not be obtained, and thus there is no criterion to evaluate handling of earthquakes that occurred after project completion, which makes it unable to conduct a comparative validation.																							
	2. An exercise on emergency response is conducted more than once in provinces other than model provinces.	(Ex-post Evaluation) achieved NERSS developed a training software in 2015 utilizing the concept of time scheduling and the technique of a map simulation exercise learned under the project. Trainings on emergency response were conducted utilizing the software for nine times in total for 370 participants in Shenzhen City in Guangdong Province, Changji City in Xinjiang, Nanning City in Guangxi Province, Tianjin City and Yancheng City in Fujian Province from 2015 to July 2016.																							
	3. Rescue training is conducted more than once in provinces other than model provinces.	(Ex-post Evaluation) achieved Simulated exercises of earthquake emergency rescue were conducted by Fujian Province Earthquake Administration for approximately 200 participants including armed police, firefighters, officials of Earthquake Administration and volunteer workers etc. in the province in 2015. Technical exercises of earthquake rescue were conducted by Gansu Province Earthquake Administration for approximately 100 participants including armed police, firefighters and officials of Earthquake Administration etc. in the province in 2016.																							

Source : Terminal Evaluation Report, Questionnaire survey to NERSS and earthquake administrations of model provinces (Shandong Province, Hebei Province, Jiangsu Province, the Inner Mongolia Autonomous Region and Shaanxi Province)

Note: While there is no item on emergency response and relief in model provinces are set as indicators of Project Purpose in PDM of this project, a continuation status of effects in model provinces should be checked in evaluating a continuation status of project effects and an achievement level of Overall Goal, and thus supplemental information above was also checked in this ex-post evaluation.

Indicator 3 of Overall Goal is stated as “rescue training is conducted more than once in provinces other than model provinces” in PDM version 0 (prepared during ex-ante evaluation), and “rescue training is conducted more than once in provinces other than model provinces and where an exercise on emergency response is conducted more than once” in PDM version 1 (revised during the project, and was used for this ex-post evaluation). However, in parts which explain about revisions of PDM in existing project reports, there is no description that Indicator 3 of Overall Goal was ever revised, and moreover, through the project, emergency response and relief were treated as separate contents and activities for each content were conducted in different model provinces. Thus, it was judged that Indicator 3 in PDM version 1 is a mistake and Indicator 3 in PDM version 0 was used instead.

3 Efficiency

Both project cost and project period were within the plan (the ratio against the plan is 100% for both). Therefore efficiency of the project is high.

4 Sustainability

<Policy Aspect>

“The National Plan for Seismic Isolation and Disaster Reduction (2006-2020)” mentioned above is still effective at the time of ex-post evaluation.

<Institutional Aspect>

The Technical Department of NERSS is in charge of trainings on earthquake emergency response, and 11 staff are actually assigned in the department, while the number of quota (the required number of staff) is 10. The Training Department of NERSS is in charge of trainings on emergency relief (rescue), and both the number of quota and the actually assigned number of staff in the department are 18. According to NERSS, the number of staff is sufficient in the Technical Department, as their tasks are properly conducted. On the other hand, in the Training Department, while the number of quota is filled, the professional qualification system as a training implementation system has not been developed, and classifications, levels and responsibilities of each rescue technique are not clear, which makes it difficult to expand trainings and guidance in the rescue area nationwide. Moreover, NERSS is responsible for conducting trainings as requested by provinces, and there is no institutional system for NERSS to obtain information on exercises and trainings conducted in provinces other than model provinces, and thus it is considered to be difficult to actively promote the expansion of project effects to provinces other than model provinces, as aimed in the Overall Goal. Regarding institutional systems in model provinces, among model provinces of the emergency response area, the number of highly professional administrative officers was reported to be insufficient in Jiangsu Province, and among model provinces of the rescue area, the number of highly professional top officials in the earthquake emergency relief teams was reported to be insufficient in the Inner Mongolia Autonomous Region and Shandong Province. Nonetheless, exercises and trainings have been conducted by the currently assigned staff in these provinces, and thus the above is considered to be an issue to make exercises and trainings more professional by assigning selected staffs.

<Technical Aspect>

At the time of ex-post evaluation, project counterparts still work for NERSS. The technical level of staff is sufficient in the Technical Department (emergency response), as their tasks are properly conducted. On the other hand, staff in the Training Department (rescue) lack wood shoring technique, rescue technique in underground space, rescue technique in enclosed space, vehicle rescue technique and quickwater rescue technique etc. Among model provinces of the emergency response area, the technical level of administrative officers was reported to be sufficient, as their technical skills have been strengthened through a lot of map simulations, simulation trainings which are conducted under a situation closer to actual disaster situations have been conducted, and a speed of emergency response has been improved in Hebei, Jiangsu and Yunnan Provinces. Among model provinces of the rescue area, the technical level of top officials in local earthquake emergency relief teams has reached a sufficient level through a lot of trainings and actual rescue activities in Shaanxi and Shandong Provinces, while the technical level of top officials in earthquake emergency relief teams was reported to be insufficient in the Inner Mongolia Autonomous Region, as training materials for rescue and normative rescue operating procedures that take into account geographical characteristics of the Region have not yet been prepared. Nonetheless, in all provinces, in case supports are requested from these provinces to NERSS regarding training techniques and know-hows etc., supports can be provided by NERSS.

Equipment procured under the project (fire pumps, life detection systems using electromagnetic waves, underground sound detectors, ladders etc.) are utilized at the time of ex-post evaluation, and regular inspections and repairs are conducted as necessary in NERSS and Shaanxi Province, while in Shandong Province, the frequency of use of equipment is not so high, as there have not been many disasters, and thus regular inspections are not conducted (irregular inspections and repairs are conducted).

<Financial Aspect>

At the time of ex-post evaluation, a certain amount of budget is allocated from China Earthquake Administration to NERSS every year, and NERSS conducts trainings and guidance for regional provinces with the budget. Among model provinces of the emergency response area, a budget for exercises has been included in a budget plan every year in Jiangsu Province, and the budget has been sufficiently secured, as exercises have been conducted for 20 times a year in recent years. Among model provinces of the rescue area, a certain amount of budget has been secured and trainings have been steadily conducted in Shaanxi and Shandong Provinces. On the other hand, the budget amount was reported to be insufficient in Yunnan and Hebei Provinces and the Inner Mongolia Autonomous Region².

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional, 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, “strengthening training capacity of NERSS on emergency response capacity and rescue techniques”, as planned. As for Overall Goal, while a verification of emergency response and relief in the Sichuan Earthquake could not be obtained and a comparative verification between the Sichuan Earthquake and earthquakes occurred after project completion cannot be conducted, Overall Goal can be said to have been mostly achieved, as it was confirmed that trainings have been conducted in provinces other than model provinces. Regarding sustainability, some problems have been observed in terms of the institutional, technical and financial aspects of NERSS and model provinces. For 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 highly satisfactory.

² Data on the amount of budget in all organizations could not be obtained, as it cannot be made open to public.

III. Recommendations & Lessons Learned

Lessons learned for JICA:

It was observed in the ex-post evaluation that NERSS is mainly responsible for conducting trainings upon receiving requests from regional provinces, and it does not have the responsibility to promote the expansion of project effects to provinces other than model provinces as aimed in Overall Goal³. There should have been sufficient communication between Japan and China on the contents of Overall Goal that should be achieved after project completion through project planning, implementation and terminal evaluation.



Training for Earthquake Emergency Relief Team in Gansu Province by NERSS



Joint Exercise by Wuxi Earthquake Administration of Jiangsu Province and Government of Nanchang District

³ Among three indicators of Overall Goal, the implementing agency did not recognize that Indicator 1 is used to evaluate project effects. For Indicator 2 and 3, while data on cases to prove that targets were achieved was obtained, comprehensive data collection was difficult, as NERSS does not have a system to collect information and maintain statistics.

Country Name	The Strengthening of Environment Management Capacity of Local Governments in Indonesia
Republic of Indonesia	

I. Project Outline

Background	In Indonesia, one of the causes of the pollution of rivers were illegal dumping of domestic wastes by residents along these rivers, underdevelopment of sewerage treatment facilities and household septic tanks and the most importantly, environmental management administrations were not effective. Under such situation, the Indonesian government developed the legal systems on various environmental management including water quality management; however, relevant laws were still not properly enforced. One of the reasons was the insufficient capacity of the local governments (province, regency and municipality), which were primarily responsible for environmental management under the decentralization policy, to fully enforce the relevant laws.													
Objectives of the Project	Through clarifying responsibilities and mandates of local governments on water quality management and water pollution control (WQM/WPC), drafting WQM/WPC plan and implementing pilot activities along the plan in pilot sites, the project aimed at developing capacity of local governments for WQM/WPC, thereby contributing to enforcement of the laws and regulations on WQM/WPC by local governments in the Cisadane River. The project objectives set forth are as follows:													
	<ol style="list-style-type: none"> Overall Goal: The laws and regulations regarding water quality management and water pollution control (WQM/WPC) are enforced by local governments in the Cisadane River. Project Purpose: Local governments develop their capacity of water quality management and water pollution control (WQM/WPC) to enforce the environmental laws and regulations in the pilot sites. 													
Activities of the Project	<ol style="list-style-type: none"> Project site: The Cisadane River basin in West Java and Banten Provinces (Pilot Site: Bogor regency and Tangerang municipality) Main activities: (1) Clarify responsibilities and mandates for WQM/WPC in each institution and section at provincial and regency/municipality levels; (2) Prepare the booklets regarding the laws and regulations on WQM/WPC, the policy paper for strengthening organization and institution, a manual for province to support regency/municipality and a technical guideline for formulation of WQM/WPC plan; (3) Develop pollution source inventory (PSI) of the Cisadane River basin and database; and (4) Define target water quality of the Cisadane River in pilot sites, prepare a draft WQM/WPC plan and conduct pilot activities based on the plan in pilot sites. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Indonesian Side</td> </tr> <tr> <td>1. Experts: 9 persons</td> <td>1. Staff allocated:</td> </tr> <tr> <td>2. Trainees received in Japan: 18 persons</td> <td>Central government: officers of Directorate General for Regional Development, Ministry of Home Affairs (BANGDA), Ministry of Environment (KLH) (number not stated)</td> </tr> <tr> <td>3. Provision of equipment: computers, printers, global positioning system (GPS) and uninterruptible power supply (UPS) etc.</td> <td>Local government: 57 persons</td> </tr> <tr> <td>4. Overseas activities cost: approximately 44 million yen</td> <td>2. Land and facilities: project office space</td> </tr> </table> 				Japanese Side	Indonesian Side	1. Experts: 9 persons	1. Staff allocated:	2. Trainees received in Japan: 18 persons	Central government: officers of Directorate General for Regional Development, Ministry of Home Affairs (BANGDA), Ministry of Environment (KLH) (number not stated)	3. Provision of equipment: computers, printers, global positioning system (GPS) and uninterruptible power supply (UPS) etc.	Local government: 57 persons	4. Overseas activities cost: approximately 44 million yen	2. Land and facilities: project office space
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Ex-Ante Evaluation	2006-2007	Project Period	March 2009 to September 2011	Project Cost	259 million yen									
Implementing Agency	Directorate General for Regional Development, Ministry of Home Affairs (BANGDA), Ministry of Environment (KLH), environmental institutions in the West Java province, the Banten province, the Bogor regency, the Bogor municipality, the Tangerang regency, the Tangerang municipality and the South Tangerang municipality													
Cooperation Agency in Japan	Nippon Koei Co., Ltd.													

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Indonesia at the time of ex-ante and project completion></p> <p>The project was consistent with Indonesia's development policy on 'controlling environmental pollution and destruction' as set forth in the "National Medium Term Development Plan (RPJMN) (2005-2009)" and the RPJMN (2010-2014) at the time of both ex-ante evaluation and project completion.</p> <p><Consistency with the Development Needs of Indonesia at the time of ex-ante and project completion></p> <p>Various laws and regulations for WQM/WPC were issued at the time of both ex-ante evaluation and project completion, but local governments did not have sufficient enforcement capacity as mentioned in "Background" above. A comprehensive support for capacity development of local governments was required to enforce these laws and regulations. Thus, this project was consistent with the local needs.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The project was consistent with Japan's ODA policy, as "the Country Assistance Program for Indonesia (2004)" stated that assistance for environmental administration and environmental management, including the establishment of a system to monitor atmospheric pollution and water contamination, would be provided.</p> <p><Evaluation Result> In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact

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

The Project Purpose was mostly achieved by the time of project completion. The pollution source inventory (PSI) was developed, and based on the PSI, the technical guideline for formulation of WQM/WPC plan for local governments was prepared. The actual number of staff and facilities and the amount of budget in these institutions were considered to be sufficient, as all the activities in pilot sites were implemented as planned (Indicator 1). Draft WQM/WPC plan of Bogor regency was recognized at organizational level in pilot site, as the Regulation on Water Quality Monitoring and Water Pollution Control was issued by the regional government in 2011. Issuing of the regional government regulation (Peraturan Daerah: Perda) means that the regulation went through cross-government discussions. On the other hand, it cannot be said that the draft WQM/WPC plan of Tangerang municipality was recognized at organizational level in pilot site, as Perda was not issued by the time of project completion in Tangerang municipality (it was recognized after project completion) (Indicator 2). Performance on WQM/WPC such as water quality monitoring, development of WQM/WPC database, inspection, coordination with other institutions/sections, and public awareness, etc. was improved in pilot sites through on-the-job training (OJT) and pilot activities (Indicator 3) such as launching and promotion of a community based domestic wastewater treatment and solid waste management called the Green Village program (see the column and pictures at the end of this report). It should be noted that besides this project, there were other inputs from the central and local governments of Indonesia for environmental improvement in the Cisadane river basin under the Cisadane programs that had started in 1995, and the outputs of this project (manuals/booklets, WQM/WPC plans, inventories/ integrated databases, etc.) helped Bogor regency and Tangerang municipality utilize such inputs.

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

The project effects have been maintained since project completion. The actual number of staff and facilities and the amount of budget in environmental institutions in Bogor regency and Tangerang municipality are still considered to be sufficient as all the activities in pilot sites have been continued as planned. The WQM/WPC plan of Bogor regency has continued to be recognized, as the environmental institution established a website for socializing its activities and conducted awareness raising through forums. In Tangerang municipality, the Regulation on Water Quality Monitoring and Water Pollution Control was issued by the regional government in 2013 and 2014, which indicates that draft WQM/WPC plan of Tangerang municipality has been recognized at organizational level in pilot site. Activities for improved WQM/WPC have been continued, such as water quality monitoring on a regular basis and livestock pollution control with biogas system etc. in Bogor regency, and inspection activities and the small-scale domestic wastewater treatment system as part of the Green Village program, etc. in Tangerang municipality.

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

The Overall Goal was achieved at the time of ex-post evaluation. According to each local government, WQM/WPC plan has been formulated and adapted in all municipalities/regencies along the Cisadane river (Indicator 1). Some improvements in WQM/WPC performance have been seen in those municipalities/regencies. For example, waste treatment plants received instructions based on monitoring and inspection. (Indicator 2)¹. Support and coordination have been provided to local governments (regencies and municipalities) by provincial governments in the form of policy guidance on WQM/WPC and regular coordination meetings referring to national policies (Indicator 3). According to each local government, training and guidelines/manuals provided under this project have been utilized by all local governments, and thus contributed to the improvements in the provinces and non-pilot municipalities/regencies.

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

As an impact, the awareness of local governments of water pollution control has increased. For instance, the pilot communal wastewater treatment plant has been duplicated by Tangerang Municipality. In 2014, they duplicated 11 communal wastewater treatment plants.

<Evaluation Result> Both the Project Purpose and the Overall Goal have been achieved. Therefore, effectiveness and impact of the project are high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Local governments develop their capacity of water quality management and water pollution control (WQM/WPC) to enforce the environmental laws and regulations in the pilot sites. * Pilot sites: Bogor regency and Tangerang municipality	1. Appropriate allocation of resources (staff, budget, facilities) to implement WQM/WPC plan in pilot site	<u>Status of achievement: Achieved (continued)</u> (Project Completion) The number of staff and facilities and the amount of budget allocated in environmental institutions of Bogor regency (70 staff and 556 million Rupiah in 2011) and Tangerang municipality (45 staff in 2011 and 12,121 million Rupiah from 2009 to 2013 ⁽¹⁾) were considered to be sufficient, as all the activities (water quality monitoring, inspection, development of an integrated WQM/WPC database, and public awareness etc.) in pilot sites were implemented as planned. (Ex-post Evaluation) The numbers of staff have not much changed (69 persons in Bogor regency and around 40 persons in Tangerang municipality in 2015). Although the exact amount of budget allocated for implementation of WQM/WPC was not officially disclosed, it is considered to be sufficient, as budget allocation was confirmed in both pilot sites in the field survey and all the activities in pilot sites have been implemented as planned. Moreover, local consultants are employed to conduct laboratory analysis for WQM/WPC in Bogor regency and Tangerang municipality.
	2. Recognition of draft WQM/WPC plan at organizational level in pilot site	<u>Status of achievement: Partially achieved by project completion (achieved and continued after project completion)</u> (Project Completion) The Regulation on Water Quality Monitoring and Water Pollution Control was issued by the regional government in Bogor regency in 2011, which indicates that draft WQM/WPC plan of Bogor regency was recognized at organizational

¹ Concrete information was not available about every aspect of WQM/WPC except the ones in the pilot sites as mentioned under “Continuation Status of Project Effects at the time of Ex-post Evaluation”.

		<p>level in pilot site. Issuing a regional government regulation (Perda) means that the regulation has been going through public dialog and as well as cross-government discussion.</p> <p>On the other hand, it is not clear whether draft WQM/WPC plan of Tangerang municipality was recognized at organizational level in pilot site, as the regional government regulation was not issued by the time of project completion.</p> <p>(Ex-post Evaluation) The Regulation on WQM and WPC in Bogor regency is still effective at the time of ex-post evaluation. The environmental institution of Bogor regency established a website for socializing its activities. It also established forums such as Environmentally Friendly Village Forum and "River for Life" Community with NGOs and local communities. The Regulation on Water Quality Monitoring and Water Pollution Control was issued by the regional government in Tangerang municipality in 2013 and 2014, which indicates that draft WQM/WPC plan of Tangerang municipality has been recognized at organizational level in pilot site.</p>
	<p>3. Improved performance on WQM/WPC such as water quality monitoring, database, inspection, coordination with other institutions/sections, public awareness, etc. in pilot sites</p>	<p><u>Status of achievement: Achieved (continued)</u></p> <p>(Project Completion) Regarding water quality monitoring, reconsideration of sampling points and improvement of sampling methods and site measurements were instructed at OJT. Improvement of the inspection activity (e.g. better preparation for inspection), database (e.g., construction of PSI and integration of existing database), and public awareness activity (e.g. Green Village program to promote community-based domestic wastewater treatment) were implemented as pilot activities.</p> <p>The pilot activities and the preparation process of the draft WQM/WPC plans promoted coordination with other organizations such as the Animal Husbandry Department and Public Works Department.</p> <p>(Ex-post Evaluation) Activities for improved WQM/WPC have been continued, such as water quality monitoring on a regular basis, livestock pollution control with biogas system, and several forums for public awareness, etc. in Bogor regency and inspection, a small-scale domestic wastewater treatment system (Green Village program) coupled with public awareness etc. in Tangerang municipality.</p>
<p>(Overall Goal) The laws and regulations regarding water quality management and water pollution control (WQM/WPC) are enforced by local governments in the Cisadane River.</p> <p><i>* Local governments other than pilot sites: West Java province, Banten province, Bogor municipality, Tangerang regency, South Tangerang municipality</i></p>	<p>1. Formulation and adaption of WQM/WPC plan by all local governments along the Cisadane river</p>	<p><u>Status of achievement: Achieved</u></p> <p>(Ex-post Evaluation) WQM/WPC plan has been formulated and adapted in all local governments along the Cisadane river. The Booklet on Environmental Laws and Regulations related to WQM/WPC, Manual for Province to Support Regency/Municipality, Technical Guideline for WQM/WPC Plan and PSI that were developed under the project have been utilized by all local governments in the Cisadane River basin.</p>
	<p>2. Improved performance on WQM/WPC such as water quality monitoring, database, inspection, coordination with other institutions/sections, public awareness, etc. along Cisadane river</p>	<p><u>Status of achievement: Achieved</u></p> <p>(Ex-post Evaluation) Improved law enforcement was observed. For example, waste disposal plants got rebuke (in Bogor municipality, Bogor regency, South Tangerang municipality), call session (Tangerang regency, Tangerang municipality), and temporary closure (Tangerang regency), based on monitoring and inspection. If there are no changes to the temporary closure of waste disposal management, the case will be lifted to close the permit for operation.</p> <p>Also, three laboratories to implement the WQM/WPC have achieved the national standardization (Bogor regency as Test Laboratory, Tangerang regency as Environmental Laboratory, and South Tangerang municipality as Environmental Laboratory).</p>
	<p>3. Necessary support and coordination to local government by province on WQM/WPC</p>	<p><u>Status of achievement: Achieved</u></p> <p>(Ex-post Evaluation) Provincial governments have provided policy guidance on WQM/WPC to local governments (regencies and municipalities) referring to national policies and held regular coordination meetings.</p>

Source : Project Completion Report, Questionnaire survey to local governments

Note: (1) The amount of budget in the environmental institution of Tangerang municipality during the project period was not available (only the aggregate amount of actual expenditures from 2009 to 2013 was available).

3 Efficiency

Both the project cost and the project period were within the plan (the ratio against the plan is 81% and 100% respectively). Therefore efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The RPJMN (2015-2019) aims at strengthening of environmental management capacity through developing investigators. Moreover, both Banten and West Java Provinces have incorporated the issues related to WQM/WPC in all river basins into their Regional Medium-Term Development Plans.

<Institutional Aspect>

At the time of ex-post evaluation, while the number of quota (the required number of staff) and actual number of staff in environmental institutions of local governments in the Cisadane River basin are not available except Bogor regency and Tangerang municipality, the number of staff in these institutions is considered to be sufficient, as they utilize external human resources and local consultants with budget

allocation and necessary WQM/WPC activities have been implemented as planned, according to each local government.

<Technical Aspect>

At the time of ex-post evaluation, some project counterparts still work in environmental institutions of local governments in the Cisadane River basin, however, others have retired and/or been transferred to other institutions. Even though some staff left these environmental institutions, the skill level of remaining staff in these environmental institutions is considered to be sufficient to formulate and implement WQM/WPC plans, as necessary WQM/WPC activities have been implemented as planned. Trainings for technical capacity improvement of WQM/WPC are provided by provincial environmental institutions for three to four days every year. Moreover, the Booklet on Environmental Laws and Regulations related to WQM/WPC, Manual for Province to Support Regency/Municipality, Technical Guideline for WQM/WPC Plan and PSI that were developed under the project have been utilized by all local governments in the Cisadane River basin, although they have not been revised yet.

<Financial Aspect>

Although the budget data was not officially disclosed by local governments in the Cisadane River basin², it was confirmed that in each local government, the local budget (APBD) has been allocated for WQM/WPC, and that such activities, including identification of water pollution sources and pollutant load capacity of rivers, water quality monitoring, law enforcement to offenders of pollution control, development of Green Village program, trainings on domestic waste management for local communities etc., have been indeed properly conducted by environmental institutions of these local governments. Also, from the past years Ministry of Environment has allocated special budget (DAK) to support local governments in environmental quality monitoring and control, although the amount of budget cannot be informed during ex-post evaluation. Thus, it can be concluded that sufficient amount of budget has been stably allocated to cover these WQM/WPC activities and no problem is foreseen in the future prospect.

<Evaluation Result> No major problems have been observed in policy, institutional, technical and financial aspects of the project. Therefore, sustainability of effects of the project is high.

5 Summary of the Evaluation

The targets set in indicators for the Project Purpose were mostly achieved, and project effects have been maintained after project completion, showing WQM/WPC has been improved in Bogor regency and Tangerang municipality, the pilot sites. The Overall Goal was also achieved at the time of ex-post evaluation, as the project effects have been extended to the other local governments in the Cisadane river basin through the technical guidelines prepared by the project. In terms of sustainability, no major problems have been observed in policy, institutional, technical and financial aspects of the project.

In light of the above, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for Implementing Agency>

The concerned local governments and environmental institutions are recommended to continue good performances of WQM/WPC and further improve them. To do so, the documents produced under this project, such as the Booklet on Environmental Laws and Regulations related to WQM/WPC, Manual for Province to Support Regency/Municipality, Technical Guideline for WQM/WPC Plan and PSI, should be updated when the contents are found old in the future.

<Lessons Learned for JICA>

To enhance law enforcement by environmental institutions, it is important that such institutions become capable of properly identifying and analyzing the data on environmental carrying capacity, environmental load and pollution sources and of formulating WQM/WPC plans based on the analysis. Further, as this project attained, implementation of some components of the WQM/WPC plans formulated through the above-mentioned process as pilot activities by means of OJT for the staff of the environmental institutions can lead to continuation of the activities after project completion.

² Bogor regency, Bogor municipality and Tangerang regency unofficially informed the approximate budget level during the interviews for the ex-post evaluation.

Green Village Program in Tangerang Municipality

Green Village program was developed in Bugel Mas Indah Housing area during the project period, including the construction of domestic waste water treatment plant for about 80 houses and recycling community development. The 6 cubic meters of wastewater treatment plant was still in good condition. The cost required for operation and maintenance including electrical bill which is about Rp. 500,000 per month was paid by the contributions of the community.



Communal wastewater treatment plant



Activities related to 3R (Reduce, Reuse, Recycle) and waste bank

Country Name	School Health and Nutrition Project
Federal Democratic Republic of Nepal	

I. Project Outline

Background	<p>The nutritional deficiencies as well as other diseases related to public health were very serious in Nepal. Such health conditions of children had negative effects on their attendance and academic achievement in school. Ministry of Health and Population (MOHP) (Currently, Ministry of Health: MOH), Ministry of Education (MOE), and the Government of Nepal (GON) jointly prepared and endorsed the “National School Health and Nutrition (NSHN) Strategy” in June 2006. The NSHN Strategy focuses on improvement in the health and nutrition status of school-aged children and communities by utilizing schools as the places to implement health activities. However, significant results were yet to be obtained because of lack of establishment of implementation system to promote the NSHN Strategy.</p>						
Objectives of the Project	<p>By developing SHN Basic Guideline, conduct training on it and implementing SHN Basic Program (Package) in the target schools, establishing Child Club and promoting behavior change of children, and establishing organizational structure for implementing the SHN program/activities each at central, district and school level, the project aimed that utilization of school health services is increased among school-aged children in the target district (Project purpose 1 level), and implementation system of the National School Health and Nutrition Strategy is strengthened in the MOHP and the MOE.(Project purpose 2 level), and thereby health and nutrition status of school-aged children is improved in the target districts. (Overall goal level). The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> Overall Goal: Health and nutrition status of school-aged children is improved in the target districts. Project Purpose: <ol style="list-style-type: none"> Utilization of school health services is increased among school-aged children in the target districts. Implementation system of the National School Health and Nutrition Strategy is strengthened in the Ministry of Health and Population and the Ministry of Education. 						
Activities of the project	<ol style="list-style-type: none"> Project site: Sindhupalchowk district and Syangja district (At the initial stage of the project implementation, the project targeted 15 villages each in two districts. However, Nepali side requested to include more villages as the number was too small in terms of model development. Therefore, though not in the project plan, the implementation of School Health and Nutrition (SHN) Basic Program (Package) was expanded to all public schools (1,113 schools) in all villages (79 villages in Sindhupalchowk and 69 villages in Syangja district). Activities: <ol style="list-style-type: none"> The project develops SHN basic guideline, conducts training on it and implement SHN basic program (package) in the target schools. (2) The project supports target schools to establish Child Clubs (CCs) and promotes behavior change of children. (3) The project supports establishing organizational structure for implementing the SHN program/activities each at central, district and school level. (4) The project develops a model and an action plan for disseminating SHN program/activities and reviews and revises the NSHN Strategy. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 18 persons Training in Japan: 27 persons, Third Country Training: 21 persons Equipment: 12 million yen (vehicles, motorcycles, computers, etc.) Local cost: 74 million yen </td> <td style="width: 50%; vertical-align: top;"> <p>Nepali Side</p> <ol style="list-style-type: none"> Staff allocated: Approximately 30 persons Land and facility: Project offices Local cost: 604 million rupees for SHN-related programs allocated for the two target districts. It included de-worming, first aid kit box distribution, SHN week activities, and monitoring and orientation. It also included mid-day meal, physical support such as classroom construction and toilet construction, which are not in the scope of the work of the Project. </td> </tr> </table> 					<p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 18 persons Training in Japan: 27 persons, Third Country Training: 21 persons Equipment: 12 million yen (vehicles, motorcycles, computers, etc.) Local cost: 74 million yen 	<p>Nepali Side</p> <ol style="list-style-type: none"> Staff allocated: Approximately 30 persons Land and facility: Project offices Local cost: 604 million rupees for SHN-related programs allocated for the two target districts. It included de-worming, first aid kit box distribution, SHN week activities, and monitoring and orientation. It also included mid-day meal, physical support such as classroom construction and toilet construction, which are not in the scope of the work of the Project.
<p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 18 persons Training in Japan: 27 persons, Third Country Training: 21 persons Equipment: 12 million yen (vehicles, motorcycles, computers, etc.) Local cost: 74 million yen 	<p>Nepali Side</p> <ol style="list-style-type: none"> Staff allocated: Approximately 30 persons Land and facility: Project offices Local cost: 604 million rupees for SHN-related programs allocated for the two target districts. It included de-worming, first aid kit box distribution, SHN week activities, and monitoring and orientation. It also included mid-day meal, physical support such as classroom construction and toilet construction, which are not in the scope of the work of the Project. 						
Ex-Ante Evaluation	2008	Project Period	June 2008-May 2012	Project Cost	(ex-ante) 370 million yen (ex-post) 275 million yen		
Implementing Agency	Department of Health and Services (DOHS), Ministry of Health and Population (MOHP, currently MOH); Department of Education(DOE), Ministry of Education (MOE); District Health Office (DHO) in Sindhupalchowk district and Syangja district; District Education Office (DEO) in Sindhupalchowk district and Syangja district						
Cooperation Agency in Japan	-						

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of Nepal at the time of ex-ante evaluation and project completion>
The project was consistent with development policy of Nepal both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, MOHP, MOE, and the GON jointly prepared and endorsed the NSHN Strategy in June 2006 which focuses on

improvement in the health and nutrition status of school-aged children and communities by utilizing schools as the places to implement health activities. At the time of project completion, the project was consistent with NSHN Strategy 2006 which is effective to date.

<Consistency with the Development Needs of Nepal at the time of ex-ante evaluation and project completion >

The project was consistent with the needs for improvement in health and nutrition status of children in Nepal both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, education related indicators such as drop-out rate in Sindhupalchowk district¹ were worse than other districts in central mountain areas, and poverty prevailed in the district. Therefore, the selection of the target district was relevant. As to health issues, there was a high prevalence of anemia, sub-clinical iodine deficiency, helminthes infestations, and vitamin A deficiency nationally among children. At the time of project completion, those health and nutrition issues prevailed yet.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy. Priority areas under basic policy of ODA to Nepal included poverty reduction in rural areas which emphasize the importance of agriculture and rural development, basic education and health, according to ODA Country Databook 2008 (Ministry of Foreign Affairs).

<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 partially achieved by the time of project completion. Project purpose 1 was mostly achieved as decrease in worm infestation was observed (indicator 5), and Child Clubs (CCs) were established in the target districts and SHN activities were conducted (indicator 6). On the other hand, project purpose 2 was partially achieved. Although School Health Service Minimum Package Guideline was developed and approved by the DOE and DOHS in June 2010 (indicator 2), the model developed by the project to practice SHN itself was not approved by the National School Health and Nutrition Advisory Committee (NSHNAC)² (indicator 1) as it was not fully discussed. School health related data was compiled (indicator 4), however, monitoring and supervision sheet on SHN were not complied as the format was different from the existing monitoring sheets and therefore the persons in charge felt burdened (indicator 3).

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

After the project was completed, school health activities have partially continued at the target districts. Although no data is available at the time of ex-post evaluation, DEOs, DHOs and target schools assume the worm infestation have decreased as the administration of de-worming tablets have continued. CCs have conduct wider variety of activities in school after the project completion. Cleaning school premises, toilets and class rooms, operating library, management of first aid kit box and health related activities i.e. checking personal health and hygiene (nail, teeth, dress etc.) are major activities of CCs in school. Application of new attendance register (although there is room for proper use of the register, as all required information related SHN are not maintained and utilized for planning), formation/reformation of CC, mid-day meal and helminthes control are some of the significant activities conducted particularly in 15 original project-implemented villages of Sindhupalchowk. After the project was completed, physical check-up, which was an important component of the project, and good cases of referral of students to hospitals after the check-up that were found during the project period, has not continued in the absence of supporting and constant monitoring. Weighting machines was broken and left unrepaired.

The model developed by the project has not been approved by NSHNAC, as NSHNAC meeting has not been convened. However, the model was endorsed by MOE and MOH in the form of "SHNP Training and Operational Manual 2071 (2014)". Monitoring and data compilation are yet to be fully developed.

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

The overall goal was partially achieved. No data is available for malnutrition (indicator 1) as no health check-up is carried out after the project completion. Increasing trend is found in the attendance rate (indicator 2). De-worming program were the significant activity conducted in Syangja and Sindhupalchowk districts that increased nutrition status of school children and also had impact on attendance rate according to DEO and DHO of both the districts.

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

Initiatives introduced by the project have expanded to other districts. De-worming program has continued nationwide (all districts) and first aid kit box has been expanded in 36 districts. Similarly, daily attendance register is used nationally.

No land acquisition and resettlement occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

In light of the above, the project purpose and overall goal were partially achieved. Therefore, the effectiveness/impact of the project is fair.

Achievement of project t purpose and overall goal

Aim	Indicators	Results									
(Project Purpose 1) Utilization of school health services is increased among school-aged children in the target districts.	Indicator 5: Decrease in worm infestation of school-aged children from 25.1% in 2008 to 15.1% in 2012	Status of the achievement: achieved (partially continued) (Project Completion) According to the results of blood and stool samples of the selected children in the endline survey conducted by the project, the prevalence of helminthiasis among the school-aged children decreased. Helminthes prevalence among students									
		<table border="1"> <thead> <tr> <th></th> <th>Baseline (2008)</th> <th>Endline (2011)</th> </tr> </thead> <tbody> <tr> <td></td> <td>N=3,138</td> <td>N=2,710</td> </tr> <tr> <td>Sindhupalchowk</td> <td>39.5%</td> <td>2.4%</td> </tr> </tbody> </table>		Baseline (2008)	Endline (2011)		N=3,138	N=2,710	Sindhupalchowk	39.5%	2.4%
	Baseline (2008)	Endline (2011)									
	N=3,138	N=2,710									
Sindhupalchowk	39.5%	2.4%									

¹ At the time of ex-ante evaluation, only Sindhupalchowk was selected as the project site. Syangja district was one of the candidates in terms of the health and education indicators.

² NSHNAC was established at the national level based on the NSHN Strategy.

		<table border="1"> <tr> <td>Syangja</td> <td>18.4%</td> <td>3.6%</td> </tr> <tr> <td>Total</td> <td>25.1%</td> <td>2.9%</td> </tr> </table> <p>(Ex-post Evaluation) No data is available because stool test was not implemented after the project. However, distribution of Albendazole among school have continued.</p>	Syangja	18.4%	3.6%	Total	25.1%	2.9%						
Syangja	18.4%	3.6%												
Total	25.1%	2.9%												
	Indicator 6: At least one SHN activity is conducted by Child Clubs at each target school in a school year	<p>Status of the achievement: achieved (continued) (Project Completion) Child Club mobilization was introduced by the project. According to the endline survey, 84.8% of schools in Syangja district and 82.9% of schools in Sindhupalchowk district had Child Clubs. Major activities of Child Clubs include school cleaning, operating library, management of first aid kit box and organizing health related activities.</p> <table border="1"> <thead> <tr> <th></th> <th>Baseline (2008)</th> <th>Endline (2011)</th> </tr> </thead> <tbody> <tr> <td>Sindhupalchowk</td> <td>NA</td> <td>82.9%</td> </tr> <tr> <td>Syangja</td> <td>NA</td> <td>84.8%</td> </tr> <tr> <td>Total</td> <td>27.5%</td> <td>83.8%</td> </tr> </tbody> </table> <p>(Ex-post Evaluation) - Child Clubs are conducting wider variety of activities in school after the project completion. - Since 2012 no official record is available at the DEO. However, during consultations with DEO/DHO and Resource Persons of the target districts, it was claimed that all schools have formed and reformed the CCs in the beginning of each academic year. The ex-post evaluation team found the CCs existing in all schools visited.</p>		Baseline (2008)	Endline (2011)	Sindhupalchowk	NA	82.9%	Syangja	NA	84.8%	Total	27.5%	83.8%
	Baseline (2008)	Endline (2011)												
Sindhupalchowk	NA	82.9%												
Syangja	NA	84.8%												
Total	27.5%	83.8%												
(Project Purpose 2) Implementation system of the National School Health and Nutrition Strategy is strengthened in the MOHP and the MOE.	<p>Indicator 1: A practical model* recognized by the National School Health and Nutrition Advisory Committee (NSHNAC)</p> <p>* Indicators of the model are: 1) Day meal available, 2) De-worming students, 3) Physical Check-up done, 4) Clean school environment, 5) First Aid Kit available, 6) Child Club functionalized, 7) Separate toilet for boys and girls available, and 8) School register/check list used</p>	<p>Status of the achievement: not achieved (partially continued) (Project Completion) A practical model based on SHN project indicators and Basic Package Guideline components was proposed by the project and approved by the 4th Joint Coordination Committee Meeting (JCC) in May 2012. However, it was yet to be fully discussed and approved by NSHNAC. (Ex-post Evaluation) partially achieved Since no NSHNAC meeting is convened after JCC meeting, the practical model is yet to be approved by NSHNAC. However, the model under the title 'SHNP Training and Operational Manual' which include some additional indicators from the original one has already been approved and published by DOE and DOHS (Third Edition- 2071 (2014))and endorsed by the MOE and MOH in January 2016. This version was developed on the basis of second version in order to implement the Joint Action Plan (JAP) prepared by MOE and MOHP.</p>												
	Indicator 2: Approved Guidelines and Manuals for School Health Service Minimum Package by MOHP and MOE	<p>Status of the achievement: achieved (partially continued) (Project Completion) School Health Service Minimum Package Guideline was developed and approved by the DOE and DOHS in June 2010. It was revised into the SHN Basic Guideline in April 2011 to incorporate the practical model and approved by DOE and DOHS in July 2011. (Ex-post Evaluation) As mentioned above, the third version of School Health Service Minimum Package Guideline under the title "SHNP Training and Operational Manual 2071" has been published and dispatched to all districts.</p>												
	Indicator 3: Compiled Monitoring and Supervision Sheet on SHN activities at MOHP and MOE according to Monitoring and Supervision Guideline	<p>Status of the achievement: not achieved (partially continued) (Project Completion) Monitoring and supervision sheets on SHN were neither fully used by the project stakeholders nor compiled by the MOHP and MOE. (Ex-post evaluation) MOE and MOH rather made several efforts to prepare and endorse the five-year "Joint Action Plan (JAP) of SHN programme 2071/72 to 2076/77". In January 2016, the Ministries developed and endorsed the JAP. The monitoring and supervision sheet of SHN activities will be compiled while implementing the JAP.</p>												
	Indicator 4: Compiled School Health related data (Physical Check-up and De-worming) at MOHP and MOE according to Physical Check-up and De-worming Guidelines	<p>Status of the achievement: partially achieved (partially continued) (Project Completion) The data on physical check-up and de-worming was reported from DEO to MOE, as well as from DHO to MOHP. Since the de-worming program introduced by MOHP in all 75 districts, the data on de-worming program was incorporated in Health Management Information System (HMIS). MOE plans to incorporate the data on de-worming program and Child Club program in Education Management Information System (EMIS) in 2012. (Ex-post evaluation)</p>												

		<ul style="list-style-type: none"> - Data of Physical check-up is not reported after project completion, as few schools has continued conducting physical check-up. - De-worming is continued and data are partially compiled and included in the Health Management Information System (HMIS). - Reporting system is yet to be automatized for regular feeding into HMIS and EMIS. 																
(Overall Goal) Health and nutrition status of school-aged children is improved in the target districts.	Indicator 1: Decrease in moderate and severe level of malnutrition (weight-for-age) of school-aged children (between 5 to 10 years old) from 29.7% in 2008 to 26.7% in 2015 in the target districts.	Status of Achievement: not achieved (Ex-post Evaluation) No data is available, as no health check-up is carried out after the project completion. <table border="1"> <thead> <tr> <th></th> <th>Baseline (2008)</th> <th>Endline (2011)</th> <th>Ex-post evaluation (2016)</th> </tr> </thead> <tbody> <tr> <td>Sindhupalchowk</td> <td>NA</td> <td>31.5%</td> <td>No record</td> </tr> <tr> <td>Syangja</td> <td>NA</td> <td>32.2%</td> <td>No record</td> </tr> <tr> <td>Average</td> <td>29.7%</td> <td>31.8%</td> <td>No record</td> </tr> </tbody> </table>		Baseline (2008)	Endline (2011)	Ex-post evaluation (2016)	Sindhupalchowk	NA	31.5%	No record	Syangja	NA	32.2%	No record	Average	29.7%	31.8%	No record
		Baseline (2008)	Endline (2011)	Ex-post evaluation (2016)														
Sindhupalchowk	NA	31.5%	No record															
Syangja	NA	32.2%	No record															
Average	29.7%	31.8%	No record															
Indicator 2: Increase in attendance rate of school-aged children from 72.7% in 2008 to 79.7% in 2015 in the target districts.	Status of achievement: Partially achieved (Ex-post Evaluation) Average attendance rate of school-aged children (1st to 5th grade) <table border="1"> <thead> <tr> <th></th> <th>2007/2008</th> <th>2009/2010</th> <th>Ex-post evaluation (2016)</th> </tr> </thead> <tbody> <tr> <td>Sindhupalchowk</td> <td>72.2%</td> <td>78.7%</td> <td>93%</td> </tr> <tr> <td>Syangja</td> <td>45.8%*1</td> <td>83.0%</td> <td>95%</td> </tr> <tr> <td>Average</td> <td>72.2%*2</td> <td>80.9%</td> <td>94%</td> </tr> </tbody> </table> <p>Source for (1) 2007/2009: Flash report II (2007/2008, 2009/2010), JICA internal document, (2) 2009/2010: JICA internal document, (3) 2016: DEO of Syangja and Sindhupalchowk</p> <p>*1 According to the project, this figure might be miscalculation. *2 Because of *1 above, the project adopted the data of Sindhupalchowk as the average attendance rate in the two district.</p>		2007/2008	2009/2010	Ex-post evaluation (2016)	Sindhupalchowk	72.2%	78.7%	93%	Syangja	45.8%*1	83.0%	95%	Average	72.2%*2	80.9%	94%	
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Average	72.2%*2	80.9%	94%															

Source : JICA internal documents, questionnaires and interviews with DEO and DHO of Syangja and Sindhupalchowk, some target schools, and DOE and DOE.

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 74%, 100%). Therefore, efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The current policy framework secures the effects of the project to continue. MOE and MOH prepared and endorsed the five-year “Joint Action Plan (JAP) of SHN Program 2071/72 to 2076/77” which clearly mentions “Institutionalize SHN Program in MOE & MOH” as follows: (1) Add SHN Program related responsibilities in existing Terms of Reference of Policy Analysis and Program Section of MOE, (2) Initiate formal process to establish SHN section within DOE, (3) Develop separate School Health Education Package within Teacher Professional Development (TPD) Model, (4) Revise existing curriculum and textbook of Health Education, Nutrition to incorporate SHN components, (5) Ensure incorporation of SHN activities in Annual Strategic Implementation Plan (ASIP) and annual Work Plan and Budget (AWPB) under School Sector Reform Plan (SSRP), (6) Establish Secretariat of Steering Committee in MOE for effective co-ordination, and (7) Incorporate SHN basic package in legislation .

<Institutional Aspect>

DOE has proper organizational structure as a separate SHN section has been established after the project was completed. Focal Person who has the sole responsibility to facilitate SHN activities have been assigned at DEO. The number of staff is not sufficient, as the staff assigned to SHN section also look after his/her primary responsibility, and can hardly spare time to look after SHN activities. At the school level, a teacher with health background is assigned as a Focal Teacher to facilitate the SHN activities.

DOHS has also proper organizational structure, as the Nutrition Section Chief under Child Health Division is in charge of SHN activities. Focal Person have also been assigned at DHO. DOH also has the same problems of staff number as DOE.

Although NSHAC has continued, meetings were not held regularly after the project was completed. NSHAC has the role to monitor the implementation of planned activities, however, senior officials were tremendously engaged in series of policy level decision.

<Technical Aspect>

At national level, there are trained staff on SHN concept and package at DOE and DOHS. However, internal training system is not developed. At the target district level, there are also trained staff at DEO and DHO. In case of arrival of new and untrained staff (on SHN activities), orientation and training is a must. At school level, headmaster and teachers have basic knowledge to implement basic SHN activities in school based on the experiences gained during the project period. School Supervisors and Resource Persons³ and other visiting officers from DEO and DOE are providing feedback during the school visits. However, no orientation/training on SHN for schools have been provided by them after the project completion.

<Financial Aspect>

There is budget allocation for SHN activities from GON to DOE, however, most of the budget goes to mid-day meal, and the budget is not sufficient for the implementation of basic package of SHN Program, including physical check-up and constant monitoring of

³ School Supervisors (SSs) and Resource Person (RPs) at Resource Center (RC) are positions in DEO. SSs supervise 2-3 RCs and one RP supervise schools in several villages.

progress in remote schools. Budget of DOHS is also not sufficient. However, the budget for deworming program is allocated by DOHS which is combined with other budgets for bulk purchasing (for medical supplies) that includes Albendazole Tablets for SHNP. At district level, very little budget is allocated to districts. Some Village Development Committees (VDCs, responsible for village development under Ministry of Federal Affairs and Local Department) provide some budget to schools, however, the budget is not necessarily limited to SHN Program, but child development activities as a whole.

<Evaluation Result>

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

5 Summary of the Evaluation

The project purpose was partially achieved. Decrease in worm infestation was observed and Child Clubs were established and conducted SHN activities. The guideline was developed and approved, but the model itself was not approved by the end of the project. After the project was completed, the model was endorsed by MOE and MOH, and SHN activities have partially continued. Overall goal was partially achieved. No data is available on malnutrition, however, attendance rate has improved. As for sustainability, there are some challenges in institutional, technical and financial aspects.

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

III. Recommendations & Lessons Learned

Recommendations to Implementing Agency:

1. MOE and MOH should develop internal training system at national and district level and orientation for new and untrained staff for sustainability.
2. DOE and DOHS should include the roles in Job Descriptions of Focal Persons (FPs), School Supervisors (SS), Resource Persons (RPs), Focal Teachers (FTs)⁴ for constant monitoring and follow up of SHN activities including training to teachers, students and School Management Committee (SMC) representatives and issue a circular to DEO for proper use of attendance register by the end of current fiscal year.
3. Likewise, DOE, DOHS should accelerate process to institutionalize SHNP including allocation of required human and financial resources in accordance with JAP by the end of December 2016 and further strengthen SHN section to coordinate and facilitate for effective implementation and monitoring and reporting of the JAP.
4. As NSHNAC is almost nonfunctional and meeting has not been convened after the project, MOE and MOH in coordination with the local government (District Development Committee) should strengthen and make District School Health and Advisory Committee functional in the districts.

Lessons learned for JICA:

. As a result of advocacy and facilitation by the SHN project together with other SHN network members (i.e. UNICEF, Save the children and others), MOE and MOH established a separate SHN section and continued SHN network at central level that has been contributing to follow-up of finalization and endorsement of Joint Action Plan and printing and dissemination of guidelines after the termination of the JICA project. Thus, establishment of a section that is specifically in charge of the project related activities in an implementing agency would be effective for institutionalization and sustainability of the project outcomes.



Mr. Dil Bahadur Nepali, Health Post In-charge of Dhapuk Health Post, Syangja, maintains a sound recording and reporting system of de-worming, First Aid and other SHN activities. He is among the trained health personnel on SHN during the project period in Nepal and Japan.



Ganesh Primary School, Thulosirubari, Sindhupalchowk is regarded one of the model SHN Schools, continues all SHN activities to date. Mrs. Tara Rana, Head Teacher (Principal) at present and the then FT, facilitates the SHN activities mobilizing teachers, SMC, Parents Teachers Association (PTA) and Child Club.

⁴ During the SHNP project time, in addition to their regular job of planning, monitoring/supervision, training/teaching, following additional role were given to the different level counterparts:

Focal person (FP) at DHO and DEO office to coordinate all the SHN related activities including coordination for training

School Supervisor (SS) coordinate SHN activities with the District to cluster level in Education sector and conduct training and supervise.

Resource Person, (RP) coordinate SHN activities at the school / cluster, training teachers, meeting with Head Teachers and Focal Teacher.

Focal Teacher (FT) based in school to coordinate and implement SHN activities at school level and coordinate with Child Clubs and parents too.

Country Name	Improvement of the rural water supply management and hygiene practice in Atsimo Andrefana region
Republic of Madagascar	

I. Project Outline

Background	<p>In the region of Atsimo Andrefana, located in the southwest of Madagascar, as low as 25% and 10% of the population had access to safe water and to safe sanitation facilities, respectively (as of 2007). With 400 mm to 500 mm annual rainfall and limited water resource availability, ensuring safe water and sanitation in this region was one of national priorities in Madagascar. Over the past two decades, the Japanese government continued cooperation with Madagascar in the field of water resources. New water supply facilities were installed through the development study “Groundwater Development Study in South-western Region (1989-1991)” and the grant aid “The Project for Groundwater Development in the South-western Region (1992-1994)”. However, these facilities did not operate continuously or properly due to their malfunction and breakdown. To strengthen the rural water supply management, JICA’s follow-up survey was carried out and following issues were recognized: the improvement of water management committees’ capacity to manage, operate and maintain water supply facilities including setting and collecting water charges, the improvement of technologies of drilling and mechanical engineers, and the sensitization on hygiene and sanitation in rural areas.</p>				
Objectives of the Project	<p>Through establishing the methodology of capacity building of officers of Regional Directorate of the Ministry of Water (DRE), communes¹ and village level organizations and improving sensitization activity of hygiene and sanitary education by administrative agencies, the project aimed at establishing and operationalizing the monitoring system for management and maintenance of water supply facilities and boosting the mechanism of sensitization on hygiene and sanitation in the four target districts, thereby contributing to the expansion of project effects to the whole Atsimo Andrefana Region. The project objectives set forth are as follows:</p>				
	<ol style="list-style-type: none"> Overall Goal: To establish and operationalize the monitoring system for management and maintenance system of water supply facilities and mechanism of sensitization on hygiene and sanitation in Atsimo Andrefana Region. Project Purpose: To establish and operationalize the monitoring system for management and maintenance of water supply facilities and to boost the mechanism of sensitization on hygiene and sanitation in the four target districts of the project in Atsimo Andrefana Region. 				
Activities of the project	<ol style="list-style-type: none"> Project site: Morombe, Toliara II, Sakahara, and Ankazoabo districts in Atsimo Andrefana Region Main activities: (1) Conduct trainings for staff of DRE and regional repairmen on operation, inspection and repair of water supply facilities; (2) Prepare manuals for DRE, regional repairmen, communes and water management committees (CPEs) etc.; (3) Establish the regular reporting and monitoring system among managers of water supply facilities, communes, DRE and Ministry of Water (ME); (4) Hold regular meetings among DRE, Regional Directorate of the Ministry of Education (DREN) and Regional Directorate of the Ministry of Health (DRSP) and seminars at district level to share operation and maintenance (O&M) practices in project-targeted four districts with other five districts; (5) Conduct trainings for staff of 15 pilot communes on water policies, roles of regional directorates and communes, procedures for outsourcing O&M and repair of water supply facilities and collection of water charges and expenditure management required for O&M; (6) Conduct trainings for the head of the Fokontany² and/or village in 24 project sites on water policies, roles of regional directorates, communes, CPEs and users of water supply facilities, trainings for CPEs to improve O&M capabilities (division of roles, internal rules, determining water charges, managing financial records and monitoring system); (7) Conduct trainings for staff of Basic Health Center, volunteer health workers and teachers of primary schools; and (8) Install facilities for sensitization on hygiene and sanitation (toilets and hand wash tanks) at primary schools in project sites, etc. Inputs (to carry out above activities) <ul style="list-style-type: none"> Japanese Side <ol style="list-style-type: none"> Experts: 11 persons Trainees received: 0 person Equipment for trainings, hand wash tanks etc. Local cost Madagascar Side <ol style="list-style-type: none"> Staff allocated: 30 persons Office space and facilities 				
Ex-Ante Evaluation	2007	Project Period	September 2008 – March 2013 (Extension Period: September 2010– March 2013)	Project Cost	(ex-ante) 180 million yen (actual) 501 million yen
Implementing Agency	Ministry of Water (Ministere de l'eau: ME), Ministry of Health (Ministère de la Santé Publique: MSANP), Ministry of Education (Ministère de l'Education Nationale: MEN) and their provincial branches in Atsimo Andrefana				
Cooperation Agency in Japan	N/A				

II. Result of the Evaluation

¹ Commune is the administrative unit under region – district.

² Fokontany is the smallest administrative unit under commune in Madagascar.

1 Relevance

<Consistency with the Development Policy of Madagascar at the time of ex-ante evaluation and project completion>

The project was consistent with Madagascar's development policy on 'reduction of incidence rate of infectious diseases', 'access to safe water' and 'improvement of hygiene' as set forth in the "National Development Plan (1997-2001)", "Poverty Reduction Strategy Paper (PRSP)(2003-2006)", "Madagascar Action Plan (2007-2011)" and "National Water Supply and Sanitation Program (Programme National d'Accès à l'Eau Potable et à l'Assainissement / PNAEPA) for 2008-2012" at the time of both ex-ante evaluation and project completion.

<Consistency with the Development Needs of Madagascar at the time of ex-ante evaluation and project completion>

The needs for improving O&M of water supply facilities and hygiene education were high at the time of ex-ante evaluation considering the situation described in "Background" above. According to ME, such needs were also recognized at the time of project completion.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy, as stated in the ODA Country Data Book (2007), since agricultural and fishery industries and rural development were emphasized as priority areas of assistance to Madagascar, in which access to safe water and improvement of hygiene situation were included.

<Relevance to Appropriateness of Project Planning and Approach>

The project established a monitoring system for management and maintenance of water supply facilities and the mechanism of sensitization on hygiene and sanitation, but it was not institutionalized (i.e. did not continue) after project completion, since the project did not consider how to integrate it into the existing monitoring systems and/or training systems at the time of project planning.

<Evaluation Result>

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

2 Effectiveness/Impact

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

The Project Purpose was mostly achieved by the time of project completion. While the actual number of communes that submitted monitoring reports to DRE did not reach the target (Indicator 2), quarterly monitoring reports were submitted from DRE to ME (Indicator 1), the actual rate of water facilities in operation in the four target districts achieved the target, and the rate in 24 pilot villages mostly achieved the target (Indicator 3), training on hygiene education was conducted by DREN and DRSP (Indicator 4), and a feedback meeting on monitoring results was held among DRSP, District Service for Public Health (SDSP), Basic Health Center (CSB), DREN, District School Office (CISCO), Administrative Office of Education (ZAP) and Public Primary School (EPP) (Indicators 5 and 6).

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

The project effects have not been maintained since project completion. Although some awareness tools introduced under this project such as PHAST card have been used in some CSBs in the pilot sites, the monitoring system and the sensitization mechanism of this project did not continue. DRE no longer conducts systematic monitoring of the developed "water operation and management system" regularly, there is no commune that submits monitoring reports to DRE, no training is conducted by DREN and DRSP for schools and CSB on their own initiatives, and a feedback meeting on monitoring results is no longer held among DRSP, SDSP, CSB, DREN, CISCO, ZAP and EPP. Since activities in the water, sanitation and hygiene (WASH) sector are conducted under the lead of ME/DRE, ME developed a standardized reporting system of the WASH sector in order to harmonize data collection and indicators and avoid duplication of reporting within the WASH sector. Some EPP/CSB reported to the DRE. However, submission from the DRE to the ME is not as it should be since the standardized monitoring system of the WASH sector is not yet fully functional and is still being improved to date.

Other major reasons for not maintaining the project effects are a lack of budget³ and a low level of institutionalization of the monitoring system/mechanism established by the project among relevant organizations. In fact, responsibility of each organization regarding management and maintenance of water supply facilities and sensitization on hygiene and sanitation has not been stated in any official documents such as municipal order, which makes it difficult to maintain and expand project effects to non-project targeted areas. Moreover, the actual rate of water facilities in operation has been worsened by more than ten percent since project completion, as most of the facilities are very old (constructed more than 20 years ago), and they are not functional anymore after a breakdown due to lack of funds for repair (see "Sustainability").

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

The Overall Goal was not achieved at the time of ex-post evaluation. The actual water access rate in Atsimo Andrefana Region at the time of ex-post evaluation has not achieved the target and remains the same level as before project implementation (around 40%) (Indicator 1), as existing water facilities are old and insufficient to supply water for the increasing number of population, while construction of new facilities by ME remains limited. Moreover, as mentioned above, there is no commune that submits monitoring reports to DRE (Indicator 2).

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

No negative impact on natural environment has been observed and no land acquisition and resettlement has been occurred under the project. On the other hand, some positive impacts have been noticed on the development in Befandriana-Sud, one of the pilot communes. The project interventions (rehabilitation of an existing borehole, construction of a water tower, installation of fountains (type 2) and implementation of delegated management of water supply - still running at the time of evaluation) facilitated access to safe water for the population and contributed to the socio-economic development of the village. Many small investors (hoteliers) as well as inhabitants of surrounding villages were attracted and moved to Befandriana-Sud, and about fifteen private water connections were installed. Such a success was because of outsourcing of water supply to private sector (delegated management system).

Regarding impacts on women, DRE commented that thanks to the project, girls' enrollment and attendance in school improved and time spent by women to produce and generate income increased. Also, as explained in "4. Sustainability" below, CPE members are mainly people that are trusted in the community. As a result, most of them are women, and treasury is mostly assigned to women (see the first picture below). Despite a greater involvement of women, social structure and norms in Madagascar remains a constraint to women leadership or organization.

<Evaluation Result>

³ For the first two years following the project completion, DRE included the monitoring of the developed system in its annual work plan. However, budget cuts persisted and the allocation for each DRE was restricted for routine operation.

In light of the above, while targets set in indicators for the Project Purpose were mostly achieved by the time of project completion, project effects have not been maintained since project completion. Although positive impacts have been observed in a pilot site and on women, the degree of achievement of the Overall Goal is low at the time of ex-post evaluation, as targets set in indicators have not been achieved at all. Therefore, the effectiveness/impact of the project is low.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) To establish and operationalize the monitoring system for management and maintenance of water supply facilities and to boost the mechanism of sensitization on hygiene and sanitation in the four target districts of the project in Atsimo Andrefana Region.	1. Quarterly reports on the established “water operation & management system” to be constantly submitted from DRE to Ministry of Water (MoW)	Status of the achievement: achieved (not continued) (Project Completion) Constant reporting on monitoring was conducted from DRE to MoW (ME) from April 2012. (Ex-post Evaluation) DRE has not conducted specific and systematic monitoring of the developed “water operation & management system” since project completion. Monitoring has been conducted only occasionally, during field visits with other donors.
	2. The number of communes that submit the monitoring report in 4 pilot districts to be increased from 0% to 50%	Status of the achievement: not achieved (not continued) (Project completion) The number of communes that submitted reports was 27% (13/49) in November 2011, 6% (3/49) in May 2012 and 22% (11/49) in August 2012. (Ex-post Evaluation) The number of communes that submitted reports was 2% (1/49) in 2013 and 0% after 2014.
	3. The rate of water facilities (<i>that were constructed with Japan’s assistance</i>) in operation to be increased from 45% to 60% (Indicator 3-1) In 15 pilot communes, the rate of water facilities in operation to be increased by XX% (Indicator 3-2) In 24 pilot villages, the rate of water facilities in operation to be increased from 70% to 100%	Status of the achievement: mostly achieved (partially continued) (Project completion) The rate of water facilities in operation was 64.2% ((21 pilot sites + 13 non-pilot sites) / 53 sites in total). (3-1) Data is not available and could not be judged. (3-2) The rate of water facilities in operation in 24 pilot villages was 87.5% (21 pilot sites / 24 pilot sites in total). (Ex-post Evaluation) The rate of water facilities in operation is 50.9% ((18 pilot sites + 9 non-pilot sites) / 53 sites in total). (3-2) The rate of water facilities in operation in 24 pilot villages was 75.0% (18 pilot sites / 24 pilot sites in total).
	4. Training to be organized by DREN and DRSP on schools and CSB in pilot villages	Status of the achievement: achieved (not continued) (Project completion) Training was conducted by DREN and DRSP for practitioners of hygiene education from 22 to 26 November 2011. (Ex-post Evaluation) No training has been conducted by DREN and DRSP for schools and CSB in pilot villages on their own initiatives since project completion, except for some trainings funded by other donors such as UNICEF and EU.
	5. Monitoring results to be reported among DRSP-SDSP-CSB <i>more than once a year</i>	Status of the achievement: achieved (not continued) (Project completion) Feedback meeting on monitoring results was held in September 2012. (Ex-post Evaluation) Monitoring results have not been reported since project completion.
	6. Monitoring results to be reported among DREN-CISCO-ZAP-EPP <i>more than once a year</i>	Status of the achievement: achieved (not continued) (Project completion) Feedback meeting on monitoring results was held in September 2012. (Ex-post Evaluation) Monitoring results have not been reported since project completion.
(Overall goal) To establish and operationalize the monitoring system for management and maintenance system of water supply facilities and mechanism of sensitization on hygiene and sanitation in Atsimo Andrefana Region.	1. Water access rate will increase from 40% (as of 2007) to 65% by 2015 in Atsimo Andrefana Region.	Status of the achievement: not achieved (Ex-post Evaluation) Water access rate in Atsimo Andrefana Region is 39.2% in 2015.
	2. The number of communes submitting reports becomes over 50 by 2015 in Atsimo Andrefana Region.	Status of the achievement: not achieved (Ex-post Evaluation) No commune has submitted reports to DRE since 2014.

Source: JICA internal document, questionnaire survey/interview with ME, DRE, DREN, DRSP, communes, CSB, and SDSP

Note: The words in *Italic* were added to the original indicators in English according to Japanese translation.

3 Efficiency

The project cost was significantly higher than planned (ratio against the plan: 278%) and the project period was significantly longer than planned (ratio against the plan: 225%), as the project period needed to be extended due to political instability and the aim of establishing O&M system. Therefore, the efficiency of the project is low.

4 Sustainability

<Policy Aspect>

The current policy documents still state the need for access to safe water, as follows:

- the General Policy of the State 2014-2019 (Politique Générale de l'Etat), which has among its main objectives to ensure (i) access to drinking water, sanitation facilities and hygiene for all and (ii) effectiveness of integrated water resources management.
- the National Water, Sanitation and Hygiene Strategy 2013-2018 (Stratégie Nationale de l'Eau, Assainissement et Hygiène) and the General Guidelines of the Water, Sanitation and Hygiene Sector 2013-2018 (Lignes Directrices du Secteur de l'Eau, Assainissement et Hygiène), which focuses on increasing access to sustainable drinking water and sanitation facilities, developing and making functional an integrated water resources management (IWRM) plan, developing the Private-Public partnership in the promotion of WASH, and strengthening the institutional capacities of ME in coordination, planning and monitoring;

However, no policies/plans that support institutionalization of the system developed under this project were made.

<Institutional Aspect>

Organizational structures established under the project are as follows: in terms of maintenance and repair of water supply facilities, (1) ME is responsible for supervising DRE; (2) DRE is responsible for establishing repair system and networks, providing technical guidance to regional repairmen, and supervising commune staff for monitoring care takers; (3) regional repairmen are responsible for conducting repairs that cannot be done by care takers; (4) care takers are responsible for conducting daily maintenance and small repairs (with remuneration paid by CPE); and (5) commune is responsible for monitoring care takers, introducing regional repairmen to CPE and advising CPE.

In terms of monitoring of O&M of water supply facilities, (1) ME is responsible for supervising DRE, understanding operational situations of water supply facilities nationwide, and sharing outcomes from establishment of O&M system with the Ministry as a whole, other donors and other organizations; (2) DRE is responsible for quarterly reporting to ME on O&M situations, supervising the monitoring system of O&M and the usage of water charges in its responsible areas; (3) commune is responsible for quarterly reporting to DRE on O&M situations, and preparing water supply plans in its responsible areas; and (4) CPE is responsible for O&M, information sharing with commune on O&M situations, reporting to residents on O&M situations, public awareness among residents on how to use facilities and paying water charges etc. These organizational structures are basically not changed at the time of ex-post evaluation, however, they do not function sufficiently due to a lack of budget, insufficient human resources and a low level of institutionalization of the monitoring system/mechanism established by the project among relevant organizations.

The number of staff is 20 in DRE, 72 in DRSP and 133 in DREN at the time of ex-post evaluation. According to these organizations, these numbers in total are generally sufficient, however, the number of personnel assigned to the section in charge of monitoring (which is usually the planning section) is most of the time insufficient. There are 15 district level repairmen and 4 hand pump area repairmen officially registered by DRE in Atsimo Andrefana Region at the time of ex-post evaluation (there were no new recruitments at the end of the project), which is not sufficient, as they only cover the 4 districts targeted by the project out of nine districts in the Region. As for care takers, no data is available which makes it impossible to know whether they are sufficient or not in number. For communes, the number of staff is sufficient in terms of the total number, however, not sufficient in terms of the service in charge of water, sanitation and hygiene (only one resource person). For CPEs, there are usually three to ten members in each CPE and no specific problem is observed in terms of the number of members.

<Technical Aspect>

Except for the DRE, technical level in the implementing agencies (ME, MSANP, MEN and their regional branches) is fair, considering staff rotation combined with a low level of skill transfer and capacity building since the end of the project. Many project counterparts at central and regional level have retired or been transferred to other departments following the ministerial restructuring due to the presidential election in 2014. But for the DRE, the staff capacity to properly monitor the system is maintained as most of the technicians in charge at the time of the project still work for the organization and will still be responsible for the monitoring.

Talking about the repairmen, they globally need refresher trainings. For the 15 district level repairmen in particular, most of them met the technical criteria established during the recruitment process. All of them also received training before taking up their duties. However, recycling trainings were highly irregular although necessary. As for the hand pump area repairmen and care takers, they have been recruited among reliable persons within the community, though they did not necessarily meet all of the technical criteria. Moreover, they have not benefited from any refreshing training since the end of the project.

Concerning communes staff, most of them have also been changed after the presidential election. Thus, retraining is needed for newly assigned staff in these organizations, however, no training has been conducted since project completion due to a lack of resources and a low level of institutionalization of the monitoring system/mechanism established by the project among relevant organizations.

For the management and monitoring skills of CPE members, most of them met the required criteria, but their selection was less stringent compared to that of district/area repairmen (the two main criteria were prioritized: their literacy level and the confidence granted by the community). Although all of them received training before taking up their duties and their rotation rate is low, retraining is needed (delegate management by the communes is not in place and retraining by the DRE is rare).

Various manuals and training materials prepared under the project are not much utilized, while some manuals are utilized by other donors to some extent. On the other hand, the sensitization tools developed under the project for promoting hygiene practice are utilized by several schools, community health centers, DRSP and DREN.

<Financial Aspect>

Implementing agencies do not have sufficient budget to maintain project effects. The total budget of DRE in 2015 was approximately 39,000,000 Ariary, which was to cover usual operational costs only and not enough for monitoring activities mentioned above. DRSP and DREN also do not have sufficient budget, and thus no training or monitoring of sensitization on hygiene and sanitation is conducted on their own initiatives at the time of ex-post evaluation.

Communes also do not have sufficient budget for monitoring activities. Actually, since decentralization has not been effective in Madagascar, communes usually do not have enough budgets for social programs such as education, health, and water etc.

Many CPEs do not have sufficient amount of revenues from water charges as they are not successful in collecting sufficient amount of water charges from users. This is because community ownership is generally low and communes are in precarious financial situation. The field survey for ex-post evaluation found out that only three CPEs out of nine visited have enough financial resources to afford maintenance and repair of water supply facilities. A convention between ME and the Ministry of Interior and Decentralization was established and signed in 2015, with the objective of effectively delegating project management to communes and strengthening community ownership, which is expected to lead to allocation of budget for monitoring activities. However, this convention has not yet

been in operation at the time of ex-post evaluation⁴.

<Evaluation Result>

In light of the above, major problems have been observed in terms of institutional, technical and financial aspects of the implementing agencies. Therefore, the sustainability of the effectiveness through the project is low.

5 Summary of the Evaluation

Through the project, targets set in indicators for the Project Purpose were mostly achieved, however, project effects have not been maintained after project completion. The degree of achievement of the Overall Goal is low at the time of ex-post evaluation, as targets set in indicators have not been achieved at all. Nevertheless, positive impacts have been observed in a pilot site and on women. In terms of sustainability, there are major challenges in institutional, technical and financial aspects, as organizational structures established under the project are not functional, and the number of staff members, technical skills and amount of budgets in implementing agencies are not sufficient. Regarding relevance, inappropriate project approach caused the low level of institutionalization of the system developed by the project, which affected impact and sustainability. As for efficiency, both project cost and project period significantly exceeded the plan due to political instability and the aim of establishing O&M system.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

It is recommended to ME that the mechanism and organizational structure on O&M (including monitoring system), which was established under the project, should be clearly stated in official documents and institutionalized among relevant organizations, so that the system and mechanism can be functional nationwide, i.e., the project's organizational structure and mechanism (including monitoring mechanism) should be integrated to the existing national mechanism, in order to facilitate institutionalization and sustainability. Also, ME and the Ministry of Interior and Decentralization should collaborate to elaborate the roadmap on O&M system, clarify roles and responsibilities of actors (DRE, commune, regional repairmen and CPE, etc.) and establish the adequate monitoring mechanism involving the two Ministries. This should be done through effective application of the bipartite convention signed in 2015 regarding the O&M system of water supply facilities, which will strengthen the role and responsibilities of the commune regarding O&M.

Lessons learned for JICA:

As mentioned above, the monitoring system for management and maintenance of water supply facilities and the mechanism of sensitization on hygiene and sanitation, which were established under the project, did not continue after the completion of the project, not to mention that they were not adopted in other districts of the target region. In other words, the project could not integrate them into the existing monitoring systems and/or training systems, because of the low level of institutionalization including the insufficient budget allocation. Thus, when the similar projects will be formulated and implemented in the future, at the planning phase and/or the early stage of the implementation phase, it is necessary to identify the process and activities to be taken at the policy level for the institutionalization (ex. validation of the model and its incorporation into the official documents such as decrees) as well as to carefully analyze and examine a model which is sustainable and can be institutionalized among relevant organizations.

⁴ The related implementation plan is currently being developed.



6 members of the water management committee of a pumping water supply system



User fetching water from a fountain connected to a pumping water supply system



The PHAST awareness cards are still used by the Chief of CSB, in combination with other tools developed through other projects

Country Name	Enhancement of Urban Development Management in the Mamminasata Metropolitan Area
Republic of Indonesia	

I. Project Outline

Background	<p>While the Mamminasata Metropolitan Area in South Sulawesi Province had been the largest urban area in eastern Indonesia and played a role of leading the economy of the region, the urban environment in the Area became worsened due to unregulated urbanization accompanying with population increase and expansion of economic activities. General spatial plans (GSP) and detailed spatial plans (DSP) had been prepared separately by each city and district in the Area without proper coordination, which led to a progress of sprawl and uncoordinated land development. Under such situation, the South Sulawesi provincial government formulated the Mamminasata Spatial Plan in 2003 and established Mamminasata Metropolitan Development Cooperation Board (MMDCB). Related to the Spatial Plan, the Japanese government provided a support through “the study on implementation of integrated spatial plan for the Mamminasata Metropolitan Area” (2005-2006). As a result of these efforts, a framework for development of the Area was gradually developed, however, various issues remained including the lack of procedures and capabilities to coordinate among the spatial plan for the Mamminasata Metropolitan Area and spatial plans prepared by each city and/or district in the Area and to coordinate among these stakeholders when implementing interregional projects. Therefore, capacity development of MMDCB was required to solve these issues.</p>					
Objectives of the Project	<p>Through formulating procedures/tools of urban development management, developing training implementation system and enhancing the coordination capacity of the Technical Implementation Unit for Mamminasata (UPTD MM)/MMDCB¹, the project aimed at developing the system of urban development management in Mamminasata Metropolitan Area, thereby contributing to realizing a balance between conservation and cultivation. The project objectives set forth are as follows:</p>					
	<ol style="list-style-type: none"> Overall Goal: Balance between conservation function and cultivation function in Mamminasata Metropolitan Area is realized. Project Purpose: The system of urban development management in Mamminasata Metropolitan Area is developed. 					
Activities of the Project	<ol style="list-style-type: none"> Project site: Mamminasata Metropolitan Area (Makassar City, a part of Maros District, a part of Gowa District, and the entire Takalar District), South Sulawesi Province Main activities: (1) Formulate procedures for preparing GSP/DSP for strategic areas and urban development permission, data management system, coordination mechanisms of interregional projects; (2) Develop a manual for preparing GSP/DSP, spatial utilization control, project management, data management, and training implementation; (3) Prepare training curriculum/syllabus and conduct district/city level trial trainings; and (4) Conduct lectures on project management and urban development planning for UPTD MM/MMDCB and case studies for learning proper coordination among districts/city, province and central government and for developing DSP for interregional areas. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Japanese Side <ol style="list-style-type: none"> Experts: 8 persons Trainees received in Japan: 13 persons Provision of equipment (computers, GIS software, printer and copying machine, etc.) Overseas activities cost (for local consultant, trainings, travel expense and public relations etc.) </td> <td style="width: 50%; vertical-align: top;"> Indonesian Side <ol style="list-style-type: none"> Staff allocated: 47-51 persons Land and facilities: office space Local cost (5,531 million Rupiah in total as a budget from the province and each city and district covered personnel costs and travel expenses) </td> </tr> </table> 				Japanese Side <ol style="list-style-type: none"> Experts: 8 persons Trainees received in Japan: 13 persons Provision of equipment (computers, GIS software, printer and copying machine, etc.) Overseas activities cost (for local consultant, trainings, travel expense and public relations etc.) 	Indonesian Side <ol style="list-style-type: none"> Staff allocated: 47-51 persons Land and facilities: office space Local cost (5,531 million Rupiah in total as a budget from the province and each city and district covered personnel costs and travel expenses)
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Ex-Ante Evaluation	2008	Project Period	April 2009 to February 2012	Project Cost	282 million yen	
Implementing Agency	<p>Executing agency: Directorate General of Spatial Planning of Ministry of Public Works Implementing agencies: (1) Mamminasata Metropolitan Development Cooperation Board (MMDCB), (2) Technical Implementation Unit for Mamminasata (UPTD MM) of Directorate General of Spatial Planning of Ministry of Public Works, (3) South Sulawesi Province and local government organizations composing the Mamminasata Metropolitan Area (Makassar Municipality, Maros District, Gowa District, Takalar District)</p>					
Cooperation Agency in Japan	<p>Ministry of Land, Infrastructure, Transport and Tourism Nippon Koei Co., Ltd.; KRI International Corporation</p>					

II. Result of the Evaluation

I Relevance
<p><Consistency with the Development Policy of Indonesia at the time of ex-ante and project completion></p> <p>The project was consistent with Indonesia's development policy on 'redressing regional disparity' as set forth in "National Medium Term Development Plan (RPJMN) (2005-2009)" and "RPJMN (2010-2014)" at the time of both ex-ante evaluation and project completion. As South Sulawesi Province is located in eastern Indonesia, which was underdeveloped, this project was to contribute to redressing the regional disparity by enabling the Mamminasata Metropolitan Area to function as a leading force of the regional economy. Also, in the new law of spatial plan (Law No. 26/2007) all regions are required to formulate or revise their spatial plans.</p>

¹ The South Sulawesi Province established UPTD MM under Agency of Spatial Planning and Settlement of South Sulawesi Province (the secretariat of MMDCB) in 2009 and strengthened the project management system in terms of budget, human resources and authority.

<Consistency with the Development Needs of Indonesia at the time of ex-ante and project completion>

The Mamminasata Metropolitan Area was one of eight national strategic regions in Indonesia in terms of spatial management at the time of both ex-ante evaluation and project completion. To achieve balanced urbanization in the Area required a revision of existing GSP and DSP of each city and district in the Area based on the new spatial planning laws. Thus, this project was consistent with the local needs.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy, as stated in "the Country Assistance Program for Indonesia (2004)", which prioritized 'creation of a democratic and fair society'. 'Poverty reduction' was regarded important for 'creation of a democratic and fair society', and this project was consistent with the aim, as it was to support eastern Indonesia where poverty rate was high.

<Evaluation Result> In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

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

The Project Purpose was mostly achieved by the time of project completion, as all indicators showed good performance while two of them could not be fully verified in a strict sense due to absence of the target value. Job description of UPTD MM was defined, and UPTD MM/MMDCB applied the mandate of the Presidential Regulation No.55/2011 on spatial plan of the Mamminasata Metropolitan Area (enacted in September 2011) with allocation of the provincial budget (Indicators 1 to 3). Staff of UPTD MM/MMDCB who participated in the Training of Trainers (TOT) (18 persons) conducted trainings on spatial management, etc., for city/district officials (20 to 37 persons in each city/district) or acted as advisors. Although there are no target numbers set in the plan, it can be considered, based on the number of staff from each organization (e.g. 12 out of the 18 persons who completed the TOT were from UPTD MM), that sufficient number of staff were trained (Indicators 4 and 6). Various urban development management tools (six manuals and database) as well as some priority project coordination tools (meetings, etc.) were also developed (Indicators 5 and 7).

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

The continuation status of project effects is partial. UPTD MM/MMDCB have kept applying the mandate of the above-mentioned Presidential Regulation, especially socialization/coordination meetings, seminars and checking of spatial utilization, both before and after the launch of the new government in October 2014. Most urban development management tools and priority project coordination tools developed under the project have continuously been utilized. Sufficient amount of budget within the mandate regulated by the Governor Regulation No. 82/2009 has been allocated to UPTD MM. Trainings were continued after project completion by the Working Unit for Mamminasata Metropolitan Area (SNVT MM) established by the Ministry of Public Works in March 2011, but the dissolution of SNVT MM as part of the organizational restructuring in 2014 made it difficult to secure training budget. Since training is not clearly included in the duties of UPTD/MMDCB and the draft Governor Decree related to development management of the Mamminasata Metropolitan Area (including draft job description of UPTD MM) was not enacted, training on urban development management for district/city officials is not conducted systematically at present. Nevertheless, staff of UPTD MM/MMDCB conduct presentations as instructors or resource persons on occasions of related trainings provided by other departments. Although many of those who attended trainings under the project have been rotated to other offices and/or have retired, the head of UPTD MM has not changed since during project implementation up to the present time, continuously playing an important role as a coordinator among the central, provincial and local governments.

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

Although the achievement of the Overall Goal is in progress toward 2030, the target year of the Mamminasata Metropolitan spatial plan, the degree of achievement was judged to have been partially achieved by the time of ex-post evaluation, as it is not possible to determine that the Indicators 2, 3 and 4 have been fully achieved due of lack of target values or other benchmarks. All of the four districts/city in the Mamminasata Metropolitan Area have legalized their spatial plans (100 percent has been completed). There are 11 programs in all of which prioritized projects are being planned and/or implemented in accordance with the spatial plans in the Mamminasata Metropolitan Area but some are facing budget constraints. Also, DSPs or similar urban-related plans have been formulated in all four districts/city. The ratio of Green Open Space in the Mamminasata Metropolitan Area is expected to increase if the Center Point of Indonesia (CPI) project² that is ongoing in Macassar Municipality complete, however it is approximately 15 percent at the time of ex-post evaluation, and it is uncertain whether it will reach 30 percent by 2030, the target year.

<Evaluation Result> The targets set in indicators for the Project Purpose were mostly achieved, and project effects have been partially maintained after project completion. The degree of achievement of the Overall Goal is partial at the time of ex-post evaluation, due to lack of target values or benchmarks. Therefore, effectiveness and impact of the project are fair.

3 Efficiency

Both the project cost and the project period were within the plan (the ratio against the plan is 94% and 97% respectively). Therefore efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The new RPJMN (2015-2019) shows the Mamminasata Metropolitan Area as one of national strategic area. It describes the development policy of the Area for increasing quality and quantity of spatial planning and realization orderly utilization and control of land use. At the provincial level, the Governor Decree No. 17/2013 provides rules on permission of spatial planning for provincial strategic area, while the draft Governor Decree related to development management of the Mamminasata Metropolitan Area was not legalized as mentioned above.

<Institutional Aspect>

At the time of ex-post evaluation, major responsibilities of UPTD MM and MMDCB remain unchanged (i.e., UPTD for providing information necessary for monitoring urban development in the Mamminasata Metropolitan Area, issuing principle permit upon proposals from districts/city for large scale development, and participating in MMDCB meetings etc.; MMDCB for providing coordination service and technical consultation, and monitoring urban development in the Mamminasata Metropolitan Area etc). However, as MMDCB is a kind of committee, practical work is undertaken by UPTD MM³. 11 permanent staff are assigned in UPTD MM, which is sufficient in a

² The Center Point of Indonesia project is a huge land reclamation project in the Losari coastal area.

³ During the implementation stage of this project, technical and administrative works of MMDCB were carried out by external experts called "resource persons." At the time of ex-post evaluation, there are no resource persons hired for MMDCB but only members (representatives from related organizations)

sense that they can implement their coordination-related tasks, while it is insufficient for other tasks such as systematic training.

According to the respective districts/city, although the number of staff in Makassar Municipality, Maros District, Gowa District and Takalar District is limited, they are capable of checking the validity of draft spatial plans formulated or revised by consultants. Therefore, no particular problem is seen in this respect. .

<Technical Aspect>

In UPTD MM, among 12 staff who attended TOT during the project, five staff work in UPTD MM at the time of ex-post evaluation (two staff have already retired and five staff have moved to other divisions/sections). According to UPTD MM, the current skill level of staff in UPTD MM is not sufficient, particularly to check the contents of spatial plans prepared by districts/city, to take appropriate measures for the use of land (through zoning regulation, permit, incentives and disincentives and sanctions), and to apply the GIS technology on spatial management etc.

Many of those who attended city/district trainings under the project in Makassar Municipality, Maros District, Gowa District and Takalar District have also been rotated to other offices and some have retired. Staffs in city/districts are capable of checking the validity of draft spatial plans formulated or revised by consultants, while there is an issue of training of junior staff members.

There is no plan to improve skill level of staff in UPTD MM/MMDCB, or no training on urban development management for district/city officials has been conducted since the dissolution of SNVT MM in 2014.

<Financial Aspect>

No budget has been allocated to MMDCB after project completion, and the amount of budget allocated to UPTD MM has not been sufficient to fully continue the activities introduced under this project such as training (training is not clearly included in the duties of UPTD MM/MMDCB). As for budget allocated to Makassar Municipality, Maros District, Gowa District and Takalar District, although there were some comments that budget are limited, they have own resources for spatial planning and prepare spatial plan.

<Evaluation Result> While no major problems have been observed in the policy aspect, issues have been observed in the institutional, technical and financial aspects especially with UPTD MM and MMDCB. Therefore, sustainability of effects of the project is fair.

5 Summary of the Evaluation

For the Project Purpose, the targets were mostly achieved, showing the improvement of institutional and technical capacity of UPTD MM/MMDCB for Mamminasata Metropolitan development management. After project completion, UPTD MM/MMDCB continued to coordinate the city's and districts' urban development management, but systematic training has not continued as UPTD MM/MMDCB are unable to request budget for training, which is not clearly defined as their duties. The degree of achievement of the Overall Goal is partial at the time of ex-post evaluation: spatial planning and implementation have progressed in all targeted city/districts, while the level of achievement of some indicators could not be fully verified due of lack of target values or other benchmarks. In terms of sustainability, there are challenges in the institutional, technical and financial aspects due to the limited jurisdiction of UPTD MM/MMDCB.

In light of the above, this project is evaluated to be Satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for Implementing Agency>

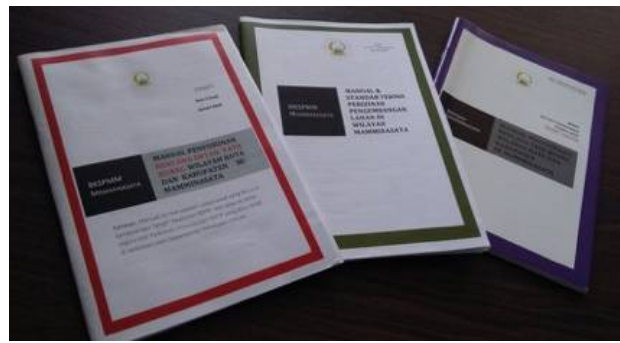
MMDCB is recommended to promote enactment of the Governor Decree related to development management of the Mamminasata Metropolitan Area with support from UPTD MM. Also, it is recommended to consider a systematic holding of internal training or study sessions before the retirement of the staff members who were trained under this project, so that they can transfer their knowledge and know-hows on use of tools such as manuals to junior staff members.

<Lessons Learned for JICA>

When planning TOT in a technical cooperation project, its necessity and effectiveness should be examined with sufficient clarifications of the roles of the target organizations and the objectives of the training. As it is difficult to establish a new system or institution from scratch, it is better to consider the assistance that makes effective use of the existing system and institution and coordinates with the partner government's existing programs. According to circumstances, it might be important to establish an internal training system in which each organization can transfer the learned techniques to new staff members.



Spatial Plan Structure of Makassar City



Manuals prepared by the Project



Center Point of Indonesia located in Losari Beach, Makassar

Attachment

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) The system of urban development management in Mamminasata Metropolitan Area is developed.	1. UPTD MM/MMDCB are actively applying the mandate of Presidential Regulation on Spatial Plan for Mamminasata Metropolitan Area and other related policies (both in provincial government level and central government level).	<u>Status of achievement: Achieved (continued)</u> (Project Completion) Based on the Presidential Regulation No.55/2011 on spatial plan of the Mamminasata Metropolitan Area enacted in September 2011, development management of the Area proceeded. For example, UPTD/MMDCB conducted assessment of all GSPs and processed development permissions. (Ex-post Evaluation) The Governor Decree No. 17/2013 on permission of spatial planning for provincial strategic area was enacted, and UPTD MM/MMDCB have checked all spatial utilization proposed by districts and city for areas larger than 1 ha for housing and larger than 25 ha for agricultural use.
	2. Job description of UPTD MM is more clear and focused.	<u>Status of achievement: Achieved (partially continued)</u> (Project Completion) Roles and responsibilities including job description of relevant organizations including UPTD MM are stated in the draft Governor Decree related to development management of the Mamminasata Metropolitan Area. (Ex-post Evaluation) The jobs authorized to UPTD MM are based on Governor Regulation No. 82/2009, but the decree related to development management of the Mamminasata Metropolitan Area was not legalized, except the Governor Decree No.17/2013.
	3. Operational budget of UPTD MM/MMDCB is allocated.	<u>Status of achievement: Achieved (partially continued)</u> (Project Completion) The provincial budget allocated to UPTD MM covered the activities of UPTD MM/MMDCB. Also, the central government allocated necessary budget for training by its branch organizations (SNVT) established in 2011 for smooth implementation of national programs in the Mamminasata Metropolitan Area. (Ex-post Evaluation) Around Rp. 1 billion is allocated to UPTD MM every year for socialization/coordination meetings. Budget for training and hiring external human resources was allocated to SNVT MM by 2014, but since the dissolution of SNVT MM due to the organizational restructuring of the Ministry of Public Works, such a budget has not been available.
	4. Training on urban development management for district/city officials is conducted systematically by trainers of UPTD MM/MMDCB.	<u>Status of achievement: Achieved (partially continued)</u> (Project Completion) Those participated in TOT (staff of UPTD MM/MMDCB) conducted trainings on spatial management, spatial planning, regulations, and project management etc., and participated in city/district trainings as advisors (for urban development methods and database management etc.) and in human resource development trainings conducted by SNVT MM as resource persons (for spatial planning and regulations etc.). (Ex-post Evaluation) The Governor Regulation No. 82/2009 does not clearly provide

		<p>UPTD MM with a mandate of conducting training. After project completion, staff members of UPTD MM played an active role of trainers in the training courses prepared and implemented by SNVT MM. However, since the dissolution of SNVT MM in 2014, trainings on urban development management for district/city officials have not been conducted systematically. Nonetheless, the staff members of UPTD MM conducts presentations as instructors or resource persons in trainings related to urban development management provided by other departments for local government officials as well as socializations on certain topics related to urban development management (spatial planning, spatial utilization and spatial utilization control).</p>																				
	5. Types of urban development management tools (manuals, database system).	<p><u>Status of achievement: Achieved (partially continued)</u> (Project Completion) Six manuals (GSP formulation, DSP formulation, project management, spatial utilization control, training program and database management) and database were developed under the project. In addition, the Government Regulation on spatial management (No.15/2010) and the Presidential Regulation on spatial plan of the Mamminasata Metropolitan Area (No. 55/2011) were enacted in relation to the project. (Ex-post Evaluation) Of the six manuals, all except for the manual on training program have been utilized since project completion. The manual on training program is not currently used but kept in the office so that it is available at any time.</p>																				
	6. Number of trained UPTD MM/MMDCB and city/districts officials.	<p><u>Status of achievement: Mostly achieved (partially continued)</u> (Project Completion) The number of staff who completed four-weeks TOT was 18 in total. Among them, the majority was staff of UPTD MM and MMDCB. In addition, trial training was conducted in city/districts in which trainers from UPTD MM and MMDCB played a role as trainers. The number of city/district staff who participated in the trial training was 33 in Takalar District, 37 in Maros District, 35 in Gowa District and 20 in Makassar City. (Ex-post Evaluation) Many of those who attended TOT and city/district trainings have been rotated to other offices and some have retired. However, the remaining staff members still utilize what they learned from the training under this project in their jobs. For example, the staff members of UPTD MM still play an important coordinating role in implementation of spatial plans in the Mamminasata Metropolitan Area as well as act as resource persons in related seminars and trainings. Also, the current governor of Maros District participated in the training of this project in his former position, and thus understands the spatial planning of the Mamminasata Metropolitan Area. However, there is an issue of training of junior staff who did not participate in such training.</p>																				
	7. Types of priority project coordination tools.	<p><u>Status of achievement: Achieved (continued)</u> (Project Completion) MMDCB regular meetings, coordination meetings per project and monitoring sheet were developed as project coordination tools under the project, all of which were utilized for project coordination. (Ex-post Evaluation) MMDCB regular meetings, although not conducted on a regular basis, are still held, coordination meetings per project are still held intensively since some projects have been in the construction stage, and monitoring sheet is practically used during monitoring and evaluation especially by those who are involved in projects (local staffs who work in Office of Spatial Planning and Settlement of South Sulawesi Province, staffs of UPTD MM and resources persons).</p>																				
(Overall Goal) Balance between conservation function and cultivation function in Mamminasata Metropolitan Area is realized.	1. Number of formulated/revised spatial plans of municipality and districts based on the new law of spatial plan (Law No. 26/2007) and Mamminasata metropolitan spatial plan.	<p><u>Status of achievement: Achieved</u> (Ex-post Evaluation) All of the four districts/city in the Mamminasata Metropolitan Area have legalized their spatial plans (100 percent has been completed), which means all four spatial plans were formulated/revised. In accordance with the Law No. 26/2007, all regions are required to formulate or revise their spatial plans, and among 524 regions (33 provinces, 398 districts and 93 cities) in total in Indonesia, 422 regions (80.53 percent) have legalized their spatial plans. Thus, the achievement level in the Mamminasata Metropolitan Area is higher than the national achievement level.</p> <table border="1"> <thead> <tr> <th>Level of Government</th> <th>Total Number</th> <th>Already Legalized Spatial Plans</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Provinces</td> <td>33</td> <td>26</td> <td>78.79</td> </tr> <tr> <td>Districts</td> <td>398</td> <td>316</td> <td>79.40</td> </tr> <tr> <td>Cities</td> <td>93</td> <td>80</td> <td>86.02</td> </tr> <tr> <td>Total</td> <td>524</td> <td>422</td> <td>80.53</td> </tr> </tbody> </table>	Level of Government	Total Number	Already Legalized Spatial Plans	Percentage	Provinces	33	26	78.79	Districts	398	316	79.40	Cities	93	80	86.02	Total	524	422	80.53
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2. Number of urban development projects in accordance with the spatial plan.	<p><u>Status of achievement: Partially achieved</u> (Ex-post Evaluation) There are 11 programs in all of which prioritized projects are being planned and/or implemented in the Mamminasata Metropolitan Area toward the target year of 2030 ((1) road networks, (2) water supply, (3) waste water treatment, (4) drainage, (5) regional solid waste, (6) New Town, (7) university center, (8) Center Point of Indonesia, (9) Go Green, (10) industrial estate and (11) maritime development). On the other hand, the implementation of some projects are facing challenges due to</p>																					

		budget constraints.																										
3. Number of urban related plans (e.g. DSP, program implementation/investment plans) which is formulated based on the regulation on the urban development.	<p><u>Status of achievement: Partially achieved</u> (Ex-post Evaluation) All cities/districts formulated urban related plans. In Makassar, 11 DSPs are formulated in 2015. In Gowa, five DSPs and five RTBLs (building and environment plan, an elaboration of DSP) have been formulated (one DSP in 2011, one DSP and one RTBL in 2012, one DSP and two RTBLs in 2013 and 2014, and one DSP in 2015). In Maros, nine DSPs have been formulated. In Takalar, two DSPs and three RTBLs have been formulated. (Without the target figure and any other available benchmarks, degree of achievement could not be fully verified)</p>																											
4. Green Open Space in line with guidelines. (Target: 30% by year 2030)	<p><u>Status of achievement: Partially achieved</u> (Ex-post Evaluation) In total area of the Mamminasata Metropolitan Area (2,475,710 ha), the ratio of Green Open Space is approximately 15.1 percent. The percentage is expected to increase if the Center Point of Indonesia (CPI) project that is ongoing in Makassar Municipality.</p> <table border="1"> <thead> <tr> <th>District/City</th> <th>Area (ha)</th> <th>Extent of Green Open Space (ha)</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Makassar</td> <td>175,790</td> <td>7,890</td> <td>4.5</td> </tr> <tr> <td>Gowa</td> <td>681,480</td> <td>146,860</td> <td>21.6</td> </tr> <tr> <td>Maros</td> <td>1,061,440</td> <td>157,620</td> <td>14.8</td> </tr> <tr> <td>Takalar</td> <td>557,000</td> <td>60,490</td> <td>10.9</td> </tr> <tr> <td>Total</td> <td>2,475,710</td> <td>372,860</td> <td>15.1</td> </tr> </tbody> </table>				District/City	Area (ha)	Extent of Green Open Space (ha)	Percentage	Makassar	175,790	7,890	4.5	Gowa	681,480	146,860	21.6	Maros	1,061,440	157,620	14.8	Takalar	557,000	60,490	10.9	Total	2,475,710	372,860	15.1
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Source : Project Completion Report, Questionnaire survey to UPTD MM.

Note: While PDM of this project does not specify the target year for Overall Goal, the Completion Report states that the Overall Goal of this project is expected to be achieved to some extent in “17 years”, indicating the target year will be 2030, which is the target year of the Mamminasata Metropolitan spatial plan. In this ex-post evaluation, the target year for Indicator 4 (Green Open Space) is set at year 2030, as the green open space is considered to be an indicator of the result of implementation of the Mamminasata Metropolitan spatial plan. The rest of the indicators are assessed based on the situation at the time of ex-post evaluation as they indicate the process of spatial planning and implementation. Indicator 2 for Overall Goal was interpreted as the number of urban development projects that are either planned or implemented.

<table border="1"> <tr> <td>Country Name</td> <td rowspan="2">Sustainable Operation and Maintenance Project for Rural Water Supply (SOMAP) 2</td> </tr> <tr> <td>Republic of Zambia</td> </tr> </table>	Country Name	Sustainable Operation and Maintenance Project for Rural Water Supply (SOMAP) 2	Republic of Zambia								
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I. Project Outline											
Background	<p>In Zambia, only 37% of the rural population had access to safe water in 2005. In order to improve the situation, the Rural Water Supply and Sanitation Unit (RWSSU) under the Ministry of Local Government and Housing (MLGH) issued the National Rural Water Supply and Sanitation Programme 2006-2015 (NRWSSP), including an objective to improve operation and maintenance (O&M) system for water supply facilities. The government of Japan has supported construction of deep wells with hand pump since 1985. However, the follow-up study pointed out the issues of maintenance of water supply facilities. JICA launched a technical cooperation project, “Sustainable Operation and Maintenance Project for Rural Water Supply Phase 1 (SOMAP 1) which had piloted sustainable O&M mechanisms in Monze and Mumbwa District Councils in order to enable communities to use existing deep wells with hand pumps longer and better by establishing sustainable supply chain of spare parts and providing necessary capacity development for stakeholders. Experiences and lessons learnt from SOMAP1 were compiled into “National Guidelines for Sustainable Operation and Maintenance of Hand Pumps in Rural Areas” as O&M principles, and the guidelines were officially launched in November, 2007. Under this situation, the government of Zambia requested the government of Japan technical cooperation to sustain the state of operation of water supply facilities with hand pumps through wider application of the O&M principles and the SOMAP O&M model established by SOMAP Phase 1.</p>										
Objectives of the Project	<p>Through defining the SOMAP O&M model* in Monze District (Southern Province)and Mumbwa District(Central Province), implementing the SOMAP O&M model in districts (Chibombo, Kapiri Mponshi, Mkushi, and Serenje) in Central province as well as commencing the O&M principles in other places where the Area Based Programme (ABPs)¹ are working, the project aimed at sustainable operation of water facilities with hand pumps by wider application of the O&M principles** and the SOMAP O&M model, thereby contributing to improvement of operation rate of hand pumps.</p> <ol style="list-style-type: none"> 1. Overall Goal: Operation rate of hand pumps will be improved. 2. Project Purpose: The state of operation of water points fitted with hand pumps is sustained through wider application of O&M principles and SOMAP O&M Model. <p>Note 1: * The SOMAP O&M model is the mode which is established in Monze and Mumbwa based on O&M principles under National O&M Guidelines. The model is composed of the following 5 mechanisms: 1) Community contribution and management mechanism, 2) Repair work mechanism, 3) Toolkit management mechanism (for repair work), 4) Supply chain of spare parts, 5) Monitoring mechanism (for O&M activities)²</p> <p>Note 2: ** The O&M principles are: 1) Cost sharing, 2), Sustainable supply chain, 3) O&M mechanism, 4) Choice of appropriate technologies, and 5) Capacity building.</p>										
Activities of the project	<ol style="list-style-type: none"> 1. Project sites: Monze District in Southern Province and Five Districts (Kapiri Mponshi, Chibombo, Serenje, Mkushi and Mumbwa) in Central Province 2. Main activities: 1) Monitoring Rural Water Supply and Sanitation (RWSS) activities and conducting “Verification Study” in Monze and Mumbwa District, 2) Review and revisions on the Stock Management Manual and Financial Management Manual, 3) Conducting Situation Analysis and establishment of Monitoring Mechanism in the 5 target districts in Central Province, 4) Trainings for Area Pump Menders (APMs) and Environmental Health Technician (EHTs) on O&M, 5) Capacity development for the Village Water, Sanitation and Hygiene Education (V-WASHE)³ and sensitization for community members, etc. 3. Inputs (to carry out above activities) <table border="0"> <tr> <td>Japanese Side</td> <td>Zambian Side</td> </tr> <tr> <td>1) Experts: 7 persons</td> <td>1. Staff allocated: 60 persons</td> </tr> <tr> <td>2) Equipment: Vehicle, PC, printer, fax machine</td> <td>2. Land and Facilities: Office spaces in the Ministry of Local Government and Housing</td> </tr> <tr> <td>3) Local staff: 5 persons</td> <td>3. Equipment: PC, air conditioner, desks, chairs</td> </tr> <tr> <td>4) Local cost: cost for the local consultant, costs to support district councils of the 4 target districts in Central Province for implementation of the SOMAP O&M model and establishment of the information management system (IMS), other operational cost.</td> <td>4. Local cost: Costs for O&M workshops and meeting, field visits by RWSSU staff, O&M activities for RWSS in Central Province, Monze and Mumbwa Districts, procurement of spare parts for hand pumps</td> </tr> </table> 	Japanese Side	Zambian Side	1) Experts: 7 persons	1. Staff allocated: 60 persons	2) Equipment: Vehicle, PC, printer, fax machine	2. Land and Facilities: Office spaces in the Ministry of Local Government and Housing	3) Local staff: 5 persons	3. Equipment: PC, air conditioner, desks, chairs	4) Local cost: cost for the local consultant, costs to support district councils of the 4 target districts in Central Province for implementation of the SOMAP O&M model and establishment of the information management system (IMS), other operational cost.	4. Local cost: Costs for O&M workshops and meeting, field visits by RWSSU staff, O&M activities for RWSS in Central Province, Monze and Mumbwa Districts, procurement of spare parts for hand pumps
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¹ ABPs are a series of rural water supply program implementing through supports of donors under the framework of NRWSSP.

² APM records the repair works and submits the record to the Area Development Committee (ADC) which is represented by EHT or school head. ADC compiles a monitoring report and submits to the District Council, and the District Council gives feedbacks to ADC.

³ V-WASHE is a water supply association at community level which is responsible for utilization and maintenance of water supply facilities. A Caretaker, a hand pump manager, is responsible for advice on proper utilization of water supply facility for community people and liaison with APM in the area. APM is a representative of villagers trained as a repair person for hand pumps.

Ex-Ante Evaluation	2007	Project Period	September, 2007 - September, 2010	Project Cost	(Ex-ante) 92 million yen (Actual) 211 million yen
Implementing Agency	Rural Water Supply and Sanitation Unit (RWSSU), Department of Housing and Infrastructure Development (DHID), Ministry of Local Government and Housing (MLGH)				
Cooperation Agency in Japan	None				

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to the rural road conditions during the rainy season and geographical locations, there were difficulties to access to the 2 target districts of Chibombo and Mkushi. Therefore, the field visits were conducted in the 4 target districts of Monze, Mumbwa, Kapiri Mponshi and Serenje in order to verify the current status of O&M activities for rural water supply facilities, and extension of SOMAP O&M model as well as impacts of this project.

< Special perspectives considered in the ex-post evaluation >

- Verifiable Indicator for the Project Purpose: The indicator 2 for the Project Purpose is the number of V-WASHE which collected community contribution in six districts of Monze, Mumbwa, Serenje, Mkushi, Kapiri Mponshi and Chibombo, but no target value had been defined. For the ex-post evaluation, the target number of villages with community contribution for rural water supply in the target districts were set as the number of villages which received V-WASHE training by this project as follows:
 - 60 villages for Chibombo
 - 66 villages for Kapiri Mponshi
 - 51 villages for Mkushi
 - 91 villages for Serenje
 - No target values were established for Monze and Mumbwa because no training was delivered by this project
- Indicators for the Overall Goal were expected to measure the figures either of Central/Southern Province or of the Country level. However, the definition of the setting coverage was not clear from the past documents. On the other hand, the figures for the Overall Goal indicators of the districts which introduced the SOMAP O&M model after the project completion were only available in six districts in Central and Southern Provinces. Contribution of extension of the SOMAP O&M model and the O&M principles to achievement of the Overall Goal: In order to verify contribution of extension of the SOMAP O&M model and the O&M principles introduced by the project to achievement of the Overall Goal, it was also planned to conduct comparable analysis on the status of improvement of operation rate of hand pump among the districts introducing the model and the principles and the districts not introducing them, but no data was available for the districts not introducing them. Therefore, the verifications of achievement level of the Overall Goal were based on the changes in operation rate and downtime among the target six districts of the projects and the above-mentioned six sample districts that introduced the SOMAP O&M principals and model after the project completion.
- Impact of SOMAP 3 on achievement of the Overall Goal and sustainability of the project effects: After completion of SOMAP 2, JICA launched SOMAP 3 (2011 to 2015) to disseminate the SOMAP O&M model nationwide in Zambia. Since the Project Purpose of SOMAP 3 is the same as the Overall Goal of SOMAP 2, it is inevitable to verify contribution of SOMAP 3 to achievement level of the Overall Goal of SOMAP 2 as well as sustainability of the project effects of SOMAP 2.

1 Relevance

<Consistency with the Development Policy of Zambia at the time of ex-ante evaluation and project completion>

The project was consistent with the Zambia's development policy of "NRWSSP (2006-2010)" which aims 100% of access to safe water and sanitation by 2030".

<Consistency with the Development Needs of Zambia at the time of ex-ante evaluation and project completion >

The project was consistent with the Zambia's development needs of proper operation and maintenance (O&M) of the water supply facilities to avoid disruption of water supply caused by breakdown or malfunction of the water supply facility in order to ensure equitable provision of water.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with the Japan's ODA policy to support poverty reduction focusing on rural development, one of the 5 priority areas confirmed by the policy dialogue between Zambia and Japan in August, 2004.

<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 partially achieved by the project completion. Application of the SOMAP O&M principles (Indicator 1) had been commenced and the mechanism was in place by 12 district councils in Northern Province and 3 district councils in Copper Belt Province through the dissemination process by the project activities. The numbers of V-WASHEs collecting community contribution to cover maintenance cost of water supply facilities(Indicator 2) were 3 out of the 6 target districts: 2 in Mumbwa, 32 Kapiri Mponshi and 50 in Chibombo. However, no proper record was found in the district councils due to lack of data management system for standardizing data collection and recording of O&M activities including repair works based on the monitoring mechanism of the SOMAP O&M model to operationalize IMS installed by the project in the target districts. The main reasons why the data management system was not established were limited understanding of APM and ADC (EHT or school head) to collect and compile data on the O&M activities and limited physical access from the communities to the district councils for submission or collection of monitoring reports.

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

Since the project completion, the SOMAP O&M model and principles have been continuously implemented in not only the target districts but also the extended districts. The 6 target districts continue to implement the SOMAP O&M model because of continuous support of NRWSSP under the National O&M guidelines for sustained maintenance of RWSS facilities in order to ensure provision of safe

water in rural areas. 14 out of the 15 districts in Southern Province and Central Province introducing the O&M principles during the project period continue to implement the principles. However, the number of V-WASHes continuously collecting community contribution was limited.

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

The Overall Goal has been mostly achieved. Under the continuous support by NRWSSP, the 11 districts in Southern Province and 7 districts in Central Province, including the 6 target districts, have implemented the SOMAP O&M model. Most of the districts introducing the SOMAP O&M model improved their operation rates of hand pumps at the time of ex-post evaluation. In terms of the operation rate of hand pump (Indicator 1), among the 5 target districts surveyed by the ex-post evaluation, 1 district achieved and 3 districts mostly achieved the target value (equal to or more than 80% of the target value). Among the 6 districts introducing the SOMAP O&M model after the project completion, 3 districts achieved and 3 districts mostly achieved the target value (equal to or more than 80% of the target value). As for the downtime at water points (Indicator 2), 10 districts out of the 11 districts surveyed by the ex-post evaluation improved with decrease or sustained the downtime against the target value of 21 days per month. In particular, the districts introducing the SOMAP O&M model after the project completion dramatically reduced the downtime at water points. According to the questionnaire survey conducted by this ex-post evaluation, while the 10 districts improved or sustained the operation rate of hand pump and the downtime of water points after the project completion or the introduction of the SOMAP model, no improvement was observed in districts not introducing the SOMAP O&M model at the time of ex-post evaluation.

SOMAP 3, a subsequent technical cooperation project of SOMAP 2, with the Project Purpose including the Overall Goal of SOMAP 2, significantly contributed to the improvements, in particular, reduction of downtime of water points in the districts rolled out of the SOMAP model through the repair work mechanism under the SOMAP 3 with sufficient personnel and tools to repair hand pumps timely. The fact indicates that the SOMAP O&M model contributed to the improvement of the operation rate of hand pumps.

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

The project had influenced the change in procurement of hand pumps for rural water supply to be done only after water quality tests in order to install the appropriate pump with either Poly Vinyl Chloride (PVC) or Galvanized Iron (GI) based on the underground components identified by the tests. The project undertook a research survey that produced guidelines based on the results, for use by all actors implementing RWSS. The overall planning process for RWSS at district level has improved by learning from the processes introduced by the project including the training workshops for O&M such as the adoption of the templates and guidelines for all the components of NRWSSP.

<Evaluation Result>

In light of the above, the project partially achieved the Project Purpose and mostly achieved the Overall Goal. The SOMAP models and O&M principles enabling proper operation of hand pumps have been sustained in the target districts and rolled out in other districts. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																																	
(Project Purpose) The state of operation of water points fitted with hand pumps is sustained through wider application of O&M principles and SOMAP O&M model.	(Indicator 1) Implementation of O&M principles is commenced in 15 Districts.	<u>Status of the achievement: Achieved</u> (Project Completion) 15 districts were ready to implement the SOMAP O&M principles. (Ex-post evaluation) Continued. 14 out of the 15 districts have continued applying the SOMAP O&M principles.																																																	
	(Indicator 2) No. of Village Water, Sanitation and Hygiene Education (V-WASHE) which collected community contribution in six Districts of Monze, Mumbwa, Serenje, Mkushi, Kapiri Mposhi and Chibombo.	<u>Status of the achievement: Partially achieved</u> (Project completion) No proper records that capture the V-WASHE activities and contribution were confirmed in the target 6 District Councils. (Ex-post Evaluation) Partially continued The SOMAP O&M model has been continuously implemented in the 6 target Districts. Only 2 V-WASHes in Mumbwa and 8 in Kapri Mposhi have continuously collected community contribution.																																																	
(Overall goal) Operation rate of hand pump will be improved.	(Indicator 1) Operation rate of hand pump will be maintained at 80%.	<u>Status of achievement: Mostly achieved</u> (Ex-post Evaluation) <ul style="list-style-type: none"> The 6 target districts: 1 districts achieved the target value (80%) and 3 districts achieved more than 80% of the target value The districts introducing after the project completion: 3 districts with more than the target value and 3 districts with more than 80% of the target value [Average operation rate of hand pump in the 6 target districts (%)] <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Monze</td> <td>65</td> <td>70</td> <td>68</td> <td>59</td> <td>70</td> <td>80</td> </tr> <tr> <td>Mumbwa</td> <td>68</td> <td>64</td> <td>67</td> <td>65</td> <td>71</td> <td>72</td> </tr> <tr> <td>Mkushi*</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Kapiri Mponshi</td> <td>38</td> <td>44</td> <td>45</td> <td>50</td> <td>68</td> <td>70</td> </tr> <tr> <td>Serenje</td> <td>-</td> <td>-</td> <td>-</td> <td>50</td> <td>50</td> <td>50</td> </tr> <tr> <td>Chibombo*</td> <td>50</td> <td>60</td> <td>60</td> <td>75</td> <td>80</td> <td>75</td> </tr> </tbody> </table> *The site survey was not able to be conducted in Chibombo and Mkushi, however the Central Province availed us with the records for Chibombo. [Average operation rate of hand pump in districts introducing after the project completion (%)]		2010	2011	2012	2013	2014	2015	Monze	65	70	68	59	70	80	Mumbwa	68	64	67	65	71	72	Mkushi*	-	-	-	-	-	-	Kapiri Mponshi	38	44	45	50	68	70	Serenje	-	-	-	50	50	50	Chibombo*	50	60	60	75	80	75
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Chibombo*	50	60	60	75	80	75																																													

	2010	2011	2012	2013	2014	2015
Lufwanyama	-	-	10	30	50	65
Masaiti	50	80	80	80	90	95
Mpongwe	35	38	47	60	65	94
Kasama	50	50	60	50	70	80
Mpika	-	-	-	75	75	75
Chinsali	-	-	-	30	40	65

(Indicator 2)
Average downtime of water points fitted with hand pumps decreases to less than 21 days at any point of time.

Status of the achievement: Mostly Achieved
(Ex-post Evaluation)

- The 6 target districts: 5 districts with decrease to less than 21 days.
- The districts introducing after the project completion: 5 districts with decrease to less than 21 days.

[Average downtime of water points with hand pumps in the 6 target districts (days)]

	2010	2011	2012	2013	2014	2015
Monze	14	9	7	10	9	10
Mumbwa	10	7	5	3	3	4
Mkushi	-	-	-	-	-	-
Kapiri Mponshi	21	16	12	10	5	3
Serenje	-	-	-	5	7	14
Chibombo	28	14	14	14	14	14

[Average downtime of water points with hand pumps in the districts introduced after the project completion (days)]

	2010	2011	2012	2013	2014	2015
Lufwanyama	-	-	90	30	14	7
Masaiti	50	20	5	5	3	3
Mpongwe	90	90	90	30	25	14
Kasama	30	28	28	21	21	14
Mpika	-	-	-	90	60	30
Chinsali	-	-	60	50	30	7

Source : Project completion report, District Questionnaires and Interviews conducted with the District Focal Points Persons for RWSS, and Provincial Support Teams (Kabwe and Choma), and Provincial Engineers of Northern Province.

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost largely exceeded the plan (ratio against the plan: 229%) due to the additional activities including verification study which was not planned at the time of ex-ante evaluation. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The NRWSSP has been implementing under supports of other donors, including AfDB, KfW (Kreditanstalt für Wiederaufbau) and UNICEF (United Nations Children's Fund), to extend the SOMAP model and O&M principles for better operation and maintenance of rural water supply facilities in Zambia.

<Institutional Aspect>

There has been no change in organizational structure or setting related to rural water supply and O&M of rural supply facilities in the country. RWSSU has been continuously responsible for construction and maintenance of rural water supply facilities. All district councils have rural water supply and sanitation officers responsible for planning, implementation and monitoring of water supply and sanitation. One or two staff has been deployed for the activities at district council level. However, the number of staff has not been sufficient since the government has not decided to employ more officers. D-WASHE (District water, sanitation and hygiene education committee) hold monthly and quarterly meetings to provide technical support for the district councils' operations of rural water supply and sanitation. V-WASHEs in all the districts have been continuously functioning for utilization and maintenance of water supply facilities, monitoring and reporting water supply facilities in case of problems in order to ensure repairs in a proper manner, also mobilizing communities for contributing repair and maintenance of water supply facilities. And the caretakers regularly check each water supply facility, and they report to Area Pump Menders (APMs) when the facility has problems, since APMs have constant communication with V-WASHE. Despite no available data, according to the survey by this ex-post evaluation, the number of functioning V-WASHEs has been decreasing since the project completion in Mubwa and Kapri Mposhi. The main reason of the decrease of the functioning V-WASHEs is the lack of monitoring and support by the district councils. The number of caretakers and APMs varies by district: 180 caretakers and 88 APMs in Monze, 490 and 30 in Mumbwa, and 25 and 30 in Kapiri Mponshi. The number of APMs is not sufficient for proper maintenance activities due to high turnover by relocation, retiring and so on. The repair toolkits have been available at either the nearest health facility or school central to all the V-WASHEs in each ward. The Commercial Utility (CU) did not continuously function to supply spare parts because they did not replenish the seed stock, shop operators have moved from the districts or the spare parts shops closed. This caused the district councils to request that CU hand over management of SOMAP shops to the councils: the process started in 2015 and is still in process. PSTs ceased to function in 2011 when the provincial principle engineers under MLGH were employed to technically support district council activities.

<Technical Aspect>

RWSS O&M manuals developed by the project were continuously utilized in all the districts during and after the project period, including other districts where the SOMAP model beside the target districts is introduced. On the other hand, the D-WASHE trainers in the 4 districts of Monze, Mumbwa, Kapiri Mposhi and Serenje have conducted trainings for APMs or V-WASHE in wards supported by the

World Vision, In other areas, they have not continuously provided any trainings for neither APM nor V-WASHE and any sensitization activities. That is because, the lack of O&M support from MLGH including the budget even though it was planned. Some trainings have been conducted in some wards in the target districts where some international organizations, such as World Vision, AfDB and UNICEF have been supporting. present

<Financial Aspect>

There has been significant improvement in budget/ allocation to O&M of rural water supply facilities. Budget for the RWSSU increased from 31 million ZMW in 2012 to 177 million ZMW in 2015 and the budget for DCs for maintenance activities expanded from 9 million ZMW to 19.8 million ZMW for the same period. However, MLGH has not continuously disbursed sufficient budget over the years and this has negatively affected the sustained implementation and adaptation of the SOMAP O&M model. Community contributions for maintenance of the water supply facilities are being done, but there was no properly established database, V-WASHEs are not monitored and sensitized by the district councils due to lack of funds from the RWSSU.

<Evaluation Result>

In light of the above, Slight problems have been observed in terms of the institutional/technical/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 mostly achieved the Overall Goal for sustainable operation of rural water supply facilities. The SOMAP O&M model and the O&M principles have been rolled out nationwide through the significant contribution of the SOMAP 3 as well as other donors' supports. As for sustainability, MLGH has not continuously disbursed sufficient budget over the years and this has negatively affected the sustained implementation and adaptation of the SOMAP O&M model. In particular, necessary technical trainings and sensitization activities for APMs and V-WASHE have been limitedly conducted in the limited wards in the target districts due to insufficient budget disbursement by MLGH. As for efficiency, the project cost largely exceeded the plan due to the additional activities including a verification study.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[MLGH]

MLGH should mandate the district councils to take ownership and integrate rural water operations and maintenance activities in their budgets and disburse sufficient funds from the locally generated resources such as animal levy, crop levy, rent on council facilities, land rates, etc., to cushion the inadequate release of funds from MLGH at the beginning of the next planning and budgeting cycle. Those funds can then be used for the O&M activities by the DRWSS coordination such as continuous monitoring, training and sensitization of communities (V-WASHEs, APMs, caretakers) facilitating and strengthening reporting mechanisms. Those activities are expected to lead to reactivation of V-WASHEs and full involvement of APMs and Caretakers in O&M. Also, appropriate supply chain management including ensuring toolkits and constant replenishment of SOMAP shops can be achieved as well.

Lessons learned for JICA:

[Necessity of follow up support for rolling out of the model introduced by the project]

Although the O&M model for rural water facilities introduced by the project have been rolled out in the country, it was mainly because of the SOMAP 3 and other donors' support. Under the situation with lack of sufficient capacity and ownership of local entities which should be responsible for operation and maintenance of rural water supply facilities, it is difficult for the counterpart agency to extend the model nationwide without support by donors. Therefore, realistic strategy for rolling out the model, including cooperation and coordination with other donors supporting the area of rural water supply, needs to be prepared during the project implementation. Each donor supporting rural water supply infrastructure should ensure a component of O&M is incorporated in its activities which will enable the facilities be sustained by the local authorities and communities even after project completion. In addition, implementation of the SOMAP O&M model in line with the NRWSSP by other donors can assure levels of sustainability for both local authorities and the communities as it can be standardized and be widely applied across the country.

[Establishment of functional monitoring mechanism]

Since the monitoring activities by the district councils for V-WASHE has not been sustained, it was difficult to capture current status of V-WASHE at the time of ex-post evaluation. It is essential to establish a functional monitoring mechanism during the project implementation to be sustained even after the project completion in order to check operation and maintenance of rural water facilities by V-WASHE and to provide necessary technical support in a timely manner. Also, the monitoring indicators should be operational and in line with the situations of Country's implementing agency in order to avoid duplication of data collection and reporting.



Water point managed by V-WASHE in Mumbwa



Community Contribution Record

Country Name		Strengthening of Flood Forecasting and Warning System for Dam Operation													
Republic of the Philippines															
I. Project Outline															
Background	<p>The central and northern parts of Luzon Island is usually hit by about three to five typhoons every year affecting dam operations which supply electricity, irrigation water and drinking water to many areas including Metro Manila. To mitigate flood damages brought about by dam operations, the Government of the Philippines (GOP) in the 1980s installed a Flood Forecasting and Warning System for Dam Operation (FFWSDO) through the Official Development Assistance (ODA) of the Government of Japan (GOJ) in five dam sites (Ambuklao and Binga dams in the Agno River basin, Magat dam in the Cagayan River basin, Angat and Pantabangan dams in the Pampanga River basin). However, most of the donated flood forecasting equipment became non-functional especially after the volcano eruptions and devastating earthquakes in early 1990s¹. This affected the service delivery of the National Irrigation Administration (NIA) and the National Power Corporation (NPC) which are responsible for flood forecasting and warning in the upstream areas of the river basins. The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), is responsible for the Flood Forecasting and Warning System (FFWS) in the middle and downstream areas of the river basins. In order to strengthen the capability of flood forecasting and warning at the middle and downstream areas in the Agno, Magat/Cagayan, Pampanga, and Bicol river basins, JICA assisted PAGASA in implementing a technical cooperation project titled, "Strengthening of Flood Forecasting and Warning Administration" from 2004 to 2006. Through this project, the capability of PAGASA in issuing forecasting and warning in the middle and downstream areas in the Agno, Magat/Cagayan, Pampanga, and Bicol river basins was strengthened. However, the capability of issuing flood forecasting and warning in the upstream areas was still insufficient, making the overall capability of flood forecasting and warning for the entire river basins inadequate.</p> <p>In addition to the above five dams, this project targeted the San Roque dam constructed in the Agno River basin in 2003 under another Japanese ODA project.</p>														
Objectives of the Project	<p>The project was aimed at improving capability in flood forecasting and warning for proper dam operation by collecting and analyzing meteorological and hydrological data, strengthening information and knowledge sharing among Joint Operation and Management Committee (JOMC) members and local government units (LGUs), and strengthening capability in operation and maintenance (O&M) of meteorological and hydrological equipment of the above rivers, thereby contributing to reduction of loss and damages caused by floods. The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> 1. Overall Goal: Loss and damage caused by floods within Pampanga, Agno and Cagayan River Basins are reduced. 2. Project Purpose: Capability in flood forecasting and warning for proper dam operation in the dam target areas along Pampanga, Agno, Angat and Magat/Cagayan Rivers is improved. 														
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Metro Manila, and the provinces of Bulacan, Pampanga, Pangasinan, Nueva Ecija, Benguet, Isabela and Nueva Vizcaya Targeted dams: Magat dam (Cagayan River basin), Ambuklao/Binga and San Roque dams (Agno River basin), and Pantabangan dam and Angat dam (Pampanga River basin) 2. Main activities: (1) Develop hydrological and river cross sections databases including basic survey on the downstream of the target dams and simulation models for flood inundation analysis in the Pampanga River basin; (2) Conduct training of staff to strengthen dam discharge warning and flood information dissemination and strengthen information and knowledge sharing among JOMC members and relevant organizations; and (3) Conduct maintenance and replacement of observation and warning equipment and train staff for O&M system for observation and warning equipment etc. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Philippine Side</td> </tr> <tr> <td>1) Experts: 5 persons</td> <td>1. Staff allocated: 50 persons</td> </tr> <tr> <td>2) Trainees received: 14 persons</td> <td>2. Office space with basic office equipment and utilities (water, electricity, office supplies)</td> </tr> <tr> <td>3) Equipment: water level telemetry sub-system, portable testing instruments etc.</td> <td></td> </tr> <tr> <td>4) Local expenses</td> <td></td> </tr> </table> 					Japanese Side	Philippine Side	1) Experts: 5 persons	1. Staff allocated: 50 persons	2) Trainees received: 14 persons	2. Office space with basic office equipment and utilities (water, electricity, office supplies)	3) Equipment: water level telemetry sub-system, portable testing instruments etc.		4) Local expenses	
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4) Local expenses															
Ex-Ante Evaluation	2007	Project Period	October 2009 – November 2012	Project Cost	(ex-ante) 280 million yen (actual) 370 million yen										
Implementing Agency	Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) in collaboration with the National Irrigation Administration (NIA) and the National Power Corporation (NPC)														
Cooperation Agency in Japan	Ministry of Land Infrastructure, Transportation and Tourism														

¹ Under such situation, the Project for Improvement of Flood Forecasting and Warning System in the Pampanga and Agno River Basins (2007-2011, Japan's Grant Aid) was implemented to procure telemetry subsystem, data processing subsystem and backbone telecommunication subsystem etc.

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of the Philippines at the time of ex-ante evaluation and project completion>

The project has been consistent with the Philippine's development policy on 'reduction of damages from natural disasters' and 'strengthening of disaster prevention against typhoon and floods' etc. as set forth in "the Medium-Term Philippine Development Plan (MTPDP)(2004-2010)", the "National Science and Technology Plan (NSTP)(2002-2020)" and the "Philippine Development Plan (PDP)(2011-2016)".

<Consistency with the Development Needs of the Philippines at the time of ex-ante evaluation and project completion>

At the time of ex-ante evaluation (in 2007), project counterparts (C/P) trained under Japan's ODA projects during the 1980s had either retired from government service or had left C/P organizations, thus the lack of capacities of new staff in C/P organizations in flood forecasting and warning was evident. PAGASA, NIA and NPC have continuously been the main actors in Philippines' FFWSO up to the present including at the time of project completion.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy on 'environmental protection and disaster prevention', as stated in one of the four priority areas of the Country Assistance Program for the Philippines (2008). With regards to disaster management, assistance for natural disaster mitigation (flood, earthquake and volcanic disaster etc.) was also a priority area.

<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 mostly achieved by the time of project completion. Improvements in timeliness and accuracy of dam discharge and flood warning issuance as well as better reach of the warnings to the communities were reported during typhoons in 2011, compared with the situation during typhoons in 2009 (Indicator 1). Based on the drills conducted by the project, NPC and SN Aboitiz Power Company (SNAP) conducted flood warning drills in May 2012 so that project activities would be continued even after project completion (Indicator 2). Updated Dam Discharge Warning Manual (UDDWM) and Updated Flood Warning Manual for Dam Target Areas (UFWM) were drafted and reviewed by PAGASA, NPC and NIA (Indicator 3).

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

The generation of positive project effects has been partially maintained after project completion. Four to six major typhoons hit central and northern Luzon every year thereafter. Dam discharge information and flood warnings during these major typhoons have been issued timely and accurately by the dams to downstream communities. Seventy-eight percent of the 55 beneficiary interview respondents² (consisting of barangay³ officials and residents) in the downstream barangays of Magat, Ambuklao, Binga, Pantabangan, San Roque and Angat dams reported that dam discharge and flood warnings have been issued timely and accurately in the last three years. The hydrological database, dam inflow and dam downstream forecasting models for river basins developed under the project have been continuously utilized by PAGASA, NPC and NIA as references in issuing dam discharge and flood warnings. Although some of the existing rain gauges are malfunctioning, this has never compromised the operation of the flood forecasting and warning system developed by the project. PAGASA, NIA and NPC have other equipment they can use whenever equipment provided by the project breaks down. Also, power-generating private companies operating in the dam sites have their own equipment with which rainfall data and flood forecasting information are always shared with FFWSO staff of PAGASA, NIA and NPC. At the time of ex-post evaluation, NPC and NIA are in the process of procuring spare parts and replacing non-functional rain gauges, respectively. NIA, in particular, has already installed additional rain gauges for Magat dam. Regarding trainings, LGUs located within the immediate periphery of the dams, such as the provinces of Cagayan, Isabela, Benguet, Pangasinan and Bulacan, through their respective Local Disaster Risk Reduction Offices (LDRRMOs), have regularly conducted disaster risk management seminars including evacuation drills in compliance with existing laws on Disaster Risk Reduction Management (DRRM) and Climate Change Adaptation. PAGASA, NPC and NIA have regularly participated in these seminars and drills to disseminate information about FFWSO. In addition, flood information dissemination seminars have been conducted separately by PAGASA, NPC, NIA and LDRRMOs of LGUs once a year, usually before the onslaught of the rainy season. Regarding manuals, UDDWM and UFWM have been reviewed and approved individually by PAGASA, NPC and NIA, and have been continuously utilized by these organizations in flood forecasting and in issuing flood warnings⁴. The manuals have been approved by PAGASA, NIA and NPC but the National Water Resources Board (NWRB) was not able to sign the manuals due to some differences in perspectives about the contents. In the case of NIA-Pantabangan, the manuals was revisited together with PAGASA and accordingly made revisions on the contents and forms which are currently utilized. However, flood operation rule is yet to be used due to its pending approval. Regarding utilization of meteorological and hydrological equipment, three of the six water level equipment at the dams/reservoirs procured and/or replaced under the project are no longer operational due to lightning strike or system misconfiguration etc. Thus, NPC has included in its procurement plan the purchase of three additional encoders and one water level sensor of these water level equipment.

<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. River basin-wide data on the number of victims and economic losses due to floods from dam operations are not available. But provincial data reveal that the number of victims and the amount of economic losses have indeed been reduced between project commencement and ex-post evaluation (e.g., Pangasinan province). 43 of 55 respondents (78%) of the beneficiary survey reported that the NIA/NPC flood warnings in recent flood events had indeed saved more lives of people and working animals.

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

² Representation is limited as the sample size is small due to limitations in evaluation period.

³ A barangay is the smallest local administration unit.

⁴ At the time of ex-post evaluation, NIA and NPC are considering of updating UDDWM and UFWM to include "dam break scenarios" based on results of evacuation drills for downstream communities of project-targeted dams, and also in consideration of the privatization of the power component of the dam operations.

No negative impact on natural environment has been observed. The project did not entail land acquisition and resettlement issues.
<Evaluation Result>

Targets set in indicators for the Project Purpose were mostly achieved. The project effects have been partially maintained since project completion. At the time of ex-post evaluation, the Overall Goal is judged partially attained because of insufficient verifiable data on the number of victims and economic losses due to flood events in the dams in the entire river basins. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Capability in flood forecasting and warning for proper dam operation in the dam target areas along Pampanga, Agno, Angat and Magat/Cagayan Rivers is improved.	1. Dam discharge and flood warnings are issued timely and accurately to all affected communities.	Status of the achievement: achieved (mostly continued) (Project Completion) Compared with the situation during the typhoons in September 2009 (Pepeng and Ondoy) and the typhoons in September 2011 (Pedring and Quiel), improvements in timeliness and accuracy of dam discharge and flood warning issuance and better reach of the warnings to the communities (barangays) were reported by staff of dam offices, PAGASA, downstream local governments and communities. Dam inflow and forecasting models formulated by the project improved the accuracy of capturing the data for discharge volume and water level as well as locations of floods at any given time. (Ex-post Evaluation) Dam discharge and flood warnings during major typhoons in 2013, 2014 and 2015 were issued timely and accurately to downstream communities of Magat, Ambuklao, Binga, San Roque and Angat dams except for Pantabangan dam ⁵ . The hydrological database and dam inflow and dam downstream forecasting models for Magat/Cagayan, Agno, Angat, Upper Pampanga river basins developed by the project have been continuously utilized by PAGASA, NPC and NIA in issuing dam discharge and flood warnings. The non-functionality of some of the existing staff gauges did not hamper the operations of the flood forecasting and warning system for dam operations.
	2. Dam discharge warning and flood information dissemination training is continuously conducted by the responsible organizations.	Status of the achievement: mostly achieved (continued) (Project Completion) Based on the dam discharge warning and flood information dissemination drills conducted by the working group, a flood warning drill was conducted in Binga dam by the initiative of NPC and SNAP in May 2012. They also conducted prior consultations to LGUs and downstream communities as well as evaluation meetings. (Ex-post Evaluation) Local Disaster Risk Reduction Management Offices (LDRRMOs) of Local Government Units (LGUs) located within the immediate periphery of all targeted dams have regularly conducted disaster risk management seminars including evacuation drills in compliance with existing laws on Disaster Risk Reduction Management (DRRM) and Climate Change Adaptation. In addition, flood information dissemination seminars have been conducted by PAGASA, NPC, NIA and LDRRMOs of LGUs once a year, usually before the onslaught of the rainy season.
	3. Revised warning guideline is prepared.	Status of the achievement: achieved (mostly continued) (Project Completion) UDDWM and UFWM were drafted and reviewed by PAGASA, NPC and NIA. (Ex-post Evaluation) UDDWM and UFWM have been reviewed and approved individually by PAGASA, NPC and NIA, and have been continuously utilized by these organizations in flood forecasting and in issuing flood warnings. These manuals have not been approved yet by the National Water Resources Board (NWRB) which is supposed to consolidate water resource-related policies. Nevertheless, its non-approval does not prevent PAGASA, NPC and NIA to utilize these manuals.
	(Supplemental Information) Whether the water level equipment have been continuously utilized at the six dams/reservoirs since project completion.	Status of the achievement: achieved (partially continued) (Ex-post Evaluation) The table below shows the number of operational equipment among the total number of water level equipment.
(Overall goal) Loss and damage caused by floods within Pampanga, Agno and Cagayan River Basins are reduced.	Number of victims and economic loss at the event of the floods	(Ex-post Evaluation) partially achieved The table below shows destructive damages caused by typhoons in Pangasinan province.

	Before October 2009	As of October 2012	At the time of ex-post evaluation
Magat Dam	0/1	1/1	1/1
Ambuklao/Binga Dam	2/2	2/2	1/2
San Roque Dam	0/0	1/1	0/1
Pantabangan Dam	0/1	1/1	1/1
Angat Dam	0/1	1/1	0/1

Year	Casualties			Damaged Properties (Million Pesos)		Total Cost of Damage (Million Pesos)
	Dead	Injured	Missing	Agriculture	Infrastructure	
2009	105	26	5	4,180	2,581	6,761
2010	11	7	0	1,777	651	2,428

⁵ There has been no issuance of dam discharge and flood warning to downstream areas of Pantabangan dam in the last three years, because the water levels in the dam has not reached a critical level even during major typhoons.

2011	13	13	0	1,003	191	1,194
2012	8	1	0	449	236	685
2013	3	0	16	424	102	526
2014	N/A	N/A	N/A	660	248	908
2015	10	10	0	297	300	597

While damages caused by typhoons in Pangasinan province seem to have been reduced since project commencement up to the time of ex-post evaluation, such data is not available for the entire project-targeted river basins. Nonetheless, 43 out of 55 respondents (78%) of the interviews reported that the NIA/NPC flood warnings in recent flood events and water spilling have saved more lives of people and working animals compared to the situation in 2009 and earlier.

Source: Terminal Evaluation Report, questionnaire survey to PAGASA, interviews with PAGASA, NPC, NIA and LGUs, and beneficiary survey

Note: Continuous utilization of meteorological and hydrological equipment through appropriate O&M is one of important factors for achieving Overall Goal. Thus, whether the water level equipment have been continuously utilized at the six dams/reservoirs since project completion was checked as supplemental information to verify whether project effects have been maintained to the time of ex-post evaluation.

3 Efficiency

Both project cost and project period exceeded the plan (132% and 103%, respectively). This is because the workload for the planned activities increased as a result of updating the performance indicators of the project, and a new activity (inundation analysis in the Pampanga River Basin) was added in response to the request of the counterpart agencies. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

“PDP (2011-2016)” mentioned above is still effective at the time of ex-post evaluation, and “PDP (2017-2022)” will be formulated as a successive plan towards the end of 2016. FFWSDO will likely be accorded a high priority as part of the national policy on DRRM. Moreover, “The PAGASA Modernization Act of 2015 (Republic Act No. 10692 in August 2015)” states the needs for enhancing PAGASA’s capability to provide timely and reliable weather forecasting and warning services.

<Institutional Aspect>

There has been no major change in the organizational structures of FFWS/FFWSDO along the river basins covered by the project. NPC is responsible for managing FFWSDO in Ambuklao, Binga, San Roque and Angat dams which primarily function as electric power generation. NIA is responsible for managing FFWSDO in Magat and Pantabangan dams which primarily function for irrigation purposes, while PAGASA is responsible for FFWS in the middle and downstream areas of the river basins. The number of staff at the time of ex-post evaluation is 120 in total at PAGASA, 77 in total at NIA⁶, and 22 in total at NPC. In addition, these organizations employ temporary staffs especially during a flood season. The number of staff in these organizations is considered to be sufficient, as they can always hire the services of temporary staff whenever they need them. Moreover, JOMC, which was established in 1989 as the platform entity to enhance the nationwide FFWS/FFWSDO, was attached to the project, and it is still functional at the time of ex-post evaluation. JOMC members include NPC, NIA, the Office of Civil Defense (OCD) of the Department of National Defense (DND), the Metro Manila Development Authority (MMDA), Department of Public Works and Highways - Flood Control Management Office (DPWH-FCMO) and NWRB. JOMC undertakes tasks such as formulation and coordination of plans and programs related to flood forecasting and warning activities for the telemetered river basins, including capacity building of hydrologists of PAGASA, NPC and NIA, flood/community drills and other related activities for a harmonized FFWS/FFWSDO.

<Technical Aspect>

At the time of ex-post evaluation, approximately 70% of C/Ps still work for FFWS in PAGASA, NPC and NIA. The skill level of staff in these organizations is sufficient, as in-house trainings and echo-seminars⁷ on FFWSDO activities have been continuously conducted in these organizations. These trainings and echo-seminars on dam discharges and warning operations include dam safety program, Rainfall-Run-off Inundation with Graphical User Interface (RRI-GUI), etc. In addition, peer-coaching and/or peer-mentoring are also conducted in these organizations. Manuals prepared under the project such as the Operation Manuals of Dam Inflow and Dam Downstream Forecasting Model for the Agno River Basin, the Angat River Basin, the Upper Pampanga River Basin and the Magat River Basin, and Operation and Maintenance Manual of Equipment for FFWSDO have been continuously utilized. Equipment procured, replaced and/or updated under the project has been maintained in accordance with the manual. While some equipment has problems or is no longer operational, PAGASA conducts timely repair of defective equipment. NPC and NIA are making efforts to immediately replace broken or destroyed equipment using supplemental budgets of their organizations. In the case of NPC, there is an existing Operation and Maintenance Agreement (OMA) with plant operators in each dam. Under the agreement, the repair and maintenance of equipment are shouldered by the plant operator while replacement of defective equipment and/or needed spare parts will be borne by NPC which are already included in NPC’s yearly budget.

<Financial Aspect>

According to interviews with PAGASA, NPC and NIA, budget for FFWS/FFWSDO including O&M of equipment has been sufficiently allocated in these organizations, though detailed financial data was not obtained from PAGASA and NIA. Budget deficits are covered through supplemental budgeting system which PAGASA, NIA and NPC can always resort to.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy, institutional, technical and financial aspects. Therefore, the sustainability of the effectiveness through the project is high.

5 Summary of the Evaluation

Through the project activities, target indicators set for the Project Purpose were mostly achieved at the time of project completion. The project effects have been partially maintained while the Overall Goal is partially achieved at the time of ex-post evaluation. As for sustainability, no problem has been observed in terms of the policy, institutional, technical and financial aspects. As for efficiency, both

⁶ The number of staff in NIA includes temporary contractual workers.

⁷ An echo (or re-echo) seminar refers to a seminar conducted by a participant or participants to a prior particular seminar/workshop to share what were learned from that seminar/workshop with others.

project cost and project period reasonably exceeded the plan, as the project, upon concurrence of JICA, flexibly responded to the request of counterpart agencies to undertake a new activity at mid-term which emerged too important to achieve project objectives (inundation analysis in the Pampanga river basin). Subsequently, the project updated its performance indicators. 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 PAGASA facilitate updating of both the flood forecasting and warning models by including the results of the community drills on “dam break scenarios” and other considerations related to the privatized power component of the dam operations.
- It is also recommended that PAGASA makes follow-up and monitor repairs and replacements of defective water level sensors and rain gauges by NPC and NIA.
-

Recommendations for JICA:

Regarding the River Cross Section Database for Target River Basins, which was developed under the project and has not been handed over from Japanese experts to PAGASA, JICA should check and clarify the current status of the database and promptly hand this over to PAGASA for their utilization.

Lessons learned for JICA:

The indicators set for the Overall Goal of this project are the reduction of the number of victims and the amount of economic losses in the river basins. The basin is comprised by many provinces and there is no single organization that collects river basin-wide data and therefore it is difficult to obtain basin-wide data. When implementing a similar project in the future, it is important to collect baseline data required for indicators of Overall Goal and set appropriate target values at the beginning of a project, to collect actual data against the target values at project completion, and to establish a mechanism in which an implementing agency can collect and maintain records of necessary data even after project completion.



Equipment provided under the project
(water level telemetry subsystem)



Operation rule used by Magat Dam

Country Name	The Water Quality Monitoring Techniques Project (Phase II)
Republic of Panama	

I. Project Outline

Background	<p>In Panama, more than half of the country population concentrates in Panama City, the capital city of the country, and Province of Panama. The demographic pressure induced contamination of water quality of the rivers running in those areas and the contaminated waters were worsening the condition/quality of the Panama Bay. The National Authority of Environment (ANAM: Autoridad Nacional del Ambiente), currently Ministry of Environment (MiAMBIENTE: Ministerio de Ambiente) conducted monitoring of natural water to determine the water quality monitoring in pursuit of their mission of supervision, control and inspection on waste water. However, since their laboratory had only basic level of analytical accuracy and techniques, they were not able to provide information with high accuracy for ANAM's (currently MiAMBIENTE) environment administration, in particular, water management. Therefore, the government of Panama requested the government of Japan a technical cooperation project aiming at improvement of technical capacity for analysis with scientifically high accuracy and analytical capacity.</p>						
Objectives of the Project	<p>Through establishing of the Standard Operation Procedures (SOPs) for analytical works for water quality, training for the technical staffs of the ANAM (currently MiAMBIENTE) Environmental Quality¹ Laboratory on water quality analysis, interpretation, monitoring and supervision as well as internal audit, the project aimed at increasing the capacity of the ANAM (Environmental Quality Laboratory to provide reliable information through QA/QC (Quality Assurance and Quality Control) system, thereby contributing to strengthening management capacity to fulfilment of surface waters and effluent standards of Panama.</p> <ol style="list-style-type: none"> Overall Goal: The management capacity with respect to the fulfilment of surface waters and effluent standards of the Republic of Panama is strengthened. Project Purpose: The Environmental Quality Laboratory of ANAM is able to provide reliable information through the implementation of QA/QC to contribute to in the strengthening of the ANAM environmental management. 						
Activities of the project	<ol style="list-style-type: none"> Project site: Whole area of Panama Main activities: 1) development of SOPs for the selected parameters, 2) improvement of QA/QC system, 3) delivery of trainings for personnel of the ANAM Environmental Quality Laboratory in terms of SOPs, 4) delivery of trainings for personnel of the Directorate of Environmental Protection (DIPROCA: Dirección de Protección de la Calidad Ambiental) in terms of internal audit for the QA/QC (Quality Assurance and Quality Control) system supervision, 5) preparation of water quality monitoring plan for the pilot watershed area, etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 15 persons Acceptance of trainees in Japan: 3 persons Equipment: Analysis equipment including UV-VIS Spectrophotometer, autoclave, low temperature water circulator, ion chromatograph, etc. Local cost: cost for seminars, trainings etc. </td> <td style="width: 50%; vertical-align: top;"> <p>Panamanian Side</p> <ol style="list-style-type: none"> Staff allocated: 32 persons Land and Facilities: Office spaces for the Japanese experts in ANAM Environmental Quality Laboratory Local cost: cost for water quality sampling and analysis, utility, travel expenses, etc. </td> </tr> </table> 					<p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 15 persons Acceptance of trainees in Japan: 3 persons Equipment: Analysis equipment including UV-VIS Spectrophotometer, autoclave, low temperature water circulator, ion chromatograph, etc. Local cost: cost for seminars, trainings etc. 	<p>Panamanian Side</p> <ol style="list-style-type: none"> Staff allocated: 32 persons Land and Facilities: Office spaces for the Japanese experts in ANAM Environmental Quality Laboratory Local cost: cost for water quality sampling and analysis, utility, travel expenses, etc.
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Ex-Ante Evaluation	2008	Project Period	November 2008 – November 2012	Project Cost	(Ex-ante) 310 million yen (Actual) 287 million yen		
Implementing Agency	National Environmental Authority (ANAM) (the current Ministry of Environment (MiAMBIENTE: Ministerio de Ambiente) since March, 2015)						
Cooperation Agency or Contract Agency in Japan	CTI Engineering International Co., Ltd.						

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

Verification of Achievement Level of the Overall Goal

The verifiable indicators for the Overall Goal defined by the Project Design Matriz (PDM) do not specify the target level or the target value. Therefore, the achievement level of each indicator for the Overall Goal were verified as follows:

- Indicator 1 was verified by the current performance of the verifiable indicators for the output 1 which specify the capacity required for the MiAMBIENTE Environmental Quality Laboratory to conduct water quality monitoring supplementarily
- Indicator 2 was verified by the current level of relevant skills/knowledge trained by the project to enhance the capacity required for the MiAMBIENTE Environmental Quality Laboratory to conduct water quality monitoring supplementarily.
- Indicator 3 was verified by comparison between the number of firms monitoring industrial effluent at the end of the project (20) as baseline and the ones at the time of ex-post evaluation.

¹ The following elements affect "Environmental Quality": Air quality, water quality, noise, vibration, geological conditions and geography, impacts on flora and fauna, and so on.

1 Relevance

<Consistency with the Development Policy of Panama at the time of ex-ante evaluation and project completion>

The project was consistent with the Panama's development policy of "the National Water Resource Policy (2007)" which aims at "establishment of integrated water resource management".

<Consistency with the Development Needs of Panama at the time of ex-ante evaluation and project completion >

The project was consistent with the Panama's development needs of capacity enhancement of the ANAM laboratory to conduct scientific analysis and to monitor compliance with environmental standards under the law and regulations.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with the Japan's ODA policy to support environmental conservation, including support for improvement of environment management administration, one of the 3 priority areas confirmed by the policy dialogue between Panama and Japan in March, 2005.

<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 project completion. In total, 24 parameters with SOPs were established by the project. Also, the technical capacity of the Environmental Quality Laboratory of MiAMBIENTE to provide water quality data was improved through preparation of SOPs for the 24 parameters and improvement of QA/QC. In addition, 4 water quality reports with scientific monitoring data were published as planned.

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

The project effects have been partially continued since the project completion. Although the number of parameters to be analyzed by the Laboratory decreased to 17 out of 24, the number of samples for water quality analysis increased from 2,700 in 2012 to 5,323 in 2015. Also, the accuracy of water quality analysis has been sustained within the margin of error of 10% since the project completion. The water quality monitoring reports have been continuously published. For internal use, monthly reports have been prepared since 2013, which are linked to the Annual Operation Plan elaborated each year. For public use through website and printed materials, one report related to water quality monitoring has been published each year since 2013. The monitoring activity for La Villa River watershed based on the monitoring plan has continued as well. After agrochemical contamination of the drinking water from La Villa River, the monitoring activity has been enhanced and the number of monitoring spots increased to 17 through technical trainings for the Regional Administration staffs on sample collection for water quality analysis by the Laboratory staff.

However, no internal audit based on QA/QC system was conducted by the internal auditors after the project completion because the 3 trained internal auditors, who remain working for MiAMBIENTE, have been fully engaged in their increased daily duties at the Laboratory due to resignation of 2 scientists, in their training activities for new personnel and others at the regional offices, and in their collaboration in the implementation of projects with other public organizations. Instead, audits have been performed by external auditors from the Analysis Specialized Laboratory under the Mexican National Water Commission (CONAGUA) and the US Environmental Protection Agency (EPA). The new administration of DIPROCA/MiAMBIENTE is planning to outsource the internal audit service to an accredited institution. In terms of maintenance of analytical equipment, although the Equipment Maintenance and Calibration Program has been implemented, some key analytical equipment, such as Atomic Absorption Spectrophotometer (ASS) and chromatographs have not been in use because of insufficient capacity of electrical system reflected in electrical fluctuation and blackouts in other areas of the Laboratory and lack of technical staff.

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

The Overall Goal has been partially achieved. The current staffs of the MiAMBIENTE Environment Quality Laboratory have been qualified to carry out water quality sampling and water quality analyses for 35 of 52 watersheds in Panama. However, only 17 out of the 24 parameters with SOPs developed by the project have been analyzed by the Laboratory staffs. Since the staff trained by the project who had skills and knowledge for analysis of the other 7 parameters² resigned and some key analytical equipment cannot be used because of the electrical problems; therefore, analysis for those parameters cannot be conducted. In addition, for 10 out of the 17 parameters only one primary staff is in charge to carry out their analysis and no assistant has been assigned to each of them, as recommended by the project. On the other hand, the areas to be monitored have been expanded since the project completion. As mentioned above, 35 of 52 watersheds in the country, including 100 rivers, have been monitored by the MiAMBIENTE Environment Quality Laboratory. Also, the monitoring spots, such as factories and rivers/pollution complaints, increased from 118 in 2012 to 166 spots in 2015 and expected to be increased to 170 in 2016 though decreasing to 103 spots in 2014 due to the reduction in the Laboratory's budget and complex administrative paperwork. These monitoring activities by the Laboratory have been based on the monitoring plan to verify environmental quality of surface waters for recreational use, water supply, agricultural and industrial use as well as preservation source for aquatic lives. Also, the regional offices of MiAMBIENTE have conducted the water quality monitoring at over 12 rivers other than La Villa River in the watersheds of Los Santos and Herrera provinces.

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

Some positive impacts of the project have been observed at the time of ex-post evaluation. The data of water quality analysis have been utilized by other government or public institutions. 3,383 points have been monitored nationwide by the Ministry of Environment (MiAMBIENTE) under collaboration with the Ministry of Health (MINSAL: Ministerio de Salud) and the National Water and Sewerage Institute (IDAAN: Instituto de Acueductos y Alcantarillados Nacionales). Also, monthly monitoring of Chiriqui Viejo River Basin has been conducted by the Laboratory together with the Ministry of Agriculture (MIDA: Ministerio de Desarrollo Agropecuario), the Aquatic Resource Authority (ARAP: Autoridad de Recursos Acuática de Panamá) and the Gorgas Memorial Institute. In addition, the Panama Canal Authority (ACP: Autoridad del Canal de Panamá) utilized the data collected by MiAMBIENTE for their monitoring of the Panama Canal Watershed. Furthermore, the universities, such as University of Panama, can utilize the monitoring data for research works by their

² Br⁻, F⁻, CN⁻, Hg, Cr⁶⁺, HC and Pb

students. No negative impact on natural environment has been reported and no resettlement and land acquisition has been required by the project.

<Evaluation Result>

In light of the above, the project achieved the Project Purpose and partially achieved the Overall Goal through expansion of water quality monitoring activities by the MiAMBIENTE Environmental Quality Laboratory despite of the constraints on water quality analyses by the less number of parameters, no internal audit conducted and the limited utilization of analytical equipment. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results								
(Project Purpose) The Environmental Quality laboratory of ANAM (currently MiAMBIENTE) is able to provide reliable information through the implementation of QA/QC to contribute to in the strengthening of the ANAM (currently MiAMBIENTE) environment management.	(Indicator 1) At least 20 parameters with SOPs are established.	<u>Status of the achievement: Achieved</u> (Project Completion) ● 24 parameters were established. (Ex-post evaluation) Mostly continued. ● 24 parameters have been sustained for water quality analysis at the Laboratory but only 17 parameters have actually been analyzed. ● The water quality analyses based on SOPs have been continuously conducted by the Laboratory. ● The number of samples increased from 2,700 in 2012 to 5,323 in 2015.								
	(Indicator 2) Capacity to provide water quality data based on the established QA/QC procedure for 20 parameters.	<u>Status of the achievement: Achieved</u> (Project completion) ● Skills to develop SOPs for 24 parameters were obtained by the trained Laboratory staffs.. ● Capacity to conduct QA/QC of the Laboratory was improved through technical support in order to provide reliable water quality data. (Ex-post Evaluation) Partially continued ● The accuracy of water quality analysis has been sustained within the margin of error of 10%. ● No audit by the internal auditors was conducted after the project completion but the current DIPROCA administration is planning to outsource the internal audit to an external accredited institution. ● The Equipment Maintenance and Calibration Program has been under implementation but priority has been given to frequently-used equipment and according to the requirements, such as autoclaves, scales, and incubators. AAS and chromatographs have not been in use due to the insufficient capacity of electrical system and the lack of technical staffs.								
	(Indicator 3) 4 water quality reports with scientifically analyzed monitoring data published.* *”Published” refers to the following two different aspects: 1) internal management; 2) general public use.	<u>Status of the achievement: Achieved</u> (Project completion) ● The following reports were prepared and revised based on the improved monitoring data with scientific knowledge: ➢ Internal report for MiAMBIENTE (internal) ➢ Water quality monitoring report on river water (public) ➢ Water quality monitoring report on industrial effluent (public) ➢ Annual report disclosed to the public on the website (public) (Ex-post Evaluation) Continued ● The following reports for internal use and public use have been developed: ➢ 2013: monthly reports (internal), Water Quality Conditions of River in Panama (public) ➢ 2014: monthly reports (internal), Research on Macroinvertebrates in the Latin American Region (public) ➢ 2015: monthly reports, Annual Operation Plan (internal), Condition of Water, Soil and Biological Indicators of Chiriqui Viejo River Watershed (public) ➢ 2016: monthly reports (internal)								
(Overall goal) The management capacity with respect to the fulfilment of surface waters and effluent standards of the Republic of Panama is strengthened.	(Indicator 1) ANAM Environmental Quality Laboratory personnel are qualified to carry out water quality sampling.	<u>Status of achievement: Achieved</u> (Ex-post Evaluation) ● The number of samples for water quality analysis based on the SOPs continuously increased after the project completion except 2014. <table border="1"> <tr> <td>2013</td> <td>2014</td> <td>2015</td> <td>2016 (plan)</td> </tr> <tr> <td>4,669</td> <td>3,933</td> <td>5,323</td> <td>(7,000) 3,635*</td> </tr> </table> *as of July, 2016 ● The staffs of the Laboratory have carried out water quality sampling to monitor different spots of the 35 watersheds throughout the country.	2013	2014	2015	2016 (plan)	4,669	3,933	5,323	(7,000) 3,635*
2013	2014	2015	2016 (plan)							
4,669	3,933	5,323	(7,000) 3,635*							
	(Indicator 2) ANAM Environmental Quality Laboratory personnel are qualified to carry out water	<u>Status of the achievement: Partially achieved</u> (Ex-post Evaluation) ● 7 of 8 scientists of the Laboratory have carried out water quality analysis for the 17 out of the 24 parameters with SOPs.								

quality analysis.		<ul style="list-style-type: none"> ● 10 out of the 17 parameters to be analyzed currently have been analyzed by only one primary scientist and no assistant. ● Analyses of the 7 parameters which cannot be analyzed by the scientists of the Laboratory have been outsourced. 																								
	(Indicator 3) Expanded area monitored by ANAM (currently MiAMBIENTE) Environmental Quality Laboratory.	<p><u>Status of the achievement: Mostly achieved</u> (Ex-post Evaluation)</p> <ul style="list-style-type: none"> ● The monitored areas increased to 166 spots in 2015. ● 35 watershed including 100 rivers out of 52 watersheds in the country have been monitored. ● The monitoring plan for the 35 watersheds have been prepared and implemented. ● 12 rivers other than La Villa River in Los Santos and Herrera provinces have been monitored by the regional offices of MiAMBIENTE ● 3,383 points have been monitored nationwide under collaboration among MiAMBIENTE, MINSA and IDAAN. ● Monitoring of Chiriqui Viejo River basin has been under implementation with collaboration among MiAMBIENTE, MIDA, ARAP and the Gorgas Memorial Institute. <p>[Number of areas monitored by the MiAMBIENTE Quality Laboratory]</p> <table border="1"> <thead> <tr> <th>Type</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016 as of June (Plan)</th> </tr> </thead> <tbody> <tr> <td>Factories/plants</td> <td>20</td> <td>36</td> <td>25</td> <td>44</td> <td>22 (+12)</td> </tr> <tr> <td>Other areas (rivers / pollution complaints)</td> <td>98</td> <td>89</td> <td>78</td> <td>122</td> <td>96 (+50)</td> </tr> <tr> <td>Total</td> <td>118</td> <td>125</td> <td>103</td> <td>166</td> <td>108 (+62)</td> </tr> </tbody> </table>	Type	2012	2013	2014	2015	2016 as of June (Plan)	Factories/plants	20	36	25	44	22 (+12)	Other areas (rivers / pollution complaints)	98	89	78	122	96 (+50)	Total	118	125	103	166	108 (+62)
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Source : Project completion report, Questionnaire and interview surveys with the Environmental Quality Laboratory, DIPROCA, the Regional Administration Offices in Herrera and Los Santos provinces (MiAMBIENTE)

3 Efficiency

Both the project cost and the project period were within the plan (ratios against the plan: 92.5% and 100%, respectively). Therefore, efficiency of the project is high.

4 Sustainability

<Policy Aspect>

There has been no change in the government policy on water quality management at the time of ex-post evaluation since the project completion. The Government Strategic Plan 2015-2019, promulgated by the current government since 2014, prioritizes environment management including water resource management. In addition, the National Plan for Water Security 2015-2050 and laws and regulations including the Water Law (the Decree Law 35 of 1966) and the Water Quality Law have endorsed the water quality monitoring activities by MiAMBIENTE.

<Institutional Aspect>

While ANAM (currently MiAMBIENTE) was leveled up to MiAMBIENTE, there was no change in the organizational structure or setting of DIPROCA and the Environment Quality Laboratory. The responsibility of the MiAMBIENTE Environment Quality Laboratory expanded to monitor 34 watersheds at the time of ex-ante evaluation to 35 watersheds at the time of ex-post evaluation. In addition, it is expected that the new organizational structure of MiAMBIENTE, including a change of the name and structure of DIPROCA, will be effective in 2017 after approval by the Ministry of Economy and Finance (MEF: Ministerio de Economía y Finanzas) in order to enhance their functions but no detail information was available at the time of ex-post evaluation. In terms of the personnel of the Laboratory, there were 8 scientists as of July, 2016. The number of scientists engaged in water quality analysis has not been sufficient to meet increasing demand for water quality analysis and monitoring throughout the country. 4 of the 8 counterpart staffs trained by the project resigned though one of them is currently working for the Los Santos regional office of MiAMBIENTE and is engaged in the water quality monitoring activity for La Villa River. The lack of personnel has also constrained coverage of parameters to be analyzed and development of SOPs. However, in a short run, DIPROCA is planning to fill the vacant position of chemical Laboratory technician and created two new positions for Chemical Regent and Quality Regent. Also, although the high turnover of the personnel for the Laboratory has impeded enhancement of analytical capacity of the Laboratory because of low competitive salaries and non-permanent employment status, the current DIPROCA administration has given a permanent status to all the Laboratory technical staff and is planning to increase their salaries in order to make employment conditions of the Laboratory more competitive. The Laboratory has not been accredited for ISO/IEC 17025 because of the lack of a Quality Regent or Manager required by the ISO/IEC 17025 as well as the limited procurement of goods and services. In order to get accreditation of the ISO/IEC 17025, the National Investment Programme for the Restoration of Priority Watersheds ("PROCUENCAS": Programa de Inversión para la Restauración de Cuencas Hidrográficas Prioritarias), including a component to improve the quality system of the Laboratory, is under implementation (2015-2019) with a financial support of the Development Bank of Latin America (CAF: Banco de Desarrollo de América Latina). For maintenance of analytical equipment, the problems of electrical capacity as mentioned above have constrained utilization and maintenance of the key analytical equipment such as AAS, chromatograph and large incubators in despite of the Equipment Maintenance and Calibration Program. It is expected that those problems will be solved by the installation of new electrical wiring through the above-mentioned loan program supported by CAF. In terms of internal audit, although 3 counterpart staffs of DIPROCA trained by the project have still been engaged in the analytical and monitoring activities for the Laboratory, they have not been engaged in the internal audit anymore.. Other 7 staffs trained by the project left MiAMBIENTE. As mentioned above, the internal audit will be outsourced to external auditors from an accredited institution.

<Technical Aspect>

In terms of water quality analysis, all the 8 scientists working for the Laboratory have the skills and knowledge for water quality sampling according to the SOPs, industrial effluent monitoring, water quality interpretation, and evaluation on contaminant behavior in

water environment. 6 of them have sufficient skills and knowledge for calibration of analytical equipment. For uncertainty analysis calculation, only 3 scientists are able to conduct it. Since very few training opportunities are offered by MiAMBIENTE in the particular areas required by the Lab staff, the newly recruited scientists for the Laboratory have acquired necessary skills and knowledge through the on-the-job trainings by the experienced staffs. In addition, by virtue of a collaboration agreement, the Gorgas Institute is going to appoint a biologist for the macro-invertebrate area to train the Lab staffs. In terms of the internal audit, the 3 remaining staffs trained by the project have not utilized their skills and knowledge about the internal audit because they are working for the Laboratory. In addition, the current staffs of DIPROCA have not been transferred the skills and knowledge about the internal audit by the 3 remaining staffs..

<Financial Aspect>

The sufficient budget has been allocated for the MiAMBIENTE Environment Quality Laboratory to cover cost of water quality analysis and monitoring activities, including purchase of equipment, maintenance of equipment, reagents, consumables and parts and fuel for vehicles. However, the amount of budget allocated to the Laboratory has been fluctuating year by year due to changes in its main budget sources. The budget for the Laboratory decreased from 564,900 USD in 2011 to 104,461 USD in 2013 and increased to 504,523 USD in 2015. The allocated budget in 2016 is 302,000 USD. For the years of 2011 and 2012, the external funds provided on a project basis were the main sources. Since 2013 after the project completion, the main sources of budget have been own revenue of the Laboratory and contributions from the national government to cover the necessary costs. In particular, the government subsidies to the Laboratory dramatically increased from 37,560 USD in 2014 to 339,853 USD in 2015 because the current government has confirmed importance of the environmental sector. Besides the allocated budget, MEF allocated 3 million USD for the Project of Monitoring of Water for Human Consumption³ under the initiative of the President of Panama. On the other hand, there was an issue of the budget execution. The proportion of budget execution against the allocated budget was only 51% in 2013 though it improved to 85% in 2014 and 89% in 2015. The limited budget execution constrained procurement of necessary equipment and reagents for water quality analysis at the Laboratory as mentioned above. The budget execution system requiring approval by the General Controller's Office for any procurement affects the water quality monitoring activities. However, this problem has been mitigated to a certain extent by the allocation of a Petty Cash Fund, which allow them to procure very urgent inputs. Since the delivery quality and supplier management is a requirement for the ISO/IEC17025 certification, DIPROCA plans to implement supplier management system for timely deliveries.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/technical/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 for enhancement of capacity of the MiAMBIENTE Environment Quality Laboratory for water quality analysis and monitoring. Although the Laboratory has improved and sustained its analytical and monitoring capacity on water quality, it is necessary to further improve the management of analytical equipment and internal audit in order to be certified ISO/IEC 17025.. As for sustainability, the government of Panama has prioritized improvement of water quality in the watershed in the country through the monitoring activities by DIPROCA/MiAMBIENTE and MINSAs. The scientists of the Laboratory have sustained their skills and knowledge to continuously conduct monitoring and analytical activities. On the other hand, there are issues of the insufficiency of the number of scientists for the Laboratory,, the limited capacity of the internal audit as well as the limited budget execution hampering timely procurement of necessary analytical equipment and reagents.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[DIPROCA/MiAMBIENTE]

- In order to enhance the capacity of the Laboratory for attaining the overall goal of the Project and obtaining the ISO/IEC 17025 accreditation, DIPROCA should continue their efforts to improve the Lab budget execution through the implementation of a good supplier management system for timely procurement of necessary reagents and other inputs, and adequate equipment maintenance. The planned installation of the new electrical wiring must also be conducted as soon as possible in order to make good use of the Lab equipment and devices, and to prevent further deterioration or damages thereof.
- As for equipment maintenance concerned, it is necessary to appoint a person to be in charge of equipment maintenance within the Laboratory, to select and contract good-service maintenance companies, to establish a maintenance and calibrations program for all equipment (not only for frequently used), to avoid further deterioration, and to strengthen the record keeping for operation, maintenance/calibrations, and inspection of key analytical equipment, including name of persons that use, maintain, or calibrate them, date and time.
- DIPROCA should establish a formal training system for the Lab technical and administrative personnel, including technical visits on internationally accredited laboratories outside of the country, so as to learn good practices that can be implemented in MiAMBIENTE Environmental Quality Laboratory. It should also explore the possibility of obtaining technical advice or training from foreign experts for the Lab technical personnel in some priority areas, such as required analysis of some parameters, the elaboration of necessary additional SOPs, equipment maintenance and calibrations, internal audit, etc.
- The possibility of establishing a formal internship program ("professional practice" program) for outstanding graduate students from recognized local universities should be explored in order to get professional help for the Lab scientists in the record keeping and other mechanic, repetitive activities, and also to train them in sampling and analytical activities for creating a database of trained scientists who can be eventually recruited.

³ The project consists of collection and analysis of 3,383 samples of water for human consumption under collaboration with MINSAs, IDAAN, and external laboratories certified in 25 parameters.

Lessons learned for JICA:

- This project provided analytical equipment such as AAS and chromatograph which require stable electrical system in order to enhance analytical capacity of laboratory scientists. However, due to the electrical problems of fluctuation and lack of capacity constrained the utilization of those equipment, the counterparts trained by the project were not able to conduct analytical works on some parameters with SOPs developed by the project. It was necessary to assess conditions of the laboratory before installation of those equipment and to provide necessary devices to improve the electrical system for utilization of necessary equipment in order to ensure effectiveness of the project and its sustainability.



Water Quality Sampling at La Villa River



Environmental Quality Laboratory equipped by the Project

Country Name	Project for Strengthening of Adolescent Sexual and Reproductive Health in Olancho Department in the Republic of Honduras
Republic of Honduras	

I. Project Outline

Background	<p>In Honduras, 39% of the total population was under 15 years of age (WHO, 2006), and the pregnancy in adolescence was increasing, given the high proportion of the population of teenagers. Under the circumstance, deliveries at health facilities by women in adolescent ages reached to 35% (the Secretariat of Health of Honduras, 2001) and the maternal mortality of young women was rising, as high as 391 per 100,000 live births for the age group of 12-14 and 160 for the age group of 15-19. It was considered that the pregnancy in adolescence was going to increase the risks of maternal and perinatal mortality, and it was a social issue associated with poverty, which could result in not only the unintended pregnancy but also the Sexually Transmitted Infection (STI) and HIV/AIDS. The Secretariat of Health of Honduras recognized that it was one of the challenges for the health sector in the country.</p>																
Objectives of the Project	<p>Through the introduced youth-friendly services (YFS)¹ and peer activities which promoted the adolescents' access to the health facilities, the project aimed at increasing the adolescents who receive the care services of the sexual and reproductive health² in the target 7 municipalities of the Department of Olancho, thereby contributing to prevent the adolescent pregnancies.</p> <ol style="list-style-type: none"> Overall Goal: To contribute to the decrease of the number of the pregnancies among the adolescents in the 7 municipalities of the Department of Olancho. Project Purpose: To increase the number of the adolescents who receive the care services of the sexual and reproductive health in the 7 municipalities of the Department of Olancho. 																
Activities of the project	<ol style="list-style-type: none"> Project site: 7 municipalities of the Department of Olancho (Juticalpa, Catacamas, Dulce Nombre de Culmí, Patuca, Salamá, San Esteban y Guayape) Main activities: <ul style="list-style-type: none"> i) Training of the health workers on the quality of life³ (QOL) and YFS, ii) improvement of the referral system, iii) provision of the peer activities through the trained peer leaders, peer coordinators, peer supporters, peer facilitators*, iv) development of the management system for the adolescent reproductive health (ARH)** activities, etc. <p>* Peer leader: adolescents who voluntarily undertake peer activities, peer coordinator: adult who coordinates peer activities by involving related organizations in the community, peer supporter: adult who supports peer activities such as parents, school teachers and community members, peer facilitator: adult who train peer leaders, peer coordinators and peer supporters.</p> <p>** ARH: SSRA in Spanish, Salud Sexual y Reproductiva para Adolescentes.</p> Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Honduran Side</td> </tr> <tr> <td>1) Experts: 13 persons</td> <td>1) Staff allocated: 16 persons</td> </tr> <tr> <td>2) Training in Japan: 10 persons</td> <td>2) Land and facilities: Office space and equipment.</td> </tr> <tr> <td>3) Training in the third country: 8 persons</td> <td>3) Local Cost: Office utility costs, drivers' allowance, construction cost of the peer space⁴, etc.</td> </tr> <tr> <td>4) Equipment: Vehicles, office equipment, computer software, audio-visual materials, etc.</td> <td></td> </tr> <tr> <td>5) Local operation cost</td> <td></td> </tr> </table> 					Japanese Side	Honduran Side	1) Experts: 13 persons	1) Staff allocated: 16 persons	2) Training in Japan: 10 persons	2) Land and facilities: Office space and equipment.	3) Training in the third country: 8 persons	3) Local Cost: Office utility costs, drivers' allowance, construction cost of the peer space ⁴ , etc.	4) Equipment: Vehicles, office equipment, computer software, audio-visual materials, etc.		5) Local operation cost	
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Ex-Ante Evaluation	2007	Project Period	June 2008 to May 2012	Project Cost	(Ex-ante Evaluation) 380 million yen (Actual) 382 million yen												
Implementing Agency	Ministry of Health, Health Region Office of Olancho																
Cooperation Agency in Japan	System Science Consultants Inc., NPO Health and Development Service (HANDS)																

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Honduras at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with Honduran development policies, as the reduction of the infant and maternal mortality rates were targeted in the National Health Plan (2005-2021), and based on the plan strengthening of the Adolescent Reproductive Health was identified as a strategy in the Accelerated Reduction of the Maternal and Infant Mortality (2008-2015).</p> <p><Consistency with the Development Needs of Honduras at the time of ex-ante evaluation and project completion ></p> <p>In Honduras the adolescent pregnancy was increasing and it caused the risks of maternal and perinatal mortality. In the Department of Olancho, the condom usage rate was 0.5% (2006), much lower than the national average (2.9%), and the high rates of perinatal mortality</p>

¹ "Youth-friendly services" mean reproductive health services which make the youth comfortable and satisfied at the health services.

² Reproductive health is defined by WHO as a state of physical, mental, and social well-being in all matters relating to the reproductive system at all stages of life. Reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when, and how often to do so.

³ The training on the quality of life is a training which aims at empowering the personnel who work with the youth so that they could empower the youth.

⁴ The "peer space" is a room where the youth conduct activities such as peer counselling and awareness raising.

and sexually transmitted diseases prevalence still remained concerned issues at the time of the project completion. Thus, there were great needs for providing sexual and reproductive care services for the adolescents.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

Based on the policy consultations with the Honduran government in 2006, assistance priority areas were identified, including "health and water." Related to this, support for decreasing infant and maternal mortality rates were prioritized.

<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 mostly achieved by the project completion. Through the introduced YFS and peer activities which promoted the adolescents' access to the health facilities, the prenatal checkups (CPN) and facility delivery were diffused for the adolescents, mostly as planned. Concretely, 9,045 adolescents received counselling services on ARH. Then, 55.1% of the pregnant adolescents received CPN for 3.3 times on average, and 34.4% had facility delivery. Compared to the baseline data, these were great results. Also, pregnancy prevention services such as condoms and IUD (intrauterine device) were reached to 7,713 adolescents from 3,719 at the baseline. This big achievement was attributed to the health facilities' efforts in YFS to make the youth motivated to get contraceptives.

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

The project effects have mostly continued. More and more adolescents have received counselling services on ARH from the health unit, and pregnancy prevention services have been widely diffused, though there was a decrease in 2015 due to the unavailability of some contraceptives at the community level, according to the technicians of the Health Information System of Olancho. CPN has been entrenched in approximately 70-80% of the adolescents, while the number of CPN has been slightly decreasing to 2.6 times. One possible reason is that some health facilities were short of medicines and supplies in 2014 and 2015, according to the Regional Health Office of Olancho, though no other reasons were confirmed. With regard to the facility delivery, there was a big increase in 2014, which was remarkable particularly in Juticalpa Municipality, due to the better access to the facility and improved comprehensive care, according to the Regional Health Office of Olancho.

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

The Overall Goal has been mostly achieved. The number of the adolescent pregnancy in the 7 target municipalities where approximately 70% of the adolescent population live has been on a decreasing trend in spite of increase of adolescent population from 2012 to 2015 (8%), though the total number in the Department of Olancho has been slightly increasing. The reason of the increase in the non-target municipalities was not confirmed, but it can be interpreted that this increase reflects the increase of the adolescent visits for CPN as a result of diffusion of the project experience. On the other hand, The decrease in the target municipalities is attributed to continuous activities of information, education and communication (IEC) for the adolescents. YFS are provided also at schools in the areas from where the peer space is not very accessible. Another factor is that, ARH-related activities have been conducted by the motivated staff (peer leaders, coordinators, supporters and facilitators) as part of the regional annual operative plan, though the financial support from the regional government has not been sufficient.

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

First, the project experience has been extended to other municipalities of the Department of Olancho including Santa Maria del Real, Campamento, Gualaco, etc., and other municipalities of other departments (Santa Barbara, La Paz and Yoro and Francisco Morazán). Concretely, training for the peer leaders has been implemented in these municipalities. Second, YFS training developed by the project has been incorporated into the national curriculum for the nursing assistants. It is also used for the introductory session for the doctors and nurses in the Department of Olancho.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was mostly achieved and the effects have mostly continued. With regard to the Overall Goal, positive changes were confirmed by data only in the target municipalities. However, considering approximately 70% of the adolescent population of the department live in the 7 target municipalities, it is judged that these positive impacts were made mostly as expected. Besides, several other positive impacts have been reported. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) To increase the number of the adolescents who receive the care services of the sexual and reproductive health in the 7 municipalities of the Department of Olancho.	1.1 The percentage of pregnant adolescents who received prenatal checkups (CPN) at least once increases to 60% [Baseline data: 18.3%]	(Terminal Evaluation) <u>Mostly achieved.</u> - The percentage of pregnant adolescents who received CPN was 55.1% in October 2011. (Ex-post Evaluation) <u>Continued.</u> - The average percentages of pregnant adolescents who received at least one CPN of the 7 target municipalities have been kept stable: 77.5% (2012), 80.6% (2013), 69.4% (2014) and 78.6% (2015).
	1.2 The average of the number of CPN received by the pregnant adolescents increases to 4 per adolescent [Baseline data: 2.7]	(Terminal Evaluation) <u>Mostly achieved.</u> - The average of the number of CPN received by the pregnant adolescents in October 2011 was 3.3. (Ex-post Evaluation) <u>Partially continued.</u> - The average numbers of CPN received by the pregnant adolescents of the 7 target municipalities have been on a slight decreasing trend: 3.3 (2012), 3.2 (2013), 2.5 (2014) and 2.6 (2015).
	2. The percentage of the adolescents who had facility delivery increases to 30% [Baseline data: 22.6%]	(Terminal Evaluation) <u>Achieved.</u> - The percentage of the adolescents who had facility delivery increased to 34.4%. (Ex-post Evaluation) <u>Mostly continued.</u> - The percentage of the adolescents who had facility delivery was not confirmed.

		- The number of the adolescents who had facility delivery in the 7 target municipalities has been on a slight increasing trend: 1,934 (2012), 2,232 (2013), 2,860 (2014) and 2,391 (2015).
	3. The total number of the adolescents who received pregnancy prevention services (4 methods: condoms, IUD, Depo-provera, birth control pills) increases in 80% [Baseline data: 3,719]	(Terminal Evaluation) <u>Achieved</u> . - The total number of the adolescents who received pregnancy prevention services was 7,713. It increased from 3,719. (Ex-post Evaluation) <u>Mostly continued</u> . - The total numbers of the adolescents who received pregnancy prevention services in the 7 municipalities have been on a decreasing trend: 9,580 (2012), 9,875 (2013), 9,049 (2014) and 7,202 (2015).
	4. The number of the adolescents who received counselling services on ARH from the health unit increases [Baseline data: 308]	(Terminal Evaluation) <u>Achieved</u> . - The number of the adolescents who received counselling services on ARH from the health unit increased to 9,045 from 308. (Ex-post Evaluation) <u>Continued</u> . - The numbers of the adolescents who received counselling services on ARH from the health unit have increased: 14,633 (2012), 16,557 (2013), 19,680 (2014) and 25,835 (2015).
(Overall goal) To contribute to the decrease of the number of the pregnancies among the adolescents in the Department of Olancho.	1. The number of the adolescent pregnancies decreases.	(Ex-post Evaluation) <u>Partially Achieved</u> . - The number of the adolescent pregnancies decreases in the target 7 municipalities has been on a decreasing trend: 2,945 (2012), 3,328 (2013), 2,791 (2014) and 2,888 (2015). However, as a total of Olancho Department, it has been on a slight increasing trend: 4,228 (2012), 4,473 (2013), 3,895 (2014) and 4,801 (2015).

Source: Health Information System of Olancho.

Note: With regard the indicator 1-1 of the Project purpose, the reliable data was not available on the total number of the adolescent delivery. In the terminal evaluation, the figure was estimated with the population aged under one and that of the reproductive ages (aged 10-49). The actual figure was expected a little larger than the estimated figure.

3 Efficiency

The project period was as planned (ratio against the plan: 100%), but the project cost slightly exceeded the plan (ratio against the plan: 101%). Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

In the National Prevention Strategy in Adolescent Pregnancy launched in 2013, increase of the health services for the adolescents and decrease of the adolescent pregnancy are set as objectives for 2017.

<Institutional Aspect>

All of the target municipalities have the section responsible for promoting ARH programs and they form a network for ARH-related educational activities. Peer spaces are operated in each municipality, where the peer leaders conduct their activities. There are health units which conduct IEC activities to promote the adolescent participation in ARH activities, and 56 of 74 units are certified as YFS units. The Department Health Office collaborates with the Department Education Office in conducting training for the teachers and students on ARH. The number of the peer trainers, peer coordinators and peer leaders vary among the municipalities⁵, which is not sufficient to perform their responsibilities, according to the Department Health Office. The number of the peer facilitators and trainers on YFS and QOL was not available, but about the half of the interviewed peer leaders and peer coordinators answered that it is not sufficient. The reason of the insufficiency is that the trainers have other duties such as support for other municipal programs related to the education for the adolescents. For planning, implementation and evaluation of ARH activities and training, the Monitoring Team (former ARH committee) as an ad hoc group has conducted monthly meetings. Regarding the adolescent information referral from the peer space to the health unit, the leaders accompany the adolescents to the health units or recommend them via phone, and the information cannot be tracked as the referral records are not prepared.

<Technical Aspect>

Most of the personnel of the Regional Health Office of Olancho in charge of ARH services have sufficient knowledge to manage ARH program, as they have related diplomas and understand the adolescent problems. Also at the municipal level, the personnel in charge has sufficient knowledge as they were trained by the Monitoring Team. Regarding the staff of the health units, according to the Monitoring Team, some have sufficient knowledge on ARH, while others do not because training opportunities are limited. Many health units are not equipped with the audiovisual materials for the peer activities, as some are obsolete or damaged. As for the actors related to the peer activities, most leaders, coordinators and facilitators have sufficient knowledge and skills because they received training during the project to perform the needed functions, while few peer supporters have qualified knowledge because no training opportunity is given to them, according to the interviewed staff of the Regional Health Office. YFS Guideline developed by the project were distributed to all of the health units. However, some units do not use it as they have lost the copies.

<Financial Aspect>

The budget of the Regional Health Office of Olancho comes from the national treasury, fees paid by users in selective health services and donors including UNFPA. The budget has increased (195,365 thousand lempiras for 2012 to 241,520 thousand lempiras for 2016). However, the budget for ARH activities have decreased (1,931 thousand lempiras for 2013 to 1,124 thousand lempiras for 2015), because budgets have been allocated to other health themes than reproductive health. The budget source of the municipalities include their own revenue and funds, national government transfer and programs, and the budget is sufficient for ARH activities and operation of the peer spaces, according to all of the municipalities themselves. Regarding the health units, the budget is not sufficient for maintenance of the

⁵ For example, in Juticalpa Municipality, there are 4 peer trainers, 20 peer coordinators and 190 peer leaders, while in El Guayabito Municipality, there are no peer leaders and coordinators but only 16 peer leaders.

facility and equipment and purchase of the medicines and educational materials, according to the interviewed staff of the Regional Health Office.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional, 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 mostly achieved. In other words, the adolescents received counselling services and pregnancy prevention services, and then CPN and facility delivery were diffused for the adolescents. These effects have mostly continued. As a result, the number of the adolescent pregnancy has decreased in the target municipalities where 70% of the adolescent live, which has contributed to achievement of the Overall Goal. Regarding the sustainability, identified concerns include insufficiency of the peer facilitators and trainers and limited knowledge and skills of the peer supporters in some municipalities. However, it should be noted that the Monitoring Team has taken over the functions on operation of ARH activities. As for the 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:

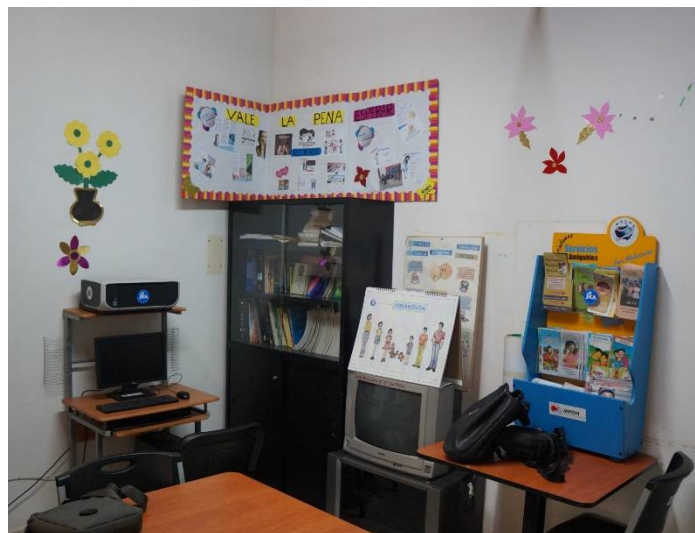
- Regarding the adolescent information referral from the peer space to the health unit, it is recommended to the Department Health Office to supervise the peer leaders and health units for keeping the referral record in a written format, so that the necessary and concrete information can be shared among the peer spaces and health facilities. Even when the adolescents are referred via phone, the record should be managed in the peer spaces by peer leaders to have an appropriate reference to the upper health units, so that they could always have the evidence of their work and the Health Region of Olancho could take good decisions based on the record.
- The effectiveness of YFS was confirmed as it has been used in the training curriculum for the medical personnel. On the other hand, YFS Guideline has not been utilized by some health units because they have lost it. It is recommended to the Department Health Office to distribute the copy to them or upload the Guideline on its website so that they can refer when they need it.

Lessons learned for JICA:

- In the project, peer spaces were established as a place where the adolescents could firstly approach for ARH services. Though a peer space is operated in each of the target municipalities, there are some areas from where the access is not very easy to the peer space. In such areas, YFS have been provided at the schools through the awareness raising of the school teachers, students' government, parents and the community and provided equipment and materials. This has been realized in collaboration with the education sector and worked as an effective approach to decrease the adolescent pregnancy. For strengthening the partnership with the education sector, the project strategically made efforts such as getting the official agreement on its collaboration in the peer activities, involving teachers as part of the peer coordinators and supporters, recruiting the peer leaders through the schools, etc. When the projects plan to provide any services at a specific place, it is necessary to examine whether or not the services are accessible to the users. In case it may not be accessible, there should be alternative places in order to assure the access from all of the service users, by involving the related stakeholders during the project period.
- Since the project completion, the project experience (trainings of the peer leaders) have been implemented in other areas than the target municipalities in the department. This owes much to the project approach for improving the adolescent access to the sexual and reproductive services by working with both provider and user sides of the services. In other words, at the provider side, the health personnel improved not only their knowledge but attitudes through trainings and the facilities were improved including establishment of the peer space. At the use side, the youth themselves improved their knowledge and attitude through peer activities. If the project had only focused on the service provision such as distribution of the contraceptives, the project would not have been such successful or its experience would not have been shared with other areas in the department of Olancho where many people have certain religious perception and machismo tradition. The Health Department of Olancho highly evaluated this approach and therefore disseminated the project experience to other municipalities. Thus, an effective and appropriate approach in the target area and the implementing agency's understanding and evaluation on the approach are key elements for diffusion of the project experience after the project completion.



(Coordinator and peer leaders in Juticalpa)



(Friendly space in Juticalpa)

Country Name		Project for Dissemination of Improved Seeds													
Burkina Faso															
I. Project Outline															
Background	<p>In Burkina Faso, 80% of the population inhabited in rural areas with high poverty rate of 52.3% (2003). Most rural population depended on agriculture for their livelihood but they faced difficulties to get rid of poverty due to vulnerable agricultural production against severe natural environment. The main crops in the country were millet, sorghum, maize and rice produced by traditional subsistence farming which accounted for 90% of the cultivated land. The productivity of those crops remained unstable and low due to soil degradation, climate instability and damages by pests and diseases. In order to improve such situation, the government of Burkina Faso implemented “the Seed Sector Development Project (2003-2005)” by using the counterpart fund for the 2KR aid¹ provided by the government of Japan. The project contributed to good quality seed production through development of seed production fields, organizing seed production farmers’ groups and introduction of public quality guarantee system. However, there were still remaining issues including technical improvement of seed production farmers, institutional improvement of seed production system, and improvement of inspection system.</p>														
Objectives of the Project	<p>Through development of manuals for production, inspection and extension based on Farmer Field School (FFS) for the improved variety seeds and trainings for the national and regional seed inspectors, the field officers of the seed production farms as well as the seed producers and the farmers in the target provinces, the project aimed at promotion of utilization of the improved variety seeds in the target provinces, thereby contributing to promotion of utilization of the improved variety seeds in Burkina Faso. The project objectives are as follows:</p>														
	<p>(Original Period)</p> <ol style="list-style-type: none"> Overall Goal: Utilization of improved variety seeds is increased at the national level. Project Purpose: Utilization of improved variety seeds is increased in the target areas of the project. <p>(Extension Period)</p> <ol style="list-style-type: none"> Overall Goal: The use of improved variety seeds is increased at target provinces. Project Purpose: The use of improved variety seeds is increased at target villages. 														
Activities of the project	<ol style="list-style-type: none"> Project site: <ul style="list-style-type: none"> (Original Period) Oubritenga (Model Province), Houet, Soum, Boulgou, Comoé, Tapoa, Passoré and Séno (Extension Period) Oubritenga and Comoé Main activities: <ul style="list-style-type: none"> (Original Period) <ol style="list-style-type: none"> 1) Development of technical package for production of improved variety seeds and seed quality control (at field level) and seed inspection (at laboratory level), 2) Development of seed production fields, installation of necessary equipment, and establishment of demonstration farms, 3) Development of guidelines for dissemination of improved variety seeds,, and 4) Technical trainings for seed producers, field engineers ,national seed inspectors, local seed inspectors and extension officers (Extension Period) <ol style="list-style-type: none"> 1) Development of technical manuals for production of improved variety rice seeds, crop disease control, 2) Trainings on production of improved variety rice seeds for regional seed inspectors, field engineers, extension officers and rice seed producers, on pathological test for national seed inspectors, 3) Development of guidelines for FFS”, and trainings and implementation of FFS Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Burkina Faso’s Side</td> </tr> <tr> <td>1) Experts: (Original) 6 persons, (Extension) 4 persons</td> <td>1) Staff allocated: (Original) 3 persons (Extension) 7 persons</td> </tr> <tr> <td>2) Trainees received: (Original) 8 person, (Extension) 2 persons</td> <td>2) Land and facilities: (Original and Extension) Office space</td> </tr> <tr> <td>3) Equipment: (Original) PCs, motorbikes, vehicles, laboratory equipment (Extension) Plant pathological equipment and generator</td> <td>3) Local cost: (Original and Extension) General expenses</td> </tr> <tr> <td>4) Third Country Training: (Original) 1 person (Extension) 2 persons</td> <td></td> </tr> </table> 					Japanese Side	Burkina Faso’s Side	1) Experts: (Original) 6 persons, (Extension) 4 persons	1) Staff allocated: (Original) 3 persons (Extension) 7 persons	2) Trainees received: (Original) 8 person, (Extension) 2 persons	2) Land and facilities: (Original and Extension) Office space	3) Equipment: (Original) PCs, motorbikes, vehicles, laboratory equipment (Extension) Plant pathological equipment and generator	3) Local cost: (Original and Extension) General expenses	4) Third Country Training: (Original) 1 person (Extension) 2 persons	
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Ex-Ante Evaluation	2008	Project Period	February 2008 – February 2012 (Extension Period:	Project Cost	Ex-ante Evaluation: 360 million JPY Actual:										

¹ 2KR aid is “Grant Aid for the Increase of Food Production”.

			February 2011 – February 2012)		325 million JPY
Implementing Agency	Ministry of Agriculture and Hydraulic (MAH: Ministère de l’Agriculture et de l’Hydraulique, at the time of project implementation) (Since October 2014, Ministry of Agriculture, Hydraulic, Hygiene, and Food Security: MARHASA)				
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries, Nagoya University, Tokyo University of Agriculture, etc.				

<Special Perspectives to be Considered in the Ex-post Evaluation>

[Verification of the achievement of the Project Purpose and the Overall Goal]

- Since the project was not able to achieve the Project Purpose for the original period due to the remaining issue on extension system, the project period was extended for one more year.
- For the extension period, the project focused on the activities to establish the extension system based on FFS for achieving the Project Purpose of promotion of utilization of the improved variety seeds in the target villages and the Overall Goal of promotion of the utilization of the improved variety seeds in the 2 target provinces out of the 8 original target provinces. Therefore, the Project Purpose and the Overall Goal for the extension period are considered as a part of the Project Purpose for the original period, and all the indicators for the Project Purpose for the original period as well as for the Project Purpose and the Overall Goal for the extension period were verified for the achievement of the Project Purpose of the original period.

[Verifiable indicators of the Overall Goal for the extension period]

- The indicator 1: “Implementation of FFS in more than 20 villages in the target provinces” is not to directly verify the use of improved variety seeds and is to assess continuation of extension activities in the target provinces. Therefore, the indicator 1 is verified as “continuation of the project effects”.
- The Indicator 2: The growth of the adoption rate of improved variety seeds is more than 30% in the target villages” is inconsistent with the Overall Goal of “the use of improved variety seeds is increased at the target provinces” and data was not available. In addition, the use of improved variety seeds in the target provinces of Comoé and Oubritenga is as a part of the Project Purpose for the original period. Thus, the indicator 2 was verified by the as “continuation of the project effects” as well.

[Verification of continuation of project effects]

Since the adoption rates of improved variety seeds in the target areas of the project were not collected by the project nor the Government of Burkina Faso, it was difficult to verify continuation of project effect by the adoption rate² at the time of ex-post evaluation. Therefore, the continuation of project effects were verified by the utilization volume of improved variety seeds and the number of farmers using the improved variety seeds as well as continuation of FFS activities for promotion of improved variety seeds.

II. Result of the Evaluation

1 Relevance

<Consistency with Development Policy of Burkina Faso Government at the time of ex-ante evaluation and the project completion>

The project was consistent with the Burkina Faso’s development policy focusing on “improving seed production to reduce vulnerability of agriculture productivity” as set forth in the policy documents including Priority Action Program of CSLP (Poverty Reduction Strategy Paper) (2007-2010) and Strategy Document of Rural Development for 2015.

<Consistency with Development Needs of Burkina Faso at the time of ex-ante evaluation and the project completion>

The project met the development needs of Burkina Faso as well as the farmers both at the time of ex-ante evaluation and project completion to ensure national food security through improvement of agricultural productivity by development and dissemination of improved seeds due to the sharp increase in food prices.

<Consistency with Japan’s ODA Policy for Burkina Faso at the time of ex-ante evaluation >

The project was consistent with Japan’s ODA policy to Burkina Faso prioritizing 3 areas including food assistance and assistance for poor farmers, based on the bilateral dialogue between Burkina Daso and Japan in 2007

<Evaluation Results> In this light above, relevance of this project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of project completion>

The project purpose for the original period was not achieved. According to the Terminal Evaluation Report for the original period, the survey result in Kolokom village indicated that adoption rate of improved variety seeds by farmers in the target villages for the mini production activities by the project increased from 32.5% in 2008 to 41.5% in 2010. However, since a mechanism to promote utilization of the improve seeds was not established, it was assumed that the adoption rate for the entire target area should not have increased despite of no data collected by the project or the government of Burkina Faso. On the other hand, the Project Purpose for the extension period was achieved. The average adoption rate in the 19 target villages of Oubritenga and Comoé was 40.9% in 2011. According to the survey after FFS in 2012, more than 90% of the farmers participating in FFS were going to use improved variety seeds. The fact indicated that utilization of improved variety seeds for the following year was going to increase by more than 30%.

<Continuation Status of the Project Effects at the time of ex-post evaluation>

After the project completion, 10 out of the 11 farms rehabilitated by the project³ have continuously produced improved variety seeds. The total production volume of improved variety seed by the 10 farms rehabilitated by the project was more than 1,200 tons in 2014. Also, the seed producers trained by the project continuously produced improved variety seeds: 200 seed producers for improved rice seeds and 379 seed producers for other improved variety seeds⁴ in 2014. In addition, the production volume of improved variety seeds by the producers trained by the project increased for the period between 2012 and 2014: from 148 tons to 378 tons for improved rice seeds and from 768 tons in 2012 to 1,678 tons for the improved other variety seeds except rice. In addition, the extension activities

² “The adoption rate of improved variety seeds” is ratio of the number of farmers using improved variety seeds against the total number of farmers. The utilization rate of improved variety seeds is ratio of the land size using improved variety seeds against the total land size cultivated.

³ The following 11 farms were rehabilitated by the project for production of improved variety seeds: Pobé, Diarabakoko (Benkadi), Dapelogo (Nabonswendé), Loumbila (Yaolemméné), Diapaga, Bagré, Zabré, Klbila, Bani, Oulo, Seguééré. The largest farm is Bagré with the production volume of around 1 million ton. Kolbila has not produced improved variety seed since 2012.

⁴ The other improved variety seeds: sorghum, maize, cowpea, soy bean, peanut.

based on FFS have been sustained. Because of the National Extension and Agricultural Support Program (SNVACA), the number of villages implementing FFS increased from 0 to 58 in Oubritenga and 14 to 126 in Comoé for the period from 2012 to 2014. In 2015, FFS is planned to be implemented in 125 villages each of the provinces. Furthermore, other 41 provinces introduced the FFS activities besides Comoé and Oubritenga.

Utilization of improved variety seeds has continuously been promoted for the households in the target villages and the 8 target provinces including Oubritenga and Comoé. In the target villages in Oubritenga, 660 households in average have utilized improved variety seeds despite of volatility of the number of households using them. Around 75% of them used improved seed of other crops than rice. In the target villages of Comoé, more than 1,500 households utilized improved variety seeds. At provincial level, improved variety seeds have been utilized by more than 72,000 households in the 8 target provinces.

<Status of Achievement of the Overall Goal at the time of ex-post evaluation>

The Overall Goal for the original period has been mostly achieved. According to the General Census of Agriculture (RGA) 2012 and the General Direction of Crops Production (DGPV), the annual growth of utilization rate of improved variety seeds in Burkina Faso were 38% in 2012, 45% in 2013, and 52% in 2014. It was because the number of households using improved variety seeds in the country increased through implementation of the government programs and projects to promote improved variety seeds, including the Intensification of Agricultural Productivity (PIPA), the National Extension and Farm Advisory Support Program (PNVACA), Special Seed Operation (OSS), Upland Rice Project (PRP), Project to support the Agriculture Sector Productivity (PAPSA) and West Africa Agricultural Productivity Program (WAAPP) as well as support from the Food and Agricultural Organization (FAO) and the World Bank (WB). In addition, due to such support from the government and their partners, utilization rates of improved rice seeds and improved maize seeds are higher than the others, in particular. Also, FFS, one of the project outputs, contributed to extend utilization of improved variety seeds through implementation of FFS in other provinces than the 2 target provinces for the extension period. According to the Directorate General of Study and Sectoral Statistics (DGESS: Direction Générale des Etudes et Statistiques Sectorielles), in 2014, 9,297 tons of improved variety seeds were distributed in the country and more than 700,000 households utilized them. Despite of the great efforts by the government of Burkina Faso, there is still room for improvement of extension of improved variety seeds, such as physical accessibility of farmers to improved variety seeds, low availability of seeds, reduced quantity of the seeds distributed by the government, and high cost of the seeds for small farmers.

<Other Positive and Negative Impacts>

Utilization of improved variety seeds has positive impacts on the farmers. 13 of the 20 seed producers surveyed by the ex-post evaluation answered that the use of improved variety seeds had increased their yield of crops. Also, the farmers recognized their production increased by using improved variety seeds and the increased agricultural production contributed to improvement of their standard of living through acquisition of new farm equipment, increase in livestock, and purchase of bicycle or motorcycle. The rehabilitation of the farms by the project resulted in a land dispute among the farmers leaving the farm⁵. While one farmer has continued off-farm seed production, while other 21 farmers have no land for seed production. On the other hand, those 21 farmers trained by the project have continued their production and 4 of them were able to register for seed production with certificates of PDSA.

In addition, innovations at the national level, such as law enforcement and regulations to promote improved seeds, have been resulted by contribution of the project.

No negative impact on natural environment was observed.

<Evaluation Results>

Although the Project Purpose for the original period was not achieved, the Project Purpose for the extension period was achieved by the project completion. Also, the Overall Goal for the original period was been mostly achieved at the time of ex-post evaluation through continuation of FFS for promoting utilization of improved variety seeds in the country. Therefore, Effectiveness/ Impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Original Period: Increase in utilization of improved variety seeds in the target areas of the project	The adoption rate of improved variety seeds in the target areas increased by 10%	<u>Status of achievement: Not achieved</u> (Project completion of the Original Period) - The result in target village did not bring about increases in adoption rate at provincial level. - No data at provincial level in target provinces was collected by project and the government of Burkina Faso.
Extension Period: Increase in the use of improved variety seeds at target villages.	(Indicator 1) The growth of the number of farmers adopting improved variety seeds for next cropping is more than 30% in the target villages.	<u>Status of achievement: Achieved</u> (Project Completion of the Extension Period) - Average of adoption rate of improved variety seeds in the 19 target villages was 40.9% in 2011. - According to the survey about seeding for season of 2012 after FFS, more than 90% of the farmers were going to use improved variety seeds. (Ex-post evaluation) - The total number of households using improved variety seeds in the target villages increased from 544 to 652 in Oubritenga and 1,526 to 1,676 for the period from 2012 to 2015.
	(Indicator 2) 90% of the seed producers who participate in FFS trainings acquire sufficient knowledge about improved variety seeds	<u>Status of achievement: Achieved</u> (Project Completion of the Extension Period) - All participants of FFS to be interviewed by the Terminal Evaluation Mission through meetings held at the time of site visits by the mission

⁵ Kolbilia farm in Pasoré Province of Nord Region.

	before implementation of FFS	understood that the improved variety seeds had higher yield and less production cycle than the local variety seeds.															
(Overall goal) Original Period: Utilization of improved variety seeds is increased at the national level.	Until the year 2015, the utilization rate of improved variety seeds increased by 50% in the country.	<p><u>Status of Achievement: Mostly achieved.</u> (Ex-post Evaluation) The utilization rate increased by 304.1%% from 2011 to 2014. Note that this significant increase is due to the small amount of improved variety seeds at the beginning.</p> <p>[Annual growth of utilization rate of improved variety seeds in Burkina Faso]</p> <table border="1"> <thead> <tr> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015 (Plan)</th> </tr> </thead> <tbody> <tr> <td>38%</td> <td>45%</td> <td>52%</td> <td>--</td> </tr> </tbody> </table>	2012	2013	2014	2015 (Plan)	38%	45%	52%	--							
2012	2013	2014	2015 (Plan)														
38%	45%	52%	--														
Extension Period: The use of improved variety seeds is increased at target provinces.	<p>(Indicator 1) Implementation of Farmer Field School about improved variety seeds in more than 20 villages in the provinces with intervention by the project by 2015</p> <p>(Indicator 2) The growth of adoption rate of improved variety seeds is more and 30% in the target villages</p>	<p><u>Status of achievement: Continued(Verified as the continuation of the project effects)</u> (Ex-post Evaluation) [No. of villages with implementation of FFS in the 2 target provinces]</p> <table border="1"> <thead> <tr> <th>Province</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015 (Plan)</th> </tr> </thead> <tbody> <tr> <td>Oubritenga</td> <td>0</td> <td>11</td> <td>58</td> <td>125</td> </tr> <tr> <td>Comoé</td> <td>14</td> <td>30</td> <td>126</td> <td>125</td> </tr> </tbody> </table> <p><u>Status of achievement: Continued. (Verified as the continuation of the project effects)</u> (Ex-post Evaluation) In the target villages, 660 households in average in Oubritenga and more than 1,500 households in Comoé have utilized the improved variety seeds.</p>	Province	2012	2013	2014	2015 (Plan)	Oubritenga	0	11	58	125	Comoé	14	30	126	125
Province	2012	2013	2014	2015 (Plan)													
Oubritenga	0	11	58	125													
Comoé	14	30	126	125													

Source: Terminal Evaluation Reports for the original period and the extension period, RGA 2012, data provided by DGPV and DGESS

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 90%), the project period exceeded the plan (ratio against the plan: 125%)⁶ since the extension system to disseminate the improved variety seeds was not established within the original project period.. Therefore, efficiency of this project is fair.

4 Sustainability

<Policy Aspects>

Promotion of utilization of improved variety seeds has been endorsed by the following government policies of Burkina Faso. In addition to the Law regulating seeds in the country adopted in 2006, the Special Operation Seeds (OSS) has been implemented since 2010 and the Economic Community of West Africa States (ECOWAS) legislation was released in 2014. It shows a roadmap for the control of seed quality for all the member countries and requires general implementation mechanism to regulate distribution of agricultural inputs, including the seed. Also, through the government programs, such as SNVACA, the National Program for the Rural Sector (PNRSR), the Strengthening Agriculture Mechanization Program (PRMA), and the Intensification Project Agricultural Productivity (PIPA), utilization of improved variety seeds has been promoted. In addition, the National Program for Extension and Farm Advisory Support (PNVACA)⁷ has extended FFS to all national level which contributes to dissemination of improved variety seeds.

<Institutional Aspects>

For the extension system, FFS has continuously been functioning to promote utilization of improved variety seeds and extended the activities in the country under the SNVACA and PNVACA. There are 302 extension officers in total deployed for the 8 target provinces. However, the number of extension officers is not sufficient to cover the extension activities in the provinces due to the high vacancy rate for the position. In fact, the extension officers trained by the project were transferred to other villages and the FFS activities in the target villages of the project were not able to be continued without the skilled extension officers. The pathology and seed inspection system has been functioning. There are 15 national seed inspectors and 19 regional seed inspectors but the numbers of them are not sufficient to conduct seed inspection at laboratory and at field despite of arrangement by DGPV to increase the number of seed inspectors and seed auxiliaries controlling seed quality at the provincial level. Due to the lack of specific training on seed quality management, the number of seed inspectors has been decreased. In terms of seed production, the Institute of Environment and Agriculture Research (INERA) has sustained their role and responsibility. They have continuously been produced and supplied the sufficient volume of breeder's seeds (R1) of improved variety seeds to the seed producers. There are 286 staff in total in INERA, including masters of research, research staff, engineers and technicians. The database of improved variety seeds developed by the project has been utilized for estimation of demands of breeder's seeds by the seed producers and improved variety seeds by the farmers since it is only reliable database which is available in the country.

<Technical Aspects>

The extension officers trained by the project as "FFS facilitator" have sustained their skills and knowledge about the FFS activities as DGPV has continuously delivered trainings for the extension officers to conduct FFS tools. They have continuously been engaged in the extension activities based on FFS despite that some of them have been transferred to other villages. The seed inspectors trained by the project have been continuously engaged in seed quality control activities using the facilities and equipment provided by the project and continuously utilized the manuals developed by the project for their daily activities. They have training opportunities to keep their skills and knowledge, such as short-term recycling training system (1-2 weeks) but the budget is not sufficient to train all the inspectors. Because of the trainings by the national and regional inspectors, the seed producers have also kept their skills and knowledge for seed production. The manuals and guides developed by the project for FFS, seed quality control and seed production, which have been updated according to

⁶ Although the total extension period was 12 months from February 2011 to February 2012, the Japanese experts left from the project activities for 3 months from April to June in 2011 due to the political instability in Burkina Faso

⁷ The first phase is 2011-2015 and the second phase is 2013-2020

the laws and regulations, have been utilized. While the farmers trained by the project have sustained the skills and knowledge about utilization of improved variety seeds and the farmers have been trained by FFS, the manuals and guides by the project have not been utilized because they were damaged.

<Financial Aspects>

The budget for promotion of improved variety seeds allocated by Ministry of Agriculture, Water Resource, Sanitation and Food Security (MAHRHASA: Ministère de l'Agriculture, des Ressources Hydrauliques, de l'Assainissement de la Sécurité Alimentaire) has changed year by year. After increasing from 7,443 million FCFA in 2012 to 12,063 million FCFA in 2013 and 11,917 million FCFA in 2014, the budget for promotion of improved variety seeds decreased to 7,751 million FCFA in 2015 due to the political situation in the country. On the other hand, the budgets for promotion of improved variety seeds allocated by the DGPV of Ouhritenga and Comoé have sustained the same amount of 5,701 million FCFA for the period from 2012 to 2015. While the seed production become commercial activities due to the high price of seeds and the seed producer can be affordable to cover necessary cost of seed production, including purchase of breeder's seeds, fertilizers and equipment, the farmers cannot afford necessary costs for utilization of improved variety seeds, including purchase of improved variety seeds, fertilizers and equipment because of high prices of those goods and equipment. Therefore, the seed distribution has been heavily subsidized by the government of Burkina Faso: 1,000 CFA for 15 kg of rice and 15kg of maize.

<Evaluation Results>

Some problems have been observed in the institutional and financial aspects. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

This project achieved the Project Purpose for the extension period and the Overall Goal for both of the original and extension periods despite that the Project Purpose for the original period was not achieved. On the other hand, the improved variety seeds have been promoted in the target villages through FFS and the adoption of the improved variety seeds increased yield of crops there. Also, the law enforcement and regulations to promote the improved seeds have been brought about by the project effects. As for sustainability, the number of seed inspectors has not been sufficient to cover all the provinces and the budget for promotion of the improved variety seeds decreased in 2015. As for efficiency, the project period was exceeded that plan because of the additional activities needed to disseminate the improved variety seeds through FFS.

In the light of above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for DGPV:

- For effective extension system, DGPV needs to incorporate the core activities FFS (practice of technique by farmers and monitoring) into the general agricultural extension services.

Lessons Learned for JICA:

- The project provided necessary facilities and equipment for seed inspection and developed the manuals for seed inspection in order to adequately control quality of the improved variety seeds. Since the effective guidelines and suitable equipment are inevitable under the Seed Law and seed rules, the project contributed to enhancement of essential infrastructure for quality control of the improved variety seeds through the provision of inspection facilities and equipment and technical manuals. In addition, adequate facilities and equipment with adequate manuals ensure sustainability of seed inspection activities through utilization of them by the seed inspectors even after the project completion.



(Improved variety of rice)



(Rice field utilizing improved variety seeds)

Country Name	Project for Strengthening Medical Equipment Management System for Quality Health Services
State of Eritrea	

I. Project Outline

Background	The Eritrean government had made a great effort to improve basic healthcare services, although it had been difficult to secure sufficient amount of investments in healthcare. While proper maintenance of medical equipment (ME) is necessary for safe and accurate diagnosis and treatment, most ME in Eritrea was secondhand equipment provided by development partners and it was difficult to repair such equipment when they malfunctioned, which made it difficult for maintenance awareness to take root among medical staff (ME end-users) in workplaces. In addition, the Bio-Medical Engineering Unit (BMEU ¹), which is a subordinate body to the Ministry of Health (MOH) and solely responsible for maintenance and management of ME in Eritrea, had only responded to repair requests as needed and had not taken measures to prevent a breakdown of ME sufficiently. MOH saw such situation as a problem and aimed at establishing a preventive maintenance system centering on BMEU.												
Objectives of the Project	Through preparing a national guideline for ME management, improving capacity and performance of BMEU, improving work environment at target hospitals, and realizing preventive maintenance practice to be routinely conducted at target hospitals, the project aimed at improving management practice (including maintenance) for ME at target hospitals (Project Purpose), thereby contributing to dissemination of improved management practice for ME to other referral and zonal hospitals (Overall Goal). The project objectives set forth are as follows:												
	<ol style="list-style-type: none"> Overall Goal: Improved management practice for ME is disseminated to other referral and zonal hospitals. Project Purpose: Management practice (including maintenance) for ME at target hospitals is improved. 												
Activities of the project	<ol style="list-style-type: none"> Project site: Asmara, the capital city of Eritrea (MOH, BMEU and target hospitals: Orotta Hospital, Halibet Hospital and Villagio Ginio Hospital) Main activities: (1) Prepare a national guideline for ME management; (2) Conduct trainings to strengthen instruction abilities of BMEU on maintenance of ME; and (3) Implement 5S² activities and preventive maintenance at target hospitals, etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Eritrean Side</td> </tr> <tr> <td>1) Experts: 8 persons</td> <td>1) Staff allocated: 12 persons</td> </tr> <tr> <td>2) Trainees received in Japan: 3 persons (and trainees in Asia-Africa Knowledge Co-Creation Program (AAKCP): 6 persons)</td> <td>2) Office space and facilities: project office spaces in the MOH and the BMEU</td> </tr> <tr> <td>3) Equipment: maintenance equipment etc.</td> <td>3) Local Cost: utility costs of the project office</td> </tr> </table> 					Japanese Side	Eritrean Side	1) Experts: 8 persons	1) Staff allocated: 12 persons	2) Trainees received in Japan: 3 persons (and trainees in Asia-Africa Knowledge Co-Creation Program (AAKCP): 6 persons)	2) Office space and facilities: project office spaces in the MOH and the BMEU	3) Equipment: maintenance equipment etc.	3) Local Cost: utility costs of the project office
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Ex-Ante Evaluation	2007	Project Period	May 2008 – May 2011	Project Cost	(ex-ante) 230 million yen (actual) 254 million yen								
Implementing Agency	The Ministry of Health (MOH), The Bio-Medical Engineering Unit (BMEU) Orotta Hospital, Halibet Hospital, Villagio Ginio Hospital												
Cooperation Agency in Japan	TA Networking Corp.												

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Eritrea at the time of ex-ante evaluation and project completion></p> <p>The project was consistent with Eritrea's development policy on 'improvement of ME management' as set forth in the "Health Sector Strategic Development Plan (HSSDP) 2010-2014" (under preparation at the time of ex-ante evaluation and approved in March 2010).</p> <p><Consistency with the Development Needs of Eritrea at the time of ex-ante evaluation and project completion></p> <p>Most ME in Eritrea was secondhand equipment provided by development partners. There was a wide variety of manufacturers even for ME used for the same purpose, different consumables such as spare parts needed to be used for each type of equipment, and maintenance manuals or operation manuals were not available for many equipment, which made it difficult to repair them when they malfunctioned. At the time of project completion, construction of satellite workshops³ was under progress in regional provinces (zones), indicating needs for maintenance of ME. Further, repair requests for ME which could not be handled in these workshops increased at BMEU, based on which the needs for maintenance of advanced ME are considered to have increased. Thus, the project is consistent with development needs of Eritrea.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>In policy consultations with the Eritrean government in May 2001, it was agreed to emphasize basic human needs (health, education and water) and infrastructure development as priority areas of assistance.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact

¹ Medical Equipment Engineering Division (MEED) since 2013. To avoid confusion, this report basically calls this organization BMEU.

² 5S stands for Seiri (Sort), Seiton (Set), Seisou (Shine), Seiketu (Standardize) and Shituke (Sustain).

³ A satellite workshop is located mainly at a provincial referral hospital for repair of ME of health institutions within the province.

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

The Project Purpose was achieved by the time of project completion. While ME management function was not integrated to a 5S committee at each pilot hospital following a judgment that the monitoring of statuses of ME and promotion of preventive maintenance, the basic role of a ME management team (“committee” after October 2010), should be managed as a special function independently from 5S. Instead, activities of 5S committee and ME management team (committee) were clarified, and an effective and efficient ME management system including preventive maintenance which was to generate synergetic effects by fulfilling both committees’ functions was established (Indicator 1). Moreover, semi-annual ME monitoring was conducted twice by ME management team (committee) using ME check sheet (Indicator 2). Furthermore, more than approximately 70% of medical staff in target hospitals replied that they were either ‘very satisfied’ or ‘satisfied’ with operability of ME (Indicator 3).

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

After project completion, 5S committee and ME management committee have still been functional, ME monitoring has been conducted, and medical staff replied that they have been generally ‘satisfied’ on average with operability of ME at Halibet Hospital. On the other hand, at Orotta Hospital and Villagio Ginio Hospital, where there have been an expansion and/or a temporary closure of hospitals, committees have not been re-established afterwards. The underlying situations included the increase in separation of young technicians from service following the United Nations Security Council's resolution on sanctions in December 2011 and the integration/expansion of hospitals among some target hospitals. Consequently, committees are not functional and ME monitoring is not conducted by committees at the time of ex-post evaluation (maintenance of ME is conducted by technicians who received technical transfers under the project and/or foreign doctors and engineers). However, BMEU, which was upgraded from an ‘unit’ to a ‘division’ in 2013, recognized the importance of regular monitoring and guidance for ME users conducted as activities of this project. Accordingly, BMEU complements ME monitoring of each hospital through provision of guidance including patrol monitoring and preventive maintenance at each hospital (it patrols all hospitals across the country and carries out periodic monitoring and supervision of ME nearly 30 times on average per hospital). Also, the success rate of repairs of ME during hospital visit by BMEU has been over 90%, and thus high levels of technical skills have been maintained.

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

The Overall Goal has been partially achieved by the time of ex-post evaluation. At MOH, particularly the 5S team consisted of former JICA trainees has promoted establishment of committees and implementation of monitoring in health centers as well as hospitals nationwide to disseminate the ME management system under the supervision of the Health Service Facility Management Division. Regarding dissemination to referral and zonal hospitals other than target hospitals, the ME management committee has been established under the 5S committee in all of referral hospitals and the half of zonal hospitals (while the system is under re-establishment at Orotta Hospital, as mentioned above), among which on-the-job-trainings (OJT) on maintenance of ME have been conducted in accordance with decisions of each committee at part of these hospitals. According to MOH, the reason for ME management committee having not been established in half of zonal hospitals is a lack of technicians in each hospital.

<Evaluation Result>

In light of the above, under the project, the Project Purpose was achieved by the time of project completion, however, project effects have been maintained at part of target hospitals and the degree of achievement of the Overall Goal is partial at the time of ex-post evaluation. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Management practice (including maintenance) for ME at target hospitals is improved.	1. ME management function is integrated to 5S committee.	Status of the achievement: achieved (partially continued) (Project Completion) Although there are some common areas between 5S and ME management, it was thought under the project that promotion of ME monitoring and preventive maintenance, which is the basic function of the ME management committee, should be treated as a special function separate from 5S. Some of the committee members were overlapping and the activities of both organizations were arranged so that a synergistic effect could be aimed for while maintaining a relaxed cooperative relationship and facilitating the respective functions of each. Rather than a simple overlapping of functions, it was thought that an effective and efficient ME management setup that includes preventive maintenance was established. (Ex-post Evaluation) While some staff have left Halibet Hospital, 5S committee and ME management committee are still functional. Orotta Hospital has become a general hospital by adding the obstetrics and the pediatrics hospitals to the surgical hospital, which was the target of this project, since project completion, and 5S committee and ME management committee have not been re-established since the integration/expansion of the hospital. Villagio Ginio Hospital was closed from March 2011 to the end of October 2013, and major staffs have been replaced by other staffs due to the relocation of the hospital for a renovation of the tertiary ophthalmic hospital, and thus these committees have not been functional.
	2. Condition of ME is monitored using ME check sheet by ME management team of the 5S committee.	Status of the achievement: achieved (partially continued) (Project completion) The ME management team (‘committee’ from October 2010) of each pilot hospital conducted semi-annual ME monitoring twice using the ME check sheet under the guidance of BMEU and Japanese experts. (Ex-post Evaluation) At Halibet Hospital, ME monitoring has been

		conducted for 12 times per year from 2011 to 2012, and six times per year since 2013, when some staff left the hospital. At Orotta Hospital, while ME monitoring had been conducted for six times per year until 2012, when the hospital was integrated as mentioned above, it has not been conducted since 2013, as two technicians have left the hospital. At Villagio Ginio Hospital, ME monitoring has not been conducted since project completion for the reason explained above. However, BMEU complements ME monitoring of each hospital through patrol monitoring (and guidance) at each hospital.
	3. More than 50% of service-providers are satisfied with operationality of ME.	Status of the achievement: achieved (partially continued) (Project completion) As a result of the end-line survey, the ratio of health personnel either 'very satisfied' or 'satisfied' with operationality of ME was found to be 68% at Orotta Hospital, 71% at Halibet Hospital and 89% at Villagio Ginio Hospital (no mention of the denominator in available documents) . (Ex-post Evaluation) In the interview survey for several staff members including ME management staff of each hospital, Halibet Hospital replied 'satisfied', as there is no problem in using ME, though ME have some problems. Orotta Hospital replied 'neither satisfied nor unsatisfied', as there were technical issues (intangible issues) in ME maintenance, while these issues have been solved by the time of ex-post evaluation. Villagio Ginio Hospital replied 'very satisfied', as there is no problem.
(Overall goal) Improved management practice for ME is disseminated to other referral and zonal hospitals.	1. ME management function is integrated to 5S committee.	Status of the achievement: partially achieved (Ex-post Evaluation) ME management committee has been established under 5S committee in all of referral hospitals and the half of zonal hospitals (however, ME management committee is under re-establishment after the integration of the hospital at Orotta Hospital, as stated in Indicator 1 of Project Purpose).
	2. Condition of ME is monitored using ME check sheet by ME management team of the 5S committee.	Status of the achievement: partially achieved (Ex-post Evaluation) ME monitoring at each hospital is conducted mainly by BMEU, while this is different from what was expected in the beginning of the project in which each hospital conducts ME monitoring itself (BMEU patrols all hospitals across the country and carries out periodic monitoring and supervision of ME nearly 30 times on average per hospital).
	3. More than 50% of service-providers are satisfied with operationality of ME.	Status of the achievement: partially achieved (Ex-post Evaluation) Two out of three national referral hospitals in total and one out of six zonal hospitals in total replied to the end-line survey, in which the level of satisfaction was approximately 62.5% in referral hospitals and approximately 75% in zonal hospitals.

Source: Terminal Evaluation Report, questionnaire survey to MOH, BMEU, and Orotta, Halibet, Villagio Ginio and Hazhaz Hospitals

Note: While the wording of the indicators is the same between Project Purpose and Overall Goal, the target hospitals are different as follows:

- Target of Project Purpose: the pilot hospitals (Halibet Hospital, Orotta Hospital and Villagio Ginio Hospital)
- Target of Overall Goal: all referral hospitals (Halibet Hospital, Orotta Hospital and the ophthalmic hospital (as of the time of ex-post evaluation)) and zonal hospitals

3 Efficiency

The project period was as planned (ratio against the plan: 100%), however, project cost was slightly higher than planned (ratio against the plan: 110%). Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

According to HSSDP (2012-2016), which is implemented at the time of ex-post evaluation, it is stated in the chapter of 'Basic Health Care Package (BHCP) Essential Systems' that "ME maintained and adjusted appropriately is necessary for provision of efficient and effective clinical services, and establishment of reliable ME management and preventive maintenance system and awareness raising and practice of preventive maintenance are necessary for securing the quality and function of ME in all levels of medical institutions". Thus, improvement of ME management is still emphasized as a national policy in Eritrea, and the project is still important in the country.

<Institutional Aspect>

MOH manages the statuses/conditions and procurement of ME across the country using the ME database system. BMEU was upgraded from an 'unit' to a 'division' (MEED) in 2013, and the ME Engineering Service Unit and the Procurement and Training Unit were established under the division. At the time of ex-post evaluation, 50 staff in total work for BMEU, of which three staff are engineers, 13 are technicians, and 34 are in charge of general affairs. The number of engineers and technicians is sufficient, as BMEU has been enabled to conduct more organizationally systematic activities by the promotion. Engineers are absent in target hospitals, as there are stringent conditions to become an engineer and the total number of engineers is low in the country. At the time of ex-post evaluation, there is only one technician at Orotta Hospital mainly due to the turnover of young technicians, there are three technicians at Halibet Hospital, and there is no technician and instead a pharmacist is in charge of ME management at Villagio Ginio Hospital. The number of technicians is not sufficient at these hospitals, and at least one technician would be needed at Villagio Ginio Hospital.

<Technical Aspect>

OJT is conducted three to four times a year to improve technical skills of staff at BMEU, and one to two technicians per zone from six zones in total in the country are invited to BMEU every year to attend two weeks training and OJT after the training. On the other hand, among target hospitals, ten days training and OJT are provided for newly assigned technicians using explanatory booklets and/or user manuals of ME at Halibet Hospital, however, trainings are not conducted at the other two hospitals. As young technicians who received technical transfers have left these hospitals, knowledge and skills for preventive maintenance did not take root in target hospitals, and thus

they need to rely on support from BMEU.

<Financial Aspect>

BMEU irregularly requests MOH for budget allocation as needed bases. BMEU has also received financial support of 50,000 dollars for trainings, rental cars and consumables etc. from the Global Fund to Fight AIDS, Tuberculosis and Malaria recently. However, financial data including MOH budget and financial information of BMEU and target hospitals was claimed to be confidential and could not be obtained. As BMEU has been able to conduct ME maintenance and technical guidance etc., a certain amount of financial resources is considered to have been secured.

<Evaluation Result>

In light of the above, while sustainability is confirmed in the policy aspect, some problems have been observed in terms of institutional and technical aspects of the implementing agencies. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved the Project Purpose, “improvement of management practice for ME at target hospitals”, as planned. However, project effects have been only partially maintained due to manpower shortage and organizational change etc. Regarding the Overall Goal, dissemination to referral and zonal hospitals in the country has been partially achieved. As for sustainability, problems have been observed in institutional and technical aspects of target hospitals. However, ME maintenance can be continuously conducted, as the central agency conducts ME maintenance at each hospital supplementarily, although this is different from what was expected in the beginning of the project.

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

III. Recommendations & Lessons Learned

Lessons learned for JICA:

After project completion, there are uncertainties for sustainability of ME maintenance by 5S committee and ME management committee at each hospital due to turnover of young technicians and integration/expansion of hospitals among target hospitals. On the other hand, the central agency has conducted ME maintenance at each hospital supplementarily, which is enabling the continuation of ME maintenance although that is different from what was expected in the beginning of the project. In case there was a concern on sustainability of the project effects at each hospital during project implementation, it would have been an option to suggest to consider shifting the project implementing agency from each hospital to the central agency that had higher prospect for sustainability.



Technician inspecting ME of the surgical treatment room (Orotta Hospital)



Technician repairing electronic component (BMEU)

Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Vietnam Office: November 2016

Country Name	The Project on Capacity Development of Participatory Agricultural and Rural Development for Poverty Reduction in the Central Highlands
Socialist Republic of Viet Nam	

I. Project Outline

Background	<p>Viet Nam had achieved great progress in poverty reduction in the past years. However, high poverty rates still remained in most disadvantaged areas and especially amongst ethnic minority groups including Central Highlands. There had been various poverty reduction and rural development conducted by the government of Viet Nam. However, in many cases the community just played the role of recipients, which governmental agencies or consultant agencies played the role of main project implementers. The government agencies' planning capacity with consideration to ethnic minority group and budget were insufficient; as a result the implementations were not effective and efficient enough.</p>												
Objectives of the Project	<p>Through (i) developing people and people's organizations' capacity of project planning for their livelihood improvement, (ii) implementing training for local authority officials on participatory rural development, and (iii) implementing rural development activities, the project aimed at developing participatory rural development approaches for ethnic minority (project purpose level), and thereby disseminating community-driven development approaches introduced by the project in poverty area of Viet Nam (overall goal level).</p>												
	<ol style="list-style-type: none"> Overall Goal: Community-driven development approaches introduced by the Project are disseminated in order to improve livelihoods in poverty area of Viet Nam. Project Purpose : Participatory rural development approaches for ethnic minorities are developed through the capacity building of the local authority officials and people in the target areas with special attention to women and the illiterate. 												
Activities of the Project	<ol style="list-style-type: none"> Project site: Lo Pang and Kon Thup communes, Mang Yang district, Gia Lai province (Target hamlets: 15 hamlets in 2 communes) Main activities: (1) The project develops people and people's organizations capacity of project planning for their livelihood improvement, (2) the project implements training for local authority officials on participatory rural development, (3) The project supports people and local authority officials to implement rural development activities, and (4) Experiences of the project are shared with other areas. * The models for participatory rural development approach are: (1) Participatory Planning Approach Model, (2) Participatory Agriculture Extension Model ((i) Regionally adaptable "Sustainable Livestock Agriculture Model", (ii) Agricultural extension model applying characteristic of ethnic minority utilizing "Key (model) farmer", (iii) Agriculture extension model by "Farmer Field School", (3) "Social Preparation" Model for minorities (Women's voice collection, "Life Skill Class" for women and the illiterate, and Public Service as Entry Point), (4) Participatory Infrastructure Model (Decision-making and planning based on villagers consensus, Clarification of the role and responsibility between villagers and local authority, Participatory operation and management) Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Vietnamese Side</td> </tr> <tr> <td>1. Experts: 10 persons</td> <td>1. Staff allocated: 47 persons</td> </tr> <tr> <td>2. Training in Japan: 23 persons, Third country training: 14 persons</td> <td>2. Land and facilities: project office</td> </tr> <tr> <td>3. Facilities and equipment: Vehicles, motorcycles and others</td> <td>3. Local cost: allowance, project activity fee, training and other expenses</td> </tr> </table> 					Japanese Side	Vietnamese Side	1. Experts: 10 persons	1. Staff allocated: 47 persons	2. Training in Japan: 23 persons, Third country training: 14 persons	2. Land and facilities: project office	3. Facilities and equipment: Vehicles, motorcycles and others	3. Local cost: allowance, project activity fee, training and other expenses
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Ex-Ante Evaluation	2008	Project Period	January 2009 – January 2014	Project Cost	379 million yen								
Implementing Agency	Gia Lai Province People's Committee (PPC), Mang Yang District People's Committee (DPC), National Institute of Agricultural Planning & Projection (NIAPP)												
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries												

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of Viet Nam at the time of ex-ante and project completion> The project was consistent with Vietnamese development policy both at the time of ex-ante evaluation and project

completion. Five-year socioeconomic development plan 2006-2010 prioritized Central Highland area for poverty reduction. The government had implemented National Target Program for Poverty Reduction (NTPPR) (2006-2010) and Program 135¹ for infrastructure development for the most disadvantaged communes in areas where ethnic minority groups live and mountain areas. At the time of Project's completion, the project approach was consistent with National Target Program for New Rural Development (2011-2020) and Program 135 for communes in extreme/poor conditions.

<Consistency with the Development Needs of Viet Nam at the time of ex-ante and project completion>

The project was consistent with the needs for poverty reduction and community based development approach both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, the government of Viet Nam had implemented poverty reduction projects in the areas where ethnic minority groups live, but had faced problems in effectiveness and sustainability. Therefore, the necessity to introduce a community based development approach was high. At the project completion, the number of the poor minority people in the two communes and Mang Yang District remained high though its poverty rate had been gradually improved.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy as Country Assistant Program for Viet Nam drawn up in 2003 regarded the "livelihood and social improvement" as one of the priority areas. Organization of farmers and infrastructure development were regarded as important support areas under the "livelihood and social improvement".

<Evaluation Result> In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

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

The project purpose was achieved by the time of project completion. More than 50% of the local authority officials in the target area recognized that the project approaches had more advantages than the previous approaches (indicator 1), more than 50% of the households who participated in the project activities recognized that their livelihoods were improved (indicator 2), and MARD acknowledged participatory rural development approaches developed by the project applicable by holding a workshop (indicator 3).

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

After the project completion, the project approaches have not been newly applied systematically. However, some techniques and facilities transferred by the project have been still utilized, and participatory rural development approach takes root in Lo Pang and Kon Thup communes. For example, participatory planning approach has been applied by officers and utilized for a new project: Central Highlands Poverty Reduction Project (CHPoV) funded by International Development Association (IDA)². Key (model) farmers are still applying the techniques learned by the project such as cattle shed building and cattle dung collection and ground cover plan, and the number of villagers who have replicated the introduced method is increasing after the project completion. Thanks to the health training, now most of women understand the significance of safety when delivering their baby at district/commune health stations rather than delivering at their house. In case of nutrient improvement for children, mothers now know how to cook rice soup for their child when their child is ill, or do not want to eat rice. However, many of participants of literacy class do not practice frequently and seem to forget what they learned from the literacy class they attended. Most of small-scale infrastructure developed by the project, mainly water supply system, has been continuously used by villagers. It was difficult for the households to answer whether or not their livelihoods improved.

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

Overall goal is partially achieved at the time of ex-post evaluation. The project was designed in a manner that the local community takes part from planning stage of small-scale infrastructure, livelihoods improvement, health, and education. In order to encourage the local people to do so, the project provided training and established models so that the people can learn from the model with hands-on practice opportunity. MARD considers these lessons suitable for New Rural Development Program and Poverty Reduction for ethnic minorities in mountainous areas and have tried to reflect to the programs such lessons learnt as: Assigning communes to conduct rural development planning and collect local people's voice in the planning; in constructing rural roads, the Government provides support only for such material as cement, sand, stone, local people donate their land and labor; the construction of rural infrastructure should be decided basing on people's needs and priority is given to those items of higher needs; in terms of agricultural production, the government provide support for technical matter and infrastructure, the local people organize by themselves; Budget structure applied in the Program is: Central budget : 40%, local budget 30%, private sector: 20% and people's contribution: 10%; Local people participate in all stages of construction.

Agricultural techniques have been extended into 9 communes of Mang Yang district by staff from division of agriculture of DPC. And information sheet on model and guidebook on introduction of agricultural components developed under the project are used in disseminating the agricultural techniques. On the other hand, after the project completion, there is no chance for DPC to introduce the project results and approaches to other districts because of the lack of financial source to organize workshop or conference for disseminating project results.

MARD held a workshop to share the experience of the project after the project completion as well as distributed the project's document of rural development experiences. At the same time, MARD applied parts of project's participatory approach into a Circular guiding the support for production under Program 135.³ In the last stage of the project, it was

¹ Program 135 is a program, based on the Prime Minister's Decision No.135/1998/QD-TTg, to support infrastructure investment and development of production in the special difficult communes, frontier communes, safety communes, and the specially difficult villages

² The project is implemented from 2014 to 2019 in 130 communes of 26 very difficult and poor districts in 4 provinces of the Central Highland including Gia Lai Province.

³ Following the Circular guiding, since 2016, Program 135 is designed as component of National Target Program for Poverty Reduction, which has implementation mechanism that encourages the participation of the local people.

proposed by the project to organize a dissemination seminar to other districts but the proposal was not accepted by Gia Lai Provincial People's Committee with the reason that the Project's scope is within the two communes of Mang Yang District only so there was no chance for the Project to introduce the Project's results to other districts in the same province

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

No land acquisition and resettlement occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

The project achieved its project purpose at project completion, as the local authority officials recognize the advantages of the project approach, the livelihood of the households improved and MARD acknowledge the project approach was applicable. The situation has partially continued after the project completion. The overall goal was partially achieved as it is stated that participation of local communities from planning stage has been reflected to National Target Program for New Rural Development and Program 135 and MARD has tried to incorporate some lessons from the Project to the said programs. Therefore, effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Participatory rural development approaches for ethnic minorities are developed through the capacity building of the local authority officials and people in the target areas with special attention to women and the illiterate.	1. More than 50% of the local authority officials in the target area recognize that the project approaches have more advantages than the previous approaches.	<u>Status of achievement: Achieved</u> (Project Completion) According to the study conducted during the project (March 2013), all of interviewed 18 officers ⁴ raised some strong points on the approach, indicating their recognition of more advantages of the project approach than previous ones.
	2. More than 50% of the households who participated in the project activities recognize that their livelihoods are improved.	<u>Status of achievement: Achieved (Continuation status: unconfirmed)</u> (Project Completion) Based on the survey conducted by the project, 85.3% (186 among 218 interviewees) recognized that their livelihoods improved. (Ex-post Evaluation) The interviewees (57 interviewees) were not able to compare the status because they did not exactly remember the situation before the project.
	3. Agencies in charge of National Target Program for New Rural Development acknowledge participatory rural development approaches developed by the Project applicable.	<u>Status of achievement: Achieved</u> (Project Completion) - NTP-NRD master plans in two target communes were developed based on the Manual for Guiding Participatory Formulation of Planning for Agro-forestry and Fishery Production Development at Commune Level. - Guideline of Participatory Agricultural and Rural Development for Poverty Reduction (report summarizing lessons learned from the Project) were developed. - MARD and JICA held a workshop for disseminating the project results where the guidelines were used.
(Overall Goal) Community-driven development approaches introduced by the Project are disseminated in order to improve livelihoods in poverty area of Vietnam.	1. The lessons learned from the Project are supplemented into the "National Target Program for New Rural Development".	<u>Status of achievement: Partially achieved</u> (Ex-post evaluation) - Participation of local communities from planning stage has been reflected to National Target Program for New Rural Development and Program 135.

Source : JICA internal documents, questionnaire survey and interviews with counterparts.

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: 102%). In order to respond to villagers' needs, some community development activities were supplemented.

Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

There are established policies which secure the effects of the project to continue. Resolution 80/NQ-CP of 2011 provides new directions for sustainable poverty reduction for 2011-2020, aiming at raising the living conditions for the poor, first of all those in mountainous and ethnic minority areas. Program 135 supports the infrastructure investment and the production promotion for communes with special difficulties for the period of 2012-2015 and 2016-2020 focusing on building

⁴ 18 officers were consisted of 1 (out of 6) Project Management Unit member, 7 (out of 11) Supporting Group members at district level, 6 (out of 16) Rural Development Group (RDG) members in Lo Pang commune, and 4 (out of 14) RDG members in Kon Thup commune.

infrastructure, developing production and capacity building for local authorities.

<Institutional Aspect>

There is no division in charge of expanding the participatory rural development at DPC. Supporting Group (SG) and Rural Development of Group (RDG) which were groups established for the implementation of the project, for whom the techniques were mainly transferred, are not existent anymore after the project completion. As members of SG and RDG are those staff under DPC or Commune People's Committee who work in rural development, although SG and RDG do not exist, their members still apply participatory rural development in their daily work such as plan formulation, implementation of new project/program. There is no mechanism for coordination between key farmers, women's unions and school for expanding the project approaches set by DPC. However, as explained in the effectiveness/impact, key farmers themselves apply the project approaches for their works. In addition, according to DPC, almost all divisions of DPC apply the participatory approaches and the trained personnel have been utilized in program/projects at DPC. Therefore, it is expected that project effects will be kept to certain extent. Information on the number of staff was not obtained.

On the part of MARD, MARD has appointed the Division of Poverty Reduction and Social Security to integrate the dissemination of the project results into policy formulation activities and field visits.

<Technical Aspect>

There is an established system to transfer the techniques in DPC. Key farmers have difficulties to transfer the techniques to other farmers, however, SG members are willing to help key farmers to transfer them, although supporting key farmers in technology transfer to other villagers is not their designated assignment. Water supply systems developed by the project are maintained by the villagers.

The dissemination of project results requires that rural development officers at all levels are trained, fully and officially, in participatory approach. Such a team of trained personnel has not yet been established by MARD due to lack of institutionalization and budget.

<Financial Aspect>

There are some financial sources for programs such as New Rural Development, Poverty Reduction, or Agricultural Extension. However, these sources are not enough to implement participatory rural development. On the other hand, there is financial support from IDA for the CHPoV. As for water supply systems developed by the project, the villagers are supporting the system financially.

<Evaluation Result>

Problems have been observed in terms of institutional, technical and financial aspects, and therefore, sustainability of effects of the project is fair.

5 Summary of the Evaluation

The project achieved its project purpose at the project completion as the local authority officials recognized the advantages of the project approaches, households recognized their livelihood improved and MARD shared the project approaches with other areas by holding a workshop. After the project completion, some activities have continued and the techniques transferred under the project are reflected in other projects. The overall goal was partially achieved as participation of local communities from planning stage has been reflected to national programs and MARD has tried practicing to incorporate some lessons from the Project to the said programs. As for sustainability, there are challenges in terms of institutional and financial aspects. As for efficiency, the project cost slightly exceeded the plan.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for Implementing Agency>

When a farmer wants to introduce agricultural technique brought by the project, DPC needs to support members of Supporting Group (SG) and the key farmers to transfer it to farmer.

<Lessons Learned for JICA>

1. In this project, the beneficiaries recognized the necessity of the facilities and they participated in decision-making process of construction of the facilities, construction work, and operation and maintenance of the facilities. The beneficiaries themselves paid a part of the construction cost and they offered workforce in the construction process. Through this process, independency has been created among the beneficiaries. As a result, they continue using the facilities while repairing them. Beneficiaries' participation in the whole process of small scale infrastructure development will secure the sustainable use of the small scale infrastructure.
2. At the time of ex-post evaluation, although the project results are mostly maintained at project site and MARD tried to reflect into policy some of the lessons learnt from the Project, the actual dissemination to other areas is limited. This Project worked mainly with provincial and district authorities. Ministry of Agriculture and Rural Development has been involved as an executing agency who approves the project progress and annual plan. It would be difficult for MARD to understand thoroughly the project to formulate new policies based on the whole experiences of the projects they do not actually implement or to disseminate the project results to other areas. It is recommended that if JICA would conduct any interventions which involves policy making in the future, main counterpart agency will be a central ministry who is in charge of making national policies. On the other hand, coordination with agencies with key role in making policy (such as Office of the Government or Communist Party in Vietnam) is also included as a part of the Project's activities. The project by JICA have also been focusing on making models and guidelines/manuals. Within the scope of the project, there have been few activities to advocate the project results to central government, not only the line ministry but also to other related agencies such as Office of the Government, Ministry of Planning and Investment, Ministry of Labor, Invalids

and Social Affairs and Communist Party and other donors. On one hand, it is because the project's counterpart is province. On the other hand, there have been few technical advisors (either Japanese or Vietnamese) representing the project who can voice the projects' results and experiences in policy dialogue and donor meetings. It is recommended that the advocacy part of this kind of project would be more emphasized.



Cattle shed in Dak Hla village



Water point in a primary school in Kon Thup village

Country Name	Project on Improving Access to Quality Primary Education by Community Participation
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	<p>Education in Ethiopia had achieved the significant progress, especially in terms of access i.e. gross enrolment rate. Challenges, however, remained to achieve the universal primary education (UPE). The issues of high repetition and drop-out rates, low completion rate, overcrowded classrooms, shortage of textbooks and qualified teachers had become more highlighted, particularly in rural areas.</p> <p>In order to address these issues, especially to tackle the problem of quality of education, the Federal Ministry of Education had formulated the General Education Quality Improvement Programme (GEQIP) which has the following five components: (1) curriculum, textbooks and assessment; (2) teacher development program (TDP); (3) school improvement program (SIP); (4) management and administration; and (5) program coordination, monitoring and evaluation. The Programme also encouraged community participation in school activities and aims to expand access to quality education through collaboration among communities, schools and local education offices.</p>														
Objectives of the Project	<p>Through (1) developing the Ho! ManaBU training (HM training)*, conducting training of trainers (TOT) under HM training and supporting pilot Cluster Resource Centers (CRC) to implement HM Training, (2) revising/developing monitoring and reporting system, (3) supporting Oromia Education Bureau (OEB) to develop and implement OEB Initiative plan (which is made to disseminate experiences and good practices of the project), the project aimed that the knowledge and skills acquired in HM training is utilized in the pilot CRCs and drop-out and enrolment of students improve in the pilot CRCs (Project purpose level), and thereby project aimed that training on participatory school-based management (HM training) is conducted in the entire Oromia Region, and enrolment, drop-out, gender gap improve in Oromia Region (Overall goal level). The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> Overall Goal: Participatory school-based management is promoted in Oromia Region. Project Purpose: Participatory school-based management is promoted in the target area through collaboration between school and community with support of educational administrative organizations. <p>*HM Training is the training to be developed by the project to help schools and communities understand their respective roles and responsibilities in school improvement, and thus lead to their active participation in school improvement activities. ("Ho! ManaBU" stands for Hoggansa Mana Barnoota Ummataa (Management of Community-based School))</p>														
Activities of the Project	<ol style="list-style-type: none"> Project site:104 pilot CRCs at 54 Woredas (districts)/Special Towns in 13 Zones, Oromia Region Activities: (1) The project develops the Ho! ManaBU Training (HM training), conducts TOT under HM training and supports pilot CRCs to implement HM Training. (2) The project revises/develops monitoring and reporting system, formats and guidelines of educational administrative organizations. (3) The project supports OEB to develop and implement OEB Initiative Plan (which is made to disseminate HM training and approach) Inputs (to carry out above activities) <table border="0" style="width:100%"> <tr> <td style="width:50%">Japanese Side</td> <td style="width:50%">Ethiopian Side</td> </tr> <tr> <td>1. Experts: 11 persons in total</td> <td>1.Staff allocated: Project Director, Project Manager and additional four officers from OEB, One focal person from each target Zonal Education Office (ZEO), Town Administration Education Office (TAEO), and Woreda Education Office (WEO)</td> </tr> <tr> <td>2. Training in Japan: 6 persons</td> <td>2.Land and facility: Project office, Office spaces at OEB and ZEOs in East Wellega and East Showa, Training venues at the Pilot CRCs</td> </tr> <tr> <td>3. Equipment 4WD vehicle and others</td> <td>3. Local cost 1,033,929Birr</td> </tr> <tr> <td>4. Operation Cost 124,074,000 yen</td> <td></td> </tr> </table>					Japanese Side	Ethiopian Side	1. Experts: 11 persons in total	1.Staff allocated: Project Director, Project Manager and additional four officers from OEB, One focal person from each target Zonal Education Office (ZEO), Town Administration Education Office (TAEO), and Woreda Education Office (WEO)	2. Training in Japan: 6 persons	2.Land and facility: Project office, Office spaces at OEB and ZEOs in East Wellega and East Showa, Training venues at the Pilot CRCs	3. Equipment 4WD vehicle and others	3. Local cost 1,033,929Birr	4. Operation Cost 124,074,000 yen	
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Ex-Ante Evaluation	2008	Project Period	September 2008-September 2012	Project Cost	(ex-ante) 370 million yen (actual) 385 million yen										
Implementing Agency	Oromia Education Bureau (OEB)														
Cooperation Agency in Japan	-														

II. Result of the Evaluation**1 Relevance**

<Consistency with the Development Policy of Ethiopia at the time of ex-ante evaluation and project completion>

The project was consistent with development policy of Ethiopia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, Education Sector Development Programme III (ESDP III) (2005/06-2009/10) aimed at expanding quality access to education through collaboration between community and local education administration. At the time of project completion, ESDP IV (2010/2011 – 2014/2015) emphasized importance of community participation and improving management capacity at the Woreda, CRC and school levels as priority issues.

<Consistency with the Development Needs of Ethiopia at the time of ex-ante evaluation and project completion >

The project was consistent with the needs for education for all in Ethiopia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, Ethiopia faced some challenges such as high repetition and drop-out rates, low completion rate, overcrowded classrooms, shortage of textbooks and qualified teachers, particularly in rural areas. At the time of project completion, improvement of drop-out and girls' enrolment, and quality of education were still issues.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with the Japan's ODA policy for Ethiopia. Under education sector of the policy, improvement of quality of basic education through capacity development of local government and community participation in school building and management was prioritized under the Country Assistance Program to Ethiopia (2008).

<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 indicators set to measure the achievement of the project purpose such as "Reduction in the number of drop-out students in the pilot CRCs" (indicator 1), "Improvement in the enrolment (of girls in particular) in the pilot CRC" (indicator 2), and "The percentage of the pilot CRCs which implement activities utilizing the knowledge and skills acquired in HM Training (80% or over)" (Indicator 3) were attained.

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

After the project was completed, the effects of the project have somewhat continued at the pilot CRC level. The pilot CRCs utilize SIP in which each pilot CRC incorporated HM Training elements to address their own local challenges under framework of SIP, which is contextualized to their specific conditions, and SIP is used as a means to attract girls to education and retain students so that they do not drop out. As a result, enrolment and drop-out improved in the pilot CRCs through active participation of Parent Teacher Association (PTA), according to CRC officials and Zonal Education official. Communities have been continuously engaged in school management through training and consultation to send their kids to the school. There is a case that a PTA committee went to village when one child repeatedly skipped class to address the challenge and discuss with the family what the reasons for his/her absence were. Also, during the education festival period, which is the beginning of each academic year, parents are encouraged to bring their kids to the school with the motto "no child should be left at home". This initiative increases the rate of enrolment of the students.

The pilot CRCs played a key role in coordinating training to the satellite schools by using supervisors to give community education on the need to send girls to education and to reduce drop-out. These activities reduce drop-out rate and increase enrolment of students in these satellite schools.

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

The overall goal was not achieved. HM Training and the OEB Initiative Plan developed under this project for disseminating the HM Training and approaches based on the experiences in the pilot CRCs are not being implemented. Instead, different TOT for improvement of school drop-out and improvement of school environment for girls' education is being implemented from ZEO to CRC level under SIP directorate with focus of creating enabling environment for students and Teachers Development directorate with focus of capacity building of teachers. Those TOTs have not incorporated key elements from HM Training either. The reason for not continuing HM Training as planned is because the initiative failed to have appropriate ownership of officials and establish an institutional arrangement for further training. High turnover of staff who were trained under the project could also be a reason.

Accordingly, no organized information is available as far as planning HM Training at the classroom is concerned. Nonetheless, HM Training somewhat provides a feedback and an input for SIP to focus on improvement of enrolment and drop-out of students in Oromia Region, according to the OEB, Zonal and Woreda Education officials. It is reflected in the SIP domain that the enabling environment for learning and teaching process can be created through improved school management and community mobilization for addressing specific challenges such as improvement of enrolment and drop-out. The issue of drop-out and girls' education are given prime attention in almost all schools under the SIP framework because the problem is common.

As HM Training and the OEB Initiative Plan are not implemented/expanded to the entire region, it is difficult to infer that the project contributed to the improvement in the education statistics in Oromia Region.

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

No land acquisition and resettlement occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

In light of the above, the project purpose was achieved at the time of project completion as the pilot CRCs utilized the knowledge and skills under HM Training and drop-out rate and girl's enrolment improved there. The effects of the project have somewhat continued at the pilot CRC level. Overall goal was not achieved. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Participatory school-based management is promoted in the target area through collaboration between school and community with support of educational	Indicator1: Reduction in the number of drop-out students in the pilot CRCs	<p>Status of the Achievement: achieved (continued) (Project Completion)</p> <p>The number of drop-out students of the primary schools in the pilot CRCs reduced from 11,163 (Rate 8.4%, 2008/09) to 10,580 (Rate 8.1%, 2010/11). It is observed that the average drop-out rate of Pilot CRCs in 2010/2011 (8.1%) is better than that of 81 non-Pilot CRCs (10.0%) nearest to Pilot CRCs.</p> <p>(Ex-post Evaluation)</p> <p>According to the target ZEOs the drop-out rate significantly reduced in pilot CRCs to 6.9% as compared to 7.5% in 81 non pilot CRCs in 2014/15 because of the continuous engagement of the community.</p>

administrative organizations.	Indicator 2: Improvement in the enrolment (of girls in particular) in the pilot CRC	<p><u>Status of the achievement: achieved (continued)</u> (Project Completion)</p> <p>Number of Grade 1 Students of the Primary Schools in the pilot CRCs (Aggregated number in the target zones where pilot CRCs exist)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Male + Female</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>2008/2009 (a)</td> <td>20,019</td> <td>10,264</td> </tr> <tr> <td>2010/2011 (b)</td> <td>22,693</td> <td>11,426</td> </tr> <tr> <td>Increase (b)-(a)</td> <td>2,674</td> <td>1,162</td> </tr> </tbody> </table> <p>(Ex-post Evaluation)</p> <p>Number of grade 1 student of the primary Schools in the pilot CRCs (Aggregated number in the target zones where pilot CRCs exist)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Male + Female</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>2014/2015 (a)</td> <td>26,210</td> <td>14,110</td> </tr> <tr> <td>2015/2016 (b)</td> <td>29,319</td> <td>16,426</td> </tr> <tr> <td>Increase (b)-(a)</td> <td>3,109</td> <td>2,316</td> </tr> </tbody> </table> <p>At the time of ex-post evaluation, the enrolment of the students in the pilot CRCs significantly increased with bringing more girls to the school because of the PTA active participation in mobilizing the community to send their kids to the school particularly girls.</p>	Year	Male + Female	Female	2008/2009 (a)	20,019	10,264	2010/2011 (b)	22,693	11,426	Increase (b)-(a)	2,674	1,162	Year	Male + Female	Female	2014/2015 (a)	26,210	14,110	2015/2016 (b)	29,319	16,426	Increase (b)-(a)	3,109	2,316
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Indicator 3: The percentage of the pilot CRCs which implement activities utilizing the knowledge and skills acquired in HM Training (80% or over)	<p><u>Status of the Achievement: achieved (partially continued)</u> (Project Completion)</p> <ul style="list-style-type: none"> - 91% of the pilot CRCs implemented activities utilizing the knowledge and skills acquired in HM Training. The total number of those activities since November 2009 reached 848. - Some examples of the activities are; establishment of drop-out /girls' education committee to follow up the issue, organizing tutorial class for girls, improvement of school facilities, etc. <p>(Ex-post Evaluation)</p> <p>Knowledge and skills acquired in HM Training held during the project have been continuously used to improve enrolment of students and drop-out rate and increase in girls' enrolment.</p>																									
(Overall goal) Participatory school-based management is promoted in Oromia Region.	Indicator 1: Training on participatory school-based management developed by the Project is conducted in Oromia Region	<p><u>Status of the Achievement: not achieved</u> (Ex-post Evaluation)</p> <p>HM Training and the OEB Initiative Plan are not being implemented. Instead, different TOT is being implemented under a different directorate.</p>																								
	Indicator 2: Improvement of educational statistics (enrolment, drop-out rates and gender gap) in Oromia Region	<p><u>Status of the Achievement: not achieved</u> (Ex-post Evaluation)</p> <p>As HM Training and the OEB Initiative Plan are not implemented/expanded to the entire region, it is difficult to infer how the project contributed to the improvement in the education statistics in Oromia Region</p> <p>Net enrolment rate and drop-out rate of primary education in Oromia Region (%)</p> <table border="1"> <thead> <tr> <th></th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Net enrolment rate (Total)</td> <td>83.6</td> <td>84.8</td> <td>85.2</td> <td>95.5</td> </tr> <tr> <td>Net enrolment rate (Girls)</td> <td>80.6</td> <td>80.9</td> <td>83.4</td> <td>89.9</td> </tr> <tr> <td>Drop-out rate (Total)</td> <td>16.2</td> <td>7.8</td> <td>9.9</td> <td>13.0</td> </tr> <tr> <td>Drop-out rate (Girls)</td> <td>16.1</td> <td>6.9</td> <td>10.0</td> <td>13.5</td> </tr> </tbody> </table>		2012	2013	2014	2015	Net enrolment rate (Total)	83.6	84.8	85.2	95.5	Net enrolment rate (Girls)	80.6	80.9	83.4	89.9	Drop-out rate (Total)	16.2	7.8	9.9	13.0	Drop-out rate (Girls)	16.1	6.9	10.0
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Drop-out rate (Girls)	16.1	6.9	10.0	13.5																						

Source : JICA internal documents, questionnaires and interviews with OEB, ZEO (3) and Woreda Education Offices (9), CRC officials (5).

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: 104%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

At the time of ex-post evaluation, ESDP V (2016-2019) regards that participatory school management as one of the strategies to ensure quality education, improvement of school environment and teaching and learning process at higher level.

<Institutional Aspect>

Sustainability in terms of institutional aspect is low. No clear organizational structure or staff is in place for specifically following up HM Training. OEB has created a directorate called SIP Directorate to promote participatory school improvement through providing among others, TOT. However, there is no clear evidence that shows HM Training substantially included as part of the process. Most of the staff members are new and they have little information on HM Training. Although the terminal evaluation recommended appointing focal persons from Supervision Department and TDP for OEB Initiative Plan related activities, no one is being appointed.

<Technical Aspect>

No cascading training system was made after project completion. HM Training has not been expanded and the training materials developed under the project were not in use at OEB, ZEO, WEO and most of the pilot CRCs.

<Financial Aspect>

SIP in which the OEB Initiative Plan was expected to be part of the activities are being carried out with the budget allotted through school grant under GEQIP, administered by the World Bank. The budget is not enough to deal with all the components of GEQIP,

however, the SIP directorate of OEB attempts to address mainly to improve enrolment rate and girls' education among others.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, technical and financial aspects. Therefore, the sustainability of the effectiveness through the project is low.

5 Summary of the Evaluation

The project purpose was achieved at the time of project completion as the pilot CRCs utilized the knowledge and skills under HM Training and drop-out rate and girl's enrolment improved there and the effects of the project have somewhat continued at the pilot CRC level. Overall goal was not achieved as the outcome of the project did not expand to the entire region. As for sustainability, there are some challenges in institutional, technical and financial aspects. For efficiency, the project cost slightly exceeded the plan.

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

III. Recommendations & Lessons Learned

Lessons Learned for JICA:

OEB managed to effectively implement the project while the project was active. However, OEB failed to ensure the sustainability of the project as it is. The Bureau head of OEB and his associates who were counterpart to the project and participated in counterpart training in Japan left the bureau with another assignment without putting a system for OEB Initiative Plan into place. During the project formulation, sustainability of the project need to have been well thought of by both JICA experts and their counterparts at OEB before the commencement of the project. During the project implementation, there was also no clear system/strategy put in place in advance to pursue the HM Training and OEB Initiative Plan with the view of scaling up to other ZEO, WEO and CRC level once the project is completed.

Institutionalization of HM Training/OEB Initiative Plan couldn't take place at OEB level partly because the project managers and counterparts were officials and administrators of the OEB (as opposed to the experts), when the senior officials are replaced or transferred to other area, there was lack of follow-up by the new officials and experts as a result of insufficient information and lack of awareness regarding the HM Training/OEB Initiative Plan, or the project.



Girls attendance in class room is increased.



Enrolment of children increased significantly.

Country Name	Autonomous Region in Muslim Mindanao (ARMM) Human Capacity Development Project												
Republic of Philippines													
I. Project Outline													
Background	<p>In 1996, a peace agreement between the government of the Republic of the Philippines and the Moro National Liberation Front (MNLF) was concluded which led to relative peace in the Autonomous Region in Muslim Mindanao (ARMM). The ARMM was established in 1989 and now consists of five provinces and one city. It has a population of about 3.25 million and a poverty incidence of 48.7%. The setback in full-scale restoration and development stems from the protracted armed conflict in the region as well as delayed peace talks between the Government of the Philippines and the Moro Islamic Liberation Front (MILF), a breakaway group from the MNLF. Further, the lack of administrative capability of the ARMM government has been an obstacle. Following the above, JICA implemented the ARMM Administrative Resource Development Project from December 2004 – March 2007 to improve the basic skills of ARMM government executives and officials. As a result, these executives and officials have improved their basic knowledge about administration and regional development, and thus demonstrated better skills in planning and management. However, the administrative capacity of the ARMM government was still lacking in a number of aspects, thus, required the improvement on practical/technical skills in specific fields. In particular, there was a need to develop the skills of mid-level officers (technocrats). The government of the Philippines requested that a technical cooperation project be implemented for improving the capabilities of these technocrats as a priority issue. In response, JICA launched the project in May 2008 as part of the Japanese government's peace and reconstruction support program known as the Japan-Bangsamoro Initiatives for Reconstruction and Development (J-BIRD).</p>												
Objectives of the Project	<p>The project aimed at capacitating the middle management and operating core in the target agencies of administration development, infrastructure development and economic development, thereby contributing to improvement of administrative capacity and promotion of economic development in ARMM. The project involved the following activities: (i) preparation of the Administration Code and Implementing Rules and Regulations (IRR); (ii) Human Resource Information System (HRIS) for administrative development; (iii) trainings for trainers (TOT) for district engineers (infrastructure development); and, (iv) TOT on goat production for promotion of halal industry which is one of promising industries in the region, training for the extension service providers on goat production and marketing for economic development. The project objectives are set forth as follows:</p> <ol style="list-style-type: none"> Overall Goal: The administrative capacity is improved and economic development is promoted in ARMM Project Purpose : The middle management and operating core are capacitated in the target agencies of Administration Development, Infrastructure Development and Economic Development. 												
Activities of the project	<ol style="list-style-type: none"> Project sites: Cotabato and Davao Main activities: i) Administration Development: drafting the Administration Code and its IRR, preparation of training manual for HRIS, ii) Infrastructure Development: delivering TOT trainings on infrastructure management and project proposal preparation, conducting training for the district engineers by Training of Trainers; iii) Economic Development: delivering TOT training on goat production and marketing, conducting training for the extension service providers by TOT trainers and compiling guidebook for business management and goat production Inputs <table border="1"> <tr> <td>Japanese Side</td> <td>Philippine side</td> </tr> <tr> <td>(1) Dispatch of experts: 8</td> <td>(1) Counterpart personnel: 122 persons</td> </tr> <tr> <td>(2) Acceptance of trainees in Japan: 11 persons</td> <td>(2) Land and facilities: Office space for the project and land, and computer in Cotabato City</td> </tr> <tr> <td>(3) Provision of equipment: PCs, printers, software, satellite phone, office appliance, etc.</td> <td></td> </tr> </table> 					Japanese Side	Philippine side	(1) Dispatch of experts: 8	(1) Counterpart personnel: 122 persons	(2) Acceptance of trainees in Japan: 11 persons	(2) Land and facilities: Office space for the project and land, and computer in Cotabato City	(3) Provision of equipment: PCs, printers, software, satellite phone, office appliance, etc.	
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Ex-Ante Evaluation	2008	Project Period	May 2008 – March 2013 (Extension Period) April 2011 – March 2013	Project Cost	(Ex-Ante) 370 million yen (Actual) 606 million yen								
Implementing Agency	Government of Autonomous Region in Muslim Mindanao (ARMM)												
Cooperation Agency in Japan	IC-Net Ltd.												

II. Result of the Evaluation

<Special perspectives considered in the ex-post evaluation>

[Change in the governmental body]

In October, 2012, the Government of the Philippines and Moro Islamic Liberation Front (MILF) signed the Framework Agreement on the Bangsamoro. Since then, both parties have been working to develop the Bangsamoro Basic Law which, if passed in Congress and ratified, will

establish the Bangsamoro Transition Authority and ultimately the Bangsamoro government. However, the Bangsamoro Law failed to gain approval in the last session of Congress under the Aquino Administration. Currently, the status of the peace process is uncertain as a new administration under the leadership of forthcoming President Mr. Rodrigo Duterte is set to take over on July 2016 as a result of the elections on May 9, 2016. This ex-post evaluation conducted analysis based on the situation of the ARMM Regional Government at the time of this evaluation. On the other hand, the analysis by this evaluation considered recommendations to be made in order to sustain the effects of the project.

<p>1 Relevance</p>
<p><Consistency with Development Policy of Philippine Government at the time of ex-ante evaluation and the project completion> The project was consistent with the Philippines' development policy prioritizing "peace and development in Mindanao" as set forth in the policy documents including the Regional Executive Agenda and Regional Development Program (2006-2008) and the Philippine Development Plan (2011-2016).</p> <p><Consistency with Development Needs of the Philippines at the time of ex-ante evaluation and the project completion> The project met the development needs of the Philippines for improvement of administration system and human resource development of administrative officers including ex-soldiers and soldiers of MNLF as well as institutional building of ARMM.</p> <p><Consistency with Japan's ODA Policy for the Philippines at the time of ex-ante evaluation> The project was consistent with the revised Japan's Country Assistance Plan (2008) toward the Philippines prioritizing "peace and stability in Mindanao", in particular focusing on support for policy planning and implementation.</p> <p><Evaluation Results> In the light of above, the relevance of this project is high.</p>
<p>2 Effectiveness/Impact</p>
<p><Status of Achievement of the Project Purpose at the time of project completion> The Project Purpose, which was composed of the three components: (i) administrative development, (ii) infrastructure development and (iii) economic development, was achieved upon project completion.</p> <p>[Administration Development] The ARMM Administration Code and its IRR were drafted and 100% of the participating departments started to update HRIS. Also, the sustainable mechanisms for continuous revisions of the Administration Code and IRR and for HRIS were proposed.</p> <p>[Infrastructure Development] In-house technical trainings by the TOT trainers were introduced in the Department of Public Works ARMM (DPWH-ARMM) and delivered to technicians and engineers of the island offices. In addition, the institutional set-up for sustainable capacity development was prepared by DPWH-ARMM. Furthermore, the actual project proposals for three sectors of road rehabilitation, hospital rehabilitation and rural water supply were drafted.</p> <p>[Economic Development] Goat production was selected for promotion of halal industry, which was one of the promising industries in the region¹. Business support and technical support on goat production to farmers were provided through trainings for the farmers by the Extension Service providers. Also, the proper business and technical support for goat production were provided by the established sustainable institutional setting for extension services for goat production business.</p> <p><Continuation Status of the Project Effects at the time of ex-post evaluation> [Administration Development] After the project completion, the Administrative Code was enacted into a law by the Regional Assembly and approved by the Acting Regional Governor in 2011. However, the approval of IRR was put on hold due to the following issues: a) budgetary constraints for the proposed positions under the Code; and b) deliberations on the Bangsamoro Basic Law have already begun in the Philippine Congress. Although there is no approved IRR, several provisions in the Code have actually been implemented by some ARMM Departments and agencies such as adoption of the roles and responsibilities defined in the Code for the Office of Assistant Regional Secretaries and the Regional Budget Management Office. The Human Resource Information Center (HRIC) has continuously performed its functions including conduct of trainings for personnel officers of various ARMM offices on operation and maintenance as well as updating of HRIS database.</p> <p>[Infrastructure Development] DPWH-ARMM officers prepared 5 project proposals (3 in 2013 and 2 in 2014). In the last 2 years, DPWH-ARMM officers were more occupied or engaged in formulation of Terms of Reference for contractors, review of proposals (feasibility studies) prepared by external consultants and supervision of infrastructure projects. Also, DPWH-ARMM implemented 345 projects of road, bridges, rural water supply and others in total for the period between 2013 and 2015 and plans 475 projects in 2015.</p> <p>[Economic Development] 4 Local Government Units (LGUs), 3 target LGUs and 1 expansion LGU, have continuously supported 800 farmers in average per each LGU for goat production. The Municipal Agricultural Office of each LGU with the support of Department of Agriculture and Fisheries (DAF)-Maguindanao Provincial Office has provided extension support services to goat farmers such as distribution of stocks and providing technical advisory services. However, the agreed Action Plan for the Halal Goat Industry Promotion formulated towards the end of the project has not been implemented due to lesser priority given to the Plan and no budget support from the new ARMM administration.</p> <p><Status of Achievement of the Overall Goal at the time of ex-post evaluation> The Overall Goal has been partially achieved. The dissemination and monitoring mechanism on the Administrative Code and IRR were not operationalized due to pending approval of the IRR despite that the Technical Working Group (TWG) members have</p>

¹ At the beginning stage of the project in June, 2008, the basic study on economic development was conducted by the project in order to identify a product to be promoted for the halal industry in the region. As a result of scoring by the four criteria of i) potentiality for halal certification, ii) market demand and growth potential, iii) size of labor population to be engaged in a target industry, and iv) competitiveness of a target industry, the livestock industry, including goat production, got the highest score. After the consultation at the Joint Coordinating Committee (JCC) for the project in January, the goat production was officially selected for the project activities of the Economic Development.

continuously disseminated the contents of the Administrative Code to their colleagues. The HRIS has continuously been operated and updated by all departments and agencies in ARMM except for the Department of Education using the other database developed by other donor's project. After project completion, there were some updating/enhancements done by HRIC to the HRIS database with the technical support of the Japanese expert dispatched to the ARMM. The in-house technical trainings on infrastructure project have been conducted in the form of mentoring workshops by 3 TOT trainers dispatched to the 8 District Engineering Offices (DEOs). The quality of trainings deemed sufficient for DPWH-ARMM engineers to properly manage infrastructure projects. In terms of the extension service for goat farming, the 4LGUs conducted the extension activities under the overall supervision of DAF Office of Maguindanao Province in 2014. However, from 2014 onwards, goat farming extension activities in the target LGUs significantly reduced because the Action Plan for the Halal Goat industry Promotion, which was formulated by the project, had lesser priority and did not get the necessary budget support from the new ARMM administration..

<Other Positive and Negative Impacts>

Some positive impacts were observed at the time of ex-post evaluation. The HRIS has been very useful in determining annual budget for personnel services and providing personnel data to national government agencies involved in the peace process. The project also contributed to capacity building of DPWH-ARMM engineers. The enhanced capacity of DPWH-ARMM engineers on infrastructure management proved use when the infrastructure budget of ARMM significantly increased in order to implement large infrastructure development in 2015. In addition, due to the project, income from goat farming increased in the target areas. According to the JICA study on Halal Goat Production Component² conducted in January, 2015, the number of goats increased to 9 per farmer in average and the estimated gross income from goat sales per farmer increased to 19,000-47,000 pesos. No negative impact on natural environment has been observed.

<Evaluation Results>

The project achieved the Project Purpose and partially achieved the Overall Goal. Also the project contributed to some positive impacts. However, under the new ARMM administration which is in transition process, unclear prospect on approval of IRR and the considerable reduction of goat farming extension activities in the target LGUs led to underachievement of the related indicators of the overall goal. Therefore, effectiveness/Impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Capacitation of the middle management and operating core in the target agencies of Administration Development, Infrastructure Development and Economic Development	(Administration Development) 1-1 Draft of Administrative Code and IRR is improved.	(Project Completion: Original Period) Achieved. • Drafts of ARMM Administrative Code and IRR were elaborated. (Ex-post Evaluation) Continued. • The Administrative Code was enacted and approved in 2011. Although the approval of IRR was put on hold, several provisions in the Code have actually been implemented by some ARMM Departments and agencies.
	1-2 75% of participating departments and offices start updating the HRIS	(Project Completion: Original Period) Achieved. • 100% of participating departments started updating the HRIS. (Ex-post Evaluation) Continued. • The HRIS has continuously been operated and updated by all departments and agencies in ARMM except for the Department of Education.
	1-3 Three (3) staff (operator) can teach operation of. HRIS	(Project Completion: Original Period) Achieved. • More than 10 staffs from each department were trained as instructors to deliver operation guide of HRIS. (Ex-post Evaluation) Continued. • HRIC has continuously performed its functions to deliver trainings for personnel officers of various ARMM offices on O&M and updating HRIS database.
	(Extension Period) 1-4 Institutional mechanism for tracking revisions of Administration Code and IRR is proposed by TWG (Technical Working Group)	(Project Completion: Extension Period) Achieved. • The institutional mechanism for continuous revisions of the Administration Code and IRR was proposed by TWG. (Ex-post Evaluation) Partially continued. • Despite of no institutional mechanism for tracking revisions, TWG members have been functioning to disseminate and monitor the Administrative Code and IRR due to the pending approval of IRR.
	1-5 Periodical In-House Training Program on HRIS is started to execute in 80% of the core 17 departments/offices.	(Project Completion: Extension Period) Achieved. • The core 17 departments/offices introduced periodical in-house training program on HRIS. (Ex-post Evaluation) Continued. • Same as 1-3..
	1-6 The sustainable mechanism on HRIS is proposed.	(Project Completion: Extension Period) Achieved. • The sustainable mechanism on HRIS was proposed. (Ex-post Evaluation) Continued. • Same as 1-3.
	(Infrastructure Development) 2-1 Three (3) TOT trainers for in-house technical training.	(Project Completion: Original Period) Achieved. • 10 TOT trainers who were able to deliver technical trainings on

² The JICA Philippine Office conducted a follow up study on the Economic Development Component in January, 2015 aimed at reviewing the outcomes and proposing recommended design for replication and expansion of goat production in ARMM.

		<p>infrastructure management at DPWH-ARMM were trained.</p> <p>(Ex-post Evaluation) Continued.</p> <ul style="list-style-type: none"> There are 24 TOT trainers in DPWH-ARMM. 3 of them are engaged in in-house trainings and mentoring sessions and others are deployed to supervise and monitor various infrastructure projects.. 																				
	2-2 In-house technical training is introduced in DPWH-ARMM.	<p>(Project Completion: Original Period) Achieved.</p> <ul style="list-style-type: none"> In-house TOT trainings on infrastructure management were delivered to technicians/engineers of the islands regional offices with limited training opportunities. <p>(Ex-post Evaluation) Continued.</p> <ul style="list-style-type: none"> In-house technical trainings have been delivered by the TOT trainers in DPWH-ARMM. . 																				
	2-3 Three (3) project proposals are completed and submitted.	<p>(Project Completion: Extension Period) Achieved.</p> <ul style="list-style-type: none"> Three new project proposals, including road construction, hospital rehabilitation and rural water supply, were drafted by the project proposal group at project completion. <p>(Ex-post Evaluation) Continued.</p> <p>[No. of project proposals prepared by DPWH-ARMM officers]</p> <table border="1"> <thead> <tr> <th>Category</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>Road</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Hospital rehabilitation</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>Rural water supply</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>Others, port development</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Category	2013	2014	2015	Road	1	0	0	Hospital rehabilitation	1	0	0	Rural water supply	1	1	0	Others, port development	0	1	0
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	(Extension Period) 2-4 10 TOT trainers for in-house technical training are further capacitated to plan, implement and evaluate trainings on infrastructure construction management.	<p>(Project Completion: Extension Period) Achieved.</p> <ul style="list-style-type: none"> 13 TOT trainers were trained. <p>(Ex-post Evaluation) Continued.</p> <ul style="list-style-type: none"> There are 24 TOT trainers in DPWH-ARMM. 3 of them are engaged in in-house trainings and mentoring sessions and others are deployed to supervise and monitor various infrastructure projects. 																				
	2-5 Institutional set-up (e.g. the in-house training unit, internal order) for continuous capacity development activities (e.g. in-house training) is established.	<p>(Project Completion: Extension Period) Achieved.</p> <ul style="list-style-type: none"> The institutional set up for continuous capacity development was established at project completion. The DPWH-ARMM utilized its existing Human Resource Management Section to manage the conduct of trainings for DPWH engineers by the TOT trainers trained during the project. <p>(Ex-post Evaluation) Continued.</p> <ul style="list-style-type: none"> In-house technical trainings, OJT and mentoring workshops for district and field engineers have been institutionalized. 																				
	(Economic Development) 3-1 Business support by TWG/Extension Service Providers started to be operational.	<p>(Project Completion: Original Period) Achieved.</p> <ul style="list-style-type: none"> Business support to farmers was provided through the training for the farmers by the Extension Service Providers trained by the TOT training. <p>(Ex-post Evaluation) Partially continued.</p> <ul style="list-style-type: none"> Business support to farmers has been provided but significantly reduced since 2014. 																				
	3-2 Technical support on Halal product (goat) started to be provided by TWG/Extension Service Providers.	<p>(Project Completion: Original Period) Achieved.</p> <ul style="list-style-type: none"> Technical support to farmers was provided through the training on “Goat production technology” by the Extension Service Providers by the TOT training. <p>(Ex-post Evaluation) Partially continued.</p> <ul style="list-style-type: none"> The extension activities related to goat production in the target LGUs were dramatically reduced in 2014. 																				
	(Extension Period) 3-3 Business and technical support is operational in a limited number of target LGUs with the complete institutional set up in ARMM for sustainable implementation system on goat production/business management.	<p>(Project Completion: Extension Period) Achieved.</p> <ul style="list-style-type: none"> The proper business support and technical support for goat production were provided by the established sustainable institutional setting for extension services for goat production/ business. <p>(Ex-post Evaluation) Partially continued.</p> <ul style="list-style-type: none"> The extension activities related to goat production in the target LGUs were dramatically reduced in 2014. 																				
(Overall goal) Improvement of the administrative capacity and promotion of economic development in ARMM	Indicator 1: Monitoring and dissemination on Administrative Code and Implementing Rules and Regulations (IRR) are in operation.	<p>(Ex-post Evaluation) Not achieved.</p> <ul style="list-style-type: none"> The mechanism for dissemination and monitoring of the Administrative Code and IRR was not operationalized due to the pending approval of IRR. 																				
	Indicator 2: Human Resource Information System (HRIS) for human resource management is widely utilized in ARMM government.	<p>(Ex-post Evaluation) Achieved.</p> <ul style="list-style-type: none"> HRIS has been utilized by all departments and agencies of ARMM except for the Department of Education with own personnel database. 																				

Indicator 3: Human resource development activities on infrastructure management are constantly carried out by DPWH-ARMM.	(Ex-post Evaluation) Achieved. [No. of technical trainings by TOT trainers in DPWH-ARMM]	<table border="1"> <thead> <tr> <th>Topic</th> <th>2013</th> <th>2014</th> <th>2015 (plan)</th> </tr> </thead> <tbody> <tr> <td>Project proposal preparation</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Construction management</td> <td>2</td> <td>2</td> <td>2</td> </tr> </tbody> </table>			Topic	2013	2014	2015 (plan)	Project proposal preparation	2	2	2	Construction management	2	2	2
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Indicator 4: Target LGUs start to be able to conduct goat farming extension activities on a continuous base.	(Ex-post evaluation) Partially achieved. Extension activities on goat farming has been continued but significantly reduced since 2014. [Extension activities in the target LGUs]	<table border="1"> <thead> <tr> <th></th> <th>2013</th> <th>2014</th> <th>2015 (plan)</th> </tr> </thead> <tbody> <tr> <td>No. of LGUs supporting goat production</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>No. of farmers supported by LGUs for goat production</td> <td>800*</td> <td>800*</td> <td>800*</td> </tr> </tbody> </table>				2013	2014	2015 (plan)	No. of LGUs supporting goat production	4	4	4	No. of farmers supported by LGUs for goat production	800*	800*	800*
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Source : Terminal Evaluation Report, Project Completion Report, Results of the focus group discussion with members of TWGs

3 Efficiency

The planned outputs for the original period were mostly achieved within the original cost and period (ration against the plan: 101%, 100% respectively) While the additional inputs, including dispatch of the Japanese experts, were required for producing the additional outputs to expand the scope of the Project Purpose, and both of the project cost and the project period exceeded the plan in total (ratio against the plan: 163% and 169%, respectively), the additional project cost allocated for the extension period and the length of extension period were appropriate for producing the additional outputs to achieve the extended Project Purpose. Therefore, overall efficiency of the project is fair.

4 Sustainability

<Policy Aspects>

The current administration in ARMM that took over in December 2011 placed good governance on top of its reform agenda along with socio-economic development and peace and security. In line with this, the promotion of open, transparent and accountable governance became one of the priority thrusts of the Updated Regional Development Plan (RDP), 2013-2016. Among the major policies being pursued by the RDP which are deemed supportive of the development of administrative capacity in ARMM are: a) the policy on “streamlining and professionalizing of the ARMM bureaucracy through capacity building of ARMM agencies and gradual implementation of the Administrative Code” and b) policy on “institutionalization of database management system in support of sound planning and management of resources”. However, in terms of economic development, the Action Plan for the Halal Goat Industry Promotion formulated during the project period has lesser priority under the current transitional government body of ARMM.

<Institutional Aspects>

[Administration Development]

The capacity development system for ARMM officers introduced by the project has been continued. Presently, a total of 36 offices have operational HRIS including their provincial offices. Also, the HRIS operators have been increased from 34 in 2013 to 119 in 2015 and the number of them is sufficient to meet their work targets on time. 4 staff deployed at the HRIS Center is also sufficient since their task is shared with personnel officers and HRIS operators deployed in various ARMM offices. The HRIC has continuously performed its functions including conduct of trainings for personnel officers of various ARMM offices on operation and maintenance as well as updating of HRIS database. The high priority given by the new ARMM Administration to the automation of personnel records in preparation for the turnover of administration to the Bangsamoro Government is a major promoting factor. The dispatch of Japanese expert to assist in updating of HRIS database after project completion was also a contributing factor.

[Infrastructure Development]

24 TOT trainers have been deployed in DPWH-ARMM. Out of them, only 3 trainers have been engaged in in-house trainings and mentoring sessions while others have been engaged in supervision and monitoring of various infrastructure projects. In addition, all the DPWH-ARMM engineers trained by the project have been engaged in planning, implementation and management of infrastructure projects in the ARMM region and the number of engineers has been sufficient because of the 45 (5 from each of the 8 district offices and the regional office) engineers newly recruited.

[Economic Development]

Technical and business support activities for goat farmers have been continued by the LGU extension service providers as a part of their official function but when the budget is available. Although the extension officers of DAF-ARMM were actively engaged in providing technical advice to goat farmers when the budget was allocated for goat production under the Priority Development Assistance Fund (PDAF) in 2013, the extension activities including goat dispersal and farmers’ training were likewise suspended after the PDAF budget releases were suspended in 2014.

<Technical Aspects>

[Administration Development]

All the members of TWG are still working with their respective agencies in ARMM and have been active to disseminate the contents of the Administrative Code to their colleagues as mentioned above. Also, more than 90% of the trained HRIS operators remain working in the same positions during the project and have been applying the knowledge and skills for operating and updating the HRIS learned through the project.

[For Infrastructure Development]

Out of 30 TOT trainers of DPWH-ARMM trained by the project, 24 have been sustaining their knowledge and skills to deliver in-house technical trainings for district engineers and their knowledge and skills have been further enhanced by the trainings under

the Comprehensive Capacity Development Project (CCDP) in 2014 and 2015. More than 90% of the district engineers trained by the project have remained working within ARMM and sustained their skills and knowledge on infrastructure management. They also participated in trainings under CCDP in 2014 and 2015.

[Economic Development]

Only a few TOT trainers from DAF-ARMM had the opportunity to conduct trainings on goat production as a part of their regular function while others from other agencies were not involved in after the project completion. Almost all the extension service providers trained by the project remain working in their respective agencies as extension agent. They have sustained their knowledge and skills on goat farming and business management and applied them through the performance of their regular functions in their respective agencies but no opportunity to have further trainings after the project completion. According to goat farmers surveyed by the ex-post evaluation, about 90% of those who attended trainings by the project are still engaged in goat farming and applied knowledge and skills acquired through the trainings such as use of mineral supplements. The Guidebook on goat farming has been useful for extension service providers, in particular, for those who were mobilized for the PDAF supporting goat dispersal project of DAF-Maguindanao.

<Financial Aspects>

[Administration Development]

The budgetary requirements for maintaining the HRIS and its Center are included in the Annual Local Fund Appropriations of ARMM. The amount of budget for HRIS Center on HRIS, increased from 350,000 Philippine pesos (PHP) in 2013 to PHP 400,000 in 2015 which is deemed sufficient. Although no budget was allocated for training in 2013 and 2014 because of the training activities funded by JICA, budget for trainings is included in the budget for HRIS Center in 2015.

[Infrastructure Development]

The budgetary allocation for in-house technical trainings amounting to PHP 250,000 for the period from 2013 to 2015 is considered as sufficient. In terms of implementation of infrastructure projects, the amount of budget has dramatically increased from PHP1.5 billion in 2013, PHP 5 billion in 2014, to PHP 10.1 billion in 2015. The significant increase in DPWH-ARMM's budget can be attributed to the successful reforms for improvement in terms of implementation of infrastructure projects, transparency, capacity of personnel and management of funds under the current ARMM Administration. Given these improvements and the Aquino Administration's agenda of peace and development in Mindanao, the Department of Budget and Management under the President Office approved the successive increases in the budget of DPWH-ARMM.

[Economic Development]

DAF-ARMM's budget for extension and business support increased from PHP 800,000 in 2013 to PHP 1,250,000 in 2015. However, the budget is allocated not only for goat farming but also for other priority commodities and has to be shared with other municipalities within Maguindanao Province. Thus, the budget for extension and business support is deemed insufficient. In addition, no budget was allocated for trainings of extension service providers from 2013 to 2015.

<Evaluation Result>

Although there have been some problems observed in all the aspects of sustainability for the Economic Development component of this project, there is no other serious problem observed for the Administrative Development component and the Economic Development component. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

This project has achieved the Project Purpose of capacitation of the middle management and operating core in the target agencies of administration, infrastructure and economic development and partially achieved the Overall Goal of improvement of the administration capacity and promotion of economic development in ARMM. As for sustainability, for administration development, HRIS has been continuously functioning by the sufficient skills of the HRIS operators and the budget for HRIS Center has increased. For economic development, the TOT trainers of DPWH-ARMM have been continuously engaged in trainings for the district engineers. However, for economic development, the budget for extension and business support for goat farming has not been sufficient. As for efficiency, the planned outputs for the original period were mostly achieved within the original project period and cost. The the additional project cost was allocated for the extension period, but they were appropriate for producing the additional outputs to achieve the extended Project Purpose.

In light of above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for the ARMM government:

- Establish a mechanism for review and monitoring of implementation and dissemination of the contents of the Administrative Code in preparation for transition to the new Bangsamoro Government
- Continue the strengthening of capacity of technical staff of DPWH-ARMM not only at the regional level but also at the district and provincial offices in anticipation of the need for competent managers of the accelerated infrastructure development program of ARMM and its successor political entity;
- Review of the implementation mechanism of the Halal Goat Cluster Industry Development Plan taking into consideration the weaknesses of the existing extension service delivery system and adopting the farmer-to-farmer extension approach whereby successful goat farmers are mobilized to transfer knowledge and skills to ordinary goat farmers in the target areas since the extension support system for goat farmers expected to be provided by the LGUs did not materialize after the project and most famers sought technical advices from successful goat farmers trained by the project in their area instead of the extension service by the LGUs
- Establish a directory of trainers who were trained under ARMM – Human Capacity Development Project (AHCDP) who can be tapped as resource persons in future capacity-building activities in the ARMM region. Such directory should include a profile of previous trainings conducted and fields of expertise of the trainer.

Lessons Learned for JICA:

- The use of Technical Working Groups (TWGs) in the implementation of capacity development activities did not only secure

participation and sense of ownership among project counterparts but was also very helpful in building relationships and promoting communication among offices within the ARMM bureaucracy.

- Active participation of the DPWH-ARMM human resource development unit in training activities during the project helped build the capability of DPWH-ARMM in training management and ensured continuity of capacity development activities of the agency after project completion.



Staffs of Human Resource Information Center



Farmer raring goats

Country Name	Project for Human Resource Development of Rehabilitation in the Central and Western Region in China
People' Republic of China	

I. Project Outline

Background	In China, the number of the persons with disability (PWD) was rapidly increasing due to the fast-paced increase of the traffic and industrial accidents which were caused by the economic development and increase of the traffic volume. The population of PWDs was estimated 82.96 million (6% of the total population) in 2006. And, the population of the elderly was estimated to reach 250 million by 2020, suggesting a massive increase of the rehabilitation needs. The Government of China established the rehabilitation centers nationwide, but which was not sufficient to fill the expanding needs, and human resource development was one of the issues. The Government of Japan provided grant aid for construction of the China Rehabilitation Research Centre (CRRC) (1988) and establishment of the professional departments. However, the human resources for rehabilitation in the rural area were not sufficient in terms of both quality and quantity, and there were great needs for expansion of the services and experience in the service and capacity building accumulated in Beijing to the rural area.				
Objectives of the Project	Through i) the development of remote education system at CRRC and three target sites, ii) capacity development of the provincial level personnel ¹ with the system, and iii) capacity development of the community level personnel ² conducted by the trained provincial level personnel, the project aimed at establishing the model system for human resource development for the rehabilitation service, therefore contributing to the improvement of rehabilitation services and the increase of PWDs who receive the rehabilitation services. 1. Overall Goal: Improvement of the quality of rehabilitation services provided and increase of the number of disabled people receiving the services at three target sites. 2. Project Purpose: Establishment of a new model system for human resources development for the rehabilitation services serving three target sites with the CRRS acting as the core base.				
Activities of the project	1. Project site: Three sites in the Central and Western Region (Shaanxi Province, Chongqing City and Guangxi Zhuang Autonomous Region) 2. Main activities: Installation of the remote education system (curriculum, materials, lecturers, network system), training of the provincial level personnel, training of the provincial level personnel who train the community level personnel (core personnel), trial training of the community level personnel, etc. 3. Inputs (to carry out above activities) (at the terminal evaluation) Japanese Side 1) Experts: 46 persons 2) Training in Japan: 61 persons 3) Equipment for remote education, etc. 4) Expenses for the project operation Chinese Side 1) Staff allocated: 17 persons 2) Facility and equipment 3) Local Cost: LAN, PC, travel expenses, etc.				
Ex-Ante Evaluation	2008	Project Period	April 2008 to March 2013	Project Cost	(Ex-ante Evaluation) 480 million yen (Actual) 414 million yen
Implementing Agency	China Disabled Persons' Federation, China Rehabilitation Research Centre (CRRC), Shaanxi Disabled Persons' Federation, Chongqing Disabled Persons' Federation and Guangxi Disabled Persons' Federation				
Cooperation Agency in Japan	National Rehabilitation Center for Persons with Disabilities, International University of Health and Welfare, Japanese Physical Therapy Association and Japanese Association of Occupational Therapists				

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of China at the time of ex-ante evaluation and project completion> The project was consistent with Chinese development policies, as the support for PWDs were prioritized in the 11 th and 12 th Five-Year National Economic and Social Development Plan (2006-2010, 2011-2015), along which the programs for facility development and capacity building were promoted. <Consistency with the Development Needs of China at the time of ex-ante evaluation and project completion > Due to the increase of the traffic and industrial accidents and aging, the number of PWDs was increasing (82.96 million in 2006), and most of them suffered from poverty. There were needs for expansion of the rehabilitation service in the areas where many PWDs reside, such as the economically less developed Central and Western region till the time of the project completion. <Consistency with Japan's ODA Policy at the time of ex-ante evaluation> The Economic Cooperation Program for China (2001) put emphasis on environmental protection, livelihood improvement and social development in the inland area, human resource development, institutional development, technical transfer, etc., among which the project was in accordance with the human resource development. <Evaluation Result> In light of the above, the relevance of the project is high.
2 Effectiveness/Impact

¹ "Provincial level personnel" mean the rehabilitation personnel who work for the province level. All of the project target sites are at the province level.

² "Community level personnel" mean the rehabilitation personnel who work for organizations at the levels of county, district and county-level city.

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

The Project Purpose was achieved by the project completion. The remote education provided by CRRC for the provincial level personnel was conducted for 490 (after the second year) to 640 hours per year, as mostly planned (600 hours per year). 61 core personnel were trained through the 500-hour remote education per year, and their capacity was highly evaluated by JICA experts and CRRC lecturers. Thus, it can be said that the model system of remote education for capacity building of the rehabilitation personnel was developed.

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

The effects of the model system for human resource development established by the project have continued. Though the remote education for capacity building of the new provincial level and core personnel has not conducted at the three target sites because they were already trained during the project period, the core personnel trained by the project have functioned as lecturers of the training for the community level personnel till the time of the ex-post evaluation. For example, in Shaanxi Province, all of the core personnel trained by the project have continued their work. Twice a month, two to three core personnel are dispatched to the rehabilitation facilities at the county and lower levels to train the community level personnel. In Guangxi Zhuang Autonomous Region, the core personnel train the technicians newly hired by the rehabilitation center to expand the team of the core personnel. These core personnel receive the trainees from the rehabilitation facilities, schools for special education and hospitals at the prefecture and district level within the Region to conduct the training, and also they give lectures in the provincial level training course outside the region. In Chongqing City, the core personnel get engaged in editing work of the training materials of PWDs' Federation and function as lecturers in the rehabilitation-related training organized by the city.

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

The Overall Goal has been partially achieved. The number and scale of the rehabilitation facilities have increased, though they vary among the three target sites. Also, the number of the rehabilitation personnel who completed CRRC training or professional training, and the service provided by them have improved compared to before the project. For example, more emphasis has been put on the communication with the patients and their parents in child rehabilitation, and it has been possible to conduct home rehabilitation for the patients with cerebral palsy with the use of the new rehabilitation techniques. On the other hand, the rehabilitation patients have been increasing and the needs for professional techniques have been expanding. The rehabilitation center of Guangxi Zhuang Autonomous Region has only three rehabilitation personnel equipped with professional techniques in the section of community rehabilitation support and some are transferred to other places after the training. Thus, the number of the professional rehabilitation personnel is not necessarily sufficient.

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

CRRC has received consultation from other regions besides the three target sites which would like to introduce the similar system as the remote education model developed by the project, but the model has actually not been expanded yet as it requires infrastructure development such as server and communication equipment and cost for communication. No natural and social negative impact caused by the project has not been confirmed.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved by the project completion and the effects have continued. However, the achievement of the Overall Goal has been partial. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Establishment of a new model system for human resources development for the rehabilitation service serving three target sites with the CRRC acting as the core base.	1. Length of the remote education training course for the 3 target sites (approx. 600 hours per year)	(Project Completion) <u>Mostly achieved.</u> - In 2012, the 1 st course for the provincial level personnel was conducted for 640 hours per year. After the 2 nd course, the same course was conducted for 490 hours per year. The training course for the core personnel was conducted for 15 hours. The total is more than 500 hours per year in 2011. The course duration of the training for the provincial level was shortened based on the feedback from the 1 st course participants.
	2. Recognizability of the provincial level personnel as core personnel trained with the comprehensive remote education course	(Project Completion) <u>Achieved.</u> - The provincial level personnel was highly recognized as the core personnel in all of the target sites, according to the interviewed JICA experts, CRRC lecturers and management in each site. (Ex-post Evaluation) <u>Continued.</u> - The core personnel trained through the remote education course during the project period has functioned as the lecturers for the community level personnel at the time of the ex-post evaluation.
	3. Number of the personnel who undertakes the core function among the core personnel	(Project Completion) <u>Achieved.</u> - All of the 61 persons completed the training course for the core personnel (29 from Shaanxi Province, 16 from Guangxi Zhuang Autonomous Region and 16 from Chongqing City).
(Overall goal) Improvement of the quality of the rehabilitation service provided and increase of the number of disabled people receiving the said service at three target sites.	1. Number of the PWDs who received the service at the three target sites	(Ex-post Evaluation) <u>Achieved.</u> - Shaanxi Province: The number of the daily outpatients for rehabilitation increased to 400 in July 2016 from 150 during the project period. - Guangxi Zhuang Autonomous Region: The number of the yearly acceptable patients for the rehabilitation program increased to 500 (2015) from 350 (2012). - Chongqing City: The number of the yearly acceptable patients for the rehabilitation program was approximately 200 (till 2015), 230 (2016), 265 (planned for 2017), among which 165 is planned for the hearing training in 2017.
	2. Number of the facilities which provide the service at the three	(Ex-post Evaluation) <u>Achieved.</u> - Shaanxi Province: The number of the rehabilitation facilities has increased, though the data was not available. The rehabilitation building was constructed in the rehabilitation

	target sites	<p>center in 2015, and the facility area increased to 20,690 m² from 6,000m².</p> <ul style="list-style-type: none"> - Guangxi Zhuang Autonomous Region: The rehabilitation center was upgraded to the facility with 5 departments from that with 2 departments. The number of the facilities was not available in the region. - Chongqing City: There are 53 facilities in the city, and the number has increased, though the data before 2015 was not available. <p>* The above information was based on the interview with the rehabilitation center in each site.</p>
	3. Percentage of the rehabilitation personnel and those who received professional education or the training from CRRC or other high level institutions	<p>(Ex-post Evaluation) <u>Partially achieved.</u></p> <ul style="list-style-type: none"> - Shaanxi Province: According to the rehabilitation center, many rehabilitation personnel has participated in various academic conferences and CRRC trainings, but the number of the rehabilitation physicians is not sufficient. - Guangxi Zhuang Autonomous Region: All of the rehabilitation technicians (47) completed the training, but the number is not sufficient to meet the needs in the region.. - Chongqing City: The data was not available.
	4. Improvement of the evaluation after the rehabilitation service	<p>(Ex-post Evaluation) <u>Partially achieved.</u></p> <ul style="list-style-type: none"> - The data was not available because it takes time to evaluate the improvement of the rehabilitation service. However, the following changes in the rehabilitation services were confirmed. - Shaanxi Province: The department of child rehabilitation came to emphasize communication including the dialogue with the patients, guidance to the parents, etc. - Guangxi Zhuang Autonomous Region: The rehabilitation with the aids and devices is provided at the newly established department of rehabilitation engineering. The study on the Community-Based Rehabilitation for the child with cerebral palsy (CP) was evaluated as the best in the country. Rehabilitation at home for the children with CP is possible with the new techniques. - Chongqing City: The rehabilitation centers used to refuse to accept the children with multiple disabilities, but it can accept such patients at the time of the ex-post evaluation. They came to put much emphasis on communication with the patients and their families.

Source: CRRC and rehabilitation centers at the three target sites.

Note: Indicators 1 and 3 of the Project Purpose were not used for verification continuation at the ex-post evaluation. The remote education course for the target sites was mostly undertaken during the project period, and there was no plan for the same course after the project completion.

3 Efficiency

Both the project period and cost were within the plan (ratio against the plan: 100% and 86%, respectively). Therefore, the project efficiency is high.

4 Sustainability

<Policy Aspect>

In 2015, the State Council announced the government objective which is to finish building a moderately prosperous society for the people including PWDs by 2020. Support for PWDs and capacity building of the rehabilitation personnel are prioritized in the 13th Five-Year National Economic and Social Development Plan (2016-2020). This plan includes the program for free rehabilitation services. Besides, the Government has the national training program for real-name rehabilitation professionals (2016-2020) to train 30,000 rehabilitation personnel.

<Institutional Aspect>

The organizational structure for capacity building of the rehabilitation personnel remains the same as that during the project period. CRRC not only provides rehabilitation services but also functions as the core institution for research, training and information dissemination. In each province, PWD's Federation is in charge of the planning and budget allocation, based on which the rehabilitation centers provide rehabilitation services and conducts research and training. CRRC has constructed the International Center for Telemedicine and Conference and plans to train all the provincial level personnel other than the three target sites based on the model developed by the project. Clinicians of CRRC are appointed as lecturers of the remote education. Since the patients has been increasing, the clinical work has been expanding as well. Therefore, the number of the lecturers who are also responsible for revision of the curriculum and materials and maintenance of the system is not sufficient. CRCC mostly understands the situation of the capacity building of the rehabilitation personnel through SNS (social network service). 61 core personnel of the three target sites were trained during the project period, and most of them (29 of Shaanxi Province, 14 of Guangxi Zhuang Autonomous Region and 16 of Chongqing City) have continued the work. In Shaanxi Province, it is planned that 100 community level personnel from 30 facilities are trained after 2015, and the rehabilitation center regularly monitors the rehabilitation service of the trained personnel and its effects. In the three target sites, the curriculum and materials of the training of the community level personnel have been revised, and the personnel-in-charge have been assigned. However, in Shaanxi Province and Guangxi Zhuang Autonomous Region, the needs for the rehabilitation personnel who completed CRRC training or other professional education are growing, and the number of such personnel is not sufficient to meet the needs.

<Technical Aspect>

CRRC does not conduct the remote education at the time of the ex-post evaluation, but has provided practical training for the core personnel. Every year, CRRC lecturers give training on the nerve growth factor and Bobath method³ for rehabilitation personnel and also invite Japanese professionals as lecturers with its own budget. Also, CRRC lecturers conduct weekly study meeting, and CRRC considers the lecturers have mostly have sufficient rehabilitation techniques and training know-how, though they vary among the lecturers. The materials for the remote education developed by the project have been utilized till the time of the ex-post evaluation. The core personnel at the three sites, as mentioned in the Effectiveness/Impact section, they have functioned as lecturers of the training of the

³ Bobath method is a rehabilitation method for the central nervous system disorder developed by Mr. and Mrs. Bobath of England in 1940s.

community base personnel. They have made efforts to sustain the knowledge and skills by attending various academic conferences and CRRC training and workshops, but they still have needs for the follow-up for further upgrading their technical level. The materials for the training of the community level personnel have been utilized for the practical training in Guangxi Zhuang Autonomous Region and Chongqing City till the time of the ex-post evaluation.

<Financial Aspect>

CRRC receives little budget allocation from the central government and is basically run on a stand-alone basis. Though the financial data was not available, CRRC says that it is in the black. Much money is needed for the remote education (100 thousand yuan⁴ per year, during the project period). CRRC plans to secure the budget for communication after launching the International Center for Telemedicine and Conference, there is no plan yet for the remote education at the three target sites. The financial data was not available from the rehabilitation center of the three target sites, either, but according to each rehabilitation center, the budget is secured for capacity building and upgrading of the equipment. The rehabilitation center of Shaanxi Province constructed the building for rehabilitation with its own fund and subsidy in 2015. The rehabilitation center answered that it allocates the fees for training to each of 30 facilities (100 thousand yuan) and for equipment maintenance (400 thousand yuan) as the special budget for rehabilitation training of the PWDs' Federation of Shaanxi Province. Thus, the budget for capacity building is sufficient, but it is not sufficient for service delivery since the rehabilitation center is a general hospital run on a stand-alone basis. In case of Guangxi Zhuang Autonomous Region and Chongqing City, according to each rehabilitation center, the rehabilitation center is not a hospital but rehabilitation-specific institute, and therefore the services are provided at no charge and the sufficient budget is distributed from the central government as per the number of the patients to be received.

<Evaluation Result>

In light of the above, political and technical sustainability are secured, but slight problems have been observed in terms of the institutional 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 aimed improving the rehabilitation service in terms of both quality and quantity, through the model system in which the provincial personnel of the three target sites were trained through the remote education and then the core personnel trained the community base personnel. By the project completion, the core personnel were trained as planned and they have functioned as lecturers for the training of the community base personnel. Besides the capacity building, the number and scale of the facilities have increased. The rehabilitation service has expanded, but they have not been sufficient to fill all of the professional needs. The model system developed by the project has not been diffused to other regions yet. Regarding the sustainability, the number of CRCC lecturers is not sufficient as they are also responsible for clinical works. Professional personnel are not sufficient at the target sites, either. The budget for capacity building is sufficient at the target sites, but not for the service delivery to meet the growing needs.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- The equipment for the remote education (communication facility, server, etc.) provided by the project has not been utilized at CRRC and three target sites. When the International Center for Telemedicine and Conference is launched, it is recommended to CRRC to utilize this facility and equipment for capacity building of the rehabilitation personnel through the remote education (model system developed by the project).

Lessons learned for JICA:

- The provincial personnel including the core personnel of the three target sites received the remote education course during the project period, and it was supposed that they would train the community level personnel in each site. Therefore, the remote education has not been conducted since the project completion. The project, as the Super Goal, aimed at capacity building of the rehabilitation personnel through the remote education in the Central and Western Region excluding the three target sites, but it has not been realized yet. It is even not unknown how much the remote education would be promoted by the new center constructed by CRRC. One reason is that it is difficult to secure the budget for the equipment and communication cost at both CRRC and receivers' side. For diffusing the remote education for other sites, it is effective to obtain cooperation from the three target sites in getting the feedback to CRRC, experience-sharing with other sites, etc. Also, It may have been easier to promote the diffusion to other sites with CRRC's existing system, by continuing the remote education such as the advanced course which was requested by the personnel who completed the course. With regard to the remote education, the project should have examined the utilization of the remote education system not only during the project period but after the project completion, and it should have taken any measures for ensuring the continuity.

⁴ 100 thousand yuan is equivalent to 1.5 million yen, converted at 1 yuan to 15 yen.



(Equipment for the remote education in Shaanxi Province)



(Hearing rehabilitation program for children in Chongqing City)

Country Name	The Project for Water Supply Service Improvement in the Mamminasata Metropolitan Area					
Republic of Indonesia						
I. Project Outline						
Background	<p>While the Mamminasata Metropolitan Area in South Sulawesi Province had been the largest urban area in eastern Indonesia and played a role of leading the economy of the region, water supply coverage of Makassar was about 70% and that of Maros, Gowa and Takalar was about 15% (as of 2005). Construction of water supply infrastructures was slower than the progress of urbanization, because non-revenue water ratio (NRW) was as high as 30% to 50% (as of 2005), burden of debt repayment was heavy, and water tariff was set too low, all of which made management of the regional water supply companies (Perusahaan Daerah Air Minum: PDAM) difficult and investment fund for water pipe renewal and expansion of service area could not be sufficiently allocated. Moreover, in small scale water treatment plants (WTPs), even fundamental equipment for water quality analysis was not installed and water was distributed without conducting water quality analysis. This low service quality deteriorated willingness to pay water tariff by residents and was the cause of high NRW ratio. Furthermore, there was no coordination mechanism for solving interregional issues among PDAMs in the Mamminasata Metropolitan Area.</p>					
Objectives of the Project	<p>Through strengthening inter-regional cooperation and coordination mechanism among PDAMs¹, their financial administration capacity and their technical capacity for NRW reduction, establishment of GIS² database and water quality management, the project aimed at enhancing capacity of PDAM staff for technical management and financial administration of water supply service in the Mamminasata Metropolitan Area, thereby contributing to improvement of capacity and quality of water supply service by PDAMs in the Area. The project objectives set forth are as follows:</p>					
	<ol style="list-style-type: none"> Overall Goal: Capacity and quality of water supply service by PDAMs in Mamminasata Metropolitan Area is improved. Project Purpose: Capacity of PDAM staff for technical management (O&M³) and financial administration of water supply service in Mamminasata Metropolitan Area is enhanced. 					
Activities of the Project	<ol style="list-style-type: none"> Project site: Mamminasata Metropolitan Area (Makassar City, a part of Maros Regency⁴, a part of Gowa Regency, and the entire Takalar Regency), South Sulawesi Province Main activities: (1) Establish inter-regional cooperation and coordination mechanism among four PDAMs; (2) Develop business plans of four PDAMs and conduct on-the-job trainings (OJT) on tariff collection efficiency, simulation on cost recovery of new investment and enhancement of customer satisfaction etc.; (3) Install master meters to measure accurate NRW ratio, conduct OJT on leak detection skills and techniques, and prepare and implement annual implementation plan for NRW reduction; (4) Establish GIS database in model areas of each PDAM, conduct OJT on effective use and maintenance of GIS database, and prepare and implement an implementation plan to expand GIS database to the whole water supply areas in each PDAM; and (5) Prepare water quality analysis equipment and guideline on water quality management (WQM), conduct trainings on water quality analysis, adjustment of chemical injection and WQM etc. 					
	<ol style="list-style-type: none"> Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Japanese Side <ol style="list-style-type: none"> Experts: 13 persons Trainees received in Japan: 17 persons Provision of equipment (computers for financial management, leak detector, flow meter, GIS server, GIS software, equipment for water quality analysis etc.) Overseas activities cost </td> <td style="width: 50%; vertical-align: top;"> Indonesian Side <ol style="list-style-type: none"> Staff allocated: Project Director, Project Manager, staff allocation for each field from each PDAM Land and facilities: office space with necessary facility and meeting rooms for trainings Local cost (counterparts' travel cost, installment cost and O&M cost of customer meters and water quality analysis equipment, and cost for electricity, water and internet connection in office space etc.) </td> </tr> </table> 					Japanese Side <ol style="list-style-type: none"> Experts: 13 persons Trainees received in Japan: 17 persons Provision of equipment (computers for financial management, leak detector, flow meter, GIS server, GIS software, equipment for water quality analysis etc.) Overseas activities cost
Japanese Side <ol style="list-style-type: none"> Experts: 13 persons Trainees received in Japan: 17 persons Provision of equipment (computers for financial management, leak detector, flow meter, GIS server, GIS software, equipment for water quality analysis etc.) Overseas activities cost 	Indonesian Side <ol style="list-style-type: none"> Staff allocated: Project Director, Project Manager, staff allocation for each field from each PDAM Land and facilities: office space with necessary facility and meeting rooms for trainings Local cost (counterparts' travel cost, installment cost and O&M cost of customer meters and water quality analysis equipment, and cost for electricity, water and internet connection in office space etc.) 					
Ex-Ante Evaluation	2009	Project Period	September 2009 to March 2012		Project Cost 432 million yen	
Implementing Agency	<p>Project Managing Organization: Directorate General of Human Settlements, Ministry of Public Works and Housing Project Implementing Organization: Department of Spatial Planning and Settlement, South Sulawesi Provincial Government, four PDAMs in the Mamminasata Metropolitan Area</p>					
Cooperation Agency in Japan	Nagoya City Waterworks & Sewerage Bureau, Okayama City Waterworks Bureau, Nihon Suido Consultants Co., Ltd., KRI International Corp.					

II. Result of the Evaluation**I Relevance**

<Consistency with the Development Policy of Indonesia at the time of ex-ante and project completion>

¹ In the Mamminasata Metropolitan Area, each PDAM in Makassar City, Maros Regency, Gowa Regency, and Takalar Regency is responsible for water supply services (there are four PDAMs in total in the Area).

² GIS = geographical information system

³ O&M = operation and maintenance

⁴ In this report, kabupaten is always translated to "regency", while it is translated to "district" in some reports.

The project was consistent with Indonesia's development policy on 'redressing regional disparity' and 'promoting improved management of PDAMs' as set forth in "National Medium Term Development Plan (RPJMN) (2005-2009)", "PDAM Health Program 2007" and "RPJMN (2010-2014)" etc. at the time of both ex-ante evaluation and project completion.

<Consistency with the Development Needs of Indonesia at the time of ex-ante and project completion>

The Mamminasata Metropolitan Area was one of national strategic regions in Indonesia in terms of spatial management, and enhancement of water supply coverage and improvement of water supply service including improvement of water quality were important issues related to urban development of the Area at the time of both ex-ante evaluation and project completion. Thus, this project was consistent with the local needs.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy, as stated in "the Country Assistance Program for Indonesia (2004)", which prioritized 'creation of a democratic and fair society'. 'Poverty reduction' and 'governance reform' were regarded important for 'creation of a democratic and fair society', and this project was consistent with the aim, as it was to support eastern Indonesia where poverty rate was high and to develop the capacity of PDAMs.

<Evaluation Result> In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

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

The Project Purpose was mostly achieved by the time of project completion. Performance indicators showed improvement compared to before project implementation in all or three out of the four target PDAMs regarding cost recovery ratio, water tariff collection ratio, NRW ratio and the number of connections, and the water quality compliance rate was higher than the target in eight out of 12 WTPs targeted under this project (Indicator 1). Counterparts of all PDAMs utilized the water tariff calculation manual, the guideline for WQM and Standard Operation Procedures (SOP) prepared under the project in their daily water supply activities (Indicator 2).

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

The project effects have mostly been maintained since project completion. By the time of ex-post evaluation, the improved performance indicators have been maintained and/or further improved in all PDAMs regarding water tariff collection ratio, NRW ratio and the number of connections, and cost recovery ratio has been maintained and/or further improved in three out of the four PDAMs. The water quality compliance rate was above the target in eight plants, below the target in two plants, and the data was not available in two plants. Trained skills and techniques, such as GIS, tools for leakage detection, replacement of water meters, and water quality control etc., have been utilized in O&M works of water supply service in PDAMs since project completion.

<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 Indicator 2 was not verified about more than a half of the WTPs in the Mamminasata Metropolitan Area⁵. The piped drinking water service coverage in the Mamminasata Metropolitan Area in 2015 is expected to be approximately 52%, calculated based on the annual increasing rate of water service coverage in the Area from 2012 to 2014, which is 91% of the national target (57.4%) (Indicator 1). Among 12 WTPs directly targeted by the project, the actual compliance rate of water quality is 60% to 63% of target in two plants, while the rate is over 80% of target in eight plants in 2014 (data is not available in two plants). For additional 28 WTPs in the Mamminasata Metropolitan Area, actual compliance rate is available only in four WTPs, and thus the compliance situation among non-project targeted WTPs is not clear. However, actual compliance rate in these four WTPs is 100% in 2014 (Indicator 2). Water quality is based on the standard from Ministry of Health of the Republic of Indonesia, which is turbidity 5NTU, 6.5<pH<8.5 (Indicator 3).

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

The project activities and the strengthened capacity of resource persons have contributed to the "Center of Excellence (COE) program" which is currently implemented by the Ministry of Public Works and Housing (PU) in selected provinces including the South Sulawesi Province. All of the four PDAMs targeted by this project were categorized as "healthy" PDAMs, which is meant that they are regarded as trainers of "Trainings-of-Trainers (TOT)" by the Directorate General of Human Settlement (DGHS) of PU⁶.

<Evaluation Result> Targets set in indicators for the Project Purpose were mostly achieved, and project effects have been mostly maintained after project completion. The degree of achievement of the Overall Goal is partial at the time of ex-post evaluation: although the piped drinking water service coverage nearly achieved the target, the impact of this project on water quality of the other WTPs than those directly targeted under this project was not fully confirmed due to limited availability of data. Therefore, effectiveness and impact of the project are fair.

3 Efficiency

The project cost was higher than planned (ratio against the plan: 117%) and the project period was as planned (ratio against the plan: 100%). The project cost exceeded the planned cost due to the price escalation during the project implementation. Therefore efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

RPJMN (2015-2019) states that Indonesia should achieve 100% access to safe drinking water by 2019, and development of regional water supply system is put on the priority project list (BLUEBOOK) for future foreign loan project.

<Institutional Aspect>

At the time of ex-post evaluation, the number of staff is 517 in PDAM Makassar, 101 in PDAM Maros, 141 in PDAM Gowa and 80 in PDAM Takalar. The current number of staff in all PDAMs is sufficient, as there is no case where necessary tasks of water supply services including NRW reduction, GIS database expansion, water quality management, and water tariff collection etc. are not conducted appropriately due to a lack of manpower.

⁵ In this evaluation, the Project Purpose-level effects were assessed about the 12 WTPs that were directly targeted under this project, and the Overall Goal-level effects (impacts) were assessed about the mentioned 12 WTPs plus the 28 other WTPs operated in the Mamminasata Metropolitan Area.

⁶ In the COE Program, DGHS provides Trainings-of-Trainers (TOT) to selected staff of "Healthy" PDAMs and these trained trainers give trainings to other PDAMs back in their home province. The Program started in two provinces (South Sulawesi and South Sumatra) in 2012, and was extended to another province (Bali) in 2013. Since 2014, the Program has been implemented in all province except a few.

The draft agreement on the inter-regional cooperation and coordination mechanism among PDAMs, which was considered to be important to increase the service population in the Mamminasata Metropolitan Area, was prepared under the project. Regarding agreements on water supply to areas under another PDAM, agreements were concluded between Gowa and Takalar and between Makassar and Takalar during the project implementation period (there has not been occasions of actually supplying water between Makassar and Takalar yet). In addition, although an agreement has not been concluded, water is supplied between Makassar and Gowa as a result of this project.

Regarding the agreement on area-wide water supply under the initiative of the provincial government, on the other hand, the head of the regional technical implementation unit (UPTD) for the Mamminasata Metropolitan Area, which is in charge of coordination among local governments, explained that the UPTD water supply in charge of planning and implementation of water supply projects in the Mamminasata Metropolitan Area has not been established yet. However, Makassar City and the three regencies have already signed the agreement, and the decision by the provincial parliament is being awaited. Also, as shown in the Attachment, actual number of connections in the Area has increased since project completion and is over 90% of the planned number in 2014 in all PDAMs. Therefore, while the implementation of the “area-wide water supply under the initiative of the provincial government” might be needed in the long-term, the current institutional setting including inter-regional cooperation and coordination among individual PDAMs is sufficient for maintaining water supply in the area at present and in the foreseeable future. In addition, the four PDAMs play a role in interregional coordination as they are members of the South-west Sulawesi branch of the Indonesian Water Supply Companies Association (PERPAMSI) with the PDAM Gowa as the branch head and the PDAM Makassar as the branch secretary, as well as the two other PDAMs playing central roles of the branch.

<Technical Aspect>

Project counterparts still work in four PDAMs at the time of ex-post evaluation. The current skill level of staff is sufficient in the PDAMs. Training materials and manuals prepared under the project have been utilized in daily works, and trainings have periodically been conducted on GIS, NRW, water tariff etc. in four PDAMs, although the number of trainees is small (several persons/PDAM/ year). A problem of equipment was found in PDAM Maros: there is a technical problem with GIS, as the server was damaged by a flood and satellite image is limited. The measures such as use of the backed-up data in another computer have been taken, and more fundamental solutions such as replacement of the server is being considered.

<Financial Aspect>

The annual income amount in PDAMs at the time of ex-post evaluation is approximately 260 billion Rupiah in Makassar, approximately 15 billion Rupiah in Maros, approximately 25 billion Rupiah in Gowa and approximately 11 billion Rupiah in Takalar. The current income amount in four PDAMs is sufficient to conduct necessary tasks of water supply services in the Mamminasata Metropolitan Area, as the cost recovery ratio is higher than 100% in all PDAMs except Takalar, where expenditure exceeds income due to increase in operation and maintenance expenditures and inclusion of depreciation in expenditure. The other performance indicators for the Project Purpose also show good financial status of the PDAMs (see Indicator 1 for the Project Purpose in the table below).

<Evaluation Result> No major problems have been observed in the policy, institutional and financial aspects. In the technical aspect, a problem of equipment has been observed in one of the four PDAMs, and the countermeasures are being taken. Therefore, sustainability of effects of the project is high.

5 Summary of the Evaluation

The targets set in indicators for the Project Purpose were mostly achieved, and project effects have been mostly maintained after project completion. The degree of achievement of the Overall Goal is partial at the time of ex-post evaluation, as impact of this project on water quality of the other WTPs than directly targeted under this project was not fully confirmed, although the piped drinking water service coverage nearly achieved the target. In terms of sustainability, no major problems have been observed in the policy, institutional and financial aspects, and a problem of equipment in one of the PDAMs is being addressed. For efficiency, the project cost exceeded the plan.

In light of the above, this project is evaluated to be Satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for Implementing Agency>

For drastic decrease of water leakage, rehabilitation and replacement of aged pipes are necessary, especially in case of PDAM Makassar. Although most of the PDAMs still face budget constraint to make such investment, the cost-effective measures for decreasing the water loss from the water supply system should be implemented by PDAMs thoroughly, and the revision of water tariff should be considered by local government to increase cost recovery ratio along with public campaigns to enlighten the customers on its necessity. The water income may be increased by the larger coverage of piped water supply services through implementation of the Mamminasata Metropolitan area-wide water supply projects, while the above issues shall be examined thoroughly at the time of formulation of the project.

<Lessons Learned for JICA>

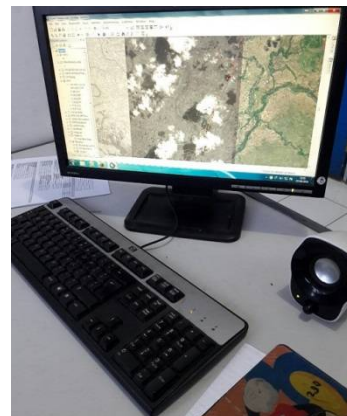
At the formulation stage of technical cooperation project, the establishment of the dissemination mechanism of the project's effect across the country is often included in the project activities, while unfortunately it does not always show the effect as expected. Therefore, in this project, it was not intended to disseminate the outputs of the project to the other PDAMs considering the limited project period. However, after the completion of the project, particular PDAMs that were targeted under the technical cooperation were fit into the mechanisms such as the new training programs of the central government and the information sharing mechanism through existing organization such as PERPAMSI, and consequently led to outcomes beyond those targeted PDAMs. From this, it is learned that positive considerations of coordination with other programs and existing organizations are utmost effective to disseminate the outputs of the project and important for achieving maximum outcomes from limited time and inputs of a single project.



New reservoir and water treatment plant of PDAM Gowa



Monitoring System newly procured by PDAM Makassar



GIS Database installed by the Project (PDAM Takalar)

Attachment

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results																																																																																																																																																																																		
<p>(Project Purpose) Capacity of PDAM staff for technical management (O&M) and financial administration of water supply service in Mamminasata Metropolitan Area is enhanced.</p>	<p>1. Performance indicators related to management and O&M are improved. (The indicators are to be determined within three months from the commencement of the project from candidates like cost recovery ratio, number of connections, number of days meeting water quality standard, and so on)</p> <p>(supplemental information) Indicators used for ex-post evaluation are (1) cost recovery ratio, (2) water tariff collection ratio, (3) NRW ratio, (4) number of connections and (5) water quality.</p>	<p>Status of achievement: Mostly achieved (mostly continued)</p> <p>(1) Cost recovery ratio (%)⁽¹⁾</p> <table border="1"> <thead> <tr> <th rowspan="2">Year</th> <th colspan="2">Makassar</th> <th colspan="2">Maros</th> <th colspan="2">Gowa</th> <th colspan="2">Takalar</th> </tr> <tr> <th>Plan</th> <th>Actual</th> <th>Plan</th> <th>Actual</th> <th>Plan</th> <th>Actual</th> <th>Plan</th> <th>Actual</th> </tr> </thead> <tbody> <tr><td>2007</td><td>-</td><td>92</td><td>-</td><td>75</td><td>-</td><td>93</td><td>-</td><td>77</td></tr> <tr><td>2008</td><td>-</td><td>93</td><td>-</td><td>86</td><td>-</td><td>108</td><td>-</td><td>83</td></tr> <tr><td>2009</td><td>84</td><td>94</td><td>80</td><td>78</td><td>93</td><td>105</td><td>96</td><td>78</td></tr> <tr><td>2010</td><td>87</td><td>89</td><td>92</td><td>97</td><td>94</td><td>104</td><td>96</td><td>76</td></tr> <tr><td>2011</td><td>93</td><td>108</td><td>95</td><td>105</td><td>95</td><td>93</td><td>104</td><td>75</td></tr> <tr><td>2012</td><td>140</td><td>170</td><td>105</td><td>103</td><td>100</td><td>101</td><td>127</td><td>66</td></tr> <tr><td>2013</td><td>160</td><td>170</td><td>101</td><td>99</td><td>100</td><td>98</td><td>133</td><td>61</td></tr> <tr><td>2014</td><td>160</td><td>170</td><td>103</td><td>100</td><td>100</td><td>105</td><td>160</td><td>54</td></tr> </tbody> </table> <p>(Project Completion) The actual ratio was improved in 2010 and/or 2011 compared with that of 2007 (before project) in all PDAMs except for Takalar, because the depreciation rate was revised to a large degree in Takalar. PDAM Takalar possessed facilities mostly constructed using subsidy and the depreciation of these facilities was recorded as expense, which affected the cost recovery ratio.</p> <p>(Ex-post Evaluation) Improved cost recovery ratio has been maintained and/or further improved in all PDAMs except for PDAM Takalar, which has shown the decreasing trend due to increasing O&M cost including electricity cost, employee remuneration and chemical materials cost, in addition to inclusion of depreciation. The reason for the large increase in Makassar PDAM after 2012 is due to the revision of water tariff (partial increase) in June 2011.</p> <p>(2) Water tariff collection ratio (%)⁽²⁾</p> <table border="1"> <thead> <tr> <th rowspan="2">Year</th> <th colspan="2">Makassar</th> <th colspan="2">Maros</th> <th colspan="2">Gowa</th> <th colspan="2">Takalar</th> </tr> <tr> <th>Target</th> <th>Actual</th> <th>Target</th> <th>Actual</th> <th>Target</th> <th>Actual</th> <th>Target</th> <th>Actual</th> </tr> </thead> <tbody> <tr><td>2007</td><td>90</td><td>86</td><td>64</td><td>76</td><td>81</td><td>94</td><td>78</td><td>83</td></tr> <tr><td>2008</td><td>90</td><td>89</td><td>66</td><td>82</td><td>89</td><td>88</td><td>82</td><td>83</td></tr> <tr><td>2009</td><td>90</td><td>94</td><td>82</td><td>88</td><td>89</td><td>97</td><td>85</td><td>93</td></tr> <tr><td>2010</td><td>90</td><td>96</td><td>88</td><td>84</td><td>94</td><td>95</td><td>85</td><td>92</td></tr> <tr><td>2011</td><td>93</td><td>96</td><td>90</td><td>82</td><td>96</td><td>110</td><td>92</td><td>99</td></tr> <tr><td>2012</td><td>95</td><td>95</td><td>82</td><td>99</td><td>75</td><td>89</td><td>85</td><td>94</td></tr> <tr><td>2013</td><td>96</td><td>93</td><td>84</td><td>99</td><td>75</td><td>94</td><td>85</td><td>94</td></tr> <tr><td>2014</td><td>95</td><td>98</td><td>85</td><td>97</td><td>75</td><td>97</td><td>85</td><td>81</td></tr> </tbody> </table> <p>(Project Completion) The actual ratio in 2011 was improved from that of 2007 (before project) in all PDAMs. Moreover, the actual ratio was higher than the target ratio in 2011 in all PDAMs except for PDAM Maros. The target was not achieved in Maros due to the unpaid bills of the large customers (Air force, Military, Police) in 2011. These large customers paid their 2011 water bills in 2012. The actual collection ratio in 2011 would be 90% if it includes the payment made by the large consumers in 2012. Similarly, the actual in Gowa in 2011 includes the amount paid in that year for the bills issued in the previous year.</p> <p>(Ex-post Evaluation) The improved water tariff collection ratio of all PDAMs has been</p>	Year	Makassar		Maros		Gowa		Takalar		Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	2007	-	92	-	75	-	93	-	77	2008	-	93	-	86	-	108	-	83	2009	84	94	80	78	93	105	96	78	2010	87	89	92	97	94	104	96	76	2011	93	108	95	105	95	93	104	75	2012	140	170	105	103	100	101	127	66	2013	160	170	101	99	100	98	133	61	2014	160	170	103	100	100	105	160	54	Year	Makassar		Maros		Gowa		Takalar		Target	Actual	Target	Actual	Target	Actual	Target	Actual	2007	90	86	64	76	81	94	78	83	2008	90	89	66	82	89	88	82	83	2009	90	94	82	88	89	97	85	93	2010	90	96	88	84	94	95	85	92	2011	93	96	90	82	96	110	92	99	2012	95	95	82	99	75	89	85	94	2013	96	93	84	99	75	94	85	94	2014	95	98	85	97	75	97	85	81
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maintained and/or further improved through establishing more payment points and intensifying the collection activities by employing more collectors. The reasons for the large increase in Maros after 2013 and the decrease in Takalar in 2014 were not available.

(3) NRW ratio (%)

Year	Makassar	Maros	Gowa	Takalar
2010	48.0	41.6	42.8	31.2
2011	48.7	37.3	40.4	31.0
2012	49.7	35.2	38.4	20.9
2013	47.4	29.7	33.6	19.9
2014	44.2	34.5	30.6	18.0

(Project Completion) NRW ratio of the whole water supply areas of four PDAMs was gradually decreased in 2011 from the previous year except for Makassar. It should be noted that the scope of NRW reduction activities within this project was limited to the pilot districts, and NRW ratio of each pilot district was largely reduced by approximately 17% on average.

(Ex-post Evaluation) The improved NRW ratio of all PDAMs has been maintained and/or further improved through countermeasures for the physical leakage, replacement of old or broken water meters, improving customers' recording system, and relocation of ineffective and leakage-prone networks. In Takalar, the ratio significantly decreased after 2012, following the replacement of old pipes with new ones through grant assistance projects by the central government in 2008-2013.

(4) Number of connections

Year	Makassar		Maros		Gowa		Takalar	
	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual
2007	-	135,013	-	7,477	-	11,092	-	2,623
2008	-	140,457	-	8,441	-	12,714	-	3,344
2009	146,110	146,658	9,341	9,375	14,314	12,954	4,994	4,909
2010	154,860	150,281	10,341	9,755	15,814	14,771	6,395	6,065
2011	163,110	154,500	11,341	10,424	17,314	18,418	7,490	7,239
2012	163,259	158,779	11,210	11,050	19,635	20,555	11,025	11,038
2013	165,504	160,439	11,850	12,127	24,555	23,399	12,622	12,554
2014	176,665	162,984	12,898	13,524	27,399	27,734	16,925	15,608

(Project Completion) Actual number of connections increased since 2007 and was over 90% of the planned number in 2010 and 2011 in all PDAMs.

(Ex-post Evaluation) Actual number of connections has increased since project completion and is over 90% of the planned number in 2014 in all PDAMs. The coverage of pipelines digitized in GIS database has also increased in all PDAMs since project completion.

(5) Water quality

(Project Completion) The compliance rate of water quality was calculated under the project by the number of days meeting the water quality standard divided by the number of days in one target year⁽³⁾. The actual compliance rate in eight out of 12 WTPs targeted under the project was higher than the target, while that in the remaining four plants (one in Maros and three in Gowa) was lower than 80% of the target (32% to 79% of target) in 2011.

(Ex-post Evaluation) The actual compliance rate is over 80% of the target in eight plants, and lower than 80% of the target (60% to 63% of target) in two plants in 2014, due to insufficient use of coagulant chemical or non-regular measurement (i.e. sometimes, testing is not conducted and the result is recorded as zero, which lowers the average value). Data is not available in two plants in 2014 due to sometimes insufficient communication between the laboratory and the plants).

2. Trained skill and techniques are utilized in routine management and O&M works of water supply service.

Status of achievement: Achieved (continued)

(Project Completion) Counterparts of four PDAMs utilized the water tariff calculation manual prepared under the project in calculating the water tariff for 2011 and 2012. Also, the guideline for WQM and SOP prepared under the project were utilized in daily activities.

(Ex-post Evaluation) The four PDAMs listed activities such as GIS, tools for leakage detection, replacement of water meters, and water quality control etc., as the skills and techniques they have kept utilizing since project completion.

(Overall Goal) Capacity and quality of water

1. Served population is increasing to the national target level (57.4% piped drinking water services

Status of achievement: Mostly achieved

(Ex-post Evaluation) The piped drinking water service coverage ratio in the Mamminasata Metropolitan Area in 2014 was 47.6% on average, however, the ratio in 2015 is not available. As

supply service by PDAMs in Mamminasata Metropolitan Area is improved.	coverage by the year 2015).	<p>the annual increasing rate in the Area from 2012 to 2014 is approximately 10%, the ratio in the Area in 2015 is expected to be approximately 52%, which is 91% of the national target (57.4%). Each PDAM explained about budget allocation as follows: in Makassar, neither national nor regional budget has been allocated, and it has relied on its own budget for expansion of pipe networks; in Gowa, national budget has been allocated every year for the construction of IKK (sub-district WTP) and local budget has been allocated for expansion of pipe networks, though the budget amount has not been sufficient to cover all parts of Gowa; in Maros and Takalar, sufficient amount of national and regional budget (province and district) has been allocated for development of water supply infrastructures (the actually allocated amount in each PDAM is not available).</p> <p style="text-align: center;">Piped drinking water service coverage ratio (%)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Makassar</th> <th>Maros</th> <th>Gowa</th> <th>Takalar</th> <th>Mamminasata</th> </tr> </thead> <tbody> <tr> <td>2012</td> <td>67.0</td> <td>53.4</td> <td>19.2</td> <td>18.0</td> <td>39.4</td> </tr> <tr> <td>2013</td> <td>69.0</td> <td>55.0</td> <td>23.8</td> <td>27.0</td> <td>43.7</td> </tr> <tr> <td>2014</td> <td>71.0</td> <td>59.4</td> <td>27.8</td> <td>32.0</td> <td>47.6</td> </tr> </tbody> </table>	Year	Makassar	Maros	Gowa	Takalar	Mamminasata	2012	67.0	53.4	19.2	18.0	39.4	2013	69.0	55.0	23.8	27.0	43.7	2014	71.0	59.4	27.8	32.0	47.6
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2014	71.0	59.4	27.8	32.0	47.6																					
	2. Results of daily treated water quality test always satisfy water quality standard.	<p><u>Status of achievement: Partially achieved</u> (Ex-post Evaluation) For 12 WTPs targeted under the project, see Indicator 1 of Project Purpose ((5) Water quality). In addition to these 12 plants, there are two more WTPs in Makassar, eight more WTPs in Maros, ten more WTPs in Gowa and eight more WTPs (six WTPs and two water supply facilities) in Takalar at the time of ex-post evaluation (28 more WTPs in total). Water quality test is conducted daily in all these WTPs except for one WTP in Gowa (Parangloe plant), where water quality test is not conducted because the equipment provided by JICA has been broken (PDAM Gowa is under process of new procurement). Actual compliance rate of water quality of these WTPs is available only in four out of 28 additional WTPs (two WTPs in Makassar and two water supply facilities in Takalar), and the rate in these four WTPs is 100% in 2014.</p>																								
	3. Water quality is based on standard from Ministry of Health of the Republic of Indonesia.	<p><u>Status of achievement: Achieved</u> (Ex-post Evaluation) The standard values used (national standard) are turbidity 5NTU, 6.5<pH<8.5, which are the same as those used during project implementation.</p>																								

Source : Terminal Evaluation Report, Project Completion Report, Questionnaire survey to PDAMs.

Note: (1) Cost recovery ratio is calculated by (Water Revenue + Non Water Revenue) / (Direct Cost + Non Direct Cost). (2) In PDAM Gowa and Takalar, water tariff collection rate was calculated by dividing total collected amount from January to December of each year by the total billed amount for the same year. This collected amount also includes the amount paid in that year for the bills issued in the previous year, thus putting the collection rate of PDAM Gowa to 110% in 2011. In PDAM Makassar and Maros, the collection rate was calculated utilizing only the collected amount against the bills issued from January to December. (3) Compliance rates are calculated with days whose both turbidity and pH complied (as numerator) and days in the target period (as denominator), which means that days without measurement or with only one complied parameter are treated as “not complied”.

Country Name	The Project for Strengthening of Construction Quality Control
Kingdom of Cambodia	

I. Project Outline

Background	<p>In Cambodia, the Ministry of Public Works and Transport (MPWT) worked intensively on construction and rehabilitation of transportation infrastructures such as roads and bridges with their government budget and donors' financial support in order to achieve sustainable and efficient socioeconomic development and poverty reduction. Quality of roads developed by the projects with supports of the donors was controlled through supervisions of consultants and/or contractors. On the other hand, construction and maintenance of roads and bridges, which were funded by the government budget were directly implemented by the Road Infrastructure Department (RID), Heavy Equipment Center (HEC) under the MPWT and each provincial Department of Public Works and Transport (DPWT) but the quality of works, was not ensured through supervisions including inspection of standard for construction material and construction technique and method. Under those situations, the government of Cambodia requested the government of Japan a technical cooperation project to establish Quality Control and Quality Assurance (QC/QA) system for road and bridge construction.</p>						
Objectives of the Project	<p>Through formulating the guidelines of quality standard, establishing library management for documents, and delivering technical trainings of quality control, the project aimed at improving capacity of MPWT engineers in the quality control for road and bridge construction and maintenance, thereby contributing to improvement of quality and cycle of road and bridge construction and maintenance.</p> <ol style="list-style-type: none"> Overall Goal: Quality and Cycle of road and bridge construction and maintenance are improved. Project Purpose: Capacity of MPWT engineers in the quality control for road and bridge construction and maintenance undertaken by force account is improved through application of the Quality Control and Quality Assurance (QC/QA) system (Standard Guideline: SG, Regulations: RG, Trainings, Standard Drawings) 						
Activities of the project	<ol style="list-style-type: none"> Project site: Siem Reap, Kandal and Kampong Cham Main activities: 1) Formulating the guidelines of quality standard for construction and maintenance of roads and bridges, 2) Formulating the procurement plan of laboratory equipment to meet the standards, 3) Supporting preparation of the library management and maintenance plan, 4) Implementing the technical guidance about library operation and management to the Cambodian counterparts, 5) Planning and implementing pilot training courses of quality control of construction for the staff of RID, HEC, DPWT, General Inspectorate and other personal concerned. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Japanese Side <ol style="list-style-type: none"> Experts: persons: 11 persons Acceptance of trainees in Japan: 11 persons Equipment: High Pressure Triaxial Machine, Multispeed Motorized Compression Device, Density/ Moisture Gauge, Color Digital Printer, etc. </td> <td style="width: 50%; vertical-align: top;"> Cambodian Side <ol style="list-style-type: none"> Staff allocated: 16 persons Land and Facilities: Office spaces for the Japanese experts Local cost: cost for implementation of the pilot projects etc. </td> </tr> </table> 					Japanese Side <ol style="list-style-type: none"> Experts: persons: 11 persons Acceptance of trainees in Japan: 11 persons Equipment: High Pressure Triaxial Machine, Multispeed Motorized Compression Device, Density/ Moisture Gauge, Color Digital Printer, etc. 	Cambodian Side <ol style="list-style-type: none"> Staff allocated: 16 persons Land and Facilities: Office spaces for the Japanese experts Local cost: cost for implementation of the pilot projects etc.
Japanese Side <ol style="list-style-type: none"> Experts: persons: 11 persons Acceptance of trainees in Japan: 11 persons Equipment: High Pressure Triaxial Machine, Multispeed Motorized Compression Device, Density/ Moisture Gauge, Color Digital Printer, etc. 	Cambodian Side <ol style="list-style-type: none"> Staff allocated: 16 persons Land and Facilities: Office spaces for the Japanese experts Local cost: cost for implementation of the pilot projects etc. 						
Ex-Ante Evaluation	2009	Project Period	May, 2009 – October 2012	Project Cost	(Ex-ante) 398million yen (Actual) 425 million yen		
Implementing Agency	Ministry of Public Works and Transport (MPWT)						
Cooperation Agency or Contract Agency in Japan	Ministry of Land, Infrastructure, Transport and Tourism.						

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Cambodia at the time of ex-ante evaluation and project completion> The project was consistent with the Cambodia's development policy of "the National Strategic Development Plan (NSDP) (2006-2010)", "NSDP (2009-2013)" and "the Rectangular Strategy for Growth, Employment, Equity and Efficiency Phase II (2008)" which aimed at "continuous redevelopment and construction of infrastructure including roads and bridges".</p> <p><Consistency with the Development Needs of Cambodia at the time of ex-ante evaluation and project completion > The project was consistent with the Cambodia's development needs of improvement of capacity of MPWT on quality control for construction and maintenance of roads and bridges in order to reduce the maintenance costs of road infrastructure.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation> The project was consistent with the Japan's ODA policy to support sustainable economic development including economic infrastructure, which was prioritized in the Country Assistance Plan for Cambodia (2002).</p> <p><Evaluation Result> In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact

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

The Project Purpose was mostly achieved by project completion. The SG and RG, which had been revised by the project, were applied to at least 10 periodic maintenance and 15 emergency projects by the time of project completion. (Thereafter, the periodic maintenance was implemented in 16 provinces¹ and the emergency projects were carried out in all the 24 provinces by force account for the period from 2013 to 2015.) Through the technical trainings by the project, the MPWT trainers upgraded their knowledge and skills on SG and RG as well as teaching method but the average scores of the post-test ranged from 54 to 68 by training session which were below the target of 70.

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

The project effects have been partially continued since the project completion. The SG and RG revised by the project have been continuously applied to the periodic maintenance and emergency projects for roads but no data are available for bridge construction and maintenance. According to MPWT, the SG and RG have been applied to at least 70-80% of the maintenance and emergency projects for roads. The MPWT and DPWT staffs have utilized them for their daily works and have pointed out many points to be revised and updated. In addition, laboratory equipment installed by the project for the laboratory of MPWT, such as soil analysis sieve sets, has been utilized for necessary tests of road and bridge construction as a part of QC/QA activities of MPWT, which has greatly contributed to improvement of the quality of construction works under MPWT.

Since the management system of completion documents developed by the project is essential for the QC/QA activities of MPWT and DPWTs, the database to compile as-built drawings developed by the project has been sustained and utilized by the MPWT officials. In addition, completion documents of new projects, which are received or collected by the Public Works Research Center (PWRC) in electric format, have been continuously compiled and uploaded in to the database system. The number of documents uploaded in the database system increased from 12,000 at the time of project completion to 12,181 at the time of ex-post evaluation. However, the Library renovated by the project was temporarily moved to other location at the Equipment Supply Center of the HEC, in order to make office space for the officials. Since the books and other documents stored in the Library, except the server and computers, have been kept in a store room where the officials cannot easily access, the Library has not been well functioning at the time of ex-post evaluation despite of increasing documents and books stored in the Library.

In terms of technical trainings on the QC/QA system for road and bridge construction and maintenance, no training has been delivered for the MPWT and DPWT officials by MPWT or DPWTs due to the budget constraint. All the trainers of RID, HEC and PWRC interviewed at the ex-post evaluation, who had been trained by the project, have not been engaged in the trainings on the QC/QA system. Therefore, the trainers trained by the project and the senior engineers with knowledge and skills on the QC/QA system have made efforts to transfer their knowledge and skills to junior or newly recruited staff through daily practices.

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

The Overall Goal has been achieved. According to PWRC, there has been no large scale defect found on in the force account construction projects implemented by MPWT since the project completion. According to the Director of PWRC and the Director of HEC, the main reason is improvement of the capacity of the engineers and technicians in the QC/QA for road and bridge construction and maintenance.

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

According to PWRC, RID and DPWTs of Kampong Cham, Kandal, and Siem Reap, no negative impact on natural environment by the pilot project implemented under the project has been observed. Also, there was no resettlement and land acquisition by the project. No other positive and negative impacts by project were observed at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, the project mostly achieved the Project Purpose and achieved the Overall Goal through improvement of the capacity of MPWT in quality control of construction and maintenance of roads and bridges. However, the project achievements have only partially continued because the Library has not been functioning and the technical trainings on the QC/QA system has not been delivered. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results																		
(Project Purpose) Capacity of MPWT engineers in the quality control for road and bridge construction and maintenance undertaken by force account is improved through application of the QC/QA system.	(Indicator 1) By the end of the project, the revised SG and RG are applied to at least three force account projects of roads and bridges starting from 2013 (new construction or major rehabilitation under periodic maintenance) in three provinces except in the two pilot provinces.	<p><u>Status of the achievement: Achieved</u></p> (Project Completion) <ul style="list-style-type: none"> ● At least 10 periodic maintenance and 15 emergency projects undertaken in force account were implemented by applying the revised SG and RG. ● No information available about bridge construction and maintenance. (Ex-post evaluation) Continued. [Number of force account projects implemented in accordance with the SG and RG] <table border="1"> <thead> <tr> <th colspan="2"></th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Road</td> <td>Construction</td> <td>N.A</td> <td>N.A</td> <td>N.A</td> </tr> <tr> <td>Maintenance (periodic)</td> <td>10</td> <td>11</td> <td>10</td> </tr> <tr> <td>Emergency</td> <td>15</td> <td>90</td> <td>86</td> </tr> </tbody> </table> <p>Note: Only aggregated data are available and no data are available at provincial level.</p>			2013	2014	2015	Road	Construction	N.A	N.A	N.A	Maintenance (periodic)	10	11	10	Emergency	15	90	86
		2013	2014	2015																
Road	Construction	N.A	N.A	N.A																
	Maintenance (periodic)	10	11	10																
	Emergency	15	90	86																

¹ Kandal, Kampong Thom, Pailin, Pursat, Prey Veng, Preah Vihea, Preah Sihanouk, Mondul Kiri, Siem Reap, Steung Treng, Svay Rieng, Otdar Meanchey, Kampong Chhnang, Koh Kong, Kampot, and Kampong Speu

	(Indicator 2) Trainers who received TOT are assessed and trainees who participated the annual technical training in year 2012 improve the knowledge level of quality control and score 70 at the post test.	<u>Status of the achievement: Partially achieved</u> (Project completion) <ul style="list-style-type: none"> ● The MPWT trainers upgraded their knowledge and skills on SG and RG as well as teaching method but continuous improvement were needed. ● The average score of the post-test ranged from 54 to 68 depending on the training sessions. (Ex-post Evaluation) Not continued <ul style="list-style-type: none"> ● No training on the QC/QA system has been delivered for MPWT and DPWT staff by MPWT and DPWT due to the budget constraint. ● All the trainers of RID, HEC and PWRC trained by the project, who were interviewed at the ex-post evaluation, have not been engaged in any trainings on the QC/QA system. 										
(Overall goal) Quality and Cycle of road and bridge construction and maintenance are improved.	(Indicator 1) Large scale defects will not be found on the Defect Liability Inspection in the force account construction projects of MPWT.	<u>Status of achievement: Achieved</u> (Ex-post Evaluation) [Number of large scale defects found] <table border="1"> <thead> <tr> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	2012	2013	2014	2015	2016	0	0	0	0	0
2012	2013	2014	2015	2016								
0	0	0	0	0								

Source : Project completion report, MPWT Annual Report, interviews with Director and Deputy Chief of Office of PWRC, Director of HEC, and trainers

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 106%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The QC/QA for road and bridge construction and maintenance undertaken in the force account was endorsed by MPWT's Prakas (Ministerial Ordinance) on Official Usage of "Standard Guideline and Regulations and Standard Drawings for Road and Bridge", which were issued and signed by the Minister of MPWT on 25th October 2012 and has been still effective at the time of ex-post evaluation.

<Institutional Aspect>

Whereas the organizational structure of MPWT has been changed, there was no change in organizational setting in DPWTs of Kandal, Kampong Cham and Siem Reap where the pilot project had been implemented in the project. The organizational reform of MPWT has significantly enhanced the performance and quality control of force account projects through a further clarification of responsibilities among units. However, the insufficient number of staff in MPWT and DPWTs has constrained implementation of the QC/QA activities. For MPWT, although 41 staff members and 27 staff members are deployed for HEC and PWRC respectively, the trained staff has been retired or resigned from MPWT. For DPWTs in the pilot sites, while Siem Reap and Kandal have the insufficient number of engineers and technicians for the QC/QA activities and need to wait for recruitment of new staff by MPWT, Kampong Cham has the sufficient number of technical staff because of the less number of maintenance and construction projects and the newly recruited staff to be deployed.

For maintenance of the database system and the Library, the sufficient staff is deployed in spite of no librarian: 3 staff members for the database system and 4 staffs for the Library.

In terms of technical trainings on the QC/QA system, the sufficient number of trainers and training staff are deployed but no training has been delivered by MPWT because of the budget constraint. One of the reasons for the limited commitment of MPWT could have been a limited coordination with the Human Resource Department about the technical trainings on the QC/QA system in order to incorporate them into the regular training programs for the Ministry's staffs.

For the activities related to revisions and updating of SG and RG, there was difficulty to continuously organize the team which composed of member from the different departments to be engaged in the activities, because the team had not been officially formed with an official assignment.

<Technical Aspect>

All MPWT staff members interviewed at the ex-post evaluation, including trainers and engineers of RID, HEC and PWRC, have sustained their skills and knowledge on the QC/QA system introduced by the project since they have continuously utilized them for their works. Also, the engineers and technicians of DPWT Kandal and DPWT Kompong Cham interviewed at the ex-post evaluation have sustained the skills and knowledge and applied them for their daily work though the technical staff of DPWT Siem Reap has not been trained on the QC/QA system due to the budget constraint. As mentioned above, the SG and RG revised by the project have been utilized for quality control of construction and maintenance of roads and bridges. A follow up project implemented from 2013 to 2014 also helped to promote QC/QA system through advises on seven priority projects. Technical transfer of the QC/QA system has been carried out through non formal trainings such as daily practices. Although the technical transfer by daily practices can improve the skills of technical staffs at site, it may cause unbalanced technical skill level among them and make it difficult to maintain technical standards of MPWT and DPWT. Therefore, the need for formal transferring such as formal trainings should be further considered.

For the management of the database system and the Library, the staff has deployed necessary skills and knowledge but need to improve them because they do not have sufficient ability to update their technical skills by themselves. The staff needs to improve their skills for proper updating and maintenance of the system since the development of the database system had been outsourced to a service provider and the library staff does not clearly understand the system. At the time of implementation of the follow up project from 2013 to 2014, these issues were already pointed out but no significant improvement has been made since then.

<Financial Aspect>

The budget for road and bridge construction and maintenance undertaken in force account is divided in two items of project implementation and quality control. The total budget for road and bridge construction and maintenance has fluctuated year by year. The budget for 2016 increased to 133 million USD from 118.5 million USD in 2015. 2% of the total budget for project implementation (total direct costs) is allocated for the relevant department to conduct quality control activities including supervision at the ministry level. The

QC team have challenged to complete their QC/QA duty with in the allocated budget amount, as the budget for the QC team, however, has not been sufficient to cover necessary cost. The budget amount for each DPWT of the pilot provinces has varied by province and fluctuated by year and has not always been sufficient to sustain QC / QA activities.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional, 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 mostly achieved the Project Purpose and achieved the Overall Goal for enhancing the capacity of MPWT to properly conduct the QC/QA activities for road and bridge construction and maintenance in good quality. While the laboratory equipment installed by the project contributed to improve the MPWT's QC/QA activities and quality of construction works, the Library to compile and to provide the necessary documents has not been well functioning and technical training on the QC/QA system has not been delivered. As for sustainability, the insufficient number of technical staffs of MPWT and DPWTs and lack of technical trainings on the QC/QA system due to the budget constraints have hampered the necessary QC/QA activities though the SG and RG revised by the project have been applied to force account projects of road and bridge construction and maintenance. As for efficiency, the project cost exceeded the plan.

In the light of above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[For MPWT]

- MPWT needs to periodically update SG and RG and disseminate them with hard and soft copies since SG and RG are utilized by MPWT and DPWT officials in daily works and necessity of revision and update are commonly pointed out.
- MPWT needs to restructure a library, which stores construction documents and books after completing construction of a new building and connect computer network so that every official can refer to relevant documents and materials efficiently.
- MPWT is recommended to have internal discussions on how to effectively implement official trainings. Trainings on SG and RG are currently conducted through OJT (On the Job Training), but they can be incorporated in the part of current annual training by MPWT or they can be conducted through a new official training system for selected members.

Lessons learned for JICA:

- At the planning stage, formulating a team comprised of officials in different departments was deemed effective because it made improvement of the overall capacity of the ministry (MPWT). However, after the project completion, it was difficult for the team to continue its activities such as revising the guidelines due to the fact that the team was ad hoc and not officially given roles. Therefore, JICA should take the below measures in future projects to prevent such problems:
 - 1) At the planning stage, JICA should be careful about the composition of a counterpart project team. If the team composes of people from some different departments, the project should have included activities to officially assign roles to the team (such as issuing decree) to continue activities after the project completion. Also, JICA should consider the possibility of utilization of the existing country system, instead of only considering the formulation of a new team to conduct the project activity so that the activity will be sustained after the project completion.
 - 2) At the implementation stage, Japanese experts should work to enhance ownership of the counterparts. For example, the Japanese experts can let counterparts implement the activity by themselves in the last year of the project period.
- The training conducted in the project was not held after the project period because of budgetary shortage and insufficient coordination within the ministries. Therefore, JICA should take the below measures in future projects to prevent such problems:
 - 1) At the planning stage, JICA should look at financial and institutional aspects for the training if the training should be continuously conducted for the post project period. Human Resource Department should be included in the discussion as this department is the one who organize regular training to the Ministry's staff. Moreover, financial planning of trainings with necessary coordination with the Ministry of Economy and Finance should have been included in project activities.
 - 2) At the implementation stage, feedback from each training should be discussed with the Human Resource Department and the Ministry of Economy and Finance to assess effects of the trainings and to ensure necessary budget for continuation of the training activities.



Road 71 in Kampong Cham under pilot project



Maintenance Works for the National Road 6 in Siem Reap (between Krong Serey Sophoan to Krong Siem Reap)

Country Name	Project for Strengthening Community-based Management Capacity of Bidoup-Nui Ba National Park
Socialist Republic of Viet Nam	

I. Project Outline

Background	<p>The Bidoup-Nui Ba National Park (BNBNP) is one of the foremost large protected areas in the country with the total area of 70,038 ha, located in the northeastern part of Lam Dong Province in Viet Nam. Having been designated as a national park in 2004, BNBNP holds typical forest ecosystems of subtropical alpine climate, inhabited by 1,933 plant species including 96 endemic species and 422 animal species including 32 endangered species. Approximately 5,000 households (about 26,000 persons) of inhabitants were living inside and around, many of whom belonged to ethnic minorities and make their livelihoods by traditional agriculture. In the background of poverty, conversion of forests into agricultural land, hunting of wild animals, illegal logging, forest fires caused by slash-and-bum farming, and other events were still going on, posing threats to the biodiversity of the park (figures are all as of the ex-ante evaluation).</p>						
Objectives of the Project	<p>This project aimed at capacity development of the Bidoup-Nui Ba National Park Management Board (BNBNPMB) (as the Project Purpose) through the development of a model for collaborative management (CM) in the natural resources of a national park by the local government and the residents living in the buffer zones outside the national park, centering on two components, the community-based ecotourism (CBET) and the ecologically-friendly livelihood options (EFLO), by means of the activities such as implementing model projects, providing agricultural extension/training, drafting agreements and other related official documents, and making policy recommendation. Then, this project expected that BNBNPMB would become able to implement CM in BNBNP (as Overall Goal). The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> Overall Goal: BNBNPMB can manage natural resources in part of the national park with the target community groups in a collaborative manner. Project Purpose: The capacity of BNBNPMB to manage natural resources in the national park is enhanced through development of a collaborative management model at the target villages. 						
Activities of the project	<ol style="list-style-type: none"> Project site: Five villages (B'No B, Bon Dung I, Da Tro, Da Ra Hoa, and Da Blah) located in the buffer zones of Bidoup-Nui Ba National Park (BNBNP) in Lam Dong Province Main activities: (1) formulation of working groups within the project team and training of the working group members; (2) surveys and development of basic principles/rules in utilization of natural resources jointly with the local residents of the target villages; (3) development of the implementation system of the CBET model projects, capacity development of community groups, implementation of the model projects on a pilot basis, and evaluation of the model projects; (4) identification of EFLO, on the job training on EFLO, development of demonstration farms, evaluation of the activities, and development of an EFLO dissemination and promotion plan; (5) discussions on draft agreements on CM between BNBNPMB and the community groups of the target villages regarding natural resources of the park and draft of a provincial document regarding continuous support to CM, etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 4 persons Trainees received: 8 persons Equipment: vehicles, motorcycles, office equipment, cameras, GPS, binoculars, farming tools for the communities, etc. Overseas activities cost (surveys, pilot implementation of CBET model projects, development and dissemination of EFLO, construction of the visitor's center, etc.) </td> <td style="width: 50%; vertical-align: top;"> <p>Vietnamese Side</p> <ol style="list-style-type: none"> Staff allocated: 27 persons Project office (Da Lat City, Lam Dong Province) Local cost </td> </tr> </table> 					<p>Japanese Side</p> <ol style="list-style-type: none"> Experts: 4 persons Trainees received: 8 persons Equipment: vehicles, motorcycles, office equipment, cameras, GPS, binoculars, farming tools for the communities, etc. Overseas activities cost (surveys, pilot implementation of CBET model projects, development and dissemination of EFLO, construction of the visitor's center, etc.) 	<p>Vietnamese Side</p> <ol style="list-style-type: none"> Staff allocated: 27 persons Project office (Da Lat City, Lam Dong Province) Local cost
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Ex-Ante Evaluation	2009	Project Period	January 2010 – January 2014	Project Cost	(ex-ante) 310 million yen (actual) 306 million yen		
Implementing Agency	Bidoup-Nui Ba National Park Management Board (BNBNPMB)						
Cooperation Agency in Japan	Ministry of the Environment						

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of Viet Nam at the time of ex-ante evaluation and project completion> This project was consistent with the Viet Nam's development policies such as "strengthening natural resource management and

biodiversity conservation”, one of the strategic objectives of “the Management Strategy for a Protected Area System in Vietnam to 2010” (2003) (to be realized through development of models for sustainable socio-economic development in buffer zones or by other means) at the time of the ex-ante evaluation, and “participatory management, utilization and protection of protected areas”, one of the strategic objectives of “the National Strategy for Protected Area Management in Vietnam to 2020, Vision to 2030” (the draft was being finalized at the time of the project completion).

<Consistency with the Development Needs of Viet Nam at the time of ex-ante evaluation and project completion >

At the time of the ex-ante evaluation, protection of biodiversity in BNBPNP was highly needed as mentioned in “Background” above. Also, natural resource management of the park involving the communities was important as many of the residents of the target villages of this project had been farming within the park. At the time of the project completion, as well, the residents in the buffer zones suffered from low agricultural productivity, and thus both livelihood improvement and national park protection had to be realized such as through CM of the park. In this way, this project was consistent with the needs of the target areas.

<Consistency with Japan’s ODA Policy at the time of ex-ante evaluation>

“The Country Assistance Program for Viet Nam (2009)” states “improvements in livelihoods of residents in forest regions”, “forest preservation and sustainable forest management including countermeasures against illegal deforestation”, and “biodiversity preservation and other measures” in the section “Environmental Conservation”, one of its four priority areas. Therefore, this project was consistent with Japan’s ODA policy at the time of the 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 the project completion. As an implementation system of the CM model, the village regulation (VR) for natural resource management and the VR implementation system were developed through community participation and approved by the District People’s Committee (DPC). At the village level, CM Networks (CMNWs) and CM Management Teams (CMMTs) were formed. As activities related to CBET, support for establishment of the Center for Ecotourism and Environmental Education (CEEE) under BNBPNPMB, development of facilities including the visitor center and nature trails, and training for the communities on eco-tour guides and traditional dance performance (Gong), etc. were implemented. In relation to EFLO, farmers training in organic (eco-friendly) coffee production and other activities were implemented. In addition, Village Development Funds (VDFs) were established and strengthened as a benefit sharing mechanism (BSM)¹.

As a result, all of the indicators for the Project Purpose were achieved, namely, preparation of a draft of the CM Agreement (CMA) on natural resources of BNBPNP (Indicator 1; effectuated in December 2013 with signing by the community groups, BNBPNPMB and Commune People’s Committees (CPCs)), preparation of policy recommendations to the provincial government based on the results of the project activities (Indicator 2), and deepening understanding of the CM model among BNBPNPMB staff (Indicator 3).

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

The effects achieved as the Project Purpose have continued. The CMA is continuously effective at the time of the ex-post evaluation. Based on the interviews with BNBPNPMB staff members, it was confirmed that they keep understanding how to implement the CM model (i.e., they could appropriately explain it to the evaluation team), and are actually engaged in the continuous implementation of the CM model with the assignment of the staff who received technical transfer to relevant sections and the continuous use of the manuals developed under this project. There has not been staff transfer until the time of the ex-post evaluation. It can be added that the Sustainable Natural Resource Management Project (2015-2020), the successor project of this project, has also contributed to such a continuation of the project effects in terms of support for policy formulation and budget allocation for sustainable forest management.

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

The Overall Goal is judged as partially achieved, as reflection of the above-mentioned policy recommendations to provincial government documents (Indicator 2) has not been realized yet due to the prolonged coordination process among related organizations. At the time of the ex-post evaluation, BNBPNPMB had been having discussions with each relevant organization to institutionalize the CM model and reflect the policy recommendations on official documents. The other indicators are judged to have been achieved, based on the findings that the CMA have already gone into effect as mentioned above (Indicator 1) and most of the CM activities introduced under this project have been conducted continuously with the initiative of CMMTs in the five target villages (Indicator 3).

BNBPNPMB has exercised its skills on CM activities particularly in CBET and training. For example, BNBPNPMB has provided training to CEEE staff and community CBET groups for strengthening management of CBET activities, and developed new products including tourism education development in collaboration with CEEE, tourist agents and the communities. Also, BNBPNPMB formulated the CBET Master Plan (2015-2020) based on the lessons learned and recommendations from this project. Further, BNBPNPMB is engaged in capacity development of community members in such topics as CMA, dissemination of VR, agricultural technology/fund management and ecotourism. On the other hand, BNBPNPMB is rather passive in organizing EFLO groups into cooperatives or the like, i.e., BNBPNPMB takes actions only in response to requests or proposals from the community².

¹ The VDFs were established for pooling benefits and resources and distributing them to community members equally. The fertilizer provided under this project was used as the source for revolving fund. The total balance of the VDF increased year by year with incomes related to CBET and EFLO as main sources. The fund is utilized by villagers mainly for agricultural inputs.

² By being transformed to a cooperative, an EFLO group becomes capable of collective processing/direct selling of coffee and collective purchase/direct purchase of fertilizer. Direct purchase of fertilizer was actually observed in some groups. However, even though a community wants a cooperative, the organization process was not in progress so much due to lack of an actor that plays a leading role and insufficient

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

In planning CBET including construction of facilities, the project conducted an environmental impact assessment (EIA) that confirmed there would be no negative impact on the environment, and it obtained an approval from the Ministry of Natural Resources and Environment (MONRE) before starting the activities. At the time of the project completion, noticeable negative environmental impact was not observed. According to BNBPNMB, there is no negative impact by the time of the ex-post evaluation either.

As another impact, CBET activities were extended to two other villages near BNBPNP.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved at the time of the project completion, and the positive effects remain at the time of the ex-post evaluation. Although the degree of achievement of the Overall Goal is judged as partial due to indicator 2 that has not been achieved yet, the overall status is that CM of the natural resource in a part of BNBPNP by BNBPNMB and the community, under the system and the practice introduced by the project, continues to be in place in coordination with local governments and tourist agencies. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
<p>(Project Purpose) The capacity of BNBPNMB to manage natural resources in the national park is enhanced through development of a collaborative management model at the target villages.</p>	<p>1. Consensus on collaborative management is built between the target community groups and BNBPNP, then draft agreements of natural resources in part of the national park are prepared by the end of the project.</p>	<p>Status of the achievement: achieved (continued) (Project Completion) As a result of a series of village meetings with the community group in each target village, the CMA on natural resource management of BNBPNP was drafted under this project and approved by the Lam Dong Provincial People's Committee (PPC). With signing by the community groups, BNBPNMB and CPCs, the CMA went into effect on December 16, 2013. (Ex-post Evaluation) The CMA is continuously effective and there have been no revisions.</p>
	<p>2. Policy recommendations to provincial government for ensuring continuous implementation of collaborative management including activities of components of village regulations, CBET and EFLO are produced.</p>	<p>Status of the achievement: achieved (continued) (Project completion) Based on workshops and discussions with relevant organizations, draft policy recommendation on sustainable implementation of CM were prepared under this project, and they were approved at the Joint Coordinating Committee of this project in November 2013. (Ex-post Evaluation) Based on interviews with the PPC, it was confirmed that the PPC understands the contents of the policy recommendations that consist of (1) budget allocation and (2) CMA dissemination. Regarding (1), budget was continuously allocated by the PPC from its own sources during the period between the completion of this project and the commencement of the Sustainable Natural Resource Management Project (2015-2020), the successor project. Regarding (2) as well, the PPC expressed its will to engage in forest management through the CM model.</p>
	<p>3. More than 70% of the BNBPNP staff who participate in the project understands how to implement the model of collaborative management of natural resources in the national park.</p>	<p>Status of the achievement: achieved (continued) (Project completion) According to a study of the terminal evaluation, more than 75% of the staff members of BNBPNMB who participated in this project (total 160 respondents) were involved in project activities related to CM with an understanding of how to implement the CM model. The result of interviews in the terminal evaluation also confirmed the deepened understanding of CM among BNBPNMB staff. (Ex-post Evaluation) BNBPNMB staff can appropriately explain how to implement the CM model. They continue to engage in the implementation of the CM model with the assignment of the staff who received technical transfer to relevant sections and the continuous use of the manuals developed under this project. There has been no staff transfer.</p>
<p>(Overall goal) BNBPNMB can manage natural resources in part of the national park with the target community groups in a collaborative manner.</p>	<p>1. Agreements between the target community groups and BNBPNMB on management of natural resources in part of the national park are concluded within three years after the end of the project.</p>	<p>(Ex-post Evaluation) achieved See the above section on the Project Purpose Indicator 1.</p>
	<p>2. Policy recommendations are reflected in provincial government documents such as decisions, guidelines, and plans, necessary for the community groups and BNBPNMB for collaborative management</p>	<p>(Ex-post Evaluation) not achieved The PPC has put a part of the policy recommendations into practice (as shown in the above section on the Project Purpose Indicator 2), while the policy recommendations have not been reflected on official provincial documents yet. At the time of the ex-post evaluation, nevertheless, institutionalization of the CM model is being discussed by BNBPNMB, the provincial Department of Agriculture and Rural Development</p>

understanding of advantages of cooperative.

	of natural resources in part of the national park.	(DARD), the provincial Department on Natural Resource and Environment (DONRE), the provincial Department of Planning and Investment (DPI), and the provincial Department of Culture, Sports and Tourism (DOCST) at the CM Platform (meetings among relevant organizations and sections on CM) established on the initiative of the PPC.
	3. The target villages continue to practice the activities introduced by the project.	(Ex-post Evaluation) achieved Part of CBET activities have slowed down due to the stagnant tourism demand and the existence of active CBET undertakings by a group not related to this project in one of the villages (Bon Dung I). Nonetheless, the groups established under this project still carry out activities in all villages. Considering that the activities were expanded (e.g., new tours and trails were introduced), income from CBET increased and the VDF balance increased, overall, it can be concluded that the CM activities have been mostly continued or developing. See the table below for details.

Sources: Documents provided by JICA; Terminal Evaluation Report; questionnaire and interviews with BNBPNMB; interviews with CMMTs of the target villages.

3 Efficiency

While the project cost was within the plan (99% of the plan), the project period slightly exceeded the plan (102% of the plan). Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

“The National Strategy for Protected Area Management in Vietnam to 2020, Vision to 2030” mentioned in “Relevance” above went into effect in February 2014, and it continues to be effective at the time of the ex-post evaluation. Revision is planned on some relevant laws and regulations, namely, “the Forest Protection and Development Law” and “the Government Decree on Organization and Management of the Special-use Forest System (2010)”. This revision is to provide a direction toward strengthening policies and systems of community-based management, use and protection of protection forests.

<Institutional Aspect>

At the implementing agency level, the International Center for Tropical Highland Ecosystems Research (ICTHER) of BNBPNMB is responsible for tasks related to CM, BSM and EFLO, and CEEE is responsible for CBET, as envisaged during the project implementation period. The numbers of staff of both organizations (i.e., eight persons each) are in accordance with the regulation and are sufficient considering the fact that both organizations perform their tasks with that personnel allocation. Also, a cooperation mechanism across the organization is in place within BNBPNMB. For example, rangers undertake instructions and dissemination of VR that regulates CM, and administration divisions of BNBPNMB such as the accounting division are engaged in administrative tasks of CM, BSM and EFLO.

At the village level, CMMTs, composed of core CMMT members and community group leaders in individual villages, coordinate community members participating in CM, promote VR and manage VDF in a continuous manner.

<Technical Aspect>

As mentioned in “Effectiveness/Impact” above, there has been no staff transfer till the time of the ex-post evaluation, and the manuals developed under this project are still utilized. According to BNBPNMB, they will cope with future transfer of staff in such a way that they will instruct the staff to hand over thoroughly the knowledge and know-hows of the CM model to his/her successor before the transfer.

BNBPNMB also continues training for the community on CM management and agriculture-related subjects. The techniques related to VR/VDF management, CBET and EFLO are mostly sustained too. On the other hand, opportunity to use some techniques such as weaving, composting and husking coffee beans is limited mainly due to the lack of demand for the product/service and economic conditions of community members. For example, many coffee producers rely on middlemen for procurement of agricultural inputs, and make repayment of high interest debts owed to middlemen in unhusked beans that are cheaper than husked beans. This project tried to improve such situation by equipping farmers with coffee husking techniques. However, many farmers did not begin husking due to only a small amount of beans remained in their hand for husking (and then for profit) after repayment of debts to middlemen in unhusked beans. In other words, with the negotiation transaction with middlemen as mentioned above, each farmer can supply only a small amount of beans to market, and husking a small amount of beans incurs high husking cost. It is expected that a more systematic process from production to processing by community members will reduce the husking cost and increase the unit sales price of beans³, which will eventually contribute to higher income from coffee in the whole target area. However, action such as organization of cooperatives has not been progressing.

The facilities and EFLO equipment constructed/provided under this project are mostly in good conditions at the time of the ex-post evaluation, but weeders were out of order in all target villages. The weeders were effectively utilized during the project implementation period. After the project completion, farmers purchased new models with larger engines and with lower fuel consumption and continue weeding.

<Financial Aspect>

At the implementing agency level, the Sustainable Natural Resource Management Project (2015-2020), the successor project of this project is being implemented, and funds for CM activities can be allocated from that project. However, it is uncertain whether budget will be secured in a sustainable manner after the completion of the successor project (in fact, the cost for CM activities

³ It is expected that the establishment of cooperatives may lead to reduction of husking cost by processing a large amount of beans collected from producers and increase the unit price of unhusked beans through price negotiations.

during the two-year period from completion of this project to the commencement of the successor project was funded from the PPC's own sources). BNBPNPMB explained that in order to secure its own budget, natural resource management using the CM model should be institutionalized. As mentioned above, institutionalization of the CM model is currently being discussed among government organizations at the CM Platform.

At the village level, while the budget of CMMTs⁴ in the target villages is increasing, the amount is not sufficient to overcome the above-mentioned issue of farmers' dependency on middlemen and to fully utilize the techniques introduced under this project, considering the limited opportunity to participate in CBET and obtain revenues from it. BNBPNPMB is considering fund increase for CM activities by means of establishing a VDF financing mechanism in cooperation with other undertakings such as Payments for Forest Environmental Services (PFES) and 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 (REDD+), and by means of promoting CBET activities such as through development of new tourism products.

<Evaluation Result>

In light of the above, 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 attained capacity development of BNBPNPMB as planned for the Project Purpose through establishing a system of collaborative management (CM) of natural resources by BNBPNPMB and the target communities. Regarding the Overall Goal, while institutionalization of the CM system has not been achieved yet, CM activities have been continued on the ground. For sustainability, some problems are found in the technical and financial aspects such as the unclear future prospect of BNBPNPMB securing sufficient budget and the limited village-level budget, which have made some transferred techniques difficult to practice. As for efficiency, the project period was longer than planned.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- BNBPNPMB is recommended to make further efforts to secure budget in a sustainable manner for continuing its protection activities. To do so, BNBPNPMB is recommended to give shape to the CM system of natural resources using the CM model and then to seek for budget sources for the continuation of the effects through the Sustainable Natural Resource Management Project, the successor project, during its implementation period.
- BNBPNPMB is recommended to support activities to transform EFLO groups to cooperative organizations. Since promotion of making a cooperative may not only bring livelihood improvement of the community but also contribute to conserve national parks, it is important that BNBPNPMB increase awareness of advantages and significance of having a cooperative among the EFLO group and provide guidance on necessary administrative procedures for organizational development in each target village.
- In order to further activate EFLO by promoting the sharing of know-how and experience, CEEE is recommended to share information and cooperate with a Gong and ecotourism group that carries out activities independently from the activities organized by this project in Bond Dung I Village.

Lessons learned for JICA:

- When planning a project that involves introduction of machinery and techniques for livelihood improvement in target groups, JICA and the implementing agency should examine other inhibiting factors for livelihood improvement such as dependence on middle men and insufficient market strategy, in addition to the training on specific machinery and techniques. JICA and the implementing agency should extend a comprehensive assistance including measures to resolve those inhibiting factors. In case of this project, it turned out during the project implementation that insufficient amount of beans for husking due to the negotiation transaction with middlemen on most of the harvest was a bottleneck of production of husked coffee beans. The project took measures such as the introduction of VDF, which however could not solve the problem. Necessary countermeasures may include collective husking of coffee beans by farmers and price negotiations with middlemen, and establishment of cooperatives is necessary for that. If this problem had been well recognized in the project planning stage, the project could have provided support for transforming EFLO groups to cooperatives alongside the introduction of husking techniques and tools, and those techniques might have better applied and utilized.
- When the weeders provided under this project broke down, farmers purchased new models with larger engines and with lower fuel consumption instead of repairing the broken down ones. When purchasing equipment to provide under a project, its performance and quality should be fully examined so that the users could keep using it.
- The Project Purpose and the Overall Goal of a project should be set in a way that they clearly show the logical sequence of how the project will realize the expected effects and then to contribute to the concerned development issue. In case of this project, setting the development of a CM model as the Project Purpose and the continuous use of that model as the Overall Goal could have been more logical and clear.

⁴ In 2015, the average income of a CMMT (per village) was 217 million dong, including 26 million dong of income from CM activities such as membership fee, interests from VDF lending and sales from ecotourism. Most of the rest of the income was the balance carried from the previous year including VDF. The average expenditure of a CMMT was approximately 4 million dong including travel cost, meeting cost and remuneration.

Implementation status of CM activities in the target villages (Overall Goal Indicator 3)

Activities	At project completion <667 households in five villages>	At ex-post evaluation <883 households in five villages>
Community organization (participation in CMNW)	CMNW was set up in each village. (Note: CMNW was formerly BSM Network (BSMNW) until it was reorganized to CMNW in December 2013.) Membership ratio: around 60% of all households.	CMNW exists in every village. Membership ratio: 39% of households on average per village. (Note: the implementing agency explained that since a SMNW is not a rigid organization, the number of member households varies from time to time.) Major activities: lending VDF loans and sharing agriculture techniques.
Management of community organization (CMMT management)	CMMT was set up in each village. (Note: CMMT was formerly BSM Management Team until it was reorganized to CMMT in December 2013.)	CMMT exists in every village. Number of members: 9 persons on average. Major activities: coordinating CMNW members, operating and managing VDF and explaining VR.
VR observation	Community members who had a will to commit to VR observation were organized into CMNW/CMMT.	The VR is observed in every village. Since the introduction of the VR, there has been no case of illegal logging and incursion into BNNBP. However, as non-CMNW members do not fully understand the VR, CMMT explains and provides guidance on it.
VDF (management of the fund)	The total balance was 160 million dong in December 2013. Establishment of a VDF in each village was necessary.	VDF is operated in each village. Number of users: 62 persons on average per village. Balance: total 1 billion dong or 200 million dong on average per village (approx. 930 thousand yen). Type of income transferred to the fund: VDF membership fee, interests of VDF loans. Repayment ratio of loans: 90% on average. Use of loans: seeds, fertilizers and pesticides (additionally, food and medical cost in some villages).
Ecotourism (CBET)	Total 47 households from four villages participated. After training, the groups carried out CBET activities such as eco tour guiding, nature interpretation, Gong dance and traditional weaving.	Total 16 households from four villages participated. In Bong Dung I Village, another group that is independent from the CBET group organized by the project is active. Major activities: eco tour guiding, nature interpretation, Gong dance and traditional weaving (as demand for weaving is not high, it is continued at a limited scale). Income from CBET activities: 66 million dong in 2014; 75 million dong in 2015 (total of the four villages). After the project completion, new eco tours in cooperation with tourist agents, development of new trails and team building activities for groups such as schools and firms, etc., are carried out.
Livelihood improvement (EFLO)	More than 300 households received training on organic coffee farming. More than 80% of the attendants put what they learned into practice.	Organic (eco-friendly) coffee is cultivated in every village. Number of farmers engaged: total 167 households or 33 households on average per village. Production of organic coffee increased in all villages (no data available). The growers teach the techniques to other farmers in all villages. Training is conducted, too. However, opportunity to use some part of the techniques (such as composting and husking) is limited to farmers who own cow or who have capacity to sell husked beans to the market.



CMMT member and coffee field in a target village



Visitor center in BNNBP

Country Name		Project for Promotion of Student-Centered and Inquiry-Based Science Education					
Islamic Republic of Pakistan							
I. Project Outline							
Background	<p>Improving the quality of education at elementary education was one of the highlighted challenges in the “National Education Policy 1998-2010” in Pakistan. In 2006 the Ministry of Education (MOE) moved away from “Teacher-centered rote learning” method and introduced new curricula based on the concepts of “Student-centered, Inquiry-Based, and Outcome based”. MOE planned to introduce new curricula based textbook in three years starting from 2009 and implement new teaching methodology in the classroom. Teachers in schools, however, lacked 1) practical skills to implement new teaching method, 2) training opportunities to equip those skills, 3) teachers guides, and 4) enough science subject knowledge. National Institute of Science and Technical Education (NISTE) had offered trainings for science teachers for the past 20 years, however, their achievements had not been properly translated into the classroom activities of teachers. On the other hand, JICA had dispatched senior volunteers to NISTE since 2003 for assisting the development of experimental tools with easily available materials. MOE requested JICA for a technical cooperation project aiming at establishing a student-centered and inquiry-based (SCIB) training model that ensures teachers deliver SCIB science lessons.</p>						
Objectives of the Project	<p>Through developing SCIB teaching plans for Grade 4 to 8 science, equipping master trainers with skills and knowledge to deliver SCIB science lessons, identifying necessary interventions for effective teacher training through pilot activities in ICT, and sharing the experience of model SCIB teacher training among other educational related stakeholders, the project aimed at establishing effective teacher training model that ensures teachers to deliver SCIB science lessons, thereby contributing to utilization of the model by other provinces and areas other than five pilot clusters in ICT. The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> 1. Overall Goal: Effective teacher training model that ensures teachers to deliver Student-centered and inquiry-based (SCIB) science lessons is utilized by other provinces and areas other than 5 pilot clusters in ICT according to their setup. 2. Project Purpose: Effective teacher training model that ensures teachers to deliver SCIB science lessons is established. 						
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Islamabad (Islamabad Capital Territory (ICT)) 2. Main activities: (1) Develop prototype SCIB teaching plans based on new curriculum and available new textbooks through field testing at selected schools and adjust the prototype to be in line with the provincial textbooks; (2) Design and conduct the master trainer training programs and develop training materials; (3) Formulate effective strategy to ensure implementation of teacher training at the cluster level in ICT and master trainers trained at NISTE conduct teacher training in pilot areas of ICT; and (4) Organize nation-wide forums and support provincial level forums to share and disseminate good practices on SCIB science lessons among provinces etc. * The subject to be focused on is General Science and the grade levels are from Grade 4 to Grade 8. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Japanese Side 1) Experts: 9 persons 2) Trainees received in Japan: 22 persons 3) Equipment: computers, projectors, printer, photocopy machine etc. </td> <td style="width: 50%;"> Pakistan Side 1. Staff allocated: 25 persons 2. Project office rooms, training venue, hostel, air conditioner 3. Local cost (for development of Grade 8 teaching plans) </td> </tr> </table> 					Japanese Side 1) Experts: 9 persons 2) Trainees received in Japan: 22 persons 3) Equipment: computers, projectors, printer, photocopy machine etc.	Pakistan Side 1. Staff allocated: 25 persons 2. Project office rooms, training venue, hostel, air conditioner 3. Local cost (for development of Grade 8 teaching plans)
Japanese Side 1) Experts: 9 persons 2) Trainees received in Japan: 22 persons 3) Equipment: computers, projectors, printer, photocopy machine etc.	Pakistan Side 1. Staff allocated: 25 persons 2. Project office rooms, training venue, hostel, air conditioner 3. Local cost (for development of Grade 8 teaching plans)						
Ex-Ante Evaluation	2008	Project Period	May 2009 – April 2012	Project Cost	(ex-ante) 350 million yen (actual) 340 million yen		
Implementing Agency	National Institute of Science and Technical Education (NISTE)						
Cooperation Agency in Japan	KRI International Corporation						

II. Result of the Evaluation**1 Relevance**

<Consistency with the Development Policy of Pakistan at the time of ex-ante evaluation and project completion>

The project has been consistent with Pakistan’s development policy. At the time of ex-ante evaluation, ‘improving science education’ was set forth in “National Education Policy 1998-2010”, “National Plan of Action on Education for All (2001-2015)” and “Medium Term Development Framework 2005-2010”. At the time of project completion, “National Plan of Action on Education for All (2001-2015)” was still effective, and other policy documents such as “National Education Policy 2009” and provincial education sector plans (drafts) put emphasis on promotion of SCIB science education.

<Consistency with the Development Needs of Pakistan at the time of ex-ante evaluation and project completion>

At the time of ex-ante evaluation, SCIB based curriculum had been introduced but textbooks were not developed/revised accordingly, hence, teachers’ skills for practice of SCIB lessons were low and there was no teaching material for teachers to improve their understanding on SCIB lessons.

After the commencement of this project, the process of new textbooks development/revision and printing in ICT and provinces took longer than what was anticipated (as shown in “Background” above). This situation on textbooks was taken into consideration during the project implementation phase, and it was agreed to continue to develop teaching plans without waiting for the new textbooks anticipating that when the new textbooks would be developed they would also be aligned with 2006 curriculum as has been teaching plans¹.

At the time of project completion, due to the 18th constitutional amendment in Pakistan in 2010, the mandate to develop/revise/print textbooks was also devolved to the provinces. Similarly, the dissemination of teacher training model in provinces became the jurisdiction of each province (not NISTE), and thus, the project revised the Overall Goal to match with the situation and put more focus on the Main activities (4) stated above to influence the provinces.

<Consistency with Japan’s ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan’s ODA policy on improvement of basic education, as stated in the Country Assistance Program for the Islamic Republic of Pakistan (2005).

<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 mostly achieved by the time of project completion. Based on the pilot teacher training in ICT, the teacher training model was developed and documented as “Guidelines for Student-centered and Inquiry-based (SCIB) Science Education Teacher Training Program”, which were reviewed and endorsed by MOE and the Project Implementation and Monitoring Committee (PIMC) (Indicator 1). Moreover, according to the end-line survey and the monitoring report, 70% of trained teachers for Grade 4 and 5 (Primary) practiced at least one aspect of the features of SCIB science², while 55% of trained teachers for Grade 6 and 7 (Elementary) did it (Indicator 2).

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

The project effects have been partially maintained since project completion. In ICT, teacher’s trainings have been conducted through a CIDA project (2007-2016)³ after completion of the JICA project. These trainings are based on the 2006 new curriculum and new textbooks introduced from 2012 onwards based on questions, prediction and discovery concepts. 70% of the contents of the new textbooks, which were developed by some of the counterpart personnel of the JICA project, contain the SCIB approach. Additionally, more than a half of the staff trained under the JICA project was retained by NISTE, who mainly contributed in the designing and implementation of CIDA supported teacher’s trainings, hence, included the SCIB approach in post project teacher trainings as well⁴.

In provinces, on the other hand, it has no longer been NISTE’s mandate to train teachers, and the master trainers trained under this project are not engaged in the teacher trainings: there was no mechanism agreed under the project to involve master trainers trained under the project as master trainers of training institutes, as those who were trained were actually teachers teaching in various schools and not master trainers and/or trainers at a training institute⁵. Nevertheless, they still utilize the knowledge or experience from this project in their schools. Also, those counterparts who joined the project from textbook board of the provinces contributed to the development/writing of new textbooks along with other authors.

In both ICT and provinces, the guidelines developed under this project have not been used since project completion as new textbooks have been introduced. It is important to remind that Guidelines were developed in the absence of textbooks as an alternative mean of support till the time that text books are available⁶. Also, the SCIB teaching plans developed under the project have not been used in ICT or other provinces since project completion, as it is widely understood by teachers that the new textbooks provide enough material to teach Grade 4 to 8, and teachers mainly use diaries written by teachers instead of teaching plans⁷.

As for practice of three criteria of SCIB science lesson concept, according to the class observation conducted for ex-post evaluation⁸, one out of two teachers for Grade 5 was practicing two criteria (“questions from students” and “students’ chances of prediction”), and one out of three teachers for Grade 6 and 7 was practicing two criteria (“questions from students” and “students’ chances of discovery”).

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

The Overall Goal has been partially achieved by the time of ex-post evaluation. As explained above, a total of 140 teachers in ICT across clusters, belonging to both pilot and non-pilot schools of this project, were trained through the CIDA project after the project

¹ Science subject Textbooks development/revision/printing process in Islamabad and provinces for Grades 4-8 was undertaken as follows: a) Islamabad: 2011-2015; b) Punjab: 2011-2016; c) Sindh: 2015-2016; d) KPK: 2011-2015; and e) Balochistan: 2013-2015.

² Three criteria were focused to assess lesson presenters’ skills in realizing SCIB science lessons: (1) questions from students, (2) students’ chances of prediction, and (3) students’ chances of discovery.

³ The outline of the CIDA project is as follows: The project of “Capacity Building of Teachers Training Institutions of MOE, and Training of Elementary School Teachers in ICT, FATA, FANA and AJK, was initiated in 2007 under the CIDA’s Debt for Education Conversion (DFEC) program. The five years project was started to improve quality of elementary education in Pakistan, with NISTE, and then “Policy and Planning Wing” of the Ministry of Education, with the target to train 1,280 elementary teachers with the budget of Pak Rupees 669.556 Million. The PC1 for the project was modified in 2013, and further extended till 2016 at no cost extension. NISTE trained an overall 1,421 teachers with 226 elementary teachers in ICT (a total of 140 elementary teachers (67% female, 33% male teachers) were trained since the completion of JICA project (from 2013 to 2016) under CIDA’s DFEC program in ICT).

⁴ For example, the CIDA-supported trainings focus on Biology, Chemistry with the additional component of how to use Information Communication Technology (ICT), and how to teach Science using SCIB approach (such as science education to be based on real life situations, use of science kits and provision of science kits to all primary and middle schools).

⁵ An underlying factor regarding provinces is that Provincial Education Departments were not engaged as lead coordinated departments to coordinate with other key related organizations such as training institutes, school administrations, textbooks & Bureau of curriculum etc. Hence, the project could not promote the ownership and build institutional capacities that were necessary for the long term sustainability and impact of the project on intended beneficiaries at the provincial level.

⁶ As pointed out by the focal person of NISTE, and as per terminal evaluation summary of JICA’s SCIB project under the sustainability head, where it is mentioned as “...textbooks linked with SCIB science approach can contribute to expand the SCIB science lessons in other provinces”.

⁷ The diaries cannot be termed as replacement of teaching plans, as these diaries are more of generic nature, focusing on broad outline and without objective of outcome of the lessons.

⁸ Class observation was conducted for five science teachers of Grade 5, 6 and 7 in three schools from pilot areas in ICT during the field survey for ex-post evaluation.

completion. Therefore, the SCIB approach has been utilized in ICT other than five pilot clusters (Indicator 1). In provinces, the SCIB teacher training model could not continue as explained above except in a sense that the SCIB approach was incorporated in the textbooks and the trained master trainers have been practicing the SCIB approach as teachers in their respective schools (Indicator 2).

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

No negative impact on natural environment has been observed and no land acquisition and resettlement has been occurred under the project.

<Evaluation Result>

In light of the above, through the project, targets set in indicators for the Project Purpose were mostly achieved by the time of project completion, however, the project effects have been partially maintained since project completion, and targets set in indicators for the Overall Goal have been partially achieved by the time of ex-post evaluation. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Effective teacher training model that ensures teachers to deliver SCIB science lessons is established.	1. Well planned and implemented SCIB teacher training model including 1) preparation, 2) training delivery/method, 3) training contents, 4) monitoring and evaluation is compiled, documented and endorsed.	Status of the achievement: achieved (partly continued) (Project Completion) The training guidelines based on the ICT pilot teacher training implemented in the project were compiled and endorsed by MOE and PIMC. (Ex-post Evaluation) The training guidelines (Guidelines for Student-centered and Inquiry-based (SCIB) Science Education Teacher Training Program) produced under the project have not been used in ICT or other provinces since project completion, but the SCIB approach was incorporated in the new textbook, and the trainings have been conducted under a CIDA project. SCIB teaching plans developed under the project have also not been used in ICT or other provinces since project completion.
	2. 70% of teachers in pilot areas in ICT who received training practices at least one criteria of SCIB science lesson concept.	Status of the achievement: mostly achieved (partially continued) (Project Completion) According to the end-line survey and the monitoring report, 70% of trained teachers for Grade 4 and 5 (Primary) and 55% of trained teachers for Grade 6 and 7 (Elementary) practiced at least one aspect of the features of SCIB science. (Ex-post Evaluation) According to the class observation conducted for ex-post evaluation, one out of two teachers for Grade 5 was practicing two criteria of SCIB science lesson concept (“questions from students” and “students’ chances of discovery”), and one out of three teachers for Grade 6 and 7 was practicing two criteria (“questions from students” and “students’ chances of discovery”).
(Overall Goal) Effective teacher training model that ensures teachers to deliver Student-centered and inquiry-based (SCIB) science lessons is utilized by other provinces and areas other than 5 pilot clusters in ICT according to their setup.	1. SCIB teacher training model utilized in ICT other than 5 pilot clusters.	(Ex-post Evaluation) Mostly achieved The SCIB teacher training model has been utilized in ICT mostly through teacher trainings under the CIDA project, and a total of 140 teachers were trained in ICT across clusters.
	2. SCIB teacher training model is introduced to provinces with adoption/adaptation.	(Ex-post Evaluation) Partly achieved SCIB teacher training model has not been introduced to provinces since project completion, but the SCIB approach has been incorporated in the text books and the trained master trainers who were actually teachers have continued practicing the SCIB approach in their respective schools.

Source: JICA internal document, interview with NISTE, Federal Directorate of Education (FDE), brief interviews with administrators and teachers in 30 schools in ICT, and in-depth interviews with administrator and teachers and class observation in three schools in ICT.

3 Efficiency

Both project cost and project period were within the plan (97% and 100% against the plan, respectively). Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The 2009 National Education Policy, the upgraded policy of the above-mentioned “National Education Policy 1998-2010”, serves as the latest policy till the time the new policy will be implemented. It highlights importance of quality of education and therefore implies the need for improving science education through training teachers and /or promoting SCIB science education through focus on the new curriculum of 2006.

<Institutional Aspect>

The organizational structures for promoting SCIB science education of NISTE remains the same as the one during the project implementation period. For future prospects, NISTE is in transition of becoming a National Skills University. Afterwards, the scope and mandate of activities will change.

Regarding the current number of NISTE science officers, eight out of a total of 14 staff members trained under the project (to conduct teacher trainings to promote SCIB science education in Pakistan) still work in NISTE at the time of ex-post evaluation. This number is sufficient considering that after devolution NISTE has much less mandate of training than what it had before.

In provinces, approximately 90% of teachers trained as master trainers under the project still work in schools; however, given a lack of mechanism to involve those “master trainers” as master trainers of training institutes, the number of such trained teachers is not sufficient to continue the training activities based on the SCIB training model established under the project in their provinces.

<Technical Aspect>

The skill level of staffs of NISTE is sufficient to promote SCIB science education in Pakistan at the time of ex-post evaluation based on availability of staff directly trained through this project. Even those members who are posted out or went to other departments on deputation, can be called in for any training activity, should a need arises. Regarding master trainers and teachers, 100% master trainers and 100% pilot teachers trained under this project remain at the schools in ICT. However, there exist no mechanism to support these master trainers and pilot teachers to continue the program. Therefore, there is need to enhance skills of the current staff at the managerial level to further sustain and continue such programmes. As for provinces, all staffs in provincial education authorities trained under the project have been transferred to other departments, and the number of teachers (“master trainers”) trained under this project is limited.

<Financial Aspect>

The amount of total budget in NISTE was approximately three million Pakistani Rupees in 2013, approximately five million Pakistani Rupees in 2014 and approximately six million Pakistani Rupees in 2015, which was to cover teacher trainings. While FDE has 20 to 30 million Pakistani Rupees of annual budget for teacher trainings, these amounts have not been spent due to the above-mentioned teacher training cost has been all funded by CIDA. After completion of the CIDA project in June 2016, teacher trainings would mostly be funded by the federal budget. However, the authorities at NISTE and FDE do not have any current initiative to carry on with the CIDA project interventions. Also, there is capacity gap at FDE on how to plan and spend budget due to transfer of the concerned staff, ad-hoc (non-permanent) officials and lack of focused training on financial management and budgetary planning.

Provincial educational authorities do not have any specific budget to conduct their respective organizational activities to promote SCIB science education at the time of ex-post evaluation.

<Evaluation Result>

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

5 Summary of the Evaluation

Though the project, targets set in indicators for the Project Purpose were mostly achieved by the time of project completion, but the project effects have been partially maintained since project completion. The targets set in indicators for the Overall Goal have been partially achieved by the time of ex-post evaluation. As for sustainability, some problems have been observed in terms of institutional, technical and financial aspects. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Lessons learned for JICA:

1. It is not practical to roll out the training programme through master trainers alone if they are teachers by profession and not trainers. Under this project those who were trained as master trainers were actually school teachers, whose mandate is to teach & not to train.
2. Under this project, master trainers were trained from schools & were not from training institutes. A coordination mechanism was needed between school education departments and teacher training institutes for monitoring of SCIB science lessons utilizing the project-trained master trainers in teacher training. When implementing a similar project in future, a mechanism needs to be firmly established in project implementation stage for coordination among various organizations and schools to ensure continuity of project activities.



Grade 5 Science Student doing her class work FDE School in Islamabad



Grade 6 Science class in Progress in FDE School in Islamabad

Country Name	Integrated Community Development Project
Independent State of Papua New Guinea	

I. Project Outline

Background	Following from JICA's preceding technical cooperation project "The Integrated Community Development Project for the Settlement Areas in National Capital District", the Department for Community Development (DFCD) introduced the Integrated Community Development (ICD) Policy in January 2007. The second phase of the project promoted the establishment of Community Learning and Development Centers (CLDC) as the basic strategy and driving force for community development in local communities.						
Objectives of the Project	Through (i) establishing a system (Joint Implementation Committee: JICs and others) to supervise and monitor CLDC Focal Point (F/P) to support community development activities, (ii) providing training to DFCD and provincial governments (National Capital District Commission: NCDC and East Sepik Provincial Administration: ESPA) for implementation of sustainable community development activities, (iii) providing training to CLDC F/P and raising awareness of the communities by CLDC F/P at pilot sites, (iv) planning and implementing pilot activities and developing a guideline for ICD Policy and others, the project aimed that capacity of CLDC F/P for supporting CLDC/community activities is enhanced and capacity and implementation structure of DFCD, NCDC, ESPA and district governments for supporting CLDC F/P is strengthened (Project purpose level) and thereby contributing to rolling out of community development projects based on ICD Policy (making CLDC F/P play a key role in community development) to other areas in Papua New Guinea (PNG) (Overall goal level). The project objectives set forth are as follows:						
	<ol style="list-style-type: none"> 1. Overall Goal: Community development in PNG is promoted based on the Integrated Community Development Policy (ICD Policy) 2. Project Purpose: Human resources, organizational capacity and structures which are required for promoting sustainable development based on the ICD Policy are strengthened. 						
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Port Moresby (National Capital District (NCD)), and East Sepik Province 2. Main activities: <ol style="list-style-type: none"> (1) The project supports governments establish a system (JICs and others) to supervise/monitor CLDC F/P to support/encourage CLDC/community activities, (2) The project provides training to DFCD on Project Cycle Management (PCM) and others for implementation of sustainable community development activities, (3) JIC provides training to CLDC F/P and CLDC F/P raises awareness of the communities at pilot sites, (4) The project provides training to Provincial governments (NCDC and ESPA) on PCM and others for implementation of sustainable community development activities, (5) JIC and CLDC F/P plan and implement pilot activities and develop a guideline for ICD Policy based on the experience of pilot activities, and (6) JIC and CLDC F/P disseminate information on ICD Policy 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Japanese Side <ol style="list-style-type: none"> 1. Experts: 9 persons 2. Training in Japan : 5persons, Training in the Philippines: 3 persons 3. Equipment: PC, photocopy machines, AV equipment </td> <td style="width: 50%; vertical-align: top;"> PNG Side <ol style="list-style-type: none"> 1. Staff allocated: 53 persons 2. Land and facilities: Office facilities, office space, telephones and others. 3. Local cost: Transportation (vehicle), fuel, cost for materials of water supply project, allowance for JIC, wages for project staff </td> </tr> </table> 					Japanese Side <ol style="list-style-type: none"> 1. Experts: 9 persons 2. Training in Japan : 5persons, Training in the Philippines: 3 persons 3. Equipment: PC, photocopy machines, AV equipment 	PNG Side <ol style="list-style-type: none"> 1. Staff allocated: 53 persons 2. Land and facilities: Office facilities, office space, telephones and others. 3. Local cost: Transportation (vehicle), fuel, cost for materials of water supply project, allowance for JIC, wages for project staff
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Ex-Ante Evaluation	2008	Project Period	March 2009 – March 2012	Project Cost	299 million yen		
Implementing Agency	Department for Community Development (DFCD), National Capital District Commission (NCDC) and East Sepik Provincial Administration (ESPA)						
Cooperation Agency in Japan	-						

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of PNG at the time of ex-ante and project completion></p> <p>The Integrated Community Development project was consistent with PNG's development policy. The project directly supported the implementation of the ICD Policy (2007-2011), the first national community development policy, which was enacted by parliament in 2007. The principles of promoting empowerment and community participation through CLDC in accordance with ICD policy were consistent with the country's overall goals specified in Medium-Term Development Strategy (MTDS) (2005-2010) for social development. The long-term policy "The Papua New Guinea Vision 2050" also stressed the importance on community and social development.</p> <p><Consistency with the Development Needs of PNG at the time of ex-ante and project completion></p> <p>The Integrated Community Development Project during ex-ante and project completion was consistent with the development needs of PNG. The Department for Community Development (DFCD) did not have direct outreach to local communities due to the role defined by the Organic Law on Provincial and Local Level Governments. This resulted in less-satisfactory pilot project outcomes despite the efforts made by the implementers. Therefore, further capacity enhancement for community development was needed. The project was also consistent with the needs at the project completion, as a larger portion of the population resided in rural areas where basic services were needed.</p>

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The Government of PNG and the Government Japan agreed under the policy dialogue that Japan's ODA will focus on human resource development and capacity development for effective development.

<Evaluation Judgment> In light of the above, the relevance of the project is rated as high.

2 Effectiveness/Impact

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

The purpose of the Integrated Community Development Project was partially achieved at the time of project completion. The capacity of key personnel were enhanced (indicator 1), though it did not reach the level as envisaged in the project design. Various efforts to mobilize resources through the CLDC focal points were made including the East Sepik Provincial Government's project application to development partners, unfortunately external resources were not obtained (Indicator 2). DFCD secured some budget for the project, while NCDC and the East Sepik Provincial Government were not able to secure sufficient budget for the pilot projects in Port Moresby and Patiko in Wosera Gaui District in East Sepik Province (Indicator 3).

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

The ex-post evaluation confirmed that budget constraints and institutional weakness (weak ownership and insufficient staff allocation) resulted in little support provided to local communities to implement community projects on a continual basis. JIC meetings of NCDC were not conducted after NCDC withdrew from the project due to security issues in the settlement areas. JIC with Headquarters was not held after the project was completed. Ongoing monitoring of the pilot projects by DFCD, NCDC and the East Sepik Provincial Government is not consistent, mainly due to budget constraints. No additional community development activities were supported in the NCD and the East Sepik Province since the project was completed in 2012.

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

DFCD rolled out the ICD policy to 16 provinces with very little financial support from the PNG Government to establish CLDCs. However, CLDC focal points were established in all 16 provinces as the basic structure to drive community development activities. The ex-post evaluation confirmed that only 5 out of the 16 provinces actually had community learning development centers. The other provinces have community development officers that act as focal points. The CLDC focal points were expected to be the channel for community development. However, the ex-post evaluation confirmed that the CLDC focal points were not resourced well to perform this function effectively. It only confirms that future roll-out will incur the same results unless significant improvements are done to the current arrangements.

<Other impacts>

Women community members from the Gorobe Settlement who participated in the training facilitated by the project are now engaged in small businesses. Basic management skills obtained through the pilot project equipped women with skills to manage business at micro level which is positive. No land acquisition occurred under this project, and no negative impacts on natural environment were observed.

<Evaluation Result>

The goal and purpose of the Integrated Community Development Project were partially achieved with some form of technical transfer been observed within the Department for Community Development, the National Capital District Commission and the East Sepik Provincial Government. The ex-post evaluation noted that insufficient budget and institutional weakness affected the continuation of project effects. Overall, the ICD policy was rolled out to 16 provinces while the in-efficiencies of the CLDC focal points have not been functional effectively. The effectiveness and impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Human resources, organizational capacity and structures which are required for promoting sustainable development based on ICD Policy are strengthened.	(Indicator 1) All key personnel at National, Provincial and District levels, who are involved in the Project activities, demonstrate their improved understanding and commitment to ICD Policy implementation	<u>Status of achievement: Partially achieved at the project completion</u> (Project Completion) Understanding of the ICD Policy by all key personnel increased. There was some level of technical transfer however technical demonstration was lacking. There was no clear evidence to confirm that improved understanding of ICD policy automatically resulted in improved project outcomes. There was a gap basically. (Ex-post Evaluation) There is very little evidence to assess if officers are able to demonstrate the skills obtained.
	(Indicator 2) Resources channeled through CLDC F/Ps increase in the Project activity areas.	<u>Status of achievement: Not achieved at the project completion</u> (Project Completion) Efforts were made, but not successful in mobilizing new resources. (Ex-post Evaluation) Not successful in mobilizing new resources.
	(Indicator 3) DFCD, NCDC/ESPA and District Administration secure and disburse appropriate budget to community development in line with ICD Policy.	<u>Status of achievement: Partially achieved at the project completion</u> (Project Completion) While DFCD secured the budget for the project period as well as for 2012 to conduct community development project based on ICD Policy. NCDC and ESPA could not disburse the promised budget during the project implementation. At project completion, DFCD and NCDC have some budget but it was not sufficient to fully roll-out the ICD Policy. (Ex-post Evaluation) Not sufficient budget is secured.
(Overall goal) Community development in PNG is promoted based on the Integrated Community Development Policy (ICD Policy)	Level of roll-out and coverage of ICD Policy	<u>Status of achievement: Partially achieved.</u> (Ex-post Evaluation) ICD policy was rolled out to 16 provinces. However, CLDC focal points have not been functional effectively.

Source : JICA internal documents, questionnaire survey and interviews with counterparts

3 Efficiency

Both project cost and project period were within the plan (ratio against the plan: 100% respectively). Therefore, efficiency of the project is high.

4 Sustainability

The sustainability of the Integrated Community Development Project was assessed in terms of the likeliness of the continuation of the project benefits after completion and the factors that affected the ongoing benefits of the project. The assessment of project sustainability looked at four important aspects critical to ensuring sustainability:

1. **Policy Aspects:** It is positive that social development is still a priority of the PNG Government under the Medium Term Development Strategy 2011-2015 and the Development Strategic Plan 2010-2030. This was further strengthened with the enactment of the Integrated Community Development Policy in 2007. Updates from the DFCD confirmed that the Integrated Community Development Policy, 2007 is currently under review. The outcome of this policy review will determine if a superseding policy will be developed.
2. **Institutional Aspects:** The institutional and organizational structure of DFCD, NCDC and the East Sepik Provincial Government are appropriate. The ex-post evaluation confirmed that there are insufficient number of staff to effectively implement and coordinate the program. It is important to understand that institutional sustainability is dependent on the efficient operations of the central government. Staff allocations for the DFCD and NCDC are negotiated with the Department for Personnel Management (DPM) as the key central agency responsible for public service recruitment and the Department of Finance for staff salaries. DFCD and NCDC are not allowed to recruit additional staff unless the approval is granted through the normal budget process at the national level.
3. **Technical Aspects:** Some level of technical transfer has happened within DFCD, NCDC and the East Sepik Provincial Government, however there is very little evidence to confirm practical demonstration of technical skill in the implementation of the pilot projects. The ex-post evaluation noted that the internal training systems within these organizations are generally weak.
4. **Financial Aspects:** DFCD, NCDC and ESPA do not secure sufficient budget to promote ICD policy despite the above-mentioned policy support.

Overall the ex-post evaluation confirmed that no-additional community development activities were implemented due to budget constraints. This only reflects that project sustainability is low.

5 Summary of the Evaluation

The project purpose of the project was partially achieved upon completion with some level of technical transfer been observed within the DFCD, NCDC and the East Sepik Provincial Government. Though the project produced some good results, ongoing implementation of the community development activities was affected by in-sufficient budget and institutional weakness. The overall goal was partially achieved with the roll-out of the ICD policy to 16 provinces, despite the inefficiencies of the CLDC focal point in the provinces. It is uncertain to confirm at this stage if the Department will be able to secure funding for additional community development projects in the pilot provinces. Project sustainability is further affected by budget constraints and weak institutional systems within Government. The overall rating for the project is partially satisfactory.

III. Recommendations & Lessons Learned

Lessons learned for JICA

Although the integrated community development approach was rolled out to 16 provinces, this roll-out exercise was conducted with very little financial support to establish community learning development centres in the provinces. Future interventions for community development must consider lessons from the pilot projects implemented in Port Moresby, National Capital District and the Wosera Gaui District in East Sepik Province. Ownership by counterpart agencies is crucial for the successful implementation of a community development project in PNG. Therefore, the sufficient level of local ownership should be ensured such as securing budget before any commitment from the Government of Japan is made.



Gorobe Womens Training Centre currently not in use. However Women who attended training are now conducting and managing small micro business activities



Sign Board for the Womens Training Centre at the Gorobe Settlement in Port Moresby

Country Name	Water is Health and Life (Phase 2)														
Plurinational State of Bolivia															
I. Project Outline															
Background	<p>In Bolivia, 71% (2006, the World Bank) of the national population had access to safe water. The water supply coverage in the rural area was only 50% (2005, the World Bank), which caused the spread of water-borne diseases as well as infant mortality. Reacting to such a situation, the Government of Japan has implemented three grant aid projects to procure necessary equipment for development of underground water, dig wells and construct water supply facilities in pilot communities in six departments among the nine. Also, the Government of Bolivia took its own measures concerning establishment and maintenance of water supply facilities to be managed by the municipalities, which, however was not sufficient. To tackle with this, Japan's technical cooperation project "Water is Health and Life" was implemented from 2005 to 2008 in those six departments to support the municipalities, by improving the capacity of the Unit of Water, Basic Sanitary and Housing (UNASBVI) of each department, promoting productive rural development activities to maintain water supply facilities, and strengthening cooperation among water-related organizations. However, some issues remained such as different capacity level among the six departments, insufficient techniques for digging wells and developing groundwater, etc. So as to solve these issues, the Government of Bolivia requested the succeeding phase of the project, expanding the target to all the nine departments in the country.</p>														
Objectives of the Project	<p>The project aimed at strengthening UNASBVI's capacity for supply of drinking water in the rural area, in order to improve the health conditions of the people.</p> <ol style="list-style-type: none"> 1. Overall Goal: To contribute to improvement of the water supply rate in the rural area throughout the nation, so that the people could have better quality of health. 2. Project Purpose: UNASBVI's capacity is strengthened for supply of drinking water in the rural area in a sustainable way. 														
Activities of the Project	<ol style="list-style-type: none"> 1. Project site: Santa Cruz of Santa Cruz Department (SC), Oruro of Oruro Department (OR), and capital municipality of the other departments (Chuquisaca (CH), Tarija (TR), Potosí (PT), La Paz (LP), Beni (BE), Pando (PA) and Cochabamba (CB)). 2. Main activities: i) Establishment of the operational committee of Technical Centers (CT-ASVI), ii) Training by CE-ASVI for municipal technicians and community water committees on selected topics, iii) Development of the database by the department offices on the water supply facilities, iv) Conduct of researches by CT-ASVI on selected topics related to water supply, v) UNASBVI's coordination among the stakeholders related to water supply. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Bolivian Side</td> </tr> <tr> <td>1) Experts: 6 persons</td> <td>1) Staff allocated: 46</td> </tr> <tr> <td>2) Training in Japan: 9 persons</td> <td>2) Land and facilities: Office spaces and technical centers.</td> </tr> <tr> <td>3) Equipment: 195 million yen for vehicles, well drilling machines, etc.</td> <td>3) Expenses: 133 million Bs. for project operation.</td> </tr> <tr> <td>4) Local operation cost: 76 million yen for the local operation expenses.</td> <td></td> </tr> </table> 					Japanese Side	Bolivian Side	1) Experts: 6 persons	1) Staff allocated: 46	2) Training in Japan: 9 persons	2) Land and facilities: Office spaces and technical centers.	3) Equipment: 195 million yen for vehicles, well drilling machines, etc.	3) Expenses: 133 million Bs. for project operation.	4) Local operation cost: 76 million yen for the local operation expenses.	
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Ex-Ante Evaluation	2008	Project Period	June 2008 to December 2011	Project Cost	(Ex-ante) 290 million yen (Actual) 256 million yen										
Implementing Agency	Ministry of Environment and Water Resources, 9 Department Governments.														
Cooperation Agency in Japan	None.														

II. Result of the Evaluation

1 Relevance					
<Consistency with the Development Policy of Bolivia at the time of ex-ante evaluation and project completion>					
<p>The project was consistent with Bolivian development policies, as the National Development Plan (2006-2011), Basic Hygiene Sector Plan (2001-2010, 2011-2015), and National Plan of Basic Hygiene (2008-2015), prioritizing improvement of the water supply in the rural area.</p>					
<Consistency with the Development Needs of Bolivia at the time of ex-ante evaluation and project completion >					
<p>There were issues related to management of water quality deteriorated by pesticide contamination in irrigation water and mine pollution in the mine areas. People have had needs for ensuring safe drinking water in the rural areas and building capacity of the department government through the water quality analysis and groundwater development.</p>					
<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>					
<p>Based on the policy dialogue in 2006, three areas were selected as assistance priorities including social development. In this priority area, water and hygiene was considered necessary for improving the livelihood.</p>					
<Evaluation Result>					
<p>In light of the above, the relevance of the project is high.</p>					
2 Effectiveness/Impact					

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

The Project Purpose was mostly achieved. UNASBVI's capacity for supplying drinking water in the rural areas was strengthened, as more production wells were drilled in five departments and more wells with water supply facilities were operated than planned in seven of the nine departments. Non achievement in some departments was because of delayed construction of the facilities. The beneficiaries of water supply increased as planned in seven of the nine departments¹. On the other hand, no production well was drilled by the project and no water facilities were implemented in Cochabamba because no activity was conducted given the low priority for the water supply services by the department government. However, with the central government program under support from Inter-American Development Bank, wells were drilled for drinking water in Cochabamba.

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

It is judged that the project effects have mostly continued since the project completion. Though the current status of the drilled production wells and wells in the water facilities implemented during the project period could not be confirmed at the ex-post evaluation, it is judged that they have been continuously functioning based on the fact of the increase of the beneficiary population and water coverage supply in the rural area, as mentioned later. Regarding the capacity of the development of water supply programs, even since the project completion, new wells have been continuously drilled and operated with water facilities in all the departments except Cochabamba. The water supply coverage in the rural areas increased to 72% by 2015². The Ministry of Environment and Water Resources and the Department Committees and National Water Committees (DINESBVI) tried to involve the department of Cochabamba in improving UNASBVI's capacity, but it has failed as the department priority has been put on the irrigation water sector.

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

It can be judged that the Overall Goal has been achieved, although it is difficult to strictly verify the contribution of the project intervention. The cases of diarrhea caused by water have decreased in the rural area. According to the interviewed residents, officials of the Ministry of Health and Department Health Service (SEDES) of La Paz, diarrhea cases have decreased because of the improved water quality and hygiene. CT-Oruro has conducted water quality analysis in all the departments and the percentage of the water which satisfies the quality standard has increased from 76% in 2010 to 85% in 2015.

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

The model on productive community development (DESCOM-P)³ elaborated by the former phase and implemented by the project has been incorporated in the national regulation since 2014, so as to promote the sustainable use of the water facilities. As an example, the greenhouse for vegetable production constructed by the project has succeeded in generating revenues for the community water committee and also provided healthy diet to the community children. This productive activity created employment opportunities in the municipality, too. Another impact is the reduced burden of fetching water. Before the project, women and children had to fetch water from the water sources which were 100 to 1,000 meters away, but now they can get water much nearer the houses than before, which motivated them to improve hygiene customs such as washing hands and taking a bath more frequently at home, according to the interviewed residents in the six departments (OR, SC, CH, PT, LP and BE).

No negative impacts have been reported on the natural environment and land acquisition and resettlement.

<Evaluation Result>

The Project Purpose (strengthening of UNASBVI's capacity for supplying drinking water in the rural area) was mostly achieved, and it has continued. As its effects, water-borne diseases have decreased (Overall Goal), and other positive impacts have been reported. Therefore, effectiveness/impact of the project is high.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results																																												
(Project Purpose) UNASBVI's capacity is strengthened for supply of drinking water in the rural area in a sustainable way.	1. Target by 2011 in each department 1) # of production well (2008-11)	(Project Completion) <u>Partially achieved.</u> (Ex-post Evaluation) <u>Mostly continued.</u> - Production wells were drilled as follows. <table border="1"> <thead> <tr> <th></th> <th>SC</th> <th>CH</th> <th>TR</th> <th>OR</th> <th>PT</th> <th>LP</th> <th>BE</th> <th>PA</th> <th>CB</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Plan (2008-2011)</td> <td>176</td> <td>56</td> <td>40</td> <td>40</td> <td>64</td> <td>64</td> <td>36</td> <td>18</td> <td>18</td> <td>512</td> </tr> <tr> <td>Achievement (2008-2011)</td> <td>478</td> <td>86</td> <td>98</td> <td>60</td> <td>37</td> <td>142</td> <td>19</td> <td>16</td> <td>0</td> <td>936</td> </tr> <tr> <td>Achievement (2012-2015 May)</td> <td>248</td> <td>86</td> <td>135</td> <td>94</td> <td>25</td> <td>131</td> <td>21</td> <td>4</td> <td>0</td> <td>744</td> </tr> </tbody> </table>		SC	CH	TR	OR	PT	LP	BE	PA	CB	Total	Plan (2008-2011)	176	56	40	40	64	64	36	18	18	512	Achievement (2008-2011)	478	86	98	60	37	142	19	16	0	936	Achievement (2012-2015 May)	248	86	135	94	25	131	21	4	0	744
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¹ In Beni Department, less water facilities were implemented than planned but more population was benefited than planned. The reason for this was not confirmed at the ex-post evaluation.

² No activities related to the project were implemented in Cochabamba. However, water facility development programs were implemented as a part of the central government program, and the water supply coverage in the rural area were improved.

³ DESCOM-P is a water supply management model developed based on the participatory rural development methods and productive activities which raise fund for operation and maintenance of the water supply facilities. In the project, various productive activities including apiculture, greenhouse horticulture, bakery, livestock raising, etc. were conducted.

		(2012-2015 May)										
3) # of municipalities and districts where the water supply coverage is 100% (Santa Cruz-15)	(Project Completion) <u>Partially achieved.</u> - 5 municipalities had 100% coverage of water supply. 20 other municipalities had more than 95% coverage. (Ex-post Evaluation) <u>Continued.</u> - 15 municipalities had 100% coverage of water supply in 2015.											
4) # of beneficiaries	(Project Completion) <u>Achieved.</u> (Ex-post Evaluation) <u>Continued.</u> - The increased population who has been benefited.											
		SC	CH	TR	OR	PT	LP	BE	PA	CB	Total	
	Plan (2008-2011)	256,511	11,162	19,761	3,475	18,919	11,127	13,724	3,019	13,303	351,000	
	Achievement (2008-2011)	269,214	42,000	15,892	31,710	29,169	49,676	22,652	3,276	0	463,609	
	Achievement (2012-2015 May)	122,645	84,859	17,921	87,032	19,932	54,027	39,311	840	0	426,567	
5) % of the functioning production wells against those implemented in 1998-2011 (90%)	(Project Completion) <u>Achieved.</u> - Among 1,867 production wells, 1,616 wells were functioning (86.5%). (Ex-post Evaluation) <u>Continued.</u> - Among 2,610 production wells, 2,553 wells were functioning (97.8%).											
2. National water supply coverage in the rural area by 2011: 65% (512 wells, 351,000 habitants.)	(Project Completion) <u>Achieved.</u> - According to the project's estimation, the coverage increased to 68%. (Ex-post Evaluation) <u>Continued.</u> - The national water supply coverage in the rural area in 2015 is estimated as 72% (calculated with the data obtained from each department).											
(Overall Goal) To contribute to improvement of the water supply rate in the rural area through the nation, so that the people could have better quality of health.	2. Decrease of diseases (diarrhea, intestinal parasite, etc.) attributed to inappropriate water, after the project completion in the communities where the project activities were implemented.											
	(Ex-post Evaluation) <u>Achieved.</u> - The population under 5 who become ill with acute diarrhea per thousand cases.	2008	2009	2010	2011	2012	2013					
		Urban	26	25	NA	23	21	20				
		Rural	20	23	NA	20	18	18				
		Total	35	29	NA	27	26	23				

Source: Terminal Evaluation Report, Project monitoring report, data provided by each department, INE, MOH.

Note: Indicator 1-6) of the Project Purpose was not used as it was decided by the project that it would not be targeted.

Indicator 1 of the Overall Goal was not used, either, because it is overlapped with one of the Project Purpose.

3 Efficiency

Both the project cost and period were within the plan. Therefore, efficiency of the project is high.

4 Sustainability

<Policy Aspect>

Provision of safe drinking water has been prioritized in the government development plan such as the Sector Plan of Basic Sanitation Development (2016-2020), as well as in many other government laws and regulations. It has been prioritized also at the department level. As mentioned in the effectiveness/impact section, six guidebooks of DESCOP-P have been applied to all public and private institutions, local governments and NGOs, etc. when they conduct projects of drinking water and sanitation.

<Institutional Aspect>

UNASBVI as a section in the department government is in charge of water and basic sanitation and conducts programs for drilling well and constructing water facilities. The number of the technical personnel is sufficient in the six departments (32 in SC, 30 in CH, 39 in OR, 37 in LP, 15 in BN and 15 in PD). The department committees⁴ promote activity coordination and information sharing on the training and research activities among the organizations related to water supply in the six departments (SC, CH, TR, LP, PT and CB), but in the other three departments the Department Government or municipality performs the same function. Experiences of the nine departments are exchanged through regularly conducted meetings of the national coordination committee (ADESBVI, former DINESBVI)⁵. Water-related data of the nine departments have been consolidated into the national database. Water quality analysis has been conducted by CT-ASVI of Oruro and Santa Cruz at no charge for the departments, municipalities and other organizations such as SEDES and Department Irrigation Service. CT-ASVI of Santa Cruz has eight personnel and they themselves consider the number is sufficient to conduct training and technical support for the municipalities. On the other hand, CT-ASVI of Oruro lacks personnel in the technical and social sections due to the unavailability of such professionals in the department. At the municipal level, necessary technicians have not been assigned for monitoring and maintenance of the water facilities, but the community committees for water cover the functions.

<Technical Aspect>

CT-ASVI of Santa Cruz has conducted 60 training for UNASBVI personnel and community committees on well drilling, construction of the water facilities, and operation and maintenance (O&M) since the project completion till 2015. The inspection of the

⁴ The department committee consists of the organizations related to water and basic hygiene in each department, chaired by UNASBVI.

⁵ The national coordination committee (former DINESBVI) was established by the project, consisting of the representatives of the nine departments. It coordinates with the Ministry of Water and Environment and donors' sectorial meeting for water-related activities.

ex-post evaluation confirmed that UNASBVI personnel have sufficient techniques for supporting the communities' O&M of the water facilities and productive activities, which is also self-evaluated by UNASBVI personnel themselves. The majority of the trainers trained by the project still work at the ex-post evaluation, and some have newly joined CT-ASVI as trainers. For the departments of Beni and Pando, UNASBVI personnel were trained on deep well drilling, facility O&M, sanitation, etc. The manuals of DESCOM-P have been utilized in the six departments where the site survey was conducted (OR, SC, CH, PT, LP and BE). Besides, several manuals on appropriate and sustainable use of water were elaborated by CT-ASVI of Oruro and widely distributed to the communities. Techniques introduced by the project have been utilized, including the solar panel for pumping and pumping with wind power. UNASBVI personnel consider that they have sufficient technique for providing support to the municipalities and communities for facility O&M, as they can have technical support from CT-ASVI upon necessity.

<Financial Aspect>

The budget of the department government comes from the central government and hydrocarbon tax. The budget of UNASBVI in the most departments has increased since 2012, but according to the conducted interview during the site survey, only that of Oruro is sufficient (3.02 million Bolivianos (Bs) in 2015). In the other departments, the budget for conducting programs of UNASBVI is not sufficient, since the counterpart resource from the municipalities is not sufficient, either. In Cochabamba, no budget has been assigned for the water sector as it was during the project period because the priority was given to the irrigation sector. The budget of CT-ASVI of Santa Cruz for 2015 was 12.83 million Bs. The budget increased compared to 2012 and the budget was disbursed more than planned every year. However, it was not sufficient to cover all the needs for technical development, training and horizontal cooperation among the departments. The expenditure of CT-ASVI of Oruro has decreased since 2012. However, regarding the future budget, at least the minimum budget related to water supply will be secured for both offices of CT-ASVI because water supply is covered by the program of the Government of Santa Cruz and also the water sector is prioritized in most departments, according to CT-ASVI.

<Evaluation Result>

Some problems have been observed in terms of the institutional and financial aspects of the implementing agencies. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

The Project Purpose (strengthening of UNASBVI's capacity for supplying drinking water in the rural area) was mostly achieved, and it has continued. As its effects, water-borne diseases have decreased (Overall Goal), and other positive impacts have been reported. On the other hand, no drilling activities have been implemented since the project inception to the time of the ex-post evaluation as the project intervention in Cochabamba. Regarding the sustainability of the project effects, the organizational structure and responsibilities for provision of the safe drinking water have been sustained, but the number of the personnel is not sufficient in some departments. For continuity of the activities for underground water development and support for the municipalities, the budget is not sufficient in most of the departments. The budgets of CT-ASVI for training and horizontal cooperation are not sufficient, either.

In light of the above, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for Ministry of Environment and Water Resources>

1. In the six departments where the department committee functions (SC, CH, TR, LP, PT and CB), more wells have been drilled and more water facilities have been implemented than targeted. It is quite important to promote the continuation of the department committees in these departments to exchange experiences and information for the sustainable use of the water facilities. It is also recommended to reactivate the committee or relevant institution in the other three departments (OR, BE and PA).
2. It is recommended for the department governments to secure a sufficient number of the personnel for technical and social matters for provision of the safe drinking water and let them be trained by CT-ASVI.

<Lessons Learned for JICA>

1. Based on DESCOM-P model, some communities have operated the water facility for supply of the safe drinking water and also gained necessary profits from the productive activities for sustaining the water facility. This has been realized through the needs-oriented and a participatory approach. It is also because the community members were trained during the project period on O&M of the facility. In cases in which the community people are expected to conduct the facility O&M with their initiative and their own funds after the project completion, it is important that they decide the fund raising activities in accordance with their needs, and that the project provide sufficient technical training to them during the project period.



(Water facility with the solar Panel System in Puerto GERALDA Community, Beni)



(Aquaculture Project of DESCOM-P productive activity in Jorochito Community, Santa Cruz)

Country Name	Project for Strengthening the Capacity of INSET Management
Republic of Ghana	

I. Project Outline

Background	The government of Ghana has identified education as a key development tool for the nation, and it is identified as a focused area in the development policies and strategies. The gross enrolment rate of primary schools in Ghana had reached over 90% (2006). However, improvement in quality of education, especially in terms of the quality of primary school teachers remained a challenge. Upon request from the government of Ghana, JICA conducted technical cooperation from 2000, in order to develop an in-service training (INSET) model through piloting activities in the pilot districts. The government has made efforts for disseminating INSET model nationwide and requested JICA in order to support Ghana to establish and reinforce the management system for a structured and high quality INSET in mathematics and science.															
Objectives of the Project	Through reinforced INSET management system and capacity of the district-level personnel, the project aimed at strengthening INSET delivery in science and mathematics at the primary education level, in order to improve the teachers' teaching abilities.															
	Overall Goal: Teaching abilities of public primary school teachers in the area of mathematics and science are improved. Project Purpose: The nationwide management system for a structured and quality INSET of mathematics and science is established and reinforced.															
Activities of the project	<ol style="list-style-type: none"> 1. Project site: 170 districts in the country (After the creation of new districts. Initially 138 districts) 2. Main activities: capacity building of NIU (National INSET Unit) for overall management of INSET, revision of INSET Sourcebook and LOS (lesson observation sheet) Manual, capacity building of the region- and district-level personnel for delivery and quality control of INSET, establishment of INSET monitoring system, etc. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Ghanaian Side</td> </tr> <tr> <td>1) Experts: 9 persons</td> <td>1) Staff allocated: 12 persons</td> </tr> <tr> <td>2) Training in Japan: 52 persons</td> <td>2) Land and facilities: Office and meeting space.</td> </tr> <tr> <td>3) Training in the third country: 35 persons</td> <td>3) Operation cost for training, material printing, etc.</td> </tr> <tr> <td>4) Equipment: Motorbikes, vehicle, PC, etc.</td> <td></td> </tr> <tr> <td>5) Operation cost for hiring local consultants, equipment maintenance, travel expenses, etc.</td> <td></td> </tr> </table> 				Japanese Side	Ghanaian Side	1) Experts: 9 persons	1) Staff allocated: 12 persons	2) Training in Japan: 52 persons	2) Land and facilities: Office and meeting space.	3) Training in the third country: 35 persons	3) Operation cost for training, material printing, etc.	4) Equipment: Motorbikes, vehicle, PC, etc.		5) Operation cost for hiring local consultants, equipment maintenance, travel expenses, etc.	
Japanese Side	Ghanaian Side															
1) Experts: 9 persons	1) Staff allocated: 12 persons															
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5) Operation cost for hiring local consultants, equipment maintenance, travel expenses, etc.																
Ex-Ante Evaluation	2009	Project Period	June 2009 to March 2013	Project Cost	(ex-ante) 390 million yen (actual) 432 million yen											
Implementing Agency	Ministry of Education															
Cooperation Agency in Japan	PADECO Co., Ltd.															

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation and end of project completion report.>

- The project was completed in March 2013. However, in the indicators 2 and 3 of the Project Purpose, the time target was set as "by the year 2013". Therefore, by confirming the status at the end of 2013, achievement of the Project Purpose was judged. As for the indicators of the Overall Goal, the time target had been set for 2016. Since the data for 2016 was not available in this ex-post evaluation survey, achievement in 2016 was estimated and judged by examining the achievement by 2015.
- The number of the target districts was 138 at the time of the ex-ante evaluation, but after that some of these districts were restructured, which resulted in the total target number 170. The creation of new district was conducted by the Ministry of Local Government and Rural Development due to the population growth of the existing districts.

1 Relevance

<Consistency with the Development Policy of Ghana at the time of ex-ante evaluation and project completion>

The project was consistent with Ghana development policies, as strengthening of INSET was prioritized in the Ghana Poverty Reduction Strategy II (2006-2009) and Ghana Shared Growth and Development Agenda (2010-2013). In addition, improvement of the teaching/learning methodology was included in the Education Strategic Plan (ESP) (2003-2015, 2010-2020). Therefore, this project has been consistent with the development policy of Ghana at the time of both ex-ante evaluation and project completion.

<Consistency with the Development Needs of Ghana at the time of ex-ante evaluation and project completion >

Although the gross enrolment rate at the primary level reached over 90% in 2006, low quality of the primary school teachers was pointed out as a challenge. As there were many teachers who had not been sufficiently trained against the increasing pupil enrollment even at the time of project completion, there were great needs for INSET.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

In the Country Assistance Program of the Republic of Ghana (September 2006), one of the four strategic objectives was "improvement of basic social services in deprived areas". Related to this, one of the sub objectives was "improvement of access and quality of basic education".

<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 (reinforcement of INSET of mathematics and science at the primary education level) was partially achieved. By the project completion, the training for the Curriculum Leaders (CL) was conducted in most of the target districts (154 districts). Less than half of CLs realized more than 3 SBI (School-based INSET)¹ and 1 CBI (Cluster-based INSET)² in mathematics and science per year, because some schools lacked funding for materials of SBI/CBI and refreshment. Other schools did not conduct SBI/CBI because they considered that they had already completed necessary training to cover the challenging topics until the previous year. On the other hand, in the schools where SBI/CBI was conducted more than three times per year, it was proved that the training was successful as the teachers' satisfaction was more than planned.

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

INSET established by the project has continued. CL Sourcebook training was implemented in all the districts where the training was not conducted during the project period, except one district. The only one district could not undertake the training because the district structure for INSET was not ready at that time and also lacked the budget. After CL Sourcebook training, most of the participated CLs have conducted more than three SBI/CBI per year until 2015. According to the schools of 10 districts surveyed at the ex-post evaluation, more teachers are satisfied with INSET than planned. Frequency of INSET is affected by the fund availability, as INSET requires many materials such as Teaching and Learning Materials (TLMs).

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

It is judged that the Overall Goal has been achieved, although the data was not available for 2016. As a result of INSET, teaching abilities of the teachers (teaching skills, teachers' knowledge on the subject, etc.) in mathematics and science have been improved. The students rated as high as 4.7 among 5 points for the teaching method of their teachers who were trained by INSET. The rating of the District Master Trainers (DMTs) on the teaching skills reached 4.7 among 5 points. There are not much difference in the rating results of the students and DMT among the pilot districts and 3 batches. According to DMT and NIU, the teachers now prepare better lesson and TLM, and teach challenging topics with more confidence. They also observe that the classes are now more learner-centered.

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

First, the project experience has been extended to all 32 non-target districts except one. The District INSET Committees (DIC) members in these districts were trained and in addition all CLs in these Districts were also trained on CL Sourcebook. Second, the system of INSET developed by the project has been applied to other subjects (English and Ghanaian Language), and DMTs of 75 districts were trained on these two subjects with support of Ghana Partnership for Education Grant (GPEG). Third, the experience of the project is planned to be applied in mathematics and science at the senior high school levels on a pilot base, in which the process from planning to monitoring of INSET will be referred to. No negative impacts on the natural and social environment have been produced by the project.

<Evaluation Result>

In light of the above, the achievement of the Project Purpose was partially at the time of the completion, but after the project completion it was achieved and its effects have mostly continued. In other words, the number of conducted SBI/CBI did not reach the target by the project completion, but SBI/CBI have partially continued in the target districts. This has resulted in the achievement of the Overall Goal (improvement of the teaching abilities in mathematics and science). Several positive impacts have been reported. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) The nationwide management system for a structured and quality INSET of mathematics and science is established and reinforced.	1. More than 60% of districts conduct the CL Sourcebook training 1 in INSET delivery for CLs.	(Project Completion) <u>Achieved</u> . - 90.6% of the districts (154 districts among 170 districts) conducted CL Sourcebook training. (Ex-post Evaluation) <u>Continued</u> . - CL Sourcebook training has been conducted in 45 among the 46 remaining districts.
	2. More than 80% of primary schools whose CLs have participated in the CL sourcebook training 1 implement at least three SBI/CBI in mathematics and science per year by the year 2013.	(Project completion) <u>Not achieved</u> . - In the reported 115 districts, 38.3% of the primary schools whose CLs participated in CL sourcebook training 1 implemented at least three SBI/CBI in mathematics and science by 2013. (Ex-post Evaluation) <u>Partially continued</u> . - In the surveyed 10 districts, 84.5% of the primary schools whose CLs participated in CL sourcebook training 1 implemented at least three SBI/CBI from 2013 to 2015 on average.
	3. Satisfaction ratings of teachers attain more than 2.8 (1 to 4 scale) on average with reference to INSET (SBI/CBI) at the schools selected nationwide (the 10 pilot districts and the first batch districts) in the sampling survey by the year 2013.	(Project completion) <u>Achieved</u> . - Satisfaction ratings of the teachers attained 2.9 on average with reference to INSET (SBI/CBI) at the schools selected nationwide (12 pilot districts and first batch districts) in the sampling survey. (Ex-post Evaluation) <u>Continued</u> . - Satisfaction ratings of the teachers attained 3.25 on average at the 4 schools surveyed in the 4 pilot districts and first batch districts, according to the ex-post evaluation survey. - Satisfaction ratings of the teachers attained 3.0 on average at the 6 schools surveyed in the second and third batch districts, according to

¹ The following is a SBI example. Before the academic term begins, the teachers come together to discuss challenging topics in mathematics and science. Based on the timetable prepared by CL and HT, a teacher who can handle the topic conducts the training to their colleagues. If there is no teacher who can handle the topic, HT asks DMT to come to INSET. Also MTs are invited to monitor INSET. Modules 3-6 are used. Also LOS is used as an assessment tool of INSET.

² Usually 3 SBIs and 1 CBIs are counted together per academic year. SBIs are conducted more often as compared to CBIs.

<p>(Overall goal) Teaching abilities of public primary school teachers in the area of mathematics and science are improved.</p>	<p>1. Satisfaction ratings of students attain more than 90 % on average with reference to the teaching skills, knowledge of teaching subjects, etc. of teachers at the schools selected nationwide (the 10 pilot districts and the first batch districts) by the year 2016.</p>	<p>the ex-post evaluation survey. (Ex-post Evaluation) <u>Achieved</u>. - Satisfaction ratings of students against the teaching skills attained 96% on average at the 4 schools surveyed at the ex-post evaluation in the pilot districts and first batch district. - Satisfaction ratings of students against teaching skills attained 92% on average at the 6 schools surveyed at the ex-post evaluation in the second and third batch districts.</p>
	<p>2. The rating of teachers' teaching skills attains more than 3.0 (1 to 5 scale) on average at the schools selected nationwide (the 10 pilot districts and the first batch districts) by the year 2016.</p>	<p>(Ex-post Evaluation) <u>Achieved</u>. - Ratings of the teachers' teaching skills (judged based on LOS) attained 3.5 on average at the 4 schools surveyed at the ex-post evaluation in the pilot districts and first batch district.- Ratings of the teachers' teaching skills (judged based on LOS) attained 3.6 on average at the 6 schools surveyed at the ex-post evaluation in the second and third batch districts.</p>

Source: NIU.

Note: "CL Sourcebook training 1" in the indicators of the Project Purpose means the first CL Sourcebook training. Obtained data includes all CL Sourcebook trainings including the first one.

3 Efficiency

The project period was as planned (ratio against the plan: 100%). The project cost exceeded the plan (ratio against the plan: 111%), because there were more teachers needed to be trained than planned due to the creation of new districts. The increase in the cost is commensurate with the required workload due to the increase in districts (32). Therefore, the project efficiency is high.

4 Sustainability

<Policy Aspect>

Improvement of the teaching/learning quality through INSET has been prioritized in the Pre-tertiary Teacher Professional Development and Management (PTPDM) (2014-2018) and in ESP (2010-2020).

<Institutional Aspect>

The organizational structure for INSET has remained the same since the project completion, and additionally the Regional INSET Committees (RICs) were established in all 10 regions to strengthen collaboration between the Ghana Education Service (GES) and Regional Education Offices (REOs). The number of the personnel of NIU is four after two was retired and is not sufficient. At the district level, the personnel turnover occurs frequently as it did during the project period, but trainings are conducted to the newly appointed personnel and therefore the number of the personnel is sufficient. For the head teachers (HTs) and Circuit Supervisors (CSs) in the 170 target districts have been trained on INSET delivery. Monitoring of INSET is conducted by CS through observation of SBI/CBI, but it is at an ad hoc basis due to the fund deficit. District Training Officers (DTOs) prepare the Annual INSET Progress Report, and it is submitted by all District Education Offices (DEOs) to NIU through RICs.

<Technical Aspect>

The personnel at the national regional levels have sufficient knowledge and skills for management of INSET including monitoring and data analysis, as most of them are the project counterpart personnel who received trainings from the project. The Head of NIU considers so also from their working output. So do the personnel at the district levels (DMT, District Teacher Support Team (DTST), DTO, and CS), as they were trained on INSET management and actually can perform their responsibilities, according to NIU. It is clear who to consult with in case they face any technical difficulty related to INSET (DTST to NIU, DTO to DEO, CS to DIC, etc.) All DEOs have the LOS Manuals but not Modules 1/2 of INSET Sourcebook, due to the fund shortage. The Module for Science and Pedagogy was once revised by NIU with support of GPEG but not printed due to the fund shortage. The Modules, LOS Manuals and HT Handbook have been distributed and utilized by the schools except newly established schools.

<Financial Aspect>

The budget of GES comes from the Central Government. No financial data on INSET related activities is available directly from GES, but according to the Teacher Education Division (A division under GES), the budget has fluctuated after the project completion due to no specific budget for INSET. There is no specific budget for INSET; however GES sometimes receives financial support directly from donors such as UNICEF for INSET-related activities. In addition and as mentioned above, some activities such as training of new personnel and printing of revised Modules have not been realized due to fund shortage. Also, financial difficulties still remains at school level. For the last three years, no capitation grant for school activities has not been released by the Central Government. Though no particular reason was given by GES for Government's inability to pay the capitation grant, the recent economic down turn in the country has culminated in Government's inability to make statutory payments such as the capitation grant, according to the Teacher Education Division. This has indeed hindered INSET delivery at some schools.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, 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 achievement of the Project Purpose was partial at the time of the completion, but after the project completion it was achieved and its effects have mostly continued. In other words, the number of conducted SBI/SBI reached the target after the project completion, and SBI/CBI have largely continued in the target districts. This has resulted in the achievement of the Overall Goal (improvement of the teaching abilities in mathematics and science). For the sustainability and expansion of INSET management and delivery, the lack of the fund has been a major issue. Since no specific budget is assigned to INSET, monitoring of SBI/CBI has not been systematic and the revised Module has not been printed. Regarding the project efficiency, the project cost exceeded the planned because there were more teachers needed to be trained than planned due to the creation of new districts, which is commensurate with the additionally required workload.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- Due to the fund shortage, some INSET-related activities have not been realized, including trainings of newly appointed HTs and CTs, regular monitoring of SBI/CBI, printing and distribution of the Modules, etc. In order to further promote INSET delivery and management, it is recommended to prioritize the budget execution in the limitedly available funds, by examining in what order the unrealized activities should be conducted. There is the need for INSET activities to be institutionalized so that, it becomes part of teacher's schedule nationwide.

Lessons learned for JICA:

- SBI/CBI have not been undertaken as planned in some schools due to the fund shortage for catering some refreshment during INSET activities. During the project period, teachers had been promised by GES that they would be given some money for refreshment. When they found that they could not receive any refreshment, some showed negative attitudes toward INSET delivery. On the other hand, some schools have implemented SBI/CBI through effective coordination among HTs and CLs with administrative support from DTOs and supervision from CS even without sufficient financial compensation. When the project plans any activities to be accomplished with the teachers' initiative, sensitization of HTs and teachers and regular monitoring by the district office should be considered for motivating the teachers, instead of financial or material compensation for the sustainability. It is important to convey a message in which SBI/CBI is a part of the teachers' duties instead of something which requires financial or material compensation.



(A teacher undertaking SBI activity with other teachers observing at the St. Paul's R/C Primary School in the SENE District of the Brong Ahafo Region of Ghana)

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Kindly Comply, Please.

ASIKUMA PRESBYTERIAN BASIC SCHOOL
SCHOOL-BASED AND CLUSTER-BASED INSETS FOR THE 2015/2016 YEAR

PERIOD	IMPLEMENTATION DATE	TYPE OF ACTIVITY	NO. OF PARTICIPANTS	RESOURCES / MATERIALS REQUIRED	ESTIMATED COST (GH¢)	STATUS
TEAM ONE	1. Friday 2/10/15	SBI Peer-teaching on SHIP	17	Conductors pens, etc.	80.00	Completed
	2. Friday 9/10/15	SBI Demonstration lesson on Writing (NACAP)	-	-	80.00	Completed
	3. Friday 23/10/15	CBI Demonstration lesson on Mathematics	-	-	120.00	Completed
TEAM TWO	1. Friday 2/10/15	SBI Preparation of TMs for English lessons	17	-	120.00	Completed
	2. Friday 9/10/15	SBI Peer-teaching on ICT	-	Conductors, Conductor pens, cables, etc.	120.00	Completed
TEAM THREE	1. Friday 2/10/15	CBI Preparation of TMs for Mathematics lessons	-	Conductors, pens, boards, etc.	150.00	Completed
	2. Friday 9/10/15	SBI Demonstration lesson on Science	17	-	180.00	Completed
TEAM FOUR	1. Friday 2/10/15	SBI Peer-teaching on ICT	-	-	100.00	Completed
	2. Friday 9/10/15	CBI Preparation of TMs for Social Studies	-	-	100.00	Completed

(Time table for SBI/CBI activities for the 2015/2016 academic year of the ASIKUMA Presbyterian Basic School in the ASIKUMA /ODOBIN/ BRAKWA District of the Central Region of Ghana)

Country Name	Project for Improvement of Livingstone City Road				
Republic of Zambia					
I. Project Outline					
Background	In Zambia, roads have played an important role in transporting goods including international logistics and passengers and been basis for the economic growth. Mosi O'tunya Road in Livingstone City is a major trunk road located at the junction of the route to South Africa by way of Zimbabwe from Lusaka and the route to South Africa by way of Botswana. However, after the pavement in the early 1970's, the road surface was only improved through random paving. As a result, about the half of the road was randomly paved and the other half was unpaved. Also, the roads were severely deteriorated due to the increase in heavy vehicles, and the sidewalks and drainage systems were also damaged, which were hindering the economic growth in Livingstone City where the tourism was a key industry.				
Objectives of the Project	To ensure the smooth and safe traffic flow in Mosi O'Tunya Road in Livingstone City, by repairing Mosi O'Tunya Road, in order to promote mobility of goods and human exchanges and improve the access to the tourist area.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: Livingstone City 2. Major Project: Repair of Mosi O'Tunya Road (13.01km) excluding surface layer pavement, etc. 3. Zambian Side: Surface layer pavement, street light removal/relocation, buried pipe depth replacement, buried sewer pipe depth changing, manhole repair, electric line replacement, street light wire lead-in, etc. 				
Ex-Ante Evaluation	2008	E/N Date	July 4, 2008	Completion Date	March 9, 2010
Project Cost	E/N Grant Limit: 986 million yen, Actual Grant Amount: 982 million yen				
Implementing Agency	Livingstone City Council (LCC)				
Contracted Agencies	Project: Ingerosec Corporation, Tokura Corporation, Zambian contractors: BCHOD (Brian Colquhoun, Hugh O'donnell and Partners), INYATSI (INYATSI Roads-Zambia)				

<Constraints on Evaluation>

- After the project was completed, several problems including flow ruts were found in the defect inspection survey and the full-scale repair (removal of the surface layer and repavement) was conducted by the Government of Zambia. The repair work was completed on September 30, 2013 and the amount borne by the Zambian side was about 500 million yen (unspecified). Since the repair work was conducted after the project completion, this period and cost were not considered for verification of the project efficiency of this ex-post evaluation. However, for the analysis of the data and information, it was not possible to separate the repair work conducted by the Zambian side from the grant aid project, and therefore the verified effects and impacts are attributed to both the project and work conducted by the Zambian side.

II. Result of the Evaluation

1 Relevance
<Consistency with the Development Policy of Zambia at the time of ex-ante and ex-post evaluation> The project has been consistent with Zambian development policies, as maintenance and improvement of the road infrastructure has been prioritized in the "5 th National Development Plan 2006-2010" and "6 th National Development Plan 2010-2015."
<Consistency with the Development Needs of Zambia at the time of ex-ante and ex-post evaluation> Mosi O'Tunya Road has been regarded as an important trunk road for economic and social development of Zambia. However, some part of the road was unpaved and other part was severely deteriorated, and there have been needs for repair and maintenance of the roads.
<Consistency with Japan's ODA Policy at the time of ex-ante evaluation> The project was relevant with the "Country Assistance Program (2002)", in which one of the priority areas was support for the efforts for establishing the balanced economic structure. Related to this, infrastructure development was regarded as the base for economic activities.
<Evaluation Result> In light of the above, the relevance of the project is high.
2 Effectiveness/Impact

<Effectiveness>

The project has partially achieved the objective “to ensure the smooth and safe traffic flow in Mosi O’Tunya Road.” One indicator is the average travel speed. According to the data provided by Livingstone City Council (LCC), the average travel speed in Mosi O’Tunya Road (except the urban areas) was below the plan in the target year (2010), but reached the plan in 2014 (Table 2). The reasons for not achieving the target in 2010 were not available from LCC. The transit time in 2014 decreased more than by half compared to 2010. Although these figures provided by LCC are estimates because LCC has not monitored the speed or time, direct measurement by the evaluation team (Table 1) also proves that the average travel speed increased more than planned.

The other indicator is the number of the traffic accidents. The number of the traffic accidents at night per year in the area with the street lights remained same after the project completion until 2013 but it slightly increased in 2014. The reason for this increase was not available from LCC. According to LCC and the traffic police, the traffic safety has been improved during the day time, as the motorists now do not have to avoid the pot holes and can move smoothly, although the traffic accidents have increased in the whole district. The Road Traffic and Safety Agency and police officers carry out patrols and monitor the drivers’ compliance. Also, the safety of the pedestrians and bicycle riders been improved thanks to the improved shoulders and sidewalks separated from the roads, according to the interviewed pedestrians.

<Impact>

First, as a result of the repaired Mosi O’Tunya Road, the traffic volume has increased, according to the Road Development Agency (RDA) and LCC. This change is also attributed to the increased number of shops and restaurants in the area. Secondly, truck drivers’ convenience has been improved. For example, they can save time; before they often had to take other routes to avoid risks of having damages to the vehicles from the damaged roads, but now can run through the repaired road. Another example is that they can save cost; before they had to move slowly in the unrepaired road and their cargo (mining equipment, steel metal and chemicals) was sometimes stolen on the way, but now they can move more easily without cargo loss. Thirdly, the security has been secured for the tourists¹, according to the pedestrians and tourist lodges due to the street lights and improved sidewalks.

No negative impact on the natural environment has been observed. There was no land acquisition and no resettlement.

<Evaluation Result>

As explained above, the average travel speed did not reach the planned figure during the period from the project completion to the completion of the repair work conducted by the Government of Zambia, but it exceeded the target figure at the time of the ex-post evaluation, as shown in Table 2. The quantitative effects possibly include those of the repair work, and therefore, the project effectiveness/impact is fair.

Table 2. Quantitative effects

	2009 (before the project) Actual value	2010 (target year) Target value	2010 (target year) Actual value	2011 Actual value	2012 Actual value	2013 Actual value	2014 Actual value
Average travel speed in Mosi O’Tunya Road (except urban areas) (km/h)	20-30	40-50	20-40	20-40	15-30	15-30	40-60
(Supplementary information) Transit time in Mosi O’Tunya Road (except urban areas) (minutes)	N/A	N/A	20	20	25	25	8
Number of the traffic accidents at night in the target area (km2+169 – km5+280)	N/A	N/A	2	2	2	2	3

Source: LCC.

Note: Km2+169 indicates the distance from the starting point of the road.

3 Efficiency

Outputs were produced as planned. However, problems including flow ruts were found in the defect inspection survey after the completion and repaired, attributed to inappropriate quality control during the road construction period. The project cost was as planned (ratio against the plan: 100%), but the project period exceeded the plan (ratio against the plan: 114%) because more time for traffic control and detour was required than supposed. Therefore, efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

Planning and management of the roads in the country is under RDA, and with its instruction LCC like other municipalities construct and maintains trunk roads in the urban area, including patching, repair of the sidewalks/road shoulders, cleaning/maintenance of the drainage facilities. RDA conducts the road condition survey every year and recommends the maintenance intervention. At RDA, there are two engineers and three technicians with two vacancies. These numbers are insufficient to monitor the maintenance work conducted by the private contractors. At LCC, there are one director, 7 staff in the Road Section and 5 in the Electrical Section under the Technical Service Department. These numbers are sufficient to conduct minor works such as repavement of the asphalt layers but not major works such as exchange of the road bed. Another small issue is the relocation of RDA Southern Province Office which is in charge of Livingstone City from Livingstone City to Choma (approximately 190km from Livingstone City). It takes more time than before to transfer the equipment from Choma, when the road maintenance is needed in Livingstone City.

<Technical Aspect>

LCC personnel has sufficient techniques for cleaning of sand and trash in the drainage facilities, while they need capacity building for early detection of degradation, crack and potholes. LCC does not conduct any training for its personnel, but its personnel can participate in

Table 1. Average travel speed in Mosi O’Tunya Road (km/h)

Section	2010 Target	2015 Actual (8:00 -9:00)	2015 Actual (17:00 -18:00)
Water tank - Airport Rd.	40-50	50-60	45-60
Airport Rd. – Shoprite Intersection		40-45	35-50
Shoprite Intersection – Railway Pass		50-60	50-65
Railway Pass – Courtyard Hotel		60-70	55-70
Courtyard Hotel – Victoria Falls		80	70-80

Source: Direct measurement by the evaluation team (July 2015). The results are the average of weekday and weekend measured figures.

¹ Livingstone City is a tourist area where the Victoria Falls (World Heritage) is located.

the training organized by the National Council for Construction. Regarding RDA, its personnel has sufficient techniques for road maintenance management, as the headquarters conduct training on project and contract management twice a year. RDA has inspection manuals, but they are not practical because they are just performance assessment sheets for the contractor and do not explain the inspection methods. The contracted companies which conduct major road repair works have sufficient techniques according to RDA.

<Financial Aspect>

Both LCC and RDA receive the budget from the central government and donor funds including JICA and EU. LCC's budget for road maintenance has not been sufficient. The budget itself has increased since 2011, but the execution ratio has been very low (3-15%) between 2012 and 2014. The reasons were not available. The budget for operation and maintenance of the constructed street lights has been more than planned at the basic design study, but LCC does not have any concrete plan for updating the lights. With regard to RDA, its Southern Province Office has approximately 10 million ZMW² each year, while the financial data of the Livingstone City Office was not available. According to RDA, these offices' budget is sufficient to carry out routine road maintenance and contract for major repair works.

<Current Status of Operation and Maintenance>

LCC and RDA regularly conduct maintenance of the roads, roadbeds and road shoulders, cleaning of the drainage facilities and maintenance of the streetlights³⁴. Major repair is outsourced to the private companies. Regardless these operation and maintenance, 1-25% of the roads and road shoulders and 26-50% of the sidewalks have some problems, according to LCC and RDA. And, 20 of the 62 constructed street lights were not functioning at the time of the ex-post evaluation survey, probably attributed to the inappropriate load shedding due to the lowered hydro power generation caused by shortage of rainfall with the recent climate change and dry season. Damages from the traffic accidents are considered as another reason of malfunctioning of the lights. In order to avoid the damages from the overloaded vehicles, RDA has two weighbridges. RDA and the contractors hired by RDA have sufficient equipment to conduct road maintenance, while LCC lacks the equipment due to the budget constraints.

<Evaluation Result>

Slight problems have been observed in terms of the institutional, technical, financial aspect of the implementing agency and current status of operation and maintenance. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

The project has partially achieved the objective "to ensure the smooth and safe traffic flow in Mosi O'Tunya Road." In other words, as a result of road repair, the travel speed increased, but the traffic accidents have not decreased at night. Regarding the project sustainability, although problems were not identified with RDA, LCC has not had sufficient budget for road repair and capacity building. The condition of some roads, road shoulders and sidewalks is not desirable and one-third of the street light is not functioning. As for the project efficiency, the project period exceeded the plan due that traffic control and detour required more than supposed.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for RDA and LCC>

1. It is recommended to RDA to request the central government for securing the budget in the long-term so that LCC can conduct road repair and maintenance of the street lights and drainage facilities.
2. It is necessary to conduct training for LCC personnel on early detection of degradation, crack and potholes. One means could be letting LCC personnel in RDA training.
3. It is crucial to take measures to reduce traffic accidents, by installing the traffic signs and street lights or installing humps to alleviate the speeding-up of the vehicles, in cooperation with Road Traffic and Safety Agency.

<Lessons Learned for JICA>

1. This project aimed at the smooth and safe traffic flow in the target area. As a result of road repair, the travel speed increased but the traffic accidents slightly increased. In order to achieve these competing objectives, at the project design stage, the project's influence on the traffic safety should be carefully examined, and possible countermeasures including those after the road repair should be considered, such as traffic signs, street lights and road humps. These measures may result in saving efforts on operation and maintenance cost after the project completion.
2. Problems including flow ruts were found in the defect inspection survey after the completion, which were attributed to inappropriate road construction of the contractor during the project, but these problems were improved by the Government of Zambia after the survey. These problems may cause not only traffic accidents, but also low recognitions of the nearby residents toward JICA support, as a part of interviewed residents showed disappointment at the quality of initial road repair of the project. JICA needs to supervise the consultant who makes an appropriate design based on the natural conditions, predicted traffic amount, available materials, etc. at the project design stage and also manages the contractor's work at the implementation stage.

² ZMW is Zambian Kwacha after denomination. 1 ZMW = 1,000 ZMK.

³ The demarcation between LCC and RDA is that LCC works in Livingstone City and RDA is responsible for the roads outside the city. However, when major repair is needed in the city, the contractor hired by RDA may work for it.

⁴ The following is conducted by LCC and RDA: (i) every six months or when damages occur, patching of the damaged roads and maintenance of the sidewalks is conducted, (ii) monthly transversal closed conduits and catch pits are cleaned, (iii) every week or when damages occur, maintenance of the road shoulders is conducted, (iv) everyday, cleaning/maintenance of the gutters and street lights are conducted, (v) maintenance of the roadbeds is conducted upon necessity.



(Mosi O'Tunya Road in the urban area)



(Lighted street lights at night)

Country Name	The Project for Groundwater Development and Water Supply in rural area of Santiago Island (Projecto de Desenvolvimento de Águas Subterrâneas e Abastecimento de Água no Sector Rural na Ilha de Santiago)
Republic of Cabo Verde	The Project for Rural Water Supply in Santiago Island (Projecto de Abastecimento de Água às Zonas Rurais da Ilha de Santiago)

I. Project Outline

Background	Cabo Verde is located in tropical Sahel dry zone of the western edge of Africa. The limited annual rainfall of about 300 mm in average causes water shortage, particularly in the dry season. Under those situations, supply of safe drinking water had been one of the prioritized national development goals since the 1990's. In order to increase the water supply coverage ratio in the country, the National Institute of Water Resources (INGRH: Instituto Nacional de Gestão dos Recursos Hídricos) elaborated the National Action Plan for Integration of Water Resource (2008). Since 1994, upon the request of the government of Cabo Verde, the government of Japan had supported development of groundwater and started the Project for Groundwater Development and Rural Water Supply Santiago Island in 2004 (hereinafter referred to as "the Groundwater Project") in order to cope with shortage of safe drinking water. However, the construction works under that project were suspended and the project was terminated without completing construction of deep wells and water supply facilities as planned except for a part of the plan. Therefore, the government of Cabo Verde requested the government of Japan a project to complete the planned water source and water supply facilities under the previous project and the Project for Rural Water Supply in Santiago Island as Community Development Grant Aid Project (hereinafter referred to as "the Rural Water Supply Project") started in 2009.				
Objectives of the Project	To stably supply safe water to the population in the target area by construction of water supply facilities with sufficient quality and quantity and institutional building for sanitation awareness activities by the residents, thereby improvement of living conditions and sanitation for the population in the target area.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: 25sites in Santiago Island: Tarrafal (1 site), São Miguel (1 site), Santa Catarina (4 sites), São Salvador do Mundo (4 sites), Santa Cruz (1 site), São Lourenço dos Orgãos (3 sites), São Domingo (7 sites), Praia (1 site), Ribeira Grande de Santiago (3 sites) 2. Japanese side: Construction of 18 water supply systems in the 25 sites (deep wells, lifting pumps, distribution reservoir, distribution pipes, and public water taps, etc.), technical assistance (training for the Peer Educators (community instructor selected from the community members) to conduct sanitation awareness building activities in the communities of the project sites) 3. Cabo Verde side: Procuring sites, land preparation, development of access roads 				
Ex-Ante Evaluation	2009 (for the Rural Water Supply Project)t	E/N Date	May 21, 2004 (the Groundwater Project)	Completion Date	December 12, 2011 (the Rural Water Supply Project)
Project Cost	E/N Grant Limit:622 million yen (for the Groundwater Project), Actual Grant Amount: 995million yen (for the both projects)				
Implementing Agency	National Institute of Water Resource Management (INGRH: Instituto Nacional de Gestão dos Recursos Hídricos), reformed to the current National Water and Sanitation Agency (ANAS: Agência Nacional de Água e Sanemamento) since 2013.				
Contracted Agencies	(For the Groundwater Project) Consultant: Japan Techno Co., Ltd., Contractor: Dorico Ltd. (For the Rural Water Supply Project) Consultant: Japan Techno Co., Ltd., Procurement Agency: Japan International Cooperation System				

II. Result of the Evaluation

<Special Perspectives to be Considered in the Ex-post Evaluation>

[Scope of this ex-post evaluation]

Since the Groundwater Project was not completed within the E/N period and the Rural Water Supply Project was implemented mainly in order to complete the construction works planned in the Groundwater Project, a scope of this ex-post evaluation covered the two projects to be evaluated as one project.

[Verification of Expected Project Effect and Baseline]

The following baselines based on the data estimated at the time of project design are used for verification of the expected effects by the project at the time of ex-post evaluation

- Indicator 1 (population access to stable and safe water): Since the project sites increased from 23 sites in the original plan of the Groundwater Project to 25 sites in the plan of the Rural Water Supply Project, the target beneficiaries of the population to be covered by the water supply facilities can be considered as around 17,000, which is estimated by the plan of the Rural Water Supply Project.
- Indicator 2 (improvement of water coverage rate): Although the original plan expected that the water coverage rate in Santiago Island would have increase by 6.5 points (from 38.6% in 2000 to 45.1% in 2010), it is difficult to verify the change made by the project contribution from the water coverage rate in 2000, because the water coverage rate in 2006 reached 81% by the implementation of other projects. Therefore, it was verified by the changes in the water coverage rate from 2006 to 2015 by the increase in the population with access to the water supply facilities constructed or rehabilitated by the project in order to clarify the project contribution to the improvement of water coverage rate in Santiago Island.

1 Relevance

Consistency with Cabo Verde's development policy at the time of ex-ante evaluation and ex-post evaluation

This project has been highly consistent with Cabo Verde's development policy prioritizing "the increase in the coverage of safe and stable drinking water to 100%" is set in policy documents such as the "Water Resource Development Master Plan (1993-2005)", "The National Action Plan for Integrated Water Resource (2008)", and "the National Vision of the Water, Life and Environment at the Horizon 2025".

Consistency with Cabo Verde's development needs at the time of ex-ante evaluation and ex-post evaluation

The project has met Cabo Verde's development needs for construction of water supply facilities to supply safe drinking water for the population in the target areas.

Consistency with Japan's ODA policy at the time of ex-ante evaluation

The project was consistent with Japan's ODA policy for Cabo Verde prioritizing support for the area of basic living environment, including water supply, at the time of ex-ante evaluation.

Evaluation result

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

2 Effectiveness/Impact

Effectiveness

The project has achieved its objective of "stable supply of safe water to the population in the target area". The population with stable access to safe water in the target 9 municipalities in Santiago Island reached to around 19,000 persons which is more than the target value of 17,000 persons. Also, the water supply coverage in Santiago Island improved by 6.5 points from the baseline in 2006 which is higher than the target value of 5.4 points. In 22 sites out of 25 sites, the water supply facilities with construction or rehabilitation of water supply facilities by the project have been well functioning and continuously supplying safe water. In the 3 sites, Pó de Saco, Tronco, Leitãozinho, the pumping systems have not operated, for example, due to cracks of a large part of the distribution pipe by runoff rainwater during the raining season 2015. However, the repair of that pipe is under preparation. According to ANAS, quality of water supplied through the water supply systems constructed by the project in the target area met the national water quality standard of Cabo Verde except Pó de Saco. The populations in the target area have improved their sanitation practices such as safe utilization of water, body hygiene, hand washing and home hygiene through the sanitation awareness activities conducted by the Peer Educators trained by the project. Also, in the 22 sites with well-functioning water supply facilities, the average water supply volume exceeded the target value of 20 liters per person per day.

Impact

The project contributed to improvement of living conditions and sanitation of the population in the target area, such as reduction of incidence of water-borne diseases as well as reduction of work burden and time for water fetching by women and children in the target area. In terms of incidence of water-borne diseases, for example, the number of cases of diarrhea under 5 children decreased in some project sites after the project completion: from 576 in 2012 to 367 in 2014 in São Miguel and from 477 to 346 for the same period in São Domingos. According to the Autonomous Water and Sanitation Service (SAAS: Serviço Autónomo de Água e Saneamento) and the water users in the project sites, the water supply facilities constructed or rehabilitated by the project shortened distance for access to drinking water that were round 3 to 5 km away from houses in the project sites and increased availability of safe water. As a result, average time for water fetching decreased from 3 hours in the project sites. Also, since the municipalities with the water supply facilities constructed or rehabilitated by the project have implemented household connections with those facilities, access to safe water became easier.

On the other hand, the ground water levels were lowered in the three sites of São Tomé, Tronco and Montanha e Fundra because of utilization of the ground water for water supply to the populations in the those sites. In order to cope with the issue, it is planned that those water supply facilities will be connected to other water source to be constructed under the future program.

No land acquisition and resettlement took place in by the project and no negative impact by the project on natural environment was not observed at the time of ex-post evaluation.

Evaluation result

In light of the above, effectiveness and impact of the project are high.

Quantitative Effects

Indicator	Before the project (2003) Baseline	Plan (2015) Target Value	Actual (2012)	Actual (2013)	Actual (2014) Target Year	Actual (2015) Ex-post Evaluation
Indicator 1*: The population with stable access to and safe water in the project sites (9 municipalities in Santiago Island)	0	Around 17,000 persons	N.A.	N.A.	N.A.	Around 19,000 persons
Indicator 2**: Improvement of the water supply coverage in Santiago Island	0 point (81.0%) (2006)	5.4 points (86.4%)	N.A.	N.A.	N.A.	6.5 points (87.5%)

Source : Ex-ante Plan Summary, Outline Design Report, Basic Design Report, information provided by ANAS and SAAS

Note 1:* Indicator 1 was verified by increase in the number of population with access to water supply through the water supply facilities in the project sites.

Note 2:** Indicator 2 was verified by increase in the water supply coverage in Santiago Island through the project contribution of the expected increase in population of around 17,000 to be covered by the project to the estimated baseline population with access to water supply of 314,814 in 2006.

3 Efficiency

In the original plan for the Groundwater Project, construction of 19 water supply systems in 23 sites in Santiago Island were planned but the water supply systems in 6 sites¹ were completed or partially completed within the E/N period for the Groundwater Project. Upon the request by the government of Cabo Verde, the Rural Water Supply Project aimed at construction of the 18 water supply systems in 25 sites in Santiago Island in order to construct uncompleted works by the Groundwater Project and in the additional sites as well as rehabilitation of the completed works by the Groundwater Project. Since the project sites were added, the outputs of the distribution pipes were increased from the total length of 48.5km to the total length of 65.5km.

The project cost and period significantly exceeded the plan of the Groundwater Project (ratio against the plan: 160% and 475%, respectively.) The reasons of cost overrun were the increase in the number of the project sites and additional construction of new reservoir as well as rehabilitation of the existing sites. In addition, significant price escalation of energy and material prices in the international market may have attributed to the construction cost. Also, since the planned construction works were not completed within the E/N period for the grant aid project started in 2003², the project under the Rural Water Supply Project was implemented and the entire project period exceeded the original plan. Therefore, efficiency of this project is low.

4 Sustainability

Institutional aspect

Under the sector reform, INGRH was transformed to ANAS in 2013. ANAS is responsible for policy and planning for all water resources, domestic water supply, wastewater treatment and sanitation. ANAS is going to be guided by the National Water and Sanitation Council which was established in 2015, consisting of the core ministries, municipalities, private sector and civil society in order to align the sector policies with the overall policy direction of the government. For the operation and maintenance of rural water supply facilities, SAAS has been responsible at a municipality level. The number of technical staffs in ANAS increased from 40 in 2009 to 55 in 2015 and reached to a sufficient level in order to ensure proper monitoring of facilities. For SAASs, the number of staffs varies by size of municipality but it is considered as sufficient to adequately operate and maintain the water supply facilities in the project sites. Each site has at least 1 pump operator and 1 water sale person for each public tap. Except Tarrafal and São Miguel, the target municipalities have 1 or 2 Peer Educators to be engaged in the public awareness activities to improve hygiene practices, including sanitation management surrounding public taps, consumption of safe water and storage conditions at home through training sessions and conversation with the population. SAASs have continuously conducted supervision and monitoring for the Peer Educators trained by the project for implementing the sanitation awareness activities in the main sites.

Technical Aspect

The engineers and technicians of ANAS have sustained their skills and knowledge on major repair of rural water supply facilities, water quality management and delivery of trainings of maintenance for SAAS staffs through capacity building and continuous trainings by the government. Also, the technical staffs of SAAS have sustained their skills and knowledge of maintenance of the water supply facilities through the trainings by ANAS. However, ANAS has a lack of technical expertise for maintenance of the chlorination systems. The SAAS staffs have sufficient level of skills and knowledge for supervision and monitoring of the Peer Educators in order to conduct adequate sanitation awareness activities. All the Pump Operators and Water Sales Person in the project sites have been trained by ANAS and sustained sufficient level of skills and knowledge to operate and maintenance of the water supply facilities, including collection of water charge. The manuals developed by the project have been utilized by the Peer Educators, the Pump Operators and the Water Sales Persons. Although ANAS established a training system, the trainings have not been delivered on regular basis.

Financial Aspect

ANAS is able to support SAASs for major repair of the water supply facilities through the budget allocation by the government. However, the process of mobilizing necessary budget for major repair usually takes time. According to some of SAASs in the target areas, such as São Miguel, Santa Catarina, Santa Cruz, they continuously earned sufficient amount of revenue from the water sales to cover necessary O&M cost.

Current Status of O&M

As mentioned above, the water supply facilities in 22 out of the 25 project sites have been well-functioning. The main water supply facilities constructed by the project have been functioning as planned except chlorination systems that have been no longer functional in most project sites. In case of temporal malfunctioning, SAASs have been able to fix them shortly with support of ANAS if necessary, such as pump procurement.

Evaluation result

In light of the above, there are some problems observed in technical and financial aspect as well as current status of O&M. Therefore, sustainability of project effects is fair.

5 Summary of the Evaluation

The project has achieved its objective, "to stably supply safe water to the population in the target areas". Also, the project contributed to reduction of water-borne disease and work burden and time for water fetching in the target areas as well. As for sustainability, there is a concern about timely budget execution for major repair of the water supply facilities because of the time consuming process. Also, the chlorination systems installed for the water supply facilities have not been functional in most project sites. As for efficiency, the project cost and period considerably exceeded the plan due to the suspension of planned construction works under the E/N signed in 2003 and additional works required afterwards.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

[ANAS]

-It is necessary to improve planning of trainings for technician to maintain the technical level of operation and maintenance system;

-It is required to improve internal budget mobilization procedure of ANAS for major repairs to avoid long-term malfunctioning of water

¹ Curral Velho, Chã de Ponta, Bombardeiro, Entre Picos de Reda, Ribeira de Barca, and Ribeirão Almoça

² It was because the construction works had been suspended by disagreement on design changes between the consultant and the contractor and never been completed with the E/N period.

supply facilities;

-It is recommended to introduce specific training on the chlorination system installed in the project sites in order to allow technicians of ANAS and SAASs to have the expertise needed to ensure maintenance of such equipment.



Public Water taps in Sao Tome (Praia)



Water tank and machinery room in Levada (San Lorenzo dos Orgãos)

Country Name	Project for Strengthening Systems for Improving and Disseminating Child-Centered Teaching Methods
Mongolia	

I. Project Outline

Background	<p>The Government of Mongolia introduced the New Education Standards in 2005 within the framework of education sector reform, which focused on shifting from a 10-year basic education system to a 12-year education system, lowering the school entry age from 8 to 6, and introducing new subjects such as integrated learning, natural science (integrated science), etc. Moreover, teaching methods were expected to change from the conventional methods which emphasize memorization to the new methods which encourage children's imagination and ideas such as "teaching methods which support children's development" (hereinafter referred to as "Teaching Methods"). However, teachers were unable to grasp and use the new teaching methods since the contents of the Standards were too academic for teachers to put them into practice as well as they had been trained in conventional methods of teaching based on memorization.</p> <p>Against such a background, the Government of Mongolia requested Japan for a technical support to develop the Teaching Methods and the technical cooperation project "Teaching Methods Improvement Project towards Children's Development" was implemented from 2006 to 2009 where the Teacher's Guidebooks and Teacher's Guidebook Development Manual based on the Teaching Methods for 8 subjects (Arithmetic, Math, Primary Science, General Science, Chemistry, Physics, Integrated Studies and IT) were developed and distributed to all schools across the country. This project was implemented as the Phase 2 project in order for teachers to properly understand and practice the Teaching Methods.</p>												
Objectives of the Project	<p>The objective of the project is to strengthen the systems to disseminate the Teaching Methods introduced in the Phase 1 project with placing Songino Khairkhan District in Ulaanbaatar City, Bulgan Aimag^(Note 1) and Zavkhan Aimag as the model districts/aimags, thereby aiming at disseminating the Teaching Methods to all cities/aimags across the country.</p> <p>^(Note 1) Aimag is an administrative unit used in Mongolia</p> <ol style="list-style-type: none"> Overall Goal: The child-centered teaching methods (Teaching Methods) are implemented in the model and other districts/aimags. Project Purpose: Systems to disseminate the Teaching Methods nationwide are strengthened. 												
Activities of the Project	<ol style="list-style-type: none"> Project site: Whole of country (Songino Khairkhan District in Ulaanbaatar City, Bulgan Aimag and Zavkhan Aimag as the model districts/aimags) Main activities: 1) Training of District/Aimag Teams^(Note 2) in all districts/aimags (9 districts/21 aimags) by the Professional Team^(Note 3) to disseminate the Teaching Methods; 2) Development of models of Lesson Study in the model districts/aimags; 3) Implementation of Lesson Study based on the Teaching Methods in the model schools (14 schools) in the model district/aimags <p>^(Note 2) The representatives of each district/aimag trained by the Professional Team. They are composed of approximately 10 members of specialists who belong to the educational department of each district/aimag, school administrators and teachers.</p> <p>^(Note 3) Composed of members of the Institute of Education, Teaching Methods Improvement Centers (Mongolian State University of Education and National University of Mongolia), teachers, etc. for each subject, who have been engaged in the Phase 1 project. They conducted the development and revision of training packages, training and monitoring of Lesson Study in the model district/aimags.</p> <ol style="list-style-type: none"> Inputs (to carry out above activities) <table border="0"> <tr> <td>Japanese Side</td> <td>Mongolian Side</td> </tr> <tr> <td>1. Experts: 7 persons</td> <td>1. Staff allocated: 13 persons</td> </tr> <tr> <td>2. Trainees received: 62 persons</td> <td>2. Office space for experts</td> </tr> <tr> <td>3. Equipment: Video camera, projector, web camera for skype, etc.</td> <td></td> </tr> </table>					Japanese Side	Mongolian Side	1. Experts: 7 persons	1. Staff allocated: 13 persons	2. Trainees received: 62 persons	2. Office space for experts	3. Equipment: Video camera, projector, web camera for skype, etc.	
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1. Experts: 7 persons	1. Staff allocated: 13 persons												
2. Trainees received: 62 persons	2. Office space for experts												
3. Equipment: Video camera, projector, web camera for skype, etc.													
Ex-Ante Evaluation	2009	Project Period	March 2010 – August 2013 (Extension period: March 2013 – August 2013)	Project Cost	(ex-ante) 300 million yen (actual) 319 million yen								
Implementing Agency	Ministry of Education and Science												
Cooperation Agency in Japan	KRI International Corporation, Tokyo Gakugei University												

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

- The technical cooperation "Project for Child-Centered Education Supports" (2016-2019) which is related to this project has been implemented after the completion of this project and the influence of the said project on the impact and sustainability of this project is considered in the ex-post evaluation.

1 Relevance

<Consistency with the Development Policy of Mongolia at the time of ex-ante evaluation and project completion>

The project was consistent with the medium- and long-term national development plan of Mongolia "Comprehensive National Development Strategy" (2007-2021) which placed the improvement of education standard as one of the priority areas. Also, the "Educational Master Plan" (2006-2015) placed an introduction of re-training for teachers as one of the core actions to be achieved in order to strengthen teachers' professional capacity and teaching skills for implementing the New Education Standards and new curriculum.

<Consistency with the Development Needs of Mongolia at the time of ex-ante evaluation and project completion >

The project met the development needs of teachers both at the time of ex-ante evaluation and project completion, who had difficulty in understanding and practicing the Teaching Methods under the New Education Standards since the contents of the Standards were too academic for teachers to put them into practice as well as they had been trained in conventional methods of teaching based on memorization.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with the Japan's "Country Assistance Program" (November 2004) which placed support for institution building and human resource development necessary for promoting a market economy, especially the development of primary education, as one of the four priority areas.

<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 end of the project. It was confirmed that the quality of lessons utilizing the Teaching Methods for the 8 subjects were practiced in the all 14 model schools in Songino Khaikhan District of Ulaanbaatar City, Bulgan Aimag, and Zavkhan Aimag (Indicator 1) and that 100% of schools in Songino Khaikhan District of Ulaanbaatar City, 70% of schools in Bulgan Aimag, and 100% of schools in Zavkhan Aimag conducted Lesson Study more than twice a year (Indicator 2). In addition, all districts/aimags (9 districts/21 aimags) across the country formulated their respective training plan on the Teaching Methods (Indicator 3). Furthermore, the Ministry of Education and Science issued many directives or instructions on dissemination of the Teaching Methods and supported for institutionalizing the dissemination system (Indicator 4).

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

The effects have continued after the project completion. The "Curriculum to foster zest for living (commonly known as the Core Curriculum)" was introduced in Mongolia after the project completion and this is coincided with the concept of Teaching Methods in that the Core Curriculum improves the viewpoint of moving from emphasizing memorization to encouraging children's imagination and ideas. All the model schools were selected as the pilot schools to develop the Core Curriculum since they were recognized by the Ministry of Education and Science as practicing good quality of lessons with actively committed to introduce Lesson Study. Also, 100% of schools in Songino Khaikhan District of Ulaanbaatar City, 82% of schools in Bulgan Aimag, and 100% of schools in Zavkhan Aimag have conducted Lesson Study more than twice a year. Furthermore, the training plan on the Teaching Methods has been continuously formulated in all districts/aimags and the Ministry of Education and Science has continuously supported for disseminating the Teaching Methods.

<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. More than 80% of schools in the whole country have implemented Lesson Study more than twice a year against the indicator "60% of all schools in the whole country implemented Lesson Study at least twice a year." In addition, training on the Teaching Methods was conducted at all districts/aimags across the country.

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

While the new subject of integrated learning was newly introduced with an introduction of the New Education Standards in Mongol, it was difficult for teachers to provide lessons on the new subject and there were some cases that teachers conducted prep and brushup of other subjects at the class of integrated learning. However, this subject was selected as one of the target subjects for Lesson Study and the quality of lessons of integrated learning has improved accordingly. Also, the integrated learning was clearly placed in the Core Curriculum to be developed. In addition, just prior to the project completion in August 2013, the "Mongolian Association of Lesson Study" was established as a NGO mainly by the members of Professional Team and the Association has provided the training, dispatched the lecturers on the Teaching Methods, etc. as part of the dissemination activities.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved and systems to disseminate the Teaching Methods nationwide were strengthened. The effects has continued after the project completion and the Overall Goal has been achieved at the time of ex-post evaluation with the fact that training on the Teaching Methods was conducted at all districts/aimags across the country as well as more than 80% schools in the whole country have implemented Lesson Study more than twice a year. Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Systems to disseminate the Teaching Methods nationwide are strengthened.	1. The quality of lessons utilizing the Teaching Methods for the 8 subjects are practiced in the model schools.	Status of the achievement: achieved (continued) (Project Completion) The Professional Team conducted monitoring of lessons of the 8 subjects in the 14 model schools in view of: 1) appropriateness of teaching materials; 2) appropriateness of composition of lessons; 3) appropriateness of questions; 4) appropriateness of instruction; and 5) reaction of students. They evaluated that the quality of lessons was improved in the 8 subjects. (Ex-post Evaluation) After the project completion, "Core Curriculum" which is the same concept as the Teaching Methods was introduced in Mongolia and all the model schools were selected as the pilot schools to develop the Core Curriculum since they were recognized by the Ministry of Education and Science as practicing good quality of lessons based on the monitoring above and as actively committed to introduce Lesson Study. The pilot schools consist of the representative schools in Ulaanbaatar City and all aimags. The Core Curriculum was introduced to the pilot schools before introducing on a nationwide scale and the Ministry of Education and Science received feedback of the pilot implementation.
	2. Lesson Study is conducted at least twice in at least 70% of schools in	Status of the achievement: achieved (continued) (Project completion) 100% of schools in Songino Khaikhan District of

	the model districts/aimags every year.	Ulaanbaatar City, 70% of schools in Bulgan Aimag, and 100% of schools in Zavkhan Aimag conducted Lesson Study more than twice a year in FY2012/13. While some schools in Bulgan Aimag did not conduct Lesson Study since they were too small to conduct, teachers of these schools participated in Lesson Study conducted in their neighboring schools. (Ex-post Evaluation) 100% of schools in Songino Khaikhan District of Ulaanbaatar City, 82% of schools in Bulgan Aimag, and 100% of schools in Zavkhan Aimag conducted Lesson Study more than twice a year in FY2014/15.																				
	3. All districts/aimags formulate their respective training plan on the Teaching Methods.	Status of the achievement: achieved (continued) (Project completion) All districts/aimags (9 districts/21 aimags) formulated their own training plan on the Teaching Methods. (Ex-post Evaluation) The training plan on the Teaching Methods has been continuously formulated in all districts/aimags.																				
	4. Political, financial and human resources commitments are made by the Ministry of Education and Science.	Status of the achievement: achieved (continued) (Project completion) The Ministry of Education and Science supported the institutionalization of the Teaching Methods with issuing a lot of directives or instructions on the project such as implementation of in-service and pre-service training to improve teachers' professional capacity, implementation of training in non-model aimags, utilization of Lesson Study in the basic training conducted at the Institute of Teacher's Professional Development (ITPD), etc., with disbursement of budget and allocation of personnel involved. (Ex-post Evaluation) The Ministry of Education and Science has continuously supported for disseminating the a Teaching Methods with issuing new relevant directives, such as the Core Curriculum, and revising the directives or instructions above as well as with disbursement of budget and allocation of personnel involved.																				
(Overall Goal) The Teaching Methods are implemented in the model and other districts/aimags.	1. 60% of all schools in the whole country implemented Lesson Study at least twice a year.	(Ex-post Evaluation) achieved The rate of schools which has implemented Lesson Study more than twice a year is as follows. <table border="1"> <thead> <tr> <th></th> <th>FY2011/12</th> <th>FY2012/13</th> <th>FY2013/14</th> <th>FY2014/15</th> </tr> </thead> <tbody> <tr> <td>Number of schools</td> <td>747</td> <td>752</td> <td>767</td> <td>767</td> </tr> <tr> <td>Number of schools implementing</td> <td>476</td> <td>487</td> <td>634</td> <td>634</td> </tr> <tr> <td>Rate</td> <td>64%</td> <td>65%</td> <td>83%</td> <td>83%</td> </tr> </tbody> </table> As shown above, the Lesson Study has been implemented twice a year in more than 80% of schools in the whole country.		FY2011/12	FY2012/13	FY2013/14	FY2014/15	Number of schools	747	752	767	767	Number of schools implementing	476	487	634	634	Rate	64%	65%	83%	83%
	FY2011/12	FY2012/13	FY2013/14	FY2014/15																		
Number of schools	747	752	767	767																		
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Rate	64%	65%	83%	83%																		
	2. Training on the Teaching Methods is conducted at all district/aimags.	(Ex-post Evaluation) achieved Training on the Teaching Methods was conducted at all 9 districts and 21 aimags across the country.																				

Source : JICA internal documents, Interviews with the Ministry of Education and Science, Department of Education and Culture of the model district/aimag, Institute of Teacher's Professional Development, etc.

3 Efficiency

The project cost as well as project period exceeded the plan (ratio against the plan: 106% and 117% respectively). The Institute of Teacher's Professional Development (ITPD) established in September 2012 was determined to provide the in-service teacher training with a change in the educational administration systems in Mongolia in 2012. It was also determined that the project should support for capacity development on the Teaching Methods towards ITPD and that the project period be extended for 6 months. Therefore the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The Government of Mongolia has promoted a reform in the quality of education since 2012 and in order to carry child-centered method, not subject-centered, the Core Curriculum was introduced on a full-scale operation in 2016. Also, the "State Policy on Education Development" (2014-2024), the subsequent policy of the Educational Master Plan was approved by the national legislature in 2015 and shows "to provide people with environment and opportunity for doing lifelong education as well as to support and develop education forms intended for improvement in technical capacities tailored to characteristics such as age, physical and mental capacity, abilities, and interests." In such, it can be expected that the Government would continue its policy to disseminate the Teaching Methods.

<Institutional Aspect>

Regarding the system of disseminating the Teaching Methods in Mongolia at the time of ex-post evaluation, the Teaching Methods were reflected in the in-service teacher training conducted at ITPD. Also, the Mongolian Association of Lesson Study established in 2013 has provided the training, dispatched the lecturers on the Teaching Methods, etc. as part of the dissemination activities. In addition, the Professional Team organized by the project has been in existence as the members of the Association and approximately 10 members for each subject have continuously conducted trainings, monitoring and instruction on the Teaching Methods upon request of the government. Many applicants who participated in the academic meetings on Lesson Study want to become members of the Association, which recruits its members through its WEB site. The District/Aimag Teams have also been in existence and have continuously conducted the activities on dissemination of the Teaching Methods and implementation of Lesson Study in the respective districts/aimags.

<Technical Aspect>

Table 1: Numbers of Training held and Training Participants

The in-service teacher training on the Teaching Methods has been implemented mainly by ITPD and the Mongolian Association of Lesson Study as described above. The Table 1 shows the numbers of training held and training participants on the Teaching Methods at ITPD upto ex-post evaluation. The Mongolian Association of Lesson Study and the District/Aimags Teams have conducted monitoring and instruction on the actual practice of the Teaching Methods towards schools in their districts/aimags. The Mongolian Association of Lesson Study has made monitoring reports including the outcomes, challenges, solutions based on the results of monitoring and reported to the Ministry of Education and Science, Institute of Education, ITPD, etc. The Association has also promoted capacity development of its members through making a presentation at the World Academic Meeting on Lesson Study and conducting training with educational NPOs in Japan. The Teacher's Guidebooks developed by the project have been still used after the Core Curriculum was introduced. In addition, the Ministry of Education and Science has been developing the ICT training materials for teachers and distributing approximately 30 kinds of DVD materials on the child-centered teaching methods to schools nationwide. These materials have enabled teachers in rural areas where they have no opportunity for participating in the training to learn about an essence of the Teaching Methods and Lesson Study.

on the Teaching Methods at ITPD				
	FY2012/13	FY2013/14	FY2014/15	FY2015/16
Number of training held	14	14	14	14
Number of participants	2,277	6,017	4,205	4,365

Note: Participants are the teachers with the first year, the fifth year and the tenth year of working experience.

<Financial Aspect>

With the policy which gives importance to the quality of education in 2012, the Ministry of Education and Science has increased the capacity improvement budget for teachers since 2013. The budget for the Teaching Methods has substantially increased from approx. 700 million MNT (approx. 30 million yen) in FY2012/13 to approx. 4.5 billion MNT (approx. 0.2 billion yen) in FY2013/14 and approx. 3.5 billion MNT has been disbursed every year afterwards. In addition, approx. 1-3 billion MNT has been disbursed as the budget for the Core Curriculum every year from FY2012/13. Furthermore, the Project for Child-Centered Education Supports (technical cooperation by JICA) which started in 2016 is planned to be implemented till 2019 and it is prospected that the budget for Teaching Methods will be secured for some time to come. The financial sources of Mongolian Association of Lesson Study consist of membership fee from association members, income from the training, etc. The training has been conducted under contract with ITPD.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the policy/institutional/technical/financial aspects. Therefore, the sustainability of the effectiveness through the project is high.

5 Summary of the Evaluation

The Project Purpose was achieved and systems to disseminate the Teaching Methods nationwide were strengthened. The effects has continued after the project completion and the Overall Goal has been achieved at the time of ex-post evaluation with the fact that training on the Teaching Methods was conducted at all districts/aimags across the country as well as more than 80% schools in the whole country have implemented Lesson Study more than twice a year. Regarding the sustainability of the project, no problem has been observed in terms of the policy/institutional/technical/financial aspects and the sustainability of the effectiveness through the project is high. On the other hand, the project cost as well as project period exceeded the plan since the project period was extended for 6 months in order to support for capacity development on the Teaching Methods towards ITPD established before the project completion.

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

III. Recommendations & Lessons Learned

Lessons learned for JICA:

- Prior to the project completion, the Mongolian Association of Lesson Study was established as a NGO mainly by the counterpart personnel and the Association has provided the training, dispatched the lecturers on the Teaching Methods, etc. as part of the dissemination activities. It is difficult in Mongolia to keep consistency of policy, budget security and fixing of officers due to the frequent changes in political administrations as well as to keep the technology transferred by the project. However, the establishment of NGO by the counterpart personnel who received technology transfer from the project contributed to sustaining and disseminating the necessary knowledge and skills transferred. It worked well that experts had provided the Association with technical supports such as making programs of academic meetings on Lesson Study held by the Association and providing advices on presentations at the academic meetings during the project implementation. In this way it is effective to provide technical supports for establishing associations such as NGOs by the project in case such supports can be recognized as effective based on the characteristics of technical field, target numbers of technology transfer, capability of the counterpart leader, etc.



Group photo at the academic meeting on Lesson Study held in December 2015



Teacher's Guidebooks developed by the project

Country Name	Zambia Investment Promotion Project-Triangle of Hope (ZIPP-ToH)
Republic of Zambia	

I. Project Outline

Background	Zambia's economy had been dependent on copper production since its independence, and industrial diversification had been a long standing issue. The Zambian Government aimed at promoting industrial diversification and economic growth by increasing investments in the country. Under such situation, JICA implemented "the Project for Triangle of Hope, Strategic Action Initiative for Economic Development (ToH SAIED)" from July 2006 to March 2009, in which JICA experts provided the Zambian Government with technical advice in formulating and implementing twelve areas of action agenda (ToH Action Agenda: ToH AA) aiming at improving the investment environment, compiling and publicizing information necessary for investors, and conducting investment promotion activities. At the terminal evaluation of ToH SAIED in November 2008, a need to strengthen capacity (human resources, partnerships with relevant governmental agencies and the private sector, information provision to its clients, and general administration) of Zambia Development Agency (ZDA), which became an implementing agency of the project in 2007, was recognized in promoting investments in Zambia, and the necessity for further supporting the monitoring of the ToH AA was identified with a view to accelerating the realization of the twelve areas of action agenda.																																		
Objectives of the Project	Through enabling ZDA to provide quality services for investors in collaboration with other relevant organizations, enhancing ZDA's capacity for promoting FDI through investment promotion missions, and ensuring smooth implementation of ToH AA, the project aimed at attaining friendly environment for investors, thereby contributing to an increase of FDI to Zambia and domestic investment. The project objectives set forth are as follows:																																		
	<ol style="list-style-type: none"> Overall Goal: Foreign Direct Investment (FDI) to Zambia and domestic investment will be increased. Project Purpose: Zambia can attain friendly environment for investors. 																																		
Activities of the project	<ol style="list-style-type: none"> Project site: Lusaka (capital) Main activities: (1) Prepare subsector profiles, establish an investment monitoring system, and prepare investment promotion tool kits and manuals for investors; (2) Accumulate experiences among ZDA staff through investment promotion missions; and (3) Consolidate and monitor ToH AA etc. Inputs (to carry out above activities) <table border="0"> <tr> <td colspan="2">Japanese Side</td> <td colspan="3">Zambian Side</td> </tr> <tr> <td>1) Experts: 4 persons</td> <td></td> <td>1) Staff allocated: 65 persons</td> <td></td> <td></td> </tr> <tr> <td>2) Consultants: 3 persons (2 Malaysians, 1 Zambian)</td> <td></td> <td>2) Office space for experts</td> <td></td> <td></td> </tr> <tr> <td>3) Trainees received: 4 persons</td> <td></td> <td>3) Cost of operating project</td> <td></td> <td></td> </tr> <tr> <td>4) Equipment (1 Vehicle and office equipment)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5) Support funding for local activities</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					Japanese Side		Zambian Side			1) Experts: 4 persons		1) Staff allocated: 65 persons			2) Consultants: 3 persons (2 Malaysians, 1 Zambian)		2) Office space for experts			3) Trainees received: 4 persons		3) Cost of operating project			4) Equipment (1 Vehicle and office equipment)					5) Support funding for local activities				
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Ex-Ante Evaluation	2008	Project Period	August 2009 – August 2012	Project Cost	(ex-ante) 210 million yen (actual) 252 million yen																														
Implementing Agency	Ministry of Commerce, Trade and Industry (MCTI), Zambia Development Agency (ZDA)																																		
Cooperation Agency in Japan	N/A																																		

II. Result of the Evaluation**1 Relevance**

<Consistency with the Development Policy of Zambia at the time of ex-ante evaluation and project completion>

The project was consistent with Zambia's development policy on 'improving the investment environment' and 'increasing foreign and domestic investments' as set forth in the "Zambia Vision 2030", "Fifth National Development Plan 2006-2010", and "Sixth National Development Plan 2011-2015" at the time of both ex-ante evaluation and project completion.

<Consistency with the Development Needs of Zambia at the time of ex-ante evaluation and project completion>

Staff of ZDA were in need of capacity development to improve ZDA's services and promote investments at the time of ex-ante evaluation (as mentioned in "Background" above) and project completion (as observed during the terminal evaluation that foreign and Zambian investors sought a favorable business environment such as improved services by ZDA).

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy, as it is stated in the Country Assistance Program for Zambia (2004) that support is provided for industrial development such as commercial agriculture and tourism development etc. that are not dependent on mineral resources, and this project was positioned as a program to support industrial diversification.

<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 mostly achieved by the time of project completion. Capacity of ZDA improved as it became able to undertake, through project activities, collection and sharing of investment information (i.e., development of an investment record database management system (“Q-Bee”), sector and subsector profiles and investment promotion tool kits), investment promotion missions and review and implementation of ToH AA. Consequently, according to interview and questionnaire surveys, Zambian companies, business associations and foreign investors observed that the policy environment of Zambia and the services provided by ZDA had improved and they were generally satisfied with the business environment at the time of project completion. Many ZDA staff members also felt that they received better responses than before from clients about ZDA’s services.

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

The project effects have been partially maintained since project completion. While all the information on investors at every stage from inquiry to approval has been collected, accumulated, shared and analyzed using Q-Bee system and sector and subsector profiles have been yearly updated, in 2011/2012 there was a delay in updating investment promotion tool kits due to numerous policy changes (inconsistencies) following the change of government in 2011¹. ZDA has undertaken few investment promotion missions due to low levels of government funds allocated and released to the agency to perform its mandate, and no Joint Venture (JV) proposal has been submitted to ZDA since project completion. Some progresses have been observed in terms of implementation of ToH AA such as development of the Multi-Facility Economic Zones (MFEZs) .

Under such situation, in the questionnaire survey conducted to 15 respondents (5 Zambian companies, 5 business associations and 5 investors) for this ex-post evaluation, 60% (9/15) of respondents are satisfied with services of ZDA in general and 47% (7/15) think that the business environment in Zambia is favorable for investors². To break down the satisfaction level by contents of ZDA’s services, more than 80%³ of respondents are satisfied with sector profiles, information on investment procedures and investment guidebook. However, 40% to 50%⁴ of respondents are not satisfied with investment seminars/meetings and ZDA’s answering inquiries, and only 13%⁵ are satisfied with ZDA’s support for preparation of JV proposals. Some respondents who chose negative choices commented that the government has been unable to maintain policy consistency in terms of regulations and procedures of doing businesses in Zambia, the fact that ZDA is only located in Lusaka makes it inconvenient and difficult for business communities in local provinces to obtain support from ZDA, and investment incentives have not been given equally to all investors but rather restricted to only those investing in the MFEZs.

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

The Overall Goal was not achieved at the time of ex-post evaluation. The amount of FDI after project completion has been somewhat stable but lower than that of during project implementation. While the amount of domestic investment after project completion has been increasing in general, it cannot be compared with that of during project implementation due to lack of data. Nevertheless, the business and political environment has remained stable, ZDA and line ministries remain committed to attracting investment, at time of ex-post evaluation, and high volumes of investment pledges were made while others are being fulfilled.

<Evaluation Result>

In light of the above, the target set in the indicator for the Project Purpose was mostly achieved by the time of project completion, however, project effects have been partially maintained after project completion and the target set in the indicator for the Overall Goal was not achieved at the time of ex-post evaluation, while positive aspects have been observed such as ZDA’s commitment to pushing forward the TOH AA. Therefore, the effectiveness/impact of the project is fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results																																			
(Project Purpose) Zambia can attain friendly environment for investors.	Level of satisfaction of investors/clients to the services and policy environment	<p>Status of the achievement: mostly achieved (partially continued)</p> <p>(Project Completion) According to interview and questionnaire surveys, foreign companies, Zambian business associations (Zambia Association of Chambers of Commerce and Industry) and foreign investors (represented by the Finland, India and Japan embassies, respectively) observed that the policy environment of Zambia and the services provided by ZDA had been improving over the last few years and they were generally satisfied with the business environment at the time of project completion.</p> <p>(Ex-post Evaluation) Results of questionnaire survey to 15 respondents (5 Zambian companies, 5 business associations and 5 investors) that have used the services of ZDA since project completion:</p> <p>Q1: Please rate the services of ZDA you have used.</p> <table border="1"> <thead> <tr> <th></th> <th>Excellent</th> <th>Good</th> <th>Fair</th> <th>Bad</th> <th>Very bad</th> <th>No answer</th> </tr> </thead> <tbody> <tr> <td>Sector profiles in Zambia</td> <td>0</td> <td>6</td> <td>6</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Preparation of joint venture proposals</td> <td>0</td> <td>1</td> <td>1</td> <td>5</td> <td>4</td> <td>4</td> </tr> <tr> <td>Information on investment procedures</td> <td>3</td> <td>6</td> <td>4</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td>Investment guidebook</td> <td>2</td> <td>7</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </tbody> </table>		Excellent	Good	Fair	Bad	Very bad	No answer	Sector profiles in Zambia	0	6	6	1	1	1	Preparation of joint venture proposals	0	1	1	5	4	4	Information on investment procedures	3	6	4	2	0	0	Investment guidebook	2	7	3	2	1	0
	Excellent	Good	Fair	Bad	Very bad	No answer																															
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Information on investment procedures	3	6	4	2	0	0																															
Investment guidebook	2	7	3	2	1	0																															

¹ For example, the Sixth National Development Plan (SNDP) was revised together with many other regulations, laws and policies in an effort to align them to their Party Manifesto, and that caused policy inconsistencies.

² The total number of ZDA service users roughly are over 10,523 comprising of small and medium enterprises and large corporations (foreign owned) in the past 4 years according to ZDA Annual Reports, 2012,2013, 2014 and 2015.

³ This includes the number of respondents who answered ‘Excellent’, ‘Good’ and ‘Fair’.

⁴ This includes the number of respondents who answered ‘Bad’ and ‘Very Bad’.

⁵ This includes the number of respondents who answered ‘Excellent’, ‘Good’ and ‘Fair’. The particularly low level of satisfaction with the support for preparation of JV proposals can be attributed to the fact the absence of submission of JV proposals since project completion. ZDA explained that the slow progress of JV is partly due to the attitude of firms to press the responsibility to their JV partners, on which ZDA is blamed.

	Investment seminar /One on one meetings	1	2	5	3	4	0
	Answering inquiries	2	3	4	3	3	0
	Q2: Are you satisfied with services of ZDA?						
	Yes, very much	Yes, to some extent	No, not so much	No, not at all			
	3	6	3	3			
	Q3: Do you think that the business environment in Zambia is favorable for investors?						
	Yes, very much	Yes, to some extent	No, not so much	No, not at all	No answer		
	3	4	3	3	2		
(Supplemental Information 1) Whether sector and subsector profiles and promotion tool kits have been updated regularly since project completion	Status of the achievement: (partially continued) (Ex-post Evaluation) The sector profiles are updated yearly. They were allocated to specific officers and it has been their responsibility to update yearly his/her sector profile together with the sub-sector profiles. However, in 2011/2012 there was a delay in updating investment promotion tool kits due to numerous policy changes (inconsistencies) following the change of government in 2011.						
(Supplemental Information 2) Whether all the information on investors at every stage from inquiry to approval to monitoring/aftercare has been collected, accumulated, shared and analyzed with Q-Bee since project completion	Status of the achievement: (continued) (Ex-post Evaluation) All the information on investors at every stage from inquiry to approval has been collected, accumulated, shared and analyzed using Q-Bee system.						
(Supplemental Information 3) How many investment promotion missions have been undertaken to which countries since project completion	Status of the achievement: (not continued) (Ex-post Evaluation) ZDA has undertaken few investment promotion missions since project completion due to lack of funding.						
(Supplemental Information 4) Whether the investment promotion missions have utilized and been satisfied with the investment promotion tool kits	Status of the achievement: (Partially continued) (Ex-post Evaluation) ZDA has undertaken few promotions missions since project completion in which tool kits have been utilised. However further tool kits have been uploaded on their website.						
(Supplemental Information 5) How many JV proposals have been submitted by Zambian companies and how many investment projects have been realized (licensed) since project completion	Status of the achievement: (not continued) (Ex-post Evaluation) No JV proposal has been submitted to ZDA since project completion.						
(Supplemental Information 6) Whether implementation of ToH Action Agenda has progressed since project completion	Status of the achievement: (partially continued) (Ex-post Evaluation) The status of the 10 Action Agenda prioritized from 12 Agenda during the project implementation is as follows.						
	Prioritized Action Agenda	At project completion	At ex-post evaluation				
	1. Lusaka MFEZ	Progressed a little.	Development of MFEZ has been embedded in the ZDA Act.				
	2 Lusaka Air Hub Vision	Not yet	Expansion of KKI airport began in June 2015 and scheduled to be completed in 54 mouths.				
	3 Inland port (operate at least one)	Not yet	LS-MFEZ bids for a dry port developer were floated in November, 2015 and construction is expected to start soon				
	4 Tourism	Not yet	Tourism Circuit has become part of the tourism promotion policy. Government developed airport infrastructure.				
	5 Revival of the cotton sector	Not yet	Government has encouraged private sector involvement and recent re-opening of largest government owned textile on 1 st August 2016 is a great boost for the sector				

		6 New non-traditional agricultures	Progressed a little	Farm blocks (large farmland reserved for investors) were developed.
		7 Targeted approach for investment promotion	Implemented.	ZDA continues the approach.
		8 Follow-ups of companies that visited Zambia	(No information)	(No information)
		9 Medical and education sectors	Implemented.	Investment is being promoted (government has liberalised both sectors)
		10 Reduce corruption and enhance accountability (E-governance, etc.)	Not yet	Government has continued to promote E-governance; Lusaka One-Stop Shop provides procedural services to investors.

(Overall goal) Foreign Direct Investment (FDI) to Zambia and domestic investment will be increased.	Status of FDI inflow and domestic investment	Status of the achievement: not achieved (Ex-post Evaluation) The amount of FDI and domestic investment from 2011 (one year before project completion) to the time of ex-post evaluation is shown below.						
				2011	2012	2013	2014	2015
		FDI	Pledged Amount (million USD)	5,414	10,072.8	5,471.0	5,129.0	3,321.0
			Of which Non-mining	4,431	5,837.0	5,149.0	5,149.0	3,278.0
			Actualized Amount (million USD)	1,982	504.8	275.8	125.0	339.8
			Employment (persons)	39,845	4,398	3,864	1,465	7,147
		Domestic Investment	Pledged Amount (million USD)	N/A	1,041.7	1,030.2	223	1,920.6
			Of which Non-mining	N/A	N/A	N/A	N/A	N/A
			Actualized Amount (million USD)	N/A	N/A	N/A	N/A	N/A
			Employment (persons)	N/A	N/A	N/A	N/A	N/A

Source: Terminal Evaluation Report, questionnaire survey and interview with ZDA, 5 Zambian companies, 5 business associations and 5 investors

Note: In PDM, only one indicator is set to evaluate the achievement level of Project Purpose (level of satisfaction of investors/clients to the services and policy environment). As it is difficult to conduct a large scale survey on satisfaction level of investors/clients in internal ex-post evaluation, supplemental information was used to verify whether project effects have been maintained to the time of ex-post evaluation.

3 Efficiency

The project cost was higher than planned (ratio against the plan: 120%), as an additional Japanese expert was assigned, and the project period was as planned (ratio against the plan: 100%). Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The trade and industrial policies effective at the time of ex-post evaluation such as “Commercial, Trade and Industrial Policy (2007)”, “Micro, Small and Medium Scale Enterprises (MSME) Policy (2008)”, “Competition Policy (2009)”, “Citizen's Economic Empowerment Commission (CEEC) Policy (2007)” support promotion of an enabling environment for private sector. Also, “Revised Sixth National Development Plan 2013-2016” states that the country needs to accelerate infrastructure development, economic growth and diversification that will be able to promote rural investment and accelerate poverty reduction and enhance human development⁶.

<Institutional Aspect>

During the terminal evaluation of this project (2012), review for amendment of the ZDA Act was in progress and restructuring of ZDA was anticipated. However, the amendment of the Act has not yet been enacted by parliament at the time of ex-post evaluation. Although the total number of staff of ZDA is decreasing, (i.e., there is 95 staff in total in ZDA against an establishment of 138), the number of staff of the sections most relevant with investment promotion is considered adequate: in the Business Development department, the number of quota (required number of staff) is 12 and 12 staff are actually assigned, and in the Investment Promotion department, the number of quota is 20 and 19 staff are actually assigned. On the other hand, it is not clear whether there is sufficient number of staff in the relevant authorities such as MCTI, Office of the President, Cabinet Office etc. to implement and monitor ToH AA, due to unavailability of data.

<Technical Aspect>

Project counterparts still work in MCTI and ZDA etc. at the time of ex-post evaluation, however, some of them have retired, transferred to other sections or changed their jobs. The skill level of staff in ZDA is considered sufficient to properly conduct investment promotion activities, as it has been acquired through orientation/exposures to conduct investment promotion activities. On the other hand, it is not clear whether the skill level of staff in the relevant authorities such as MCTI, Office of the President, Cabinet Office etc. is sufficient to implement and monitor ToH AA, due to unavailability of data.

<Financial Aspect>

The government remains committed to provide financial resources to ZDA. For example, the actual expenditure for ZDA's investment promotion-related activities in 2015 was 950,823 kwacha (approximately equivalent to 9 million yen), and it covered targeted foreign investment missions, investment promotion annual events, local investment promotion and investment facilitation and inward missions. However, such an amount is not sufficient for ZDA to fully continue the investment promotion activities initiated under this project. On the other hand, it is not clear whether the relevant authorities such as MCTI, Office of the President, Cabinet Office etc. have sufficient amount

⁶ The policy changes mentioned under “Effectiveness/Impact” affected ZDA's performance at a more operational level, while the overall policy direction to promote investments remains the same.

of budget to implement and monitor ToH AA, due to unavailability of data.

<Evaluation Result>

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

5 Summary of the Evaluation

Through the invest promotion activities initiated under the project, the target set in the indicator for the Project Purpose was mostly achieved by the time of project completion, however, project effects have been partially maintained since project completion mainly due to lack of funding. The target set in the indicator for the Overall Goal was not achieved at the time of ex-post evaluation, i.e., the amount of investment did not increase after project completion. In terms of sustainability, there are slight challenges in institutional, technical and financial aspects, as the government is facing the financial constraints and enough information was not collected about whether related authorities other than ZDA are capable to continue the project effects. Regarding efficiency, project cost exceeded the plan, as an additional Japanese expert was assigned.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

As mentioned above, it is not clear how many recommendations have been completed, how many are yet to be implemented, and how many are difficult to implement etc. among 100 ToH AA recommendations, due to unavailability of data. MCTI and ZDA should use the monitoring sheet which was developed under the project to monitor the implementation of ToH AA framework to ensure smooth implementation and tracking of results.

Lessons learned for JICA:

If the ZDA/MCTI had a stronger commitment to incorporate the project activities into its annual work plan and budget, it could have continued the activities more efficiently. In a future project in which the activities initiated under it are expected to continue after its completion, the implementing agency should institutionalize such activities, i.e., incorporate project activities in the job description of officers in charge in the organization.



Lusaka One Stop Shop which is comprised of six organisations that facilitates investments in Zambia



Lusaka South Multi Facility Economic Zone office block

Country Name	Small & Medium Enterprise Human Resource Development under Economic Crisis
Republic of Indonesia	

I. Project Outline

Background	<p>In Indonesia, the global economic crisis in 2008 heavily damaged the economy that had been on a track for recovery since the currency crisis in 1997. Small and medium enterprises (SMEs) that produced goods for exporting companies suffered in particular, and faced a necessity to establish the operating foundation in terms of both management and production. JICA had supported SMEs in several ways including development of 257 persons as Shindanshi (registered SME management consultants) as well as establishment of 106 UPL (Direct Assistant Unit under local government units for training of Shindanshi) in 2005-2008, but their practical skills were still insufficient to support SMEs affected by the crisis.</p>														
Objectives of the Project	<ol style="list-style-type: none"> Overall Goal: To recover business performance of SMEs, contributing to the stabilization of economy which has been damaged by global recession. Project Purpose: SME support system is strengthened, and managerial and production skills of SMEs will improve. 														
Activities of the project	<ol style="list-style-type: none"> Project site: Based in Jakarta, training of trainers (TOT) were implemented in seven cities (where Industrial Training Centers (BDI) are located) and in-country trainings related with managerial/production skills were conducted in 17 cities (where Industrial Research and Development Centers (Balai Besar) or Institute for Research and Standardization of Industry (Baristand) are located) Main activities: TOT for Shindanshi trainers, training for production skills trainers, training for SMEs, survey on policy and measures. * Main targeted industries: textile and clothes, footwear, food and beverage, electric/electronic appliances, and toys. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Indonesian Side</td> </tr> <tr> <td>1) Experts: 9 persons (short-term expert, total 28.39MM)</td> <td>1. Staff allocated: Ministry of Industry, Shindanshi (number of persons not mentioned)</td> </tr> <tr> <td>2) Trainees received: 20 persons (training in Japan)</td> <td>2. Land and facilities: Office space for experts</td> </tr> <tr> <td>3) Equipment: None</td> <td>3. Local cost: not mentioned</td> </tr> <tr> <td>4) Others: Hiring of local consultants for the survey</td> <td></td> </tr> </table> 					Japanese Side	Indonesian Side	1) Experts: 9 persons (short-term expert, total 28.39MM)	1. Staff allocated: Ministry of Industry, Shindanshi (number of persons not mentioned)	2) Trainees received: 20 persons (training in Japan)	2. Land and facilities: Office space for experts	3) Equipment: None	3. Local cost: not mentioned	4) Others: Hiring of local consultants for the survey	
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Ex-Ante Evaluation	2009	Project Period	September 2009 – August 2010	Project Cost	204 million yen										
Implementing Agency	Ministry of Industry (MOI)														
Cooperation Agency in Japan	UNICO International Corporation; World Business Associates Co., LTD.														

II. Result of the Evaluation

<Constraints on Evaluation>

- Effectiveness and impact: (i) The project was a Fast Track System-applied project in which planning steps can be simplified to promptly address urgent issues. Consequently, the planning documents for this project are not detailed, and it is not clear from available documents how this project intended to achieve Project Purpose Indicator 1 (Ministerial Decree on the role of UPL) through Shindanshi TOT. Therefore, evaluation of Effectiveness was designed to additionally assess the degree of utilization of Outputs (i.e. application of what participants learned in their jobs). (ii) For the same reason, the terminal evaluation report was not detailed, either, and the project completion report focused on the achievement of Inputs, Activities and Outputs (i.e. record of training). Therefore, there was little information on the achievement of Project Purpose by the time of project completion. In addition, (iii) It was difficult to reach ex-participants in the training, who should be the main source of information to assess the Project's achievements against both the second indicator of the Project Purpose and the first indicator of the Overall Goal, at the time of ex-post evaluation. Therefore, assessment of the degree of achievement of Project Purpose and Overall Goal had to rely much on general comments from MOI as well as the inference from the results of survey conducted by MOI on the satisfaction level of SMEs with advisory services provided by the Shindanshi in 2012 (Monitoring and Evaluation 2012), which has no information on whether the feedbacks from the respondents to the forgoing survey were representative of the ex-participants.
In light of the above constraints in the data and information available, it would be rather difficult to argue that the results of the evaluation delivered hereafter are strictly in line with the JICA's ex-post evaluation guidelines.
- Sustainability: It is exceptional in that the sustainability is evaluated as "not applicable", even though the fact, that the project had the nature of seeking immediate effects in the global economic crisis and the project period was only one year, can be taken into consideration.

1 Relevance

This project has been highly relevant with Indonesia's development policy and development needs at the time of both ex-ante evaluation and project completion. For the development policy, it is consistent with President Decree No. 28/2008 of National Industrial Policy, which was still effective at the time of project completion, and the Decree aimed at accelerating industrial revitalization. For the development needs, following the economic crisis, there have been needs to increase trained human resources to support SMEs that were engaged in build-to-order manufacturing with raw materials supplied by exporting companies, so that they can learn know-hows on procuring raw materials, develop products for domestic market and increase

sales for themselves. It is also consistent with Japan's ODA policy at the time of ex-ante evaluation.

The nature of this project as a Fast Track project posed challenges on the design of the project, which was not explicit enough in terms of how to achieve the ambitious objectives and indicators. In addition, the plan on how to utilize human resources developed by the project and the monitoring system of the project effects should have been considered well in advance. Nevertheless, it was significant that the project could provide the trainings to overcome the crisis in a timely manner through the Fast Track System.

Therefore, relevance of this project is high.

2 Effectiveness/Impact

This project aimed at capacity development of Shindanshi trainers, production skills trainers and SMEs so that SME support system is strengthened and managerial and production skills of SMEs will improve (project purpose), and business performance of SMEs will recover, contributing to the stabilization of economy (overall goal).

Under this project, (i) a cumulative total of 122 Shindanshi trainers received on-the-job training (OJT)-based TOT held in 7 cities in Indonesia, and 10 Shindanshi trainers observed actual cases of SME management consultation or diagnosis (Shindan) in Japan, 10 production skills trainers observed actual cases of production improvement in Japan, and (ii) approximately 1,000 persons from SMEs in the target industries participated in 41 in-country training courses held in 17 cities in Indonesia.

Through these trainings, participants' understanding of (a) Shindan or (b) management / production skills were improved, and what they learned in these trainings were incorporated in training plans developed by them and in their jobs (i.e. actual Shindan and consultations to SMEs or SME operation). After completion of the project, a Ministerial Decree that clarifies the role of UPL as a basic point of assistance for Shindanshi has not been issued and the quantitative data to show whether the management of the companies has been improved or not is not available. According to an ex-participant in the TOT-OJT in Indonesia, however, the knowledge of this project is reflected on workshops and seminars for SMEs conducted by MOI and local government. And there are some positive findings which the projects effects have continued seen in the ground. 3 ex-participants of the training in Japan interviewed are utilizing the OJT manual developed and knowledge learned through the project when giving lecture and consultation, and some of ex-participants of TOT-OJT in Indonesia were selected as facilitators to connect local industries and institutions for local industry promotion (such as local governments, chambers of commerce, bank local branches and so on) in the other JICA project (Project on Small and Medium Industry Development based on Improved Service Delivery in Indonesia: 2013-2016). They are contributing to performance improvement of SMEs by utilizing know-how cultivated by the project.

For the overall goal, the degree of contribution of SMEs to GDP is gradually increasing as shown in the Table 1, though the causal relationship with the project is vague. In addition, regarding another originally-designated indicator, a survey conducted by MOI in 2012 shows certain extent of improvement of production capacity, product quality and variety of produces of SMEs after receiving consultation from Shindanshi (see the column below). The respondents include ex-participants of in-country trainings and some of Shindanshi who provided the consultation have relation to the project through participating TOT trainings or receiving guidance from trainers.

In this way, the project promoted capacity development of trainers in the area of SME support and was successful in maintaining MOI's focus on the Shindanshi related system, though not enough information was collected to verify the overall goal. It should be pointed out that too high purpose and goal were set considering the nature of this project (i.e., a one-year project mainly consisting of training).

Therefore, effectiveness/ impact of the project is evaluated to be fair.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) SME support system is strengthened, and managerial and production skills will improve.	A Ministerial Decree that clarifies the role of UPL as a basic point of assistance for Shindanshi is issued.	(Project Completion) UPL had been institutionalized in 2007 by the Regulation of Directorate General SMI No. 55/IKM/PER/8/2007 which presented a guideline on the establishment of UPL, and there was no related Ministerial Decree issued during the project period. But MOI recognized the importance of Shindanshi and increased the number of UPL gradually. (Ex-post evaluation) No related Ministerial Decree issued, however the Regulation of Directorate General SMI No. 55/IKM/PER/8/2007 is still valid and the number of UPL increased from 106 in 2008 to 154 in 2012. And the ex-participants in the TOT-OJT in Indonesia who have been involved in SME support have continuously utilized the knowledge learned through this project.
	The companies that participated in the training improve quality control and production process, and produce goods of higher quality.	(Project Completion) Most of the SMEs applied what they learned from the in-country training (but no detailed information was available). (Ex-post evaluation) The survey results conducted by MOI in 2012 infer some sort of project contribution.
(Overall goal) Business performance of SMEs recovers, and contribute to the stabilization of economy, which has been damaged by global recession.	Half of the companies that participated in the training increase their sales and profit.	(Ex-post Evaluation) The survey results conducted by MOI in 2012 infer some sort of project contribution.
	Degree of contribution of SMEs to GDP is increased.	(Ex-post Evaluation) Gradually increased, but causal relationship is not clear.

Sources: Terminal Evaluation Report, Project Completion Report and MOI.

3 Efficiency

Both the project cost and project period are within the plan (ratio against the plan: 82% and 100%, respectively). The outputs of the project were produced mostly as planned, except for output 2 because the provision of training equipment was canceled due to the Indonesian government regulation that prohibits distribution of any equipment provided by foreign donors to outside of the government facilities. Therefore, efficiency of this project is high.

4 Sustainability

In the policy aspect, President Decree No. 28/2008 of National Industrial Policy, which aims at accelerating industrial revitalization, and National Mid-Term Development Plan (2015-2019), which holds SMEs promotion, are still effective at the time of ex-post evaluation.

In the institutional aspect, a lot of Shindanshi transferred to other sections and most of them are involved in the job which is not directly related with SME support. MOI commented more Shindanshi should be assigned to the section in charge of SMEs, but MOI doesn't have authority to manage personnel affairs for Shindanshi belong to local governments. In addition, MOI commented that Shindanshi themselves do not function well.¹ Therefore, MOI suspended the Shindanshi training in 2012 and to address issue, DGSMI, MOI set up the task force (working group) in 2013 to improve the Shindanshi system. Some counterparts of the project period were involved in the task force. And DGSMI has continued to consider the reform of Shindanshi system, though the task force was dissolved.

In the technical aspect, although information is not enough to update the skill gap problem mentioned above, some positive findings are that new staff succeeded the tasks of counterparts of the project period who left the positions, and that interviewed participants in TOT-OJT and the training in Japan said they still refers to the OJT manual and finds it useful.

As for the financial aspect, MOI commented that the budget reduction is one of the reasons for the suspension of Shindanshi training.

Seeing from the findings above, the project has problems in institutional, technical and financial aspects of the implementing agency for further impacts. Thus, sustainability of effects of the project is quite limited but not applicable.

That is because, it should be reminded that the project originally aimed for taking quick measures for SMEs development in the aftermath of global economic crisis in 2008. Considering that this is the one-year project placing importance on quick action, sustainability of the project cannot be evaluated as same as other project.

5 Summary of the Evaluation

The project, as a prompt action to the economic crisis through the Fast Track System, enhanced the capacity of many Shindanshi trainers and about 1000 trainees from SMEs, which contributed to strengthened SMEs after the global economic crisis in 2008. In the survey conducted by MOI in 2012, more than 60 % of participants who received Shindan services strengthened by the project acquired some capacities from the Shindan services, although there were the limited information to clarify the achievement level of the Project Purpose and Overall Goal.

As for the project sustainability, there are Shindanshi trainers and Shindanshi who keep utilizing knowledge and manual developed in the project. However, the government suspended the Shindanshi training in 2012 and tries to develop new SME support measures. It should be reminded that this is one-year project placing importance on quick action for SME recovery, though there are issues to be improved in the institutional, technical and financial aspects.

In the light of above, the evaluation of this project is not applicable since sustainability is not evaluated.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency

The MOI needs to consider how to utilize the outcomes of Shindanshi system and is expected to take the necessary actions to make use of the experiences of the project for effective SMEs development policies and measures that meet current economic demands.

Lessons learned for JICA

The project has some issues to be improved in the evaluability of the project including the project design and the indicators. The monitoring system of the project effects was not considered well. As a result, it is not clear from available documents how this project intended to achieve Project Purpose Indicator 1 (Ministerial Decree on the role of UPL) through Shindanshi TOT. The indicators of the Overall Goal, such that degree of contribution of SMEs to GDP is increased, were set too high. The Project Purpose, Overall Goal and the indicators should be set with the careful consideration of the project inputs and duration.

Table 1: SME's Contribution to GDP

	(Billion IDR)											
	2008		2009		2010		2011		2012		2013	
SMEs subtotal	2,613,226	55.7%	2,993,152	56.5%	3,466,393	57.1%	4,303,573	57.9%	4,869,596	59.1%	5,714,575	60.3%
Medium enterprises	630,340	13.4%	713,263	13.5%	816,745	13.5%	1,002,170	13.5%	1,120,353	13.6%	1,299,494	13.7%
Small enterprises	472,830	10.1%	528,244	10.0%	597,770	9.8%	722,014	9.7%	798,122	9.7%	920,618	9.7%
Micro enterprises	1,510,056	32.2%	1,751,645	33.1%	2,051,878	33.8%	2,579,388	34.7%	2,951,121	35.8%	3,494,463	36.9%
Large enterprises	2,080,583	44.3%	2,301,709	43.5%	2,602,370	42.9%	3,123,516	42.1%	3,372,296	40.9%	3,755,377	39.7%
Total	4,693,809	100.0%	5,294,861	100.0%	6,068,763	100.0%	7,427,088	100.0%	8,241,892	100.0%	9,469,952	100.0%

Source: Annual Report 2013, Ministry of Cooperatives and Small and Medium Enterprises

¹ The number of Shindanshi was 408 in 2012. The accumulated number of working Shindanshi trainers was 51 in 2010 and 60 in 2011. In addition, according to the project completion report of this project (2010), the Shindanshi system had the following problems, "there are many cases for Shindanshi to leave from its services in the mid-stream" "because there are no specific incentives such as obtaining higher salaries, nor effect for promotions, etc." "There are no strong supports from the central government and even from the companies"; "Reputation or name recognition of Shindanshi from among local companies are very low." (p.4-1)

Column: Impact of Shindan for SMEs

A survey was conducted by the Center of Industrial Education and Training (CIET) in 2012 on the impact of consultation services for SMEs, and 69%* replied that their production capacity increased, 68%* replied that quality of their products was improved, and 63%* replied that their variety of products increased, compared with their previous status.

*Figures are the total of "Slightly Increased/Improved", "Increased/Improved" and "Highly Increased/Improved" in the table below.

	Decreased/ Worsened	Unchanged	Slightly Increased/ Improved	Increased/ Improved	Highly Increased/ Improved	Total
Production Capacity	11 (16%)	10 (14%)	14 (20%)	14 (20%)	20 (29%)	69
Product Quality	15 (22%)	7 (10%)	14 (20%)	20 (29%)	13 (19%)	69
Variety of Products	9 (13%)	17 (25%)	16 (23%)	19 (28%)	8 (12%)	69

Source: Monitoring and Evaluation 2012, Ministry of Industry

Note: 69 respondents (SMEs) above consists of 37 from food industry, 7 from textiles industry, 14 from handicraft industry, 5 from metal industry, 2 from furniture industry, 3 from household appliances industry, 1 from herbal (Jamu) industry, and 1 from building material industry



(Product inspection by the ex-participant of the training)

Country Name	The Capacity Development Project for Non-Revenue Water (NRW) Reduction in Colombo City
The Social Democratic Republic of Sri Lanka	

I. Project Outline

Background	For the National Water Supply and Drainage Board (NWSDB), which is responsible for water supply and sanitation in the most part of Sri Lanka, high rate of Non-Revenue Water (NRW) has been a longstanding problem in its operation and management. Especially in Colombo City, where deteriorated pipes still remained in many parts of its distribution system, the NRW rate in 2008 was 54.1%, higher than its nationwide average of 33.0%. To tackle this problem, NWSDB has been working to reduce the rate of NRW in several ways such as leak repair, detection/elimination of illegal connections, removal of public stand posts and converting its users to individual connection, and billing system improvement. However, as these measures had not produced satisfactory outcomes, it was necessary for NWSDB to gainfully utilize external support to improve its capacities of practical implementation in NRW reduction measures.												
Objectives of the Project	<ol style="list-style-type: none"> Overall Goal: The Non-Revenue Water (NRW) rate in Colombo City is reduced. Project Purpose: NWSDB's capacity to implement NRW reduction activities in Colombo City is strengthened. 												
Activities of the project	<ol style="list-style-type: none"> Project site: Kotahena Area and Borella Area in Colombo city Main Activities: (i) training on methods and techniques for NRW reduction activities for NWSDB staff in the pilot sites, (ii) preparation of NRW reduction work plan for the pilot sites, (iii) implementation of pipe rehabilitation works and other NRW reduction activities in pilot sites, and (iv) preparation of an execution plan for dissemination of project outcomes to other areas in Colombo city. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Sri Lankan side</td> </tr> <tr> <td>1) Experts: 6 persons</td> <td>1) Counterpart personnel: 30 persons</td> </tr> <tr> <td>2) Trainees received: 10 persons (plus Third Country Training: 6)</td> <td>2) Land and facilities: Project office, electricity, water supply</td> </tr> <tr> <td>3) Equipment: Portable ultrasonic flow meter, correlation leak detector, electronic leak detector, pipe detector, micro excavator, pick-up trucks, etc.</td> <td>3) Local cost: Salaries to counterpart personnel, expenses for isolation work of pilot sites, repairing of pipe networks after the detection of leakage and civil work for road opening/reinstatement, maintenance cost for equipment provided by the project.</td> </tr> </table> 					Japanese Side	Sri Lankan side	1) Experts: 6 persons	1) Counterpart personnel: 30 persons	2) Trainees received: 10 persons (plus Third Country Training: 6)	2) Land and facilities: Project office, electricity, water supply	3) Equipment: Portable ultrasonic flow meter, correlation leak detector, electronic leak detector, pipe detector, micro excavator, pick-up trucks, etc.	3) Local cost: Salaries to counterpart personnel, expenses for isolation work of pilot sites, repairing of pipe networks after the detection of leakage and civil work for road opening/reinstatement, maintenance cost for equipment provided by the project.
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Ex-Ante Evaluation	April 2009	Project Period	October 2009 - October 2012	Project Cost	(Ex-Ante) 250 million yen (Actual) 305 million yen								
Implementing Agency	National Water Supply and Drainage Board (NWSDB)												
Cooperation Agency in Japan	Nihon Suido Consultants Co., Ltd.												

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

- One of the indicators for overall goal was set as "Decrement of NRW rate per annum in CMC area exceeds one (1) percent point up to 2017" with its target year of 2017. However, this ex-post evaluation has made a judgment for degree of achievement of this indicator based on the available actual figures up to 2015.

1 Relevance
<p><Consistency with the Development Policy of Sri Lanka at the time of ex-ante evaluation and project completion></p> <p>This project was consistent with Sri Lankan development policy of "to improve the accessibility of safe water" as set forth in the policy documents of Regaining Sri Lanka including the National Water Supply Plan (2002-2005) and the 10-Years Development Plan (Mahinda Chintana) (2006-2016).</p> <p><Consistency with the Development Needs of Sri Lanka at the time of ex-ante evaluation and project completion></p> <p>This project met the development needs of Sri Lanka to reduce the non-revenue water in Colombo city as a high NRW rate has been an critical issue in Colombo.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The project was consistent with Japan's Country Assistance Program for Sri Lanka (prepared in April 2004) to prioritize to support assistance plan based on the medium and long term development vision including development of basic and economic infrastructure such as improvement of water supply service.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Status of Achievement for the Project Purpose at the time of Project Completion></p> <p>The project purpose was achieved by the project completion. As shown in the table below, various NRW reduction activities such as meter installation, meter replacement, leak detection and repair, and detection/elimination of illegal connection were implemented in the pilot sites. As a result, a remarkable NRW reduction was observed in some sub-zones of the pilot sites. For example, the NRW rate in sub-zone K-1 of Kotahena Area reduced from 85.3% to 56% during the project period. As a part of the pilot sites was included in the target area of Japanese ODA loan project "Water Sector Development Project II (2008-2016)", replacement of old pipes through the ODA project has also contributed to reduce NRW in the pilot sites.</p> <p>The experiences in the pilot sites were disseminated to other areas in Colombo city. The Area Engineers (AEs), the Officers in Charge</p>

(OICs) and the Engineer Assistant (EAs) of non-pilot sites were involved in the pilot activities and participated in weekly meetings to share the issues raised in the pilot activities. The AE of Colombo City South and the AE and OIC of Colombo City East learned about the systematic methods of NRW reduction by participating in the workshops/seminars, OJT in the pilot sites, and weekly meetings. Then, they have practiced its method in their responsible areas. As a result, the non-pilot sites also reduced NRW rate (see table below). Also it is considered that NWSDB has allocated a certain amount of budget for NRW reduction activities. An execution plan to achieve reduction of NRW rate by one (1) percentage point per annum, as per the Goal 2.1 of “Corporate Plan 2007-2011”, was prepared and it was incorporated into an action plan of the NWSDB cooperate plan by the project completion.

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

After the project completion, the NRW reduction activities introduced in the pilot sites have been carried out in the entire Colombo City according to the execution plan using available resources focusing on key result areas. The progress has been monitored in the weekly progress review meeting chaired by the General Manager (GM).

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

The overall goal was achieved. The NRW reduction activities have been expanded to 22 zones of the CMC in accordance with the execution plan. Pipe replacement, installation of water meters etc. have been undertaken with assistance of JICA and ADB projects, while NWSDB has allocated funds for leak repairs. In 2015 alone over 12,000 leaks repaired, 10,400 defective meters were replaced. As a result, NRW rate in CMC area reduced from 49.5% in 2012 to 45.9% in 2015. Based on this good performance in NRW reduction rate in 2012-2014, it is expected that the decrement of NRW rate per annum in CMC area will exceed one percent point by 2017 as planned.

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

The project has brought about several positive impacts such as saving of production cost, improvement in performance of distribution system, and increase in number of connections/subscribers, which has contributed to improvement of quality of service and increase of NWSDB’s revenue (see Table 1). No negative impact on natural environment was observed and no land acquisition and resettlement of people was implemented.

Table 1: Incremental Water Revenue of NWSDB

	2012	2013	2014	2015
Incremental Water Revenue (Million LKR)	344	407	472	507

Source: NWSDB

<Evaluation Result>

In light of the above, through the project, the project purpose was achieved, the project effects have been continued, the overall goal was achieved, and no negative impact was observed. Therefore, the effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results		
(Project Purpose) NWSDB’s capacity to implement NRW reduction activities in Colombo City is strengthened	(Indicator 1) Number of NRW reduction activities records will increase compared to what was before the Project	<u>Status of the achievement: achieved</u> (Project Completion)		
		a) Kotahena Area (Pilot site)		
			Sub-zone	
			K1 K2 K3&4 K5 K6 K7 K8 K9 K10	
		NRW rate (%)		
		Before	85.3 78.5 - - - - - - -	
		After activities	56 72 71 - - - - - -	
		Activities for NRW reduction (cases)		
		Meter installation to stand post	14 33 19 4 - 3 - 3 -	
		Meter installation	45 20 8 0 - 4 - 0 -	
		Meter replacement	19 10 14 3 - 4 - 1 -	
		Leak detection and repair	90 93 36 9 - 28 70 12 11	
		Detection/elimination of illegal connection	53 23 5 1 - 0 - 1 -	
		<Source> Project completion report (JN) p22		
				b) Borella Area (Pilot site)
				Sub-zone
				B1 B2 B3 B4-1 B4-2 B5 B6 B7 B8 B9 B10
		NRW rate (%)		
		Before	40.3 - 84.3 - - - - - - -	
		After activities	18 - 29 27 52 - 28 - - -	
		Activities for NRW reduction (cases)		
		Meter installation to stand post	2 6 0 2 25 11 7 1 2 1 0	
		Meter installation	12 25 14 0 17 11 9 0 0 76 0	
Meter replacement	7 7 20 3 12 12 17 6 0 274 1			
Leak detection and repair	47 31 19 5 29 36 31 9 9 65 1			
Detection/elimination of illegal connection	8 15 19 0 13 9 21 0 2 - 1			
		c) Non-pilot sites		
		Kirulapana sub-zone in Colombo City South Kent road sub-zone in Colombo City East Handala Ferry road sub-zone in Colombo City North		
NRW Rate (%)				

		<table border="1"> <tr> <td>Before</td> <td>18.9</td> <td>52.8</td> <td>18.3</td> </tr> <tr> <td>After activities</td> <td>7.0</td> <td>38.0</td> <td>-</td> </tr> <tr> <td colspan="4">Activities for NRW reduction (cases)</td> </tr> <tr> <td>Mete installation to stand posts</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Detection/elimination of illegal connection</td> <td>4</td> <td>-</td> <td>2</td> </tr> <tr> <td>Meter accuracy test and meter replacement</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>Leak detection and repair</td> <td>11</td> <td>29</td> <td>14</td> </tr> </table> <p>(Ex-post Evaluation) continued</p> <ul style="list-style-type: none"> The learning from the pilot project was carried out for the whole of Colombo City using available resources focusing on key result areas of level attending leaks, leaks detected by night surveys, compliant handled, defective meter replacement, application received, connection speed, inspection on disconnection, checking of lower consumption places, metering of unmetered places, flushing of lines and detection of illegal connection The progress has been monitoring in the weekly progress review meeting chaired General Manager (GM). 	Before	18.9	52.8	18.3	After activities	7.0	38.0	-	Activities for NRW reduction (cases)				Mete installation to stand posts	-	-	-	Detection/elimination of illegal connection	4	-	2	Meter accuracy test and meter replacement	-	-	-	Leak detection and repair	11	29	14
Before	18.9	52.8	18.3																											
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Mete installation to stand posts	-	-	-																											
Detection/elimination of illegal connection	4	-	2																											
Meter accuracy test and meter replacement	-	-	-																											
Leak detection and repair	11	29	14																											
	(Indicator 2) The budget to be allocated for NRW reduction will increase compared to what was before the Project	<p><u>Status of the achievement: achieved</u> (Terminal Evaluation)</p> <ul style="list-style-type: none"> Although it is rather difficult to extract the budget allocated for NRW reduction activities from the regular budget of NWSDB since O&M section and NRW section carry out the NRW related activities as a part of their routine works, NWSDB has managed to allocate the budget necessary for the project activities from its own regular budget. Therefore, it can be concluded that NWSDB has allocated a certain amount of budget for NRW reduction activities. <p>(Ex-post Evaluation) continued</p> <ul style="list-style-type: none"> Allocated amount for NRW reduction activities from NWSDB O&M budget is limited due to NWSDB financial situation. However NRW activities are being implemented utilizing project financing. 																												
	(Indicator 3) An execution plan to achieve reduction of NRW rate by one (1) percentage point per annum, as per the Goal 2.1 of “Corporate Plan 2007-2011”, is prepared and incorporated into relevant plans/programs of NWSDB	<p><u>Status of the achievement: achieved</u> (Terminal Evaluation)</p> <ul style="list-style-type: none"> NRW execution plan was prepared and incorporated into action plan of the cooperate plan. <p>(Ex-post Evaluation) continued</p> <ul style="list-style-type: none"> The NWR program in the action plan has been implemented in the whole Colombo City including the pilot sites and being updated. 																												
(Overall goal) The NRW rate in Colombo City is reduced	(Indicator 1) NRW reduction activities are comprehensively conducted by 22 zone officers in Colombo Metropolitan City (CMC) area in accordance with the execution plan	<p><u>Status of the achievement: achieved</u> (Ex-post Evaluation)</p> <ul style="list-style-type: none"> NRW reduction activities have been expanded to 22 zones of the CMC in accordance with the NRW execution plan. Pipe replacement, installation of water meters etc. have been undertaken with assistance of JICA and ADB projects, while NWSD has allocated funds for leak repairs. 																												
	(Indicator 2) Decrement of NRW rate per annum in CMC area exceeds one (1) percent point up to 2017	<p><u>Status of the achievement: achieved</u> (Ex-post Evaluation)</p> <ul style="list-style-type: none"> The actual decrement of NRW rate per annum in CMC area during 2012-2015 was 1.2 percent point/year, which met the target value of 1.0 percent point/year. <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Actual</th> <th>Target</th> <th></th> </tr> <tr> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>NRW rate in CMC area (%)</td> <td>49.5</td> <td>47.7</td> <td>46.3</td> <td>45.9</td> <td>45.0</td> <td>44.0</td> </tr> </tbody> </table>		Actual				Target		2012	2013	2014	2015	2016	2017	NRW rate in CMC area (%)	49.5	47.7	46.3	45.9	45.0	44.0								
	Actual				Target																									
	2012	2013	2014	2015	2016	2017																								
NRW rate in CMC area (%)	49.5	47.7	46.3	45.9	45.0	44.0																								

Source: NWSDB

3 Efficiency

The project period was within the plan (ratio against the plan: 100%), the project cost was higher than the plan (ratio against the plan: 120%). It was identified the necessity of creating detailed GIS maps which include the locations of valves, water meters, pipe trace, washouts, air valves etc. of the distribution systems. These maps were to be used for monitoring of the distribution systems on NRW reduction activities, asset management etc. Therefore additional costs were spent for GIS restructuring activities and public relations activities in response to the recommendations by the mid-term evaluation in 2011. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

Corrective actions for the NRW reduction are key areas in all policy documents of Sri Lankan government as well as NWSDB's corporate plan such as the 10-Years Development Plan (Mahinda Chintana) (2006-2016), Master Plan update: Institutional Development and Non-Revenue Water Engineering Study, NWSDB's 10 Year Development Plan (2016-2025) and NWSDB's Corporate Plan (2012-2016).

<Institutional Aspect>

NWSDB is responsible for the NRW reduction activities in Colombo city. In particular, four (4) NRW Reduction Teams (two teams for each pilot site) and the NRW Reduction Management Team established by the project play a leading role for continuation of NRW reduction activities in the pilot sites as well as dissemination of the NRW reduction activities to entire area of Colombo city. The NRW Reduction Management Teams are composed of officers and staff of Western-Central Regional Support Center¹ of NWSDB, while the NRW Reduction Team is composed of responsible officers of the Regional Support Center. All members of the teams (7 in NRW management Team, 14 in two NRW Reduction teams in Borella, 20 in two NRW Reduction Teams in Kotahena) have been working continuously. As mentioned earlier, NWSDB staff (e.g. AEs, OICs and EAs) of non-pilot sites who participated in the project activities in the pilot sites and trained by the project have been engaged in practicing the methods of the NRW reduction in their respective zones. However, in order to practice a full scale of NRW reduction activities in 22 zones in Colombo city, the current trained manpower is limited, particularly there is a shortage of trained staff for conducting close monitoring on a zonal basis. NWSDB has taken actions to trained more staff under ongoing projects as well as utilizing budget for annual training. NWSDB has constructed demonstrated Yard under Greater Kandy Water Supply Project (2001-2010) funded by JICA and will start trainings on pipe laying practices, detection of leaks etc. soon.

<Technical Aspect>

NWSDB staffs have a basic knowledge and methodology of NRW reduction introduced by the project. NWSDB has organized training programs on “Strategies of NRW Reduction” and “NRW Reduction for Pipe Fitters/Work Supervisors” for respective engineers every year. The manuals developed by the project have been extensively utilized and further developed by the Master Plan Study assisted by JICA. The on-going ADB assisted projects such as Institutional Development of National Water Supply and Drainage Board (2016-2018) and Greater Colombo Water and Wastewater Management Improvement Investment Program (2015-2020) are expected to further strengthen the technical capacity of NWSDB and physical improvement of distribution systems such as old pipes and fitting replacement and creation of DMAs (District Metering Areas²) for fighting for NRW. When they need repairs of equipment which is used for NRW reduction activities such as leak detectors, it is carried out through reliable local service providers.

<Financial Aspect>

Allocated amount for NRW reduction activities from NWSDB’s O&M budget is limited due to NWSDB financial situation, which is affected by the several factors such as tariff structure which is not cost reflective, high energy cost, high personal cost, and high NRW rate, etc. Therefore, the current NRW reduction activities have been implemented utilizing savings from Water Sector Development Project II (ODA loan project) and ADB funded projects.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional 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. NRW reduction activities were implemented in the pilot sites, which resulted in a remarkable NRW reduction in some sub-zone of the pilot sites. The NRW reduction activities were further introduced to the other area in Colombo city through NWSDB staff of non-pilot sites who participated in the project activities in the pilot sites and trained by the project. As a result, NRW rate in Colombo city area reduced from 49.5 in 2012 to 46.3 in 2014 and it is expected that the decrement of NRW rate per annum in CMC area will exceed one percent point by 2017 as planned. The project has brought about several positive impacts such as saving of production cost, improvement in performance of distribution system, and increase in number of connections/subscribers, which has contributed to improvement of quality of service and increase of NWSDB’s revenue. Regarding sustainability, slight problems have been observed in terms of the institutional and financial aspects of the implementing agency due to shortage of staff for monitoring of NRW and limited budget for implementing a full scale of NRW activities in Colombo city. As for efficiency, the project cost was higher than the plan because the additional costs were spent for GIS restructuring activities and public relations activities.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

Strengthening of NWSDB’s monitoring capacity for NRW

- At the moment, monitoring of NRW is conducted in order to evaluate the number of the NRW reduction activities in a certain period. Currently, creation of District Metering Areas (DMAs) in a way which several DMAs in one zone are in progress under ongoing Greater Colombo Water and Wastewater Management Improvement Investment Program (2015-2020) by ADB. In the future, DMA will be mandated to conduct the water audit for monitoring of water inflow into distribution system and amount of water sales level, which will enable DMA to calculate revenue gain and level of NRW with water savings and reward the staff.
- Therefore, it is recommended that NWSDB will develop the database and the necessary monitoring formats and guideline for DMA referring to the existing monitoring system on a zonal basis. Also NWSDB could be ready with guideline and procedures for conducting of water audit.

Lessons learned for JICA:

- One out of two pilot sites which had been selected in the same area where JICA Loan project was in progress had given room for NRW reduction project to measure effectiveness of different NRW reduction techniques (e.g. with project funding pipe replacement and with limited O&M budget other actions) in two pilot sites so that menu of priority actions for reduction of NRW in Colombo city is established. JICA assisted Master Plan “Update, Institutional Development, and Non-Revenue Water Engineering Study” was conducted in parallel with this project which gives synergy effect. Both projects were instrumental in implementing NRW reduction activities utilizing saving of the JICA WSDPII and ADB funded Project. In this case, good scheduling of the relevant projects gives synergy effect and plough effect.

¹ There are eleven (11) Regional Support Center in NWSDB.

² DMA refers to water distribution areas divided off to measure and manage water supply volume using a water service meter. It is considered that the water distribution management based on DMA is an effective distribution management system for NRW reduction.



Checking the flow measurement in DMA 3 of Colombo City



Old pipe replacement with new pipes in DMA9 in Colombo City



Old pipe replacement with new pipes in DMA9 in Colombo City

Country Name	The Project for Urgent Improvement of Water Supply System in Bemos-Dili (Phase 1) (Phase 2)
Democratic Republic of Timor-Leste	

I. Project Outline

Background	The Dili Water Supply System supplied 32,000 m ³ /day (May 2007) of treated water for approximately 160,000 city residents of Dili (estimated value of March 2006) from the Dili central water treatment plant (Urgent grant aid construction project by Japan in 2000) and Bemos water treatment plant (the Japanese grand aid project “Project for Improvement of Water Supply in Dili” in 2005) having the raw water taken from Bemos river conveyed through the Bemos raw water main system. However, the Bemos raw water main system had been severely damaged due to the floods caused by torrential rain occurred in the years 2004 and 2005. In order to restore the damaged Bemos raw water main system, the Japanese grant aid project “the Project for Urgent Improvement of Water Supply System in Bemos-Dili” was implemented upon the request of the government of Timor-Leste in 2009-2010. After signing the construction contract in January 2010, however, unusual rainfall and floods occurred in March, April and May 2010 in the area of upstream of Bemos River, which caused further damages to existing pipeline and facilities, furthermore extending the erosion and change of existing ground condition at the river bank. Therefore, it was necessary to modify the design of the damaged structures as well as to take countermeasure for landslide. In such circumstances, the phase 2 of the target project was planned.				
Objectives of the Project	To secure the stable raw water supply from the Bemos River and to improve the safety of the Bemos raw water main system by rehabilitation of raw water transmission facilities, thereby contributing to improvement of water supply service in Dili city.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: Dili city 2. Japanese side <ul style="list-style-type: none"> • Renovation and construction works for 15 structures of raw water main systems such as Bemos Intake, Inlet and Grit Chamber Pipeline, Revetment at Right Bank River Terrace, Installation of Valves and Wash-outs, Lower Service Reservoir and Valve Chamber at Bemos Water Treatment Plant, etc. 3. Timor-Leste side: <ul style="list-style-type: none"> • Land acquisition for grit chamber at the downstream of the Bemos Intake • Clear and level the project sites • Provision of project office and utilities • Provision of proper access road to the project office 				
Ex-Ante Evaluation	(Phase I) 2009 (Phase II) 2010	E/N Date	(Phase I) May 26, 2009 (Phase II) January 31, 2011	Completion Date	(Phase I) November 23, 2011 (Phase II) February 24, 2012
Project Cost	E/N Grant Limit: (Phase I) 694 million yen / (Phase II) 272 million yen Actual Grant Amount: (Phase I) 666.9 million yen / (Phase II) 271.4 million yen				
Implementing Agency	National Directorate of Water Service (DNSA), Minister of Public Works, Transport and Communications				
Contracted Agencies	Sanyu Consultants Inc., Dai Nippon Construction				

II. Result of the Evaluation

1 Relevance
<p><Consistency with Development Policy of Timor-Leste Government at the time of ex-ante and ex-post evaluation> This project was consistent with Timor-Leste’s development policy of “improvement of Dili water supply system” as set forth in the policy documents including the Annual Action Plan (2007, 2008) and the Strategic Development Plan (2011- 2030).</p> <p><Consistency with Development Needs of at the time of ex-ante and ex-post evaluation> This project met the development needs of Timor-Leste to secure safe and stable water supply in Dili water supply system and to recover the flood damage by improvement of Bemos raw water main system. Since the source of water supply in Dili city heavily depends on the surface water taken from Bemos River, to secure Bemos raw water main system is still important.</p> <p><Consistency with Japan’s ODA Policy for Timor-Leste at the time of ex-ante evaluation> Although the first Japan’s Country Assistance Policy for Timor-Leste (later issued in 2012) was not formulated at the time of ex-ante evaluation, the project was consistent with Japan’s Official Development Policy for Timor-Leste at the time of 2008 to prioritize development and maintenance infrastructure as one of the four priority areas.</p> <p><Evaluation Results> In the light of above, the relevance of this project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness> The project has achieved its objectives, “to secure the stable raw water supply from the Bemos River and to improve the safety of the Bemos raw water main system by rehabilitation of raw water transmission facilities”. The daily raw water supply volume increased from 7,800 m³/day in 2010 to 8,900 m³/day in 2015 which met the target value of 8,800 m³/day. Also the number of days to stop raw water supply per year due to removal works of sand and sediment reduced from 7 days/ year before the project in 2010 to 0-1 day/year after the project completion. The safety of the Bemos raw water main system has been improved. Due to strengthening of the protection of Bemos raw water system by rehabilitation, the frequency of damage by the flood was reduced in comparison with pre project implementation. As mentioned above, failure of raw water supply rarely occurs after post project implementation. This failure happened only in rainy season due to inflow of sands and gravels into intake facilities caused by the flood. As a result of decrease in frequency of damage by the flood, the</p>

maintenance of raw water main system especially during the rainy season became easier in comparison with the pre project implementation.
<Impacts>

The project contributed to improvement of water supply in Dili city. The supply of treated water in Dili city has increased significantly as the total water supply volume at Bemós water treatment plant and Dili Central water treatment plant increased from 3,312,000 m³/year in 2008 to 5,034,528 m³/year in 2014, which indicated a growth rate at 152% between 2008 and 2014. However, according to DNSA, not all the figures of the table are correct because water flow meters are often out of order, in addition, some of the figures are not consistent with annual raw water supply. But the tendency of increasing the amount of treatment water can be certainly recognized. On the other hand, there is a problem in accessibility of treated water at customers' level due to the poor condition of the distribution network in Dili city.

Water Supply Volume in Dili city

(unit: m³/year)

	2008 Baseline	2012 Actual	2013 Actual	2014 Actual
Water supply volume at Bemós WTP	936,000	1,123,000	1,460,600	1,898,208
Water supply volume at Dili Central WTP	2,376,000	2,340,000	2,448,000	3,136,320
Total	3,312,000	3,463,000	3,908,600	5,034,528

Source: DNSA

Note: WTP (Water Treatment Plant)

No negative impact on the natural environment was observed and no land acquisition and resettlement of people were associated with the project.

<Evaluation Result>

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

Quantitative Effects

Indicator	(Before the project) Year 2010 Actual	(Target year) Year 2015 Planned	Year 2011 Actual	Year 2012 Actual	Year 2013 Actual	Year 2014 Actual	(Ex-post evaluation) Year 2015 Actual
Indicator 1 ^(Note 1) Daily raw water supply volume (1,000 m ³ /day)	7.8	8.8	8.7	8.9	8.8	8.9	8.9
Indicator 1 ^(Note 1) Annual raw water supply volume (1,000 m ³ /year)	2,850	3,220	3,175.5	3,248.5	3,212	3,248.5	3,248.5
Indicator 2 ^(Note 2) Number of days to stop raw water supply per year (day/year)	7	0	0	1	0	1	0

Sources: The ex-ante evaluation summary sheet and response to the questionnaire by Ministry of Public Works.

Note 1: Raw water supply volume means the volume of raw water supplied from Bemós river intake to the Dili and Bemós water treatment plants.

Note 2: Number of days to stop raw water supply per year means number of days to stop the raw water supply from Bemós river intake to the Dili and Bemós water treatment plants by removal works of sand and sediment.

3 Efficiency

Both the project cost and project implementation period were within the plan (100% and 92% respectively), the efficiency of this project is high.

4 Sustainability

<Institutional Aspect>

The operation and maintenance (O&M) agency of the project facility is the National Directorate of Water Service (DNSA), the Ministry of Public Works, Transport and Communications. DNSA is responsible for water supply services in Timor-Leste. The O&M of the Bemós raw water main system was directly handled by Dili Water Supply Department under DNSA. The total number of staff in Dili Water Supply Department is 121 including 38 in Production Unit, 5 intake keepers and 11 plant operators (3 operators for the Bemós WTP, 6 operators for the Central WTP, 1 operator for the Lahane WTP, and the 1 operator for the Benamauk WTP). Each WTP has to be operated 24 hours a day and 7 days a week by only the plant operator. DNSA conducts daily check and periodical maintenance and the major maintenance is outsourced to private maintenance agency each time. The allocated number of staff is not sufficient to conduct the daily check and periodic maintenance.

In addition, the procurement system of DNSA requires long time to procure necessary materials for O&M. Due to the stagnation of procurement, inadequate O&Ms are observed. For example, chemical materials for purification were not procured and some WTPs were operated without the chemical materials.

<Technical Aspect>

The JICA's Technical Cooperation "Capacity Development Project for Water Supply System in Dili and four Towns (2008- 2011)" and dispatch of the Advisor on Improvement of Water Supply of DNSA (2012-2015) contributed to improve the O&M technical capacity of DNSA and Dili Water Supply Department. The above JICA's cooperation provided technical transfer on O&M to the operators of WTPs, conducted training by the operators in MWA (Metropolitan Water Authority) in Bangkok for a week, and also some DNSA Staff have joined group training on water sector conducted in Japan. After the above JICA's cooperation, DNSA has been operating facilities by utilizing the manual and guideline for O&M of the facilities prepared through the JICA Project. However, DNSA's technical capacity is still not enough to fully undertake O&M. According to DNSA, the capacity of O&M on area of network, modeling, mapping system, leakage detection program and asset management need to be further developed and upgraded. Also there are very limited private maintenance agencies with enough technical skills and experience of the major maintenance works, specifically associated to waterworks project facilities.

In order to cope with the above situation, DNSA has been conducting the Public Private Partnership (PPP) feasibility study for Dili Water Supply System with the aim to assess the most viable PPP method that suit to the condition of Dili Water Supply System to ensure the sustainability of O&M and financial improvement in the near future.

<Financial Aspect>

The budget approved for DNSA usually got reduced against the requested/planned budget. DNSA received one million USD for O&M budget in 2014, however, it was not enough to fully conduct required O&M including procurement of necessary spare parts. On the other hand, DNSA received only 138,000 USD in 2014 for water charge revenue. This low water charge revenue issue may be caused by several reasons such as: lacking efforts on bill collection, a high water leakage rate and illegal connections in the distribution network. This limited O&M budget led to the shortage of O&M manpower and weak technical capacity of DNSA.

<Current Status of Operation and Maintenance>

As stated above, a full scale daily check and periodic maintenance for all project facilities has not been conducted due to a shortage of manpower, limited technical capacities and lack of necessary materials. However, operation and maintenance of the major facilities has been done within a certain range. For example, the operators in charge of Bemos raw water main system conduct the daily check for the Lower Service Reservoir in Bemos WTP. Physically the WTP is still in good condition. Thus, Lower Service Reservoir does not necessarily need a periodic maintenance. Also it is observed that some part of land nearby the grid chamber has been re-occupied by a community to grow vegetables, but so far it has not yet impeded the operation of project facilities. DNSA has collocated two operators to take care of the intake and the community occupied area in order to avoid the damage. Since the project facilities are still new, the project facilities have been functioning well so far and do not require major maintenance for a certain period of time.

<Evaluation Results>

Therefore, there are some problems in the institutional and technical aspects, and a major problem in financial aspect, the sustainability of this project effect is low.

5 Summary of the Evaluation

The project has achieved its objectives, “to secure the stable raw water supply from the Bemos River and to improve the safety of the Bemos raw water main system by rehabilitation of raw water transmission facilities”. The quantitative indicators such as the daily raw water supply volume and the number of days to stop raw water supply per year met the target respective values. Also the safety of the Bemos raw water main system has been improved as frequency of damage by the flood was reduced due to strengthening of the protection of Bemos raw water system. The project contributed to improvement of water supply in Dili city as the total supply of treated water in Dili city expanded by 152% between 2008 and 2014.

As for sustainability, there are problems in terms of institutional, technical and financial aspects due to shortage of O&M staff, technical capacity and O&M budget. Meanwhile, the project facilities have been functioning well so far and do not require major maintenance for a certain period of time.

In light of the above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendation for Implementing Agency;

- Budget allocation for O&M Bemos Water Treatment Plant should be sustained in order to hold up a periodical maintenance for the facilities.
- Technical capacity of staffs and operators should be improved continuously through in-country training program or overseas training program in order to upgrade knowledge and technical skills of O&M.
- In order to improve the profitability of DNSA as well as improve the accessibility of water supply service at the final beneficiaries (i.e. customers), DNSA should urgently create a task force team to detect illegal connections and leakages in the distribution networks.
- DNSA should now on discuss with the central government about the establishment of frameworks to make DNSA as an autonomy institution such as a public enterprise or to make DNSA install public enterprise accounting. DNSA is considering the importance to obtain adequate water revenue. However, the water revenue cannot be utilized by DNSA, themselves because the water revenue is once incorporated in the revenue of the Timor-Leste government and the operation cost of DNSA is allocated by the government regardless of its water revenue. If DNSA could have an independent accounting system from the government which allows DNSA to utilize its water revenue by themselves, improvement of financial issues could be expected in the long run and this would motivate DNSA to tackle with collecting water revenue harder.

Lessons learned to JICA

- Management of a water supply system including intake facilities and water treatment plants, requires appropriate operation and maintenance (O&M) capacity. In this project, the limited technical capacity and management system by O&M agency was witnessed. However, considering the fact that this project was implemented for the purpose to avoid the worst scenario, i.e. operation failure, in a vulnerable post conflict country such as Timor-Leste, it should have been suggested to the counterpart during the planning stage that a separate support by JICA or other donor agencies would be needed for the management including O&M after the emergency rehabilitation.

Furthermore, when providing grant aid for an emergency rehabilitation project of an existing facility, it would be advisable to agree on a separate “project life” which is different from that for a provision of new facility. In the future, it should be considered to set the durable life of equipment provided under the emergency rehabilitation project as the “project life”. Then, construction of new facility or major rehabilitation work within the set expiry period should be suggested to the implementing agency during the planning stage.



Lower Service Reservoir



Bemos Water Treatment Plant Facilities

Country Name	The Project for Improvement of Equipment in the National Hospital for Obstetrics and Gynecology
Socialist Republic of Viet Nam	

I. Project Outline

Background	The National Hospital for Obstetrics and Gynecology (NHOG) is positioned as the top referral hospital in obstetrics and gynecology in Viet Nam, and strives to live up with its role by providing prenatal diagnosis, fertility treatment, and other advanced medicine. NHOG performed approximately 6,000 gynecological surgeries and more than 15,000 high risk deliveries including Caesarean sections, and had at least 2,000 premature births every year as well as dealt with approximately 4,000 low-risk deliveries annually. Patients' demand was on the constant rise having reached 193,356 tests and 164,287 treatments in 2008, and bed-sharing among 2-3 patients were observed in many inpatient wards. The size of NHOG's facilities such as delivery rooms, operation theatres and beds had almost come to saturation. Furthermore, many equipment pieces including delivery tables and delivery monitors were introduced in the 1990s and the superannuated facilities and equipment hampered appropriate medical services. In the meantime, NHOG assumes a significant role in improving the technical level of gynecological examinations in Viet Nam through provision of education and training to provincial hospitals that are positioned at lower levels in the referral system. However, it had not been successful in bringing sufficient effects as it possessed only one delivery simulator as training equipment.				
Objectives of the Project	To upgrade examination functions as well as education and training functions of NHOG as the top referral hospital for obstetrics and gynecology in Viet Nam by procurement of advanced types of medical equipment for obstetrics and gynecology as well as education and training equipment, thereby contributing to capacity development of lower-level hospitals in Hanoi City and its suburbs as well as enhancement of the referral system of obstetrics and gynecology.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project site: National Hospital for Obstetrics and Gynecology, Hanoi city 2. Japanese side: Procurement of advanced types of medical equipment for obstetrics and gynecology (staining machine, hematology analyzer, ELISA system, cryotome, ventilator, anesthesia machine, X-ray unit, ambulance, etc.) as well as education and training equipment (midwifery simulator, etc) (109 items in total) 3. Vietnamese side: Construction of new B/C buildings, Three-phase power supply works in the existing facilities (radiological equipment, mortuary refrigerators, sterilizers), Removal of existing fixed equipment, Removal of existing walls and construction of new walls. 				
Ex-Ante Evaluation	2009	E/N Date	5 February 2010	Completion Date	22 July 2011
Project Cost	E/N Grant Limit: 461 million yen, Actual Grant Amount: 459 million yen				
Implementing Agency	National Hospital for Obstetrics and Gynecology (NHOG), Ministry of Health				
Contracted Agencies	Consultant: International Total Engineering Corporation, Contractor: Mitsubishi Corporation				

II. Result of the Evaluation

1 Relevance
<p><Consistency with development policy of Viet Nam at the time of Ex-ante Evaluation and Ex-post Evaluation></p> <p>The project has been consistent with the 5-year health sector development plan (2006-2010) (2011-2015) both at the time of ex-ante evaluation and ex-post evaluation, which serves as a basic guidance for development of the health sector and places "decrease in the mortality ratio of mother and infant" as one of the priority tasks.</p> <p><Consistency with development needs of Viet Nam at the time of Ex-ante Evaluation and Ex-post Evaluation></p> <p>The project has been also consistent with NHOG's development needs for providing sufficient medical services with its advanced facilities and equipment as the hospital positioned at the top of the referral system and allocating sufficient time to hands-on training in education and training sessions for lower-level hospitals.</p> <p><Consistency with Japan's ODA policy at the time of Ex-ante Evaluation></p> <p>The project was consistent with the Country Assistance Policy for Viet Nam (2009) which placed the "social and living-standard improvements and rectifying disparities" as one of the priority areas and the "improvements of basic social services" as one of the development issues.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of this project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project has largely achieved its objective. As indicators of quantitative effects, the number of deliveries, gynecological operations and mammography tests at NHOG per year at the target year of 2014 were considerably increased. While the number of normal deliveries was slightly decreased, which means that low risk cases such as normal deliveries has been referred from NHOG to lower-level hospitals. Days spent on obtaining test results at NHOG have been also decreased. While the number of training courses on emergency delivery care/service per year was not increased in both training conducted at NHOG and local hospitals, NHOG has conducted many other training courses with use of education and training equipment provided by the project. According to an interview with NHOG, during the early 2000s, the obstetric emergency including emergency delivery care/service was one of the most priority training by NHOG towards provincial hospitals so that a lot of training on obstetric emergency were provided to provinces, resulting in the improvement of maternal mortality ratio (69/100,000 live birth). However, in late years the essential neonatal care has been highlighted by the Ministry of Health as</p>

a top issue and NHOH is now concentrating on supporting the care for provinces. In 2014, 3 training courses on neonatal ICU, breast feeding and new born babies care with 243 trainees were carried out.

According to the survey conducted by the Nursing Department of NHOH, patients are satisfied with the hospital services. NHOH is recognized as a top leading hospital specialized in obstetrics and gynecology by patients and got trust from people. However, there are still some claims on long waiting time and insufficient infrastructure due to overloaded situations (bed occupancy ratio is 170%).

<Impact>

According to the interview with NHOH, the referral system of NHOH and lower-level hospitals has functioned properly and NHOH has received referred patients from all lower-level hospitals in Hanoi City and Northern Region in terms of obstetrics and gynecology. The technical level of medical staff of the lower-level hospitals has improved since NHOH often provides technical training to them through the Ministry's program, satellite projects and World Bank funded project on improvement for health professional. Although any statistical data which indicate the improvement of lower-level hospitals were not obtained at the ex-post evaluation, according to NHOH it is estimated that referred cases from the lower-level hospitals have been decreased by about 30% as a result of the training and technical transfer to them. In addition, as another example of impact, there are increasing needs on endoscopic surgery and IVF not only from provinces but also from neighboring countries such as Cambodia, Malaysia, Indonesia and Philippines in past few years and NHOH provided 5 courses with 34 trainees in 2013 and 4 courses with 17 trainees in 2014 to these countries. On the other hand, no negative impact on natural environment has been observed and no land acquisition occurred under this project.

<Evaluation Result>

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

<Quantitative Effects>

Indicators		2008 (Before the project) Actual value	2014 Target value	2011 Actual value	2012 Actual value	2013 Actual value	2014 Actual value
Indicator 1: Number of deliveries at NHOH per year	Normal deliveries	4,385	-	4,625	6,019	4,451	4,380
	Deliveries by vacuum extraction and forceps	6,150	-	16,447	18,850	16,561	16,638
	Total	10,535	Increase	21,072	24,869	21,012	21,018
Indicator 2: Number of gynecological operations at NHOH per year		6,277	Increase	8,497	8,315	10,667	9,442
Indicator 3: Number of mammography tests at NHOH per year		0	Increase	-	-	1,672	3,270
Indicator 4: Days spent on obtaining test results (PCR, ELISA) ^{Note} at NHOH		10 days	Decrease	2-4 days	2-4 days	2-4 days	2-4 days
Indicator 5: Number of training courses on emergency delivery care/service per year	Training conducted at NHOH	4	Increase	0	2	0	1
	Training conducted at local hospitals by NHOH	12	Increase	8	8	11	8

Source: JICA internal documents, questionnaires/interviews with NHOH

Note: Popular methods of blood test in obstetrics. PCR detects virus and bacterial infection, and ELISA detects antibodies and antigens.

3 Efficiency

While the project cost was within the plan (ratio against the plan: 100%), the project period exceeded the plan (ratio against the plan: 118%) since it took longer time than expected in the preparation of tender documents and manufacturing equipment. The project output, most of provided equipment, is in frequent use than planned. It was planned that part of equipment should have been installed in the new B/C buildings to be constructed by the Vietnamese side, which is behind the original schedule due to a lack of budget and the equipment concerned was installed in the existing buildings. The B/C buildings are expected to be completed by June 2016 and the equipment will be installed accordingly. Therefore, efficiency of this project is fair.

4 Sustainability

<Institutional Aspect>

The organizational structure of NHOH has sustained what was considered desirable at the time of ex-ante evaluation with appropriate number of staff being allocated. For example, the Facility-Medical Equipment Department in charge of regular maintenance and small and simple repairs of equipment consists of 13 staff including 4 engineers and 2 technicians, and which is enough. The Training-DOHA (Direction Office of Healthcare Activities) Center in charge of education and training has 42 staff as well as 90 visiting lecturers coming from different clinical departments and the current staffing resource is capable of managing and conducting training to lower-level hospitals. The current total number of permanent staff of NHOH is 786 including 106 doctors, 192 nurses, 211 midwives, 75 technicians and 202 others and with existing personnel, there is no problem in institutional aspect of NHOH.

<Technical Aspect>

The Facility-Medical Equipment Department of NHOH is responsible for regular maintenance and simple repairs only and for advanced equipment, NHOH signed a maintenance contract with manufacture's agents. The Operation Manual and Maintenance Manual provided by the project have been still used by relevant staff of NHOH and there has been no technical problem in operating and maintaining the equipment provided. The medical staff including doctors, nurses, and laboratory technicians of NHOH also have proper skills and knowledge to operate the equipment since it is regulated that all newly recruited doctors, nurses and midwives have to attend a training on equipment usage prior to their start of working at the hospital.

<Financial Aspect>

The total revenue of NHOH has been increasing every year, with 287.0 billion VND (Approximately 1,435 million JPY) in 2010 to

780.4 billion VND (Approximately 3,902 million JPY) in 2014 and 827.9 billion VND (Approximately 4,140 million JPY) in 2015. With this sufficient revenue, the expenditure for both routine repairs and large repairs have been secured by NHOG and there is no financial problem in maintaining the equipment provided.

<Current Status of O&M>

The Facility-Medical Equipment Department keeps maintenance manuals of each type of equipment and the department staff performs simple repair, inspection and parts replacement of test devices, radiological equipment and surgical apparatus based on these documents. In case where repairing requires more technical knowledge, they request repair service of the reference manufacturer or distributor based on the maintenance contracts. NHOG has the annual procurement plan and procures the necessary materials and consumables based on the approved schedule by the Board of Directors. In addition, in case of emergency, the hospital follows the government regulation on procurement. While most of procured equipment has been still in good condition and fully utilized for examination and treatment activities as well as hospital training, a few items out of the 109 have not been used, although which is not so serious issue for NHOG: 1) automatic staining machine is time consuming before the result is confirmed and the staff makes it manually (by hand); 2) ELISA system runs out of consumable chemicals; and 3) ventilator for newborn is not suitable since the specification targets babies with heavier weight than average immature babies in NHOG. In order to utilize these machines effectively, they transferred 3 sets of the ventilator to the Obstetrics and Pediatrics Hospital of Bac Ninh Province and 2 sets to the General Hospital of Ha Tinh Province with an approval of the Ministry of Health.

<Evaluation Result>

In light of the above, there is a minor problem in the current status of operation and maintenance so that the sustainability of the project is fair.

5 Summary of the Evaluation

The project has largely achieved its objective, “to upgrade examination functions as well as education and training functions of NHOG as the top referral hospital for obstetrics and gynecology in Viet Nam by procurement of advanced types of medical equipment for obstetrics and gynecology as well as education and training equipment.” Most of provided equipment has been fully utilized for examination, treatment and training, which has produced some effects such as significantly increased number of deliveries at NHOG. It has also contributed to capacity development of lower-level hospitals in Hanoi City and its suburbs as well as enhancement of the referral system of obstetrics and gynecology. In terms of sustainability, NHOG has no problem in the institutional, technical and financial aspect expect for a minor problem in the current status of operation and maintenance. In terms of efficiency, while the project cost was within the plan, the project period exceeded the plan since it took longer time than expected in the preparation of tender documents and manufacturing equipment.

In light of the above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

<Recommendations to Implementing Agency>

1. In general, provision of equipment to NHOG was appropriate and helpful to enhance the clinical operation of the hospital as well as training capacity to lower-level hospitals in the Northern Region. Most of provided equipment is in good condition and in frequent use. However, the hospital does not have a good system of collecting statistic data on its activities as well as referral data, causing difficulty in concluding a judgment especially on the project impact. A system of obtaining statistic data (e.g. records of equipment operation and referral patients from provinces) by utilizing IT is highly recommended because analysis from collected data will help NHOG in improving the operation of referral system and training for provincial staff.
2. While NHOG is receiving a huge number of patients as the top referral hospital in obstetrics and gynecology in the Northern Region, the capacities of its existing facilities and infrastructure are limited, so the completion of B/C buildings still being constructed should be accelerated without any delay.

<Lessons learned for JICA>

Some equipment items provided by the project seem not to be suitable for the hospital needs (e.g. ambulance was a bit small, the speed of staining machine was slower than required by hospital’s workload, newborn ventilator targeted babies with heavier weight than average immature babies in NHOG). Considering the speed of technological innovation of medical technique, sufficient discussion among consultant, JICA and NHOG on specification of proposed equipment at the stages of preparatory survey as well as detailed design study should be carried out in a timely manner.



Mammography



Infant incubator in neonatal ICU

Country Name	Project for the Improvement of the Medical Equipment of the University Teaching Hospital
Republic of Zambia	

I. Project Outline

Background	<p>The University Teaching Hospital (UTH), which was the target institution of this Project, was the top referral hospital in Zambia, engaged in tertiary medical care and clinical education of medical service providers and medical students studying to be doctors and nurses. Moreover, it was the only hospital providing advanced medical services to the citizens of Lusaka, where about fifteen (15) % of the total population (approximately 12 million, 2009) was concentrated. However, due to budgetary constraints, replacement of degraded medical equipment as well as maintenance and management of the huge medical facilities could not be sufficiently implemented by the Government of Zambia. It seemed to affect medical treatment activities as indicated in the decrease of number of operations and deliveries.</p> <p>Confronted with this situation, UTH was making efforts to repair the facilities and equipment with a grant from the Ministry of Health and with self-earned funds (revenues from clinical services). However, as it was difficult to appropriately budget for all the different kinds of repair and construction works at once, construction works was carried out on a small scale in accordance with the priority, and it was difficult to allocate the budget for replacement of degraded medical equipment.</p>				
Objectives of the Project	<p>To improve the quality of health services delivered by the University Teaching Hospital (UTH), and also to enhance the capacity of UTH in providing pre-service and in-service training of health care professionals by the procurement of medical equipment and strengthen the maintenance and management of medical equipment, thereby contributing to reduction of the number of death cases of new born baby, pregnant and parturient women as well as children at UTH.</p>				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: University Teaching Hospital (UTH), Lusaka 2. Japanese side <ol style="list-style-type: none"> (1) Procurement of medical equipment for main operation theatre, emergency operation theatre, obstetric & gynaecology operation theatre, and Paediatric Intensive Care Unit (PICU) <ul style="list-style-type: none"> ➢ X-ray, mobile (2), Ultrasound Machine, Colour Doppler (2), Ultrasound Machine (1), Anaesthesia machine (10), Ventilator, Infant (7), Ventilator, Podiatric & Adult (10), Operating Light (9), Laparoscope (1), Intensive Care Unit (ICU) Bed (10), Delivery Bed (17), Infant Incubator (18) and Others (2) Soft component (Consulting service) <ul style="list-style-type: none"> ➢ Strengthen the maintenance and management of medical equipment through establishment of manuals and structure and organization (Established documents) <ul style="list-style-type: none"> ➢ (i) Medical Equipment Management Log, (ii) Planned Preventive Maintenance (PPM) Manual, (iii) 5S Rule, (iv) User Maintenance Check Sheet, (v) Handover Checklist/Sheet 3. Zambian side: <ol style="list-style-type: none"> (1) Allocation of operation and maintenance budget for medical equipment of the project 				
Ex-Ante Evaluation	2009	E/N Date	December 11, 2009	Completion Date	April 21, 2011
Project Cost	E/N Grant Limit: 324 million yen, Actual Grant Amount: 286.8 million yen				
Implementing Agency	Ministry of Health, Department of Policy and Planning				
Contracted Agencies	Fujita Planning Co., Ltd. , OGAWA SEIKI CO., LTD				

II. Result of the Evaluation

1 Relevance
<p><Consistency with Development Policy of Zambian Government at the time of ex-ante evaluation and ex-post evaluation></p> <p>This project was consistent with Zambia's development policy of "improvement of medical equipment and facilities and enhancement of training capacity for health care workers in Zambia" as set forth in the policy documents including the National Health Strategic Plan (NHSP) (2006-2010) and NHSP (2011-2015).</p> <p><Consistency with Development Needs of at the time of ex-ante evaluation and ex-post evaluation></p> <p>This project met the development needs of Zambia to improvement of medical equipment as well as strengthening O&M capacity for medical equipment in UTH in order to secure the provision of quality health and medical services.</p> <p><Consistency with Japan's ODA Policy for Zambia at the time of ex-ante evaluation></p> <p>The project was consistent with Japan's Country Assistance Plan for Zambia (established in 2002) to prioritize the improvement of cost-effective health and medical services as one of the priority areas.</p> <p><Evaluation Results></p> <p>In the light of above, the relevance of this project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project has partially achieved its objectives, "to improve the quality of health services delivered by UTH, and also to enhance the capacity of UTH in providing pre-service and in-service training of health care professional". The number of operations increased from</p>

15,445/year in 2007 to 19,984/year in 2014, which indicates 29% of increase in pre and post project implementation. The major types of operation are general surgery¹ (approximately 63%) and caesarian section (approx.18%). The number of delivery also increased from 13,414/year in 2007 to 21,995/year in 2014, which shows 64% of increase in pre and post project implementation. Regarding the average length of stay in the Intensive Care Unit (ICU), its actual data after project completion was not available at UTH, therefore, the degree of achievement of this indicator could not be verified.

It was confirmed that the quality of health services delivered by UTH has been improved. The equipment provided by the project has made it possible for certain complex operations to be done, e.g. open heart surgery for both adult and children. It has also allowed for better patient monitoring particularly in the labour ward by utilizing cardiac monitor. The waiting list in the main operating theatre has also been reduced. According to the interview with the patients, they appreciated the quality of the services. The patients after the operation at the emergency theatre commented that waiting time might be improved because the availability of the equipment made them possible to attend more patients promptly.

The training capacity in UTH is also strengthened. The new training programs have been introduced such as postgraduate degree in anaesthesiology and radiology due to the availability of the equipment. The practical training of the postgraduate in surgery has also been improved. In the ICU, the equipment is enhancing the training for the nursing specialties such as critical care nurses, theatre nurses and paediatric nurses. The clinical officer anaesthetist program also conducts practicals at UTH, though the theory is at Chainama Hills College. The Neonatal Intensive Care Unit (NICU) nursing is planned to start in 2016.

The above achievement were supported by other factors such as (i) increase of population in Lusaka and in Zambia have, (ii) rehabilitation of UTH such as a complete overhaul of main and the emergency operation theatres by the Government of Zambia, (iii) capacity development of medical staff in the operation theatres by specialists dispatched by the international organization. These external factors are supposed to have led to a better medical service and working environment and to raise working motivations of staff at UTH.

On the other hand, it was confirmed that approximately 73% of equipment provided by the project were utilized at the time of ex-post evaluation. The rest of 27% of equipment such as ventilators, anaesthetic machines, delivery beds, patient monitors and infant incubators were not utilized due to lack of spare parts, accessories and consumables, and some of the equipment were not meeting to specification of UTH and in some cases, the users did not know how to use the equipment. The health staff reported that they stopped using infant incubators due to the shortage of the human resources to properly use them according to the infection prevention procedure.

<Impacts>

The project has limited positive impact on decrease in death case of new born babies at UTH. As shown in the table right, the number of death case for new born babies as well as the fatality rate of new born babies (death per delivery) in UTH has been moderately increasing after the project completion in 2011. According to UTH, the above result may be due to increased resistance of infection to most available antibiotics. However, it is evident the project was not able to contribute to decrease of number of new born babies in UTH directly. It was found that all infant incubators provided by the project have not been utilized.

While, the number of death case for pregnant and parturient women as well as the fatality rate of pregnant and parturient women (death per delivery) in UTH has slightly decreased. This reduction can be partially attributed to medical equipment procured by the project, but there are other factors such as technical capacity of medical staff, health management during pregnancy by women, etc. contributing to this. It was difficult to verify the project impact on death case of children in UTH due to non-availability of data.

No negative impact was observed and no land acquisition and resettlement of people was associated with the project.

<Evaluation Result>

As the project objective was partially achieved since the achievement of one out of three quantitative indicators could not be verified and the 27% of equipment provided in this project were not in use, and the project has a limited positive impact, the effectiveness/impact of this project is fair.

Quantitative Effects

Indicator	(before the project) Year 2007 Actual	(target year) Year 2014 Planned	Year 2011 Actual	Year 2012 Actual	Year 2013 Actual	Year 2014 Actual	(ex-post evaluation) Year 2015 Actual
Indicator 1 Average length of stay in ICU (days)	50	Reduce	N.A.	N.A.	N.A.	N.A.	N.A.
Indicator 2 Number of operations (number/year)	15,445	Increase	18,710	18,242	19,067	19,984	9,714 (up to June)
Indicator 3 Number of deliveries (number/year)	13,414	Increase	18,682	17,768	20,992	21,995	10,860 (up to June)

Sources: The Preparatory Survey Report and response to the questioner by Ministry of Health.

¹ General surgery consists of all non-specialty cases, of which the most common are appendectomy, hernia repair, debridement and suturing of lacerations, incision and drainage and simple excision of lumps and tumors.

Death case at UTH

	2010	2011	2012	2013	2014	2015 Up to Jun
1. New born babies						
a) No. of death	1,102	1,045	1,194	1,423	1,360	710
b) Fatality rate (death per delivery)	6.3%	5.6%	6.7%	6.8%	6.2%	6.5%
2. Pregnant and parturient women						
a) No. of death	203	165	148	149	138	56
b) Fatality rate (death per delivery)	1.16%	0.88%	0.83%	0.71%	0.62%	0.52%

Note: The number of death case of children in UTH was not available.

3 Efficiency

Both the project cost and project implementation period were within the plan (84% and 92% respectively), the efficiency of this project is high.

4 Sustainability

<Institutional Aspect>

The Biomedical Engineering Department (BME) of UTH is in charge of the maintenance and management of the medical equipment of the project. There is a shortage of staff in the BME department as only three engineers out of required 12 engineers are available at BME at ex-post evaluation due to limited budget. This caused some difficulties such as long waiting time for the equipment to be repaired, lack of quality of daily maintenance services for the user departments and non-implementation of 5S². In order to mitigate the shortage of manpower in the BME department, the human resources department proposed to recruit new staff the BME department as a part of the on-going restructuring of UTH. Currently, the part time staff of electricians and students help BME department for the simple maintenance works. Similarly, there is a shortage of manpower of medical staff at UTH including medical doctors, clinical officers, nurse, midwife, and paramedical staff and there is an average of 20% of vacant position against required number of positions. UTH reported that this has created some issues such as long waiting lists in the operating theatres, lack of proper utilization of project documents like hand over checklist, non-functional committee like 5S committee and decreased quality of services.

<Technical Aspect>

The staff of BME department are graduates of technical institutions specialized in electro and electric techniques. Since BME staff received the maintenance training of the project equipment by the manufacturers during the installation of the equipment, they are able to conduct daily check and maintenance. While, part time staff in the BME department are not formally trained for the medical equipment and sometimes they do not know how to deal with the technical aspects of the equipment. Once the serious failure found, BME have to contact to the manufactures for instruction or to replace the parts. When the BME staff cannot fix the equipment, they have to call outside engineers to repair the equipment with no service contracts in most cases. It requires extra cost since only imaging equipment have the service contract. There are some equipment such as the patient ventilators which are difficult to be repaired by local service providers due to lack of expertise. In addition, as mentioned earlier, the shortage of BME manpower has affected the implementation of daily check, utilization of some operation and maintenance (O&M) documents and 5S rules.

On the other hand, although the soft component of the project included the training for the users such as medical staff of UTH to conduct daily checks of the equipment, the users such as medical doctors, nurse and paramedical staff do not conduct daily checks and maintenance. The medial staff in most cases just reported the malfunctioning equipment to the BME without attempting to troubleshoot the equipment for problems. BME rounds the departments to check the equipment only weekly according with the schedule due to the shortage of manpower. The BME department was utilizing the documents for their daily activities. However, most of user departments only kept inventory lists of the equipment. Some of the constraints in utilization include lack of time and lack of understanding of the documents.

<Financial Aspect>

Although some funds have been secured and there is a steady increase in the O&M budget, the current O&M budgets were still insufficient due to limitation in resources from the National Treasury. For example, UTH received about Zambian Kwacha (ZMW) 430,000 for O&M budget in 2014 but it was still below the required budget of ZMW 728,300. The shortage of the budget delays the purchase of necessary parts and consumables. As a result, the several broken equipment such as patient monitors, ventilators, anaesthetic machines and delivery beds, were left at BME department waiting for maintenance and spare parts. Although they manage to handle the patients using the available resources, it affects the service delivery and quality in UTH.

<Current Status of Operation and Maintenance>

The BME rounds for the inspections at least twice a week in all the departments, and daily in labour ward and delivery room. Repair works include servicing of suction machine, repairing the ventilators, and any other work requested by the user departments. As the new government procedures require long process and purchases of spares and consumables cannot be made directly to the manufacturer, but through a local agent. This has led to delayed deliveries and high cost of spares and consumables. In addition, it was found that some equipment such as patient monitors, anaesthetic machines, ventilators and delivery beds are not meeting Zambian context and not meeting the specification submitted by UTH.

<Evaluation Results>

Therefore, there are some problems in the institutional, technical, financial aspects as well as current status of operation and maintenance, the sustainability of this project effect is low.

5 Summary of the Evaluation

The project has partially achieved its objectives, “to improve the quality of health services delivered by UTH, and also to enhance the capacity of UTH in providing pre-service and in-service training of health care professional”. The number of operations increased by 29% and the number of delivery also increased by 64% in pre and post project implementation. However, the reduction in average length of stay in the ICU could not be verified due to non-availability of data. The training capacity in UTH is strengthened. These above achievement were supported by the other factors. On the other hand, it was confirmed that 27% of equipment were not utilized due to lack of spare parts, accessories and consumables because some of the equipment were not meeting to specification of UTH and in some cases, the users did not know how to use the equipment. The project has limited positive impact on decrease in death case of pregnant and parturient women at UTH. Therefore, effectiveness/impact of this project is fair.

As for sustainability, there are problems in terms of institutional, technical, financial aspects as well as current status of operation and

² 5S is the principles of work environment improvement derived from the Japanese words Seiri (Sort), Seiton (Set), Seiso (Shine), Seiketsu (Standardize) and Shitsuke (Sustain) as a means to achieve the goals.

maintenance due to shortage of O&M staff, O&M budget, technical capacity of local O&M service providers, and difficulties in procurement of accessories and spare parts of the equipment.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendation for Department of the Implementing Agency (UTH)

(1) Training

- For the non-utilized equipment like the defibrillators and infant incubators, UTH should conduct user training or orientation in order for them to properly utilize the equipment.
- UTH should ensure that all users of the equipment attend such trainings or orientation. Internal communication linkages within UTH should also be strengthened to ensure that all relevant departments are aware when such trainings are being offered.

(2) Procurement of equipment spare parts and consumables.

- UTH with assistance from the Ministry of Health should put in place a consistent system that expedites the procurement of equipment spares and consumables so that equipment like suction machine, infusion pumps, infant resuscitation machine, vacuum extractor, operating tables, laryngoscope, bilirubinometer, cardiocograph, table top autoclave and ICU beds will be continuously maintained, repaired and utilized.

(3) Manpower of O&M

- UTH, with the help of the Ministry of Health should have the adequate number of engineers in the BME department in order to provide sufficient monitoring and maintenance of the equipment.

(4) Finance of O&M

- In addition, the Ministry of Health should disburse sufficient funds for operation and maintenance of medical equipment at UTH.

(5) 5S

- 5S concepts and implementation need to be reactivated. 5S rules should be put on notice boards to serve as a constant reminder of how to keep equipment in a proper manner. Various departments should also pick 1 day in a month to conduct 5S activities.

Lessons learned for JICA:

(1) Appropriate specification of equipment

- The specifications for some equipment such as the ventilators, anaesthetic machines, delivery beds and patient monitors are not suitable for Zambian context. For example, regarding ventilator, anaesthetic machine, there were no agency to be able to repair in Zambia and spare parts are not available within the affordable costs. The size of delivery bed is different between Japan and Zambia, and there was no back up battery for patient monitor although the equipment was designed to have back up battery. As the result, they have been non-functional and not being utilized. Therefore, when making the specifications for the equipment during the planning stage, JICA together with the implementing agency should consult widely with the user departments to ensure that the equipment provided in the project are useable and fit in the local context including local environmental condition and condition of electricity supply, etc.
- If there are some equipment, of which accessories and spare parts are difficult to be procured in the partner country, JICA should consider to provide the relevant quantity of accessories and spare parts of such equipment good enough to sustain their product life.

(2) Indicators for effectiveness

- Since the status of utilization and operation of medical equipment directly affect realization of project effects, it is recommended that JICA should consider to add the annual operation ratio for major medical equipment as an operational indicator of the project, whenever possible.



Phototherapy machine helping new born baby



Mobile X-ray at ICU



Infant Incubators unutilized

Country Name	The Project for Introduction of Clean Energy by Solar Electricity Generation System
Republic of the Marshall Islands	

I. Project Outline

Background	Diesel fuel drove the majority of power generation in the Marshall Islands. However, heavy dependence on imported fuel made the energy supply setup extremely vulnerable to fuel price fluctuations. Thus, one of the issues facing the sector concerned strengthening of the energy supply setup. Against such a background, the Ministry of Resource Development compiled a plan for the introduction of clean energy utilizing solar power geared to the promotion of photovoltaic and other renewable energies, and it requested the Government of Japan to provide grant aid for its implementation.				
Objectives of the Project	To increase power generation capacity, diversify power sources, and raise awareness of people of the Marshall Islands for renewable energy by providing Photovoltaic (PV) system and related equipment in Majuro and by providing technical assistance for capacity development of technical personnel, and thereby contributing to publicity of Japan's initiative for promoting measures for climate change both by developed and developing countries.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: Majuro Hospital, Majuro 2. Japanese side: <ol style="list-style-type: none"> (1) 205kW PV generation system (PV modules, PV module installation frame, Junction box, Collecting box, Transformer, Cables, Data management and monitoring system, display board and others) and PV system spare parts and maintenance tools (2) Technical assistance (soft component): Training on basic knowledge, operation and maintenance (O&M), and troubleshooting of grid connected PV system, and making a proposal 3. Marshall Islands side: the final connection works to the grid on the high voltage side 				
Ex-Ante Evaluation	2009	E/N Date	December 16, 2009	Completion Date	September 19, 2012
		G/A Date	December 16, 2009		
Project Cost	E/N Grant Limit/ G/N Grant Limit: 530 million yen, Actual Grant Amount 530 million yen				
Implementing Agency	Marshalls Energy Company (MEC)				
Contracted Agencies	Yachiyo Engineering Co., Ltd, Icons, Inc. Shikoku Electric Power Co., Inc., Marubeni Corporation, Japan International Cooperation System (Procurement Agent)				

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of the Marshall Islands at the time of ex-ante and ex-post evaluation></p> <p>This project has been highly consistent with development policy of the Marshall Islands. At the time of ex-ante evaluation, National Energy Policy was established in 2003 in line with the Vision 2018 (the economic development plan targeting the next 15 years up to 2018) (2003-2018). Under the National Energy Policy, the vision for the energy sector in the next 15 years was defined as the attainment of "Available, affordable, reliable and sustainable energy for social and economic development for all the people of the Marshall Islands." One of the goals was to supply 20% of all energy as renewable energy by 2020. At the time of ex-post evaluation, National Energy Policy and Energy Action Plan was updated in July 2016. The vision was defined as, "an improved quality of life for the people of the Marshall Islands through clean, reliable, affordable, accessible, environmentally appropriate and sustainable energy services." One of the goals is "to provide 20% of power generation through indigenous renewable resources by 2020."</p> <p><Consistency with the Development Needs of the Marshall Islands at the time of ex-ante and ex-post evaluation></p> <p>The project has been relevant with development needs of the Marshall Islands for clean energy. At the time of ex-ante evaluation, the Marshall Islands heavily depended on imported diesel fuel energy. At the time of ex-post evaluation, the Marshall Islands is still dependent upon diesel generation. Energy source is slowly shifting to renewable energy as funding permits. On Majuro Atoll, renewable energy accounts for 0.5% and Diesel 99.5% of energy demand. Nationally renewable energy accounts for approximately 7% and diesel 93% of energy demand.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The project was also consistent with Japan's ODA policy at the time of ex-ante evaluation as based on the presentation at the 5th Pacific Islands Leaders Meeting (PALM) in 2009, prioritized areas of ODA to the Marshall Islands were clarified. Renewable energy was one of those areas.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project has mostly achieved its objectives, "to increase power generation capacity, diversify power sources, and raise awareness of people of the Marshall Islands for renewable energy" as indicators of quantitative effects such as "Net power generation", "CO2 Emission", and "Fossil fuel consumption" have achieved the targets set at the time of ex-ante evaluation. MEC said that the system is excellent so that it rarely has a trouble.</p> <p>It was expected that installing the PV system in the project site (Majuro Hospital) means the use of PV power can be publicly advertised to citizens who use the hospital, as Majuro Hospital is situated in the center of Majuro and is the tertiary medical care institute of the Marshall Islands. However, the demonstration effect has been limited since 2014 because the display function (monitor) of the information display</p>

board in the waiting lounge of the Hospital has not been working (see the “Current Status of Operation and Maintenance” under the “Sustainability” below).

As a result of soft-component, staff’s capacity to operate and maintain the PV system has been enhanced, though further improvement is necessary to tackle some O&M problems including the display board mentioned above. Although the soft-component proposed the decision of the electricity price, it has been suspended due to political reason but overall financial situation of MEC has been improving. A review is underway at the time of ex-post evaluation with anticipated changes in Fiscal Year 2017.

<Impact>

Japan has taken some initiative for promoting measures for climate change, as policy dialogue between the Government of Republic of the Marshall Islands and the Government of Japan on the area is ongoing, while other development partners also have supported enhancing PV generation including new 600kW PV system supported by the United Arab Emirates (UAE) and the International Renewable Energy Agency (IRENA). And technical assistance from Japan, the Project on the Formulation of a Self-Sufficient Energy Supply System (Technical Cooperation for Development Planning 2013-2015), was implemented, which led to PV generation system construction project in Ebeye (Preparation Study stage).

No negative impacts on natural environment were observed and no land acquisition occurred under this project.

<Evaluation Result>

In light of the above, the effect of the project has been observed mostly as planned. Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

	Before the project (2009)	Target figure at target year (2014)	Actual result at completion (2012)	Actual Figure at target year (2014)	Most recent actual result(2015)
Indicator1: Net power generation (MWh/year)	0	228	170	259	303
Indicator 2: CO2 Emission (tons/year) ⁽¹⁾	0	167	109	165	194
Indicator 3: Fossil fuel consumption (litters/year)	0	63,84 ⁽²⁾	41,778 (April-December)	63,650	78,477

Note: (1) CO2 Emission = 2.62 kg-CO₂/litter x diesel fuel consumption (See *2 below). (2) 228MWh x 0.28 litters/kWh =63,84 litters. Fossil fuel consumption (0.28 litters/kWh) is calculated based on the specification of the existing 6.4 MW diesel power plant. Source : JICA internal documents, questionnaire and interviews with MEC.

3 Efficiency

The project cost was as planned (ratio against the plan: 100%). Regarding the project period, reasons of the extension are that it took more than five months from the agency agreement to consultant agreement, and the detailed design bidding work exceeded from four months planned to seven months (ratio against the plan: 118%). Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

O&M of the PV system procured and installed under the project is carried out by MEC. There is no particular change in organizational structure of MEC and the organization structure is appropriate to carry out O&M of the PV system in Majuro. There is no problem in the number of staff for implementing routine maintenance of PV system as it has increased from the number at the ex-ante evaluation which was deemed appropriately. However, MEC may need a few more staff because the 600kW PV system has been newly installed near airport.

<Technical Aspect>

The staff members at MEC have basic skills to operate and maintain the PV system. However, there are some technical limitations as failure of display monitor in the information display board and delay in taking countermeasure for rust of junction boxes were observed.

<Financial Aspect>

Though the equipment procured under the project is basically maintenance-free, it is necessary to replace some spare parts in case of mechanical failure. Maintenance costs have been relatively low in these early years. MEC needs to forecast future years’ expense such as instruments. Financial status of MEC as a whole has improved as MEC has generated surplus for past three years. Electricity price is still not a full recovery tariff but it is close, and the tariff structure is under review and is expected to be approved for full cost recovery in Fiscal Year 2017.

<Current Status of Operation and Maintenance>

The generation system itself has functioned well, however some problems were observed. Physically, part of PV module frame became rusty, however, MEC touched it up by rust-proof paint. Most of junction boxes are found to be corroded, for which MEC conducted tip and paint work in September 2016. MEC may need to replace boxes, otherwise, water seeped in could cause trouble in the near future. As to data management and monitoring system, data was not recorded from August 2015 to August 2016. However, the system was recovered in September 2016 and the data log was recovered by obtaining the program from the supplier and reinstalling it. MEC could not have contact with the supplier for a while after the change of the person in charge of the project, mistakenly update from Windows7 to Windows10 could be a cause of trouble apart from restructure of intranet in the Majuro Hospital. Although information display board itself does not fail, “display (monitor)” function has not been working since 2014. MEC staff tried to sort out, but unsuccessful. Upgrading to Windows 10 might solve the problem, however, the system is not upgraded as it requires license fee.

MEC conducts inspection weekly following the inspection worksheet in O&M manual. Most consumables are available locally, and no spare parts have been required to date.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the technical and current status of operation and maintenance aspects of the implementing agency. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project has mostly achieved its objectives, “to increase power generation capacity, diversify power sources, and raise awareness of

people of the Marshall Islands for renewable energy” as indicators of quantitative effects such as “Net power generation”, “CO2 Emission”, and “Fossil fuel consumption” have achieved the targets have achieved the targets set at the time of ex-ante evaluation. For sustainability, some problems have been observed in terms of the technical and current status of operation and maintenance aspects of the implementing agency. As for 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 implementing agency:

- The number of staff for maintenance should be reinforced since new PV system installed (600kW by UAE and IRENA around water reservoirs near airport) and other donor are planning to bring more renewable energy source to the Republic of Marshall Islands.
- Replacement of rusty junction boxes are strongly recommended before seeped water may cause trouble to the system.
- The monitoring system to be fixed and utilized fully.

Lessons learned for JICA:

Selection of material in the environment with extremely high salinity: Considering status of PV panel frame, selection of material resilient to the salinity seemed to be considered but some parts were not paid much attention and missed out from standardized specification considering extremely high salinity environment. Most of system is working properly but rust developed on the junction boxes. The project’s choice of frame of PV panel looks fine but other material resilient to salinity could have been selected for junction box material.



PV modules



A junction box

Country Name	The Project for Introduction of Clean Energy by Solar Electricity Generation System
Federated States of Micronesia	

I. Project Outline

Background	The Federated States of Micronesia (FSM) had relied almost 100% on diesel generation for its electricity supply and depended exclusively on imports for its main energy resource of petroleum, and thus, the country was susceptible to rising crude oil prices. Moreover, accompanying the increasing amount of crude oil consumption, CO ₂ emission also largely increased. Becoming increasingly aware of climate change and feeling the impact of rising crude oil prices, the Government of FSM was faced with an urgent need to review its dependency on diesel power generation and to diversify its power generation resources. Assistance for FSM to introduce renewable energy technology including solar electricity generation was expected, as renewable energy could enable stable supply of electricity, while reducing greenhouse gases emissions.				
Objectives of the Project	To enhance power generation capacity, diversify energy sources and increase awareness among people on utilization of renewable energy by procuring equipment for solar electricity generation and training technical experts in Pohnpei, where the country's capital is located, thereby contributing to demonstration of initiatives of Japan to promote efforts among both developed and developing countries for climate control.				
Contents of the Project	<ol style="list-style-type: none"> Project site: Federal Government Complex (Capital) and College of Micronesia National Campus (COM-FSM) in Palikir, Pohnpei State Implementations of the Japanese side: <ol style="list-style-type: none"> Procurement and installation of photovoltaic (PV) system (PV module, mounting structure for PV module, power conditioner, transformer, data management and monitoring system, storage battery, replacement parts, maintenance tools etc.) Technical Assistance (soft component of Grant Aid: training on basic knowledge, inspection and maintenance including troubleshooting of grid-connected PV system) Implementations of FSM side: Securing of the equipment installation site, ground levelling and removal of obstructions on the equipment installation site, installation of fences and gates, electrical, water supply and drainage works etc. 				
Ex-Ante Evaluation	2009	E/N Date	December 8, 2009	Completion Date	April 17, 2013
		G/A Date	February 1, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 530 million yen, Actual Grant Amount: 530 million yen				
Implementing Agency	Pohnpei Utilities Corporation (PUC)				
Contracted Agencies	Yachiyo Engineering Co., Ltd., ICONS Inc., Shikoku Electric Power Co., Inc. (JV), Sojitz Corporation, Wakachiku Construction Co., Ltd., Crown Agents Japan Limited (Procurement Agent)				

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of FSM at the time of ex-ante and ex-post evaluation></p> <p>This project has been highly consistent with FSM's development policy, as increasing power supply capacity of renewable energy and reducing greenhouse gases emissions are set in policy documents such as Infrastructure Development Plan (IDP) (2004-2023), The Strategic Development Plan (SDP) (2004-2023), FSM National Energy Policy (2012), Pohnpei State Energy Action Plan (2013) and FSM's Intended Nationally Determined Contribution (2015) at the time of both ex-ante and ex-post evaluations.</p> <p><Consistency with the Development Needs of FSM at the time of ex-ante and ex-post evaluation></p> <p>At the time of ex-ante evaluation, while PUC possessed a diesel power plant and a hydropower plant, only the diesel power plant was in operating condition, and of the seven diesel generators at this plant, two were broken down, which resulted in unstable electricity supply with frequent blackouts. At the time of ex-post evaluation, only 3.9% of total energy production is covered by renewable energy sources (as of 2015), which needs to be increased to 30% by 2020 as targeted in the FSM National Energy Policy. Therefore, the project has been highly consistent with FSM's development needs.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The Cool Earth Partnership, a new fund mechanism for climate change worth US10 billion dollars (1.25 trillion yen) in total, was announced by the then Japanese Prime Minister Fukuda at the Davos summit in January 2008. In the Pacific region, Palau, FSM, and the Marshall Islands etc. joined the Cool Earth Partnership. Further, at the 5th Pacific Islands Leaders Meeting held in May 2009 at Tomamu, Hokkaido, Japan announced assistance in the amount of 50 billion yen to Pacific Islands and the one of the areas for assistance included environment and climate change. Therefore, the project was also consistent with Japan's ODA policy.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project has mostly achieved its objectives, "to enhance power generation capacity, diversify energy sources and increase awareness among people on utilization of renewable energy". Actual figures of net power generation (Indicator 1), reduced CO₂ emission (Indicator 2)</p>

and reduced diesel fuel consumption (Indicator 3) have exceeded the target figures since project completion. . The PV system installed under the project has successfully generated the targeted amount of electric power and contributed to diversification of energy sources¹. Regarding awareness among people on utilization of renewable energy, the Department of Resources and Development (R&D) has sometimes guided students of elementary schools to see the PV system at Capital (once or twice a year, based on requests from schools), which is considered to increase awareness among children. Thus, some PR activities have been conducted on a limited scale.

<Impact>

As for the expected impact, “contributing to demonstration of initiatives of Japan to promote efforts among both developed and developing countries for climate control”, firstly, JICA Micronesia Office presented overviews of JICA’s cooperation in the energy sector introducing this project at meetings such as the Steering Committee of the North Pacific ACP² Renewable Energy and Energy Efficiency Project (North-REP), which is a multi-country program funded by the European Union (EU), in February 2015 and FSM Energy Steering Committee Meeting in March 2015. Secondly, after the project completion, an additional PV system (200kW) has been installed in each state in FSM in December 2014 through the Pacific Environment Community (PEC) Fund, which is a commitment by the government of Japan to support Pacific Islands Forum³ countries to tackle environmental issues including implementation of renewable energy projects, and the knowledge and experience of PUC gained through the soft component of the JICA project are utilized for operation and maintenance (O&M) of facilities installed under the PEC funded project. And as introduction of PV system has been promoted, the effect to showcase PV system of the project has appeared in Micronesia. In fact, efforts of Japan in climate change is distinctive in terms of including the soft component as part of a project to ensure appropriate O&M of PV facilities/equipment as seen under the project. Based on the above findings, it can be said that this project has contributed to demonstration of initiatives of Japan to promote efforts for climate control.

Regarding other impacts, no negative impact on natural environment has been observed and no land acquisition and resettlement has occurred under the project.

<Evaluation Result>

In light of the above, the effect of the project has been observed mostly as planned. Therefore the effectiveness/impact of the project are high.

Quantitative Effects

Indicators	Capacity to be installed	Target 2016 ⁽¹⁾ 3 years After Completion	Actual 2013 Completion year	Actual 2014 1 Year After Completion	Actual 2015 2 Years After Completion
Indicator 1: Net power generation (MWh/year)	160kW (Planned)	168	-	-	-
	180 kW (Actual)	189 ⁽²⁾	218 ⁽³⁾	204	195
Indicator 2: Reduction of CO ₂ Emission (t-CO ₂ /year)	160kW (Planned)	121	-	-	-
	180 kW (Actual)	136 ⁽⁴⁾	157	147	141
Indicator 3: Reduction of diesel fuel consumption (litter/year)	160kW (Planned)	46,000	-	-	-
	180 kW (Actual)	51,000 ⁽⁵⁾	60,000	56,000	53,000

Source: Ex-Ante Evaluation Sheet, JICA internal documents, and Solar System Operation Result

Note: (1) In ex-ante evaluation sheet, the target year for evaluation is stated to be 2014, which is three years after project completion (the project was planned to be completed in November 2011). However, the installation of PV system under the project was completed in February 2013. Thus, in ex-post evaluation, the target year should be changed to 2016 (three years after the installation of PV system). (2) The capacity of the PV system was increased from 160kW to 180kW utilizing remaining project cost. The target figure for 180kW was calculated by $168 \times 180/160 = 189$. (3) The figure is the total from February 2013 (installation completion) to January 2014. The generation within 2013 (till December 2013) was 199 MWh. (4) The target figure for 180kW was calculated by $121 \times 180/160 = 136$. (5) The target figure for 180kW was calculated by $46,000 \times 180/160 = 51,750$, which was rounded down to 51,000.

3 Efficiency

Although the project cost was as planned (ratio against the plan: 100%), the project period exceeded the plan (ratio against the plan: 126%⁴) because it took more time from procurement agent agreement to contractor agreement than planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

PUC takes charge of all the electricity businesses in Pohnpei State. It is composed of three departments: Department of Administration and Customer Services, Department of Water and Sewer, and Department of Power Generation and Distribution, under which there are two divisions: Division for Power Generation and Division for Power Distribution. PUC is owned 100% by Pohnpei State Government

¹ The actual fuel consumption was reduced by 2,671,447 liters in Pohnpei State as a whole between 2012 and 2015. According to PUC, however, major reasons are the installation of high efficiency new diesel generators and restart of hydropower. Also according to PUC, the actual values of the PV system to reduction of fuel/CO₂ emission are smaller than calculated, as the capacity of the PV system installed under the project is not large enough to replace an existing diesel generator, and in case output of diesel generators decreased according to output of the PV system, the efficiency of diesel generation is decreased.

² ACP stands for African, Caribbean and Pacific Group of States. The Steering Committee is represented by the Secretary and officials of the Department of Resource and Development as well as General Manager of Utilities Corporation of each state.

³ The Pacific Islands Forum is a regional economic cooperation organization of 16 independent and self-governing states.

⁴ Because the start of the project period is defined as the procurement agent agreement in the plan, this percentage is calculated along with it. Besides, it took nearly ten months from the G/A to the procurement agent agreement.

according to “State Law 2L-179-91” laid down in 1991. However, it is run independently from the government, as a semi-governmental organization (public company).

The total number of staff members of PUC is 170 (12 females and 158 males) as of October 2016, of which three staff members belonging to the Renewable Energy section (one manager and two staff, all males) are responsible for Operation and Maintenance (O&M) of the PV system installed under the project. Routine inspection and maintenance of the PV system are conducted by two staff members once in two weeks, and according to PUC, the number of staff members is sufficient to conduct O&M properly, as most of the facilities and equipment procured under the project are maintained in a good condition. It is considered to be sufficient as these three staff members are dedicated for O&M of the concerned PV system and the two persons can handle day-to-day O&M.

<Technical Aspect>

All of the three staff members in charge of O&M of the PV system are technicians. While trainings to internally transfer the techniques acquired under the soft component of the project are not conducted within PUC, the manager of the Renewable Energy section has conducted OJT for his two staff to teach them what he learned in the soft component utilizing the O&M manual. Training materials and manuals prepared under the soft component are shared and utilized by these three staff members only. Nonetheless, according to PUC, their technical skills are sufficient to conduct O&M properly, as most of the facilities and equipment procured under the project are maintained in a good condition.

<Financial Aspect>

In the preparatory study, annual O&M cost of the PV system installed under the project was estimated to be approximately USD 4,200 including personnel expenses of PUC staff USD 4,000 and fuel cost USD 200. Data on actual financial data including profit and loss statement of PUC and O&M cost of the PV system was not provided due to no breakdown of the number on the financial report. However, according to PUC, while the financial status of PUC is in deficit, personnel cost has been sufficiently paid and O&M budget for the PV system has been secured since handover. The General Manager of PUC explained that as the O&M cost of the PV system is negligibly small within PUC’s entire budget, PUC is able to continuously secure the budget appropriately.

<Current Status of Operation and Maintenance>

As mentioned above, inspection and maintenance of the PV system are conducted once in two weeks in accordance with the route map of inspection tour. All the inspection results of all equipment are recorded in the inspection tour record. During inspection, the inside of collection boxes and junction boxes is also checked following the recommendation made at the defect inspection conducted in 2014. As of February 2016, the computer for visualization at the President office in the Federal Government Complex and the computer for measurement at COM-FSM have problems in CPU, because of which the display boards (to display the amount of energy production by the PV system) are not functioning. The problems of CPU have not been solved since they occurred (2013 at the President office and 2014 at COM-FSM), despite PUC’s efforts of repair such as contacting the manufacturer and replacing parts. Therefore, PUC decided to replace both computers, and ordered them as of October 2016. All the other equipment are in a good condition. All of the spare parts and consumables procured under the project are kept in the storage.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the financial aspect of the implementing agency and the current status of operation and maintenance, as it is difficult to confirm that sufficient budget is secured for O&M due to unavailability of financial data, and some equipment have problems. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

Through the project, the project objectives have been mostly achieved: actual figures of all the performance indicators have exceeded target figures. Positive impact was identified, as this project was introduced at several meetings and the knowledge and experience of PUC gained through the soft component are utilized in the successive solar electricity generation project. As for sustainability, there are some problems in the financial aspect of PUC and the current status of operation and maintenance, as financial data is unavailable and some equipment have problems. 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 implementing agency:

In order to supply electricity more efficiently combining diesel and solar power generation, the capacity of PUC staff should be further enhanced utilizing various JICA cooperation schemes such as Technical Cooperation Project “the Project for Introduction of Hybrid Power Generation System in the Pacific Island Countries” (2016-2021) and JICA training programs (e.g. “Training for Planners to Promote Renewable Energy in Micro Grid” (2014)).

Lessons learned for JICA:

As mentioned above, awareness raising activities on utilization of renewable energy have been conducted on a rather limited scale. The fact that two display boards have not been functioned due to defects of the CPUs also seems to have affected the awareness raising activities. Thus, when implementing a similar project in the future, a soft component of a project (training) should include (1) actions that should be taken if display boards have problems, and (2) simulations on a study tour especially targeted at diplomatic missions, elementary school students and college students etc. with recommendation for the implementing agency to organize study tours after project completion.



The PV system on the roof of the president office in the Federal Government Complex



The PV system on car parking roof of COM-FSM (Palikir campus)

Country Name	The Project for Introduction of Clean Energy by Solar Electricity Generation System
Islamic Republic of Afghanistan	

I. Project Outline

Background	In Afghanistan, the power demand rapidly increased in the progress of reconstruction of the country. While the needs for stable power supply had been growing, the household electrification remained at low level of 20% in the urban area and 13% in the rural area (2009). In fact, although the constant power supply capacity of the power grid system in Kabul, including the power supply of 40 MW through the North East Power System (NEPS), was 162 MW in 2009, it was estimated the supply capacity could have been far below the power demand by the estimated population of 370,000 applying for power feeding. In addition, the country heavily depended on power supply from Central Asian countries, including Uzbekistan. Extension of power generation using renewable energy was a key not only to cope with the issue of power shortage but also to realize environment-friendly and stable economic growth.				
Objectives of the Project	To enhance power generation capacity, diversify energy sources and increase awareness among the people of Afghanistan and the policy decision makers of the country on utilization of renewable energy by procuring and installing of Photovoltaic (PV) system as well as training technical experts at the Kabul International Airport (KIA) ¹ , as a gateway of the country, thereby contributing to demonstration of initiatives of Japan to promote efforts among both developed and developing countries for climate control.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: The Kabul International Airport, Kabul 2. Japanese side <ol style="list-style-type: none"> (1) Procurement and installation of Photovoltaic (PV) system for 250kWp (PV Generating System, Solar PV Module, Power Conditioner, Transformer Panel, Control Panel, Main Terminal Board, Terminal Board, Thermometer, Switch Panel, etc.), (2) Technical Assistance (soft component for trainings on basic knowledge about interconnecting PV generating system and its operation and maintenance (O&M) including maintenance checks and emergency response and revisions on the O&M manuals) 3. Afghanistan side: <p>Securement of site for installation of PV system, provision of soil disposal site, temporary offices for contractor and consultant, water supply and power supply for the construction site and the temporary offices, necessary costs for implementation of the project except the ones the Japanese side's defrayment</p> 				
Ex-Ante Evaluation	2010	E/N Date	March 22, 2010	Completion Date	May 7, 2012
		G/A Date	March 22, 2010		
Project Cost	E/N Grant Limit/ G/N Grant Limit: 700 million yen, Actual Grant Amount: 700million yen				
Implementing Agency	Ministry of Transport and Civil Aviation (MOTCA) (Currently HKIA is under the Afghanistan Civil Aviation Authority)				
Contracted Agencies	Katahira Engineering International, Marubeni Corporation, Harirod Construction Company, Japan International Cooperation System (Procurement Agent)				

II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

[Target year of quantitative effects]

The ex-ante evaluation sheet set the target year of 2014 for the expected quantitative effects of increase in power generation volume and reduction of electricity cost, which could be three years after the project completion. However, since the project complete in year of 2012, the target year of the project objective can be 2015. Therefore, this ex-post evaluation verified the achievement level of project objectives based on the data of power generation and electricity cost in 2014 and 2015.

[Qualitative effects]

The ex-ante evaluation sheet defines as awareness building among the people of Afghanistan on utilization of renewable energy as one of the expected qualitative effects by the project. However, in order to clearly verify contribution of the project, the ex-post evaluation assessed how the PV power generation system in HKIA installed by the project contributed to awareness building among the people on utilization of PV power.

1 Relevance

<Consistency with the Development Policy of Afghanistan at the time of ex-ante and ex-post evaluation>

This project has been highly consistent with Afghanistan's development policy as "extension of electricity" is set in policy documents such as the Afghanistan National Development Strategy (ANDS) (2008-2012) and National Priority Program (NPPs) (2014-2018).

<Consistency with the Development Needs of Afghanistan at the time of ex-ante and ex-post evaluation>

The project has met Afghanistan's development needs for increase in power generation capacity to meet growing demand, including PV system.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA policy for Afghanistan based on the Economic Cooperation Policy Dialogue and the New Strategy to Counter the Threats of Terrorism in 2009 prioritizing support for infrastructure development including energy, at the time of ex-ante evaluation. 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 willingness to

¹ The name of the airport (KIA) changed to the Hamid Karzai International Airport (HKIA) in 2015.

contributing to mitigation of climate change but with lack of capacity and fund to balance between their economic growth and greenhouse gas reduction.

<Evaluation Result>

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

2 Effectiveness/Impact

<Effectiveness>

The project achieved its objectives to enhance power generation capacity and to diversify energy source, and achieved to increase public awareness on utilization of renewable energy to some extent at the time of ex-post evaluation. In 2014 which is the original target year for the project, the PV system introduced by the project generated 351,337kWh (88% of the target volume) and the annual power generation volume reached to 395,034 kWh (99% of the target volume) in 2015. The system has been stably operated at the level of more than 350,000 kWh for the period from 2013 to 2015 since the PV system installed by the project, including all the PV panels, has been functioning and there has been no change in the power generation capacity of the system. Also, HKIA diversified energy sources through utilization of the power generated by the installed PV system in addition to purchase electricity from Afghanistan Electric Corporation (DABS: Da Afghanistan Breshna Sharikat). Furthermore, it was estimated that HKIA has saved their annual electricity cost by more than 4 million Afghani (AFN) for the period from 2013 to 2015 while the annual electricity consumption of HKIA supplied by DABS has been constant at 2,400MW and the electricity tariff charged by DABS has increased from 10 AFN per kWh in 2010 to 12 AFN in 2015. Seven out of the eight HKIA staffs trained by the project have been properly maintaining the PV system installed by the project. Both the Afghanistan Civil Aviation Authority (ACAA) and HKIA have been highly satisfied with effects in energy efficiency and cost saving by the utilization of the PV system. According to the interviews with five visitors of HKIA as passengers, they welcomed utilization of the PV system. Although the utilization of PV system at HKIA increased the public awareness about the PV system to some extent, there is no awareness building activities to promote the PV systems in the country by the government of Afghanistan, so far.

<Impact>

The project aimed at contributing to demonstration of initiatives of Japan to promote efforts for climate control. Although there was not any specific initiative of Japan on climate change policy for Afghanistan but Japan is the first donor to address introduction of renewable energy which is one of countermeasures against climate change. There is no other positive impact and no negative impact observed at the time of ex-post evaluation.

<Evaluation Result>

In light of the above, the effect of the project has been observed mostly as planned. Therefore the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Baseline 2010 Baseline Year	Target 2015 3 Years After Completion	Actual 2013 1 year after Completion Year	Actual 2014 2 Year After Completion	Actual 2015 3 Years After Completion
Indicator 1: Power generation volume at transmission end (kWh/year)	0	400,000 (400 MWh)	364,356 (91% of the target)	351,337 (88% of the target)	395,034 (99% of the target)
(Indicator 2) Annual savings of electricity cost of HKIA by the PV power generation system**	0	4 million AFN*	Approximately 4 million AFN	Approximately 4 million AFN	Approximately 4.7 million AFN
(Supplemental Information 1) No. of PV panel functioning	0	1,386	All (1,386)	All (1,386)	All (1,386)
(Supplemental Information 2) Power generation capacity (kWp)	0	250***	250	250	250

Source : Data provided by the HKIA Electricity General Management

* The annual savings of electricity cost is derived from the following calculation; 400,000kWh (power generation volume by the PV system) x 10 AFN (electricity tariff per kWh charged by DABS) = 4 million AFN. The exchange rate is 1 AFN=1.8383 Japanese Yen (as of December 2015, JICA exchange rates (JICA website))

** The annual savings of electricity cost is estimated from the power generation volume of the PV system multiplied by the average electricity tariff charged by DABS to HKIA: 11AFN in 2013, 11.5 AFN in 2014 and 12 AFN in 2015.

*** Power generation capacity is derived from the following calculation; 180Wp x 1,386 PV panels = 250kWp (249.48kWp)

3 Efficiency

Output of the project was produced as planned. Although the project cost was as planned (ratio against the plan: 100%), the project period exceeded the plan (ratio against the plan: 138%) because dispatch experts on O&M of the PV system for soft component had been delayed due to insecurity in Afghanistan. Therefore, efficiency of this project is fair.

4 Sustainability

<Institutional Aspect>

HKIA is responsible for operation and maintenance (O&M) of the Hamid Karzai International Airport, including the PV system installed by the project, under the control of ACAA. The seven of eight trained staffs of HKIA, have been engaged in the O&M activities of the PV system, including monitoring and reporting the status of the PV system. The number of O&M staffs for the PV system has been sufficient since there is no expansion of the capacity.

<Technical Aspect>

The O&M staffs of HKIA have sustained necessary skills and knowledge for the regular O&M of the PV system installed by the

project despite of no refreshment training for them because they have been continuously using the manuals developed by the project. However, they do not have skills and knowledge to repair serious damages on the PV system and they need to outsource the major repair works. Although the trainings in Afghanistan and Japan were delivered for them by the soft component of the project as planned, according to the O&M staffs of HKIA, the durations of the trainings and the coverage of sessions and materials were not sufficient for them to acquire necessary skills and knowledge on repair of the PV system.

<Financial Aspect>

ACAA and HKIA have not specifically allocated budget for maintenance of the PV system despite that the reduction of electricity cost by the PV power generation could be a source of budget. By the time of ex-post evaluation, the O&M team of HKIA utilized spare parts provided by the project for maintenance of the system and had no necessity of budget for procurement of spare parts. Although there is no source of revenue or no secured budget for O&M of the PV system, no major repair requiring the budget has been necessary by the time of ex-post evaluation. The O&M team of HKIA requested HKIA and ACAA to allocate of the budget for the O&M of the system for the next fiscal year.

<Current Status of Operation and Maintenance>

The most of major equipment of the PV system, such as PV module, a power conditioner, a transformer panel, a control panel and a main terminal board, have been functioning without any problem. The display monitor indicating the power volume generated by the PV system has been damaged and not functioning though it had been installed at the main lobby of the Hamid Karzai International Airport in order to increase public awareness on the PV power generation introduced by the Japanese assistance. There is no plan to repair it, so far, but JICA has commenced follow-up cooperation for the project in order to repair malfunctioning part of the PV system. The O&M team of HKIA has been continuously conducted periodic inspection of the PV system as planned. So far, the spare parts provided by the project, including PV module, Power Conditioner Terminal Board, and so on have been used for the maintenance of the system and sufficient volume of spare parts are available in their stock.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the technical and current status of operation and maintenance. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project has achieved its objectives to enhance power generation capacity and to diversify energy source by the PV system installed by the project. It has also partially achieved an increase in public awareness on utilization of renewable energy, but not fully demonstrated Japanese initiatives for climate control. As for sustainability, there is a concern about major repair due to the limited capacity of the O&M staffs of HKIA. No budget for the O&M of the PV system has been specifically allocated. In addition, the display monitor has not been repaired though the PV system itself has been well functioning without problems, so far. As for efficiency, the project period exceeded the plan.

In light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Lessons learned for JICA:

In countries like Afghanistan where there are limited capacity of economic infrastructure such as power system due to the conflicts, effectiveness of the project supporting installation of infrastructure or equipment not requiring higher and complicated skills and knowledge for O&M can be high since the countries do not have sufficient human capacity for O&M.

Country Name	The Project for Replacement of South Rukuru Bridge on the Main Road M001
Republic of Malawi	

I. Project Outline

Background	The Main Road M001 (M1) is a trunk route of Malawi with total length of 1,108 km traversing the country from Songwe bordering Tanzania to Marka bordering Mozambique. It not only plays a critical role for domestic distribution of goods but also serves as an international artery to support distribution from and to Tanzania, Mozambique, Zambia and Republic of South Africa. The existing Rukuru Bridge was a one-lane bridge despite its location over M1, causing a bottleneck in traffic and distribution of goods. It was a temporary structure (a Bailey bridge), which became decrepit after more than 30 years of use. As a result, the speed limit (10 km/h) and load restriction (16.3 tons as design load) had been imposed. In addition, the South Rukuru River running beneath the Rukuru Bridge was joined by the tributary Lura River at a location 30 m upstream from the present bridge and the site around the bridge was filled with deposits of boulders and driftwood from the Lura River, severely damaging the bridge piers. Against the background, the Government of Malawi requested the Government of Japan for a grant aid for construction of a new bridge to replace the Rukuru Bridge.				
Objectives of the Project	To ensure smooth traffic and eliminate traffic bottleneck in crossing the South Rukuru River by replacing the existing Rukuru Bridge to the South Rukuru Bridge on M1, thereby contributing to growth in traffic volume as well as improvement of distribution of goods through M1.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: Rumphi District, Northern Region 2. Japanese side: Construction of a reinforced concrete bridge (2 lanes), Bank protection work, Construction of access roads, Installation of sidewalks, Removal of boulders and driftwood associated with bridge construction, etc. 3. Malawian side: Building demolition/relocation, Land acquisition, Land renting, Surveillance of general construction sites, Withdrawal of the existing bridge, etc. 				
Ex-Ante Evaluation	2009	E/N Date	17 February 2010 (Phase I) 30 March 2012 (Phase II)	Completion Date	31 July 2012 (Phase I) 12 December 2012 (Phase II)
		G/A Date	22 March 2010 (Phase I) 12 April 2012 (Phase II)		
Project Cost	E/N Grant Limit / G/N Grant Limit: 883 million yen (Phase I); 111 million yen (Phase II) Actual Grant Amount: 851 million yen (Phase I); 109 million yen (Phase II)				
Implementing Agency	Roads Authority				
Contracted Agencies	Central Consultant Inc., Dai Nippon Construction				

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Malawi at the time of ex-ante and ex-post evaluation></p> <p>The project was consistent with Malawi's comprehensive national strategy "Malawi Growth and Development Strategy (MGDS)" (2006-2010) which aimed to ensure sustainable economic growth through infrastructure development as a step to poverty reduction and in which the transport development was placed as one of the six key priority areas. Under the current MGDS II (2011-2016), the transport infrastructure is categorized as one of the nine key priority areas and road infrastructure is also sub-categorized as one of the most important modes of the transport sector.</p> <p><Consistency with the Development Needs of Malawi at the time of ex-ante and ex-post evaluation></p> <p>The project has been consistent with Malawi's road transport needs that safe, highly-efficient and economical transport services in key corridors should be established.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The project was consistent with Japan's ODA basic policy towards Malawi (2009), which placed the transportation infrastructure development as one of the priority areas.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project achieved its objective. As for one of the quantitative indicators "vehicle weight allowance of the South Rukuru Bridge," the weight allowance achieved 43 tons against the target of 43 tons. Although the exact data on this indicator could not be obtained at the ex-post evaluation since it requires a technical quantity survey, an acceptable weight of the Bridge was designed with a maximum load of 43 tons at the planning of the project and the weight allowance of constructed bridge should be 43 tons. As for another indicator "average traveling speed on the Bridge," the average speed is estimated to be approximately 40 km/h against the target of 60 km/h. Although the exact data on this indicator could not be obtained at the ex-post evaluation as well, the figure was estimated based on the interview with the Traffic Section of Rumphi District of Malawi Police Services as well as the result of actual measurement during site survey of the ex-post evaluation. One reason why the average speed does not reach 60 km/h as the target figure is that there are sharp bends on the approach (access road) to the Bridge and drivers need to reduce their speed before the Bridge. Another reason is that according to the Traffic Section of Rumphi District of Malawi Police Services, the speed limit is regulated under 50 km/h when drivers pass through the area so that the original target should have been set as less than 50 km/h. Considering these facts, this indicator can be judged as 'mostly achieved' since the average traveling speed on the Bridge increased from 10 km/h before the project to 40 km/h after the project.</p> <p>Regarding the qualitative effects of the project, according to the interviews with four drivers who was crossing the South Rukuru Bridge</p>

as well as eight local residents who live around the area at the field survey of the ex-post evaluation, traffic congestions on the Bridge have never happened since the project completion. While traffic congestions on the old Rukuru Bridge were usually caused by single lane which allowed only one vehicle at a time, two vehicles can cross the new South Rukuru Bridge from both directions now. In addition, according to the interview with local residents, the risk of accidents around the Bridge has reduced significantly owing to installation of sidewalks. The Rumphu Police Station also indicated that no traffic accident had been reported since the Bridge was constructed. Furthermore, according to the Roads Authority, raising the height of bridge and access roads by 2.5m and conducting bank protection works have mitigated flood damage.

<Impact>

Regarding the growth in traffic volume and improvement of distribution of goods through M1, any clear evidence on the expected impact of the project could not be obtained at the ex-post evaluation. According to the traffic survey¹ conducted for this ex-post evaluation, approximately 30 vehicles per hour on average passed the South Rukuru Bridge, which are almost the same volume of traffic obtained at the traffic survey conducted at the ex-ante evaluation and it means the traffic volume has been maintained after the project. On the other hand, according to an interview with three grocery stores in the neighborhood of the Bridge, they reduced their business sales after the new bridge was constructed since they used to have more sales because of stranded drivers and passengers by the frequently broken down bridge, but in reality the number of grocery stores increased from five at the time of the ex-ante evaluation to more than 10 at the time of ex-post evaluation. In fact the parking bay was placed around the Bridge with a view to maintaining their commercial opportunities.

At the ex-ante evaluation, removal of four buildings (not residences) and land acquisition around the Bridge were planned to be made due to the project and the compensation for the removed buildings and land acquisition was to be dealt with in accordance with the relevant laws and regulations of Malawi. According to the Roads Authority, the number of affected households was 17 in the end and the compensation to them was properly made in accordance with the laws and regulations of Malawi. The District Commissioner's office of Rumphu also mentioned that they used the same formula prepared by the Ministry of Lands and Housing in compensating people in similar situations across the country. On another front, no negative impact on natural environment has been observed in the project².

<Evaluation Result>

In light of the above, a certain effect of the project has been observed. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicators	Baseline 2009 Baseline Year	Target 2013 Completion Year	Actual 2013 Completion Year	Actual 2014 1 Year After Completion	Actual 2015 2 Years After Completion	Actual 2016 3 Years After Completion
Indicator 1 Vehicle weight allowance of the Bridge	16.3 tons	43 tons	43 tons	43 tons	43 tons	43 tons
Indicator 2 Average traveling speed on the Bridge	10 km/h	60 km/h	N.A.	N.A.	N.A.	Approximately 40 km/h

Source: JICA internal documents, interview with the Traffic Section of Rumphu District of Malawi Police Services and drivers passing the Bridge

3 Efficiency

This project consists Phase I and II. Some construction works such as bank protection, part of ditch digging, asphaltic pavement and lane marking were cut out of Phase I as a consequence of readjustment of the original project scope due to a delayed schedule as well as an increase in the project cost. The cancelled works at Phase I, however, were constructed and completed in Phase II and the final project outputs produced by Phase I and II were as planned.

Based on the above, the planned project cost was 883 million yen (Phase I only) and the actual cost was 960 million yen (including Phase I and Phase II) (ratio against the plan: 109%). Due to rapid escalating prices of construction material as well as fuel from 2011 onward, the project cost exceeded the plan. The planned project period was 26 months (Phase I only) and the actual period was 33 months (including Phase I and Phase II) (ratio against the plan: 127%). Due to a worsening situation of fuel shortage in Malawi from the beginning of 2011, the construction work was also significantly delayed, resulting in a seven-month delay in total.

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

4 Sustainability

<Institutional Aspect>

The Roads Authority under the Ministry of Transport and Public Works is in charge of construction, maintenance and inspection of roads and bridges throughout the country. The Roads Authority has three regional offices namely Northern, Central and Southern, and the Northern Region Office is in charge of maintenance of the South Rukuru Bridge. The Northern Region Office had five civil engineers and three inspectors at the time of ex-ante evaluation and has eight qualified engineers including inspectors at the time of ex-post evaluation. The actual maintenance works for the South Rukuru Bridge and access roads have been undertaken by private companies contracted by the Roads Authority on a need basis and according to the Northern Region Office, the present number of engineers is sufficient to manage the regular maintenance works of the Bridge and the inspection of the Bridge has been actually conducted under these engineers on a monthly basis.

<Technical Aspect>

¹ The survey was conducted for two days during 12:00-14:00 hours on 15 June 2016 and 9:00-12:00 hours on 16 June 2016.

² There was a consideration on the issue of sexually transmitted diseases (STD) caused by construction workers of the project at the ex-ante evaluation and some measures on this issue had been actually taken during the project period: e.g. a workshop on HIV/AIDS prevention was organized collaborating with the Japan Overseas Cooperation Volunteers (JOCV) deployed around the Rumphu area, and contraceptive devices, enlightening pamphlets and posters on prevention of STD were distributed at the project office. Although no statistical and quantitative evidence which verifies the casual relationship on this issue was found at the ex-post evaluation, according to the interview with local residents, they indicated that promiscuity and marital problems had happened around the Rumphu area during the construction works of the Bridge since many construction workers came from outside the area.

The civil engineers of the Northern Region Office have good knowledge on the maintenance of roads and bridges. According to an interview with these engineers at the ex-post evaluation, they are competent in undertaking their tasks and conducting regular inspection. In addition, the Roads Authority has a training plan which assures improvement of technical skills on their works: e.g. they have been dispatching the staff to the training program offered by donor agencies such as EU, World Bank and JICA. For instance, some staff from Roads Authority joined the JICA's training programs such as "Road Maintenance and Management" and "Comprehensive Bridge Engineering."

<Financial Aspect>

The maintenance works required after the completion of South Rukuru Bridge consist of daily inspection, cleaning and repair, the cost of which was estimated to be 3,780,000 MKW on the annual average at the ex-ante evaluation. While there had been no budget allocation for the maintenance of the South Rukuru Bridge in the first two years after the project completion since the Bridge was still new, the amounts allocated in subsequent years were 7,542,000 MKW in FY2014/15 and 12,570,000 MKW in FY 2015/16, which are more than the planned annual budget.

<Current Status of Operation and Maintenance>

The Roads Authority has carried out the following maintenance activities of the South Rukuru Bridge: 1) removal of sand and dirt accumulating in bridge deck, drain pipes, areas around bearings, gutters and other drain facilities; 2) inspection and repair of bank protection and riverbed protection works after floods, 3) removal of boulders, driftwood, etc. after floods; 4) weeding of road shoulders and slope surfaces. Although there was no major damage observed at the Bridge and access roads by the field survey of ex-post evaluation, some small manhole covers of drainage ditches and an ODA signboard got stolen after the project completion. These items have not been replaced after the theft due to the following reasons; the function of bridge itself has not been affected by their absences, there has been no serious effect on vehicles and pedestrians passing the Bridge, and appropriate materials for them have not been in stock at the Roads Authority.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the institutional/technical/financial/current status of operation and maintenance aspects of the implementing agency. Therefore, the sustainability of the project effect is high.

5 Summary of the Evaluation

The project achieved its objective, to ensure smooth traffic and eliminate traffic bottleneck in crossing the South Rukuru River. Although the exact data on the quantitative indicators could not be obtained at the ex-post evaluation, with the increases in vehicle weight allowance of the South Rukuru Bridge as well as in average traveling speed on the Bridge, it is confirmed that the problem of traffic congestions on the Bridge has been resolved with two lanes and that the risk of traffic accidents of pedestrians has been also reduced with sidewalks. However, any clear evidence on the expected impact such as growth in traffic volume and improvement of distribution of goods through M1 could not be obtained at the ex-post evaluation. Regarding the sustainability of the project, no problem has been observed in the institutional, technical and financial aspects of the Roads Authority and no major damage was observed at the current Bridge and access roads at the time of ex-post evaluation. On the other hand, the project cost as well as project period exceeded the plan due to a worsening situation of fuel shortage in Malawi from 2011 onward and rapid escalating prices of construction material and fuel accordingly.

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

III. Recommendations & Lessons Learned

Lessons learned for JICA:

- The exact data on the quantitative indicators as well as on project impacts could not be obtained at the ex-post evaluation and it was difficult to evaluate especially the project impacts based on clear evidences. JICA and the implementing agency should make a consensus at the time of ex-ante evaluation on the contents of quantitative indicators to be set to measure the project's effects and when, who and how often the data on indicators should be collected. JICA also should properly inform the implementing agency that the ex-post evaluation of the project is to be conducted three to five years after the project completion and the implementing agency is responsible for providing the data on the set indicators. In addition, JICA should regularly check whether the implementing agency is monitoring the data on indicators. In case they are not monitoring or the set indicators themselves are not adequate, it is important to consider a solution after discussion with the implementing agency.



South Rukuru Bridge



Interviewing with a truck driver who passed the Bridge

Country Name	The Project for Introduction of Clean Energy by Solar Electricity Generation System
Palestinian Authority	

I. Project Outline

Background	Palestine had depended most of its electricity supplies on imports from Israel and Jordan, and the rate of electricity supplies by the Palestinian Authority at the time of ex-ante evaluation was 10% to 15% only, despite the increasing electricity demands accompanying with the high population growth rate in cities and refugee camps ¹ . Therefore, assistance for Palestine to introduce renewable energy technology including solar electricity generation was expected, as renewable energy could enable stable supply of electricity within Palestine, while reducing greenhouse gases (GHG) emissions. Japan had actively provided assistance to developing countries making efforts to contribute to climate control, and announced a new fund mechanism for climate change worth US10 billion dollars for five years in 2008. As a component of the new fund mechanism, a new scheme of grant aid called “Program Grant Aid for Environment and Climate Change (GAEC)” was also introduced in 2008 to support adaptation and mitigation strategies of developing countries, and a policy was set to promote utilization of clean energy including renewable energy and to positively utilize Japanese advanced technologies.			
Objectives of the Project	To enhance power generation capacity, diversify energy sources and increase awareness among people on utilization of renewable energy by procuring equipment for solar electricity generation and training technical experts in a suburb of Jericho city, thereby contributing to demonstration of initiatives of Japan to promote efforts among both developed and developing countries for climate control.			
Contents of the Project	<ol style="list-style-type: none"> 1. Project site: Agro-Industrial Park planned to be constructed in a suburb of Jericho city 2. Implementations of the Japanese side: (1) Procurement and installation of Photovoltaic (PV) system (300kWp) and related equipment, (2) Technical Assistance (soft component of Grant Aid): training on basic knowledge on grid-connected PV system and on maintenance and emergency response, etc. 3. Implementations of Palestinian side: Laying high tension incoming cable to substation 			
Ex-Ante Evaluation	2009	E/N Date December 21, 2009	Completion Date	September 22, 2012
		G/A Date December 21, 2009		
Project Cost	E/N Grant Limit / G/A Grant Limit: 597 million yen, Actual Grant Amount: 597 million yen			
Implementing Agency	Palestinian Energy and Natural Resources Authority (PENRA)			
Contracted Agencies	Oriental Consultants Co., Ltd., Toyota Tsusho Corporation, Hitachi Plant Technologies Ltd., TSUCHIYA Corporation, Tubaila Target United for Engineering & Construction, ESCOM Energy Services Company, Japan International Cooperation System (JICS) (Procurement Agent)			

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Palestine at the time of ex-ante and ex-post evaluation></p> <p>This project has been consistent with Palestine’s development policy, as ‘increasing the ratio of renewable energy among energy demand’ and ‘reduction of dependency on imported energy’, etc. are set in policy documents such as “National Plan for Development of Renewable Energy & Efficiency 2007-2012”, “National Development Plan” (2012-2015²), and “Palestinian Solar Initiative” (2012) .</p> <p><Consistency with the Development Needs of Palestine at the time of ex-ante and ex-post evaluation></p> <p>At the time of ex-ante evaluation, Palestine had depended most of its electricity supplies on imports from Israel and Jordan. In 2012, 91% of electricity supplies were still covered by imports (mainly electricity purchase from Israel). While Palestine aims at securing 130MW of electricity by renewable energy by 2020, only 5 to 6 MW of electricity was secured as of 2014, and most of the electricity supplies is still dependent on imports from Israel. Therefore, needs for renewable energy (particularly solar power generation) that is possible to generate within Palestine are still high at the time of ex-post evaluation.</p> <p><Consistency with Japan’s ODA Policy at the time of ex-ante evaluation></p> <p>The Japanese government announced “the Cool Earth Partnership” as one of efforts for developing countries making efforts to contribute to climate control by balancing their economic growth with reduction of GHG emissions at the Davos summit in January 2008, and Palestine joined the Cool Earth Partnership. As a component of this effort, Japan newly introduced GAEC in 2008 in order to support developing countries struggling to contribute for the climate control due to lack of abilities and funds for balancing their economic growth with reduction of GHG emissions. Therefore, the project was also consistent with Japan’s ODA policy.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project has achieved its objectives, “to enhance power generation capacity, diversify energy sources and increase awareness among people on utilization of renewable energy”. Actual figures of net power generation of the PV system procured and installed under the project (Indicator 1) and reduced CO₂ emission (Indicator 2) in 2014 exceeded target figures (102% of target), and actual figures in 2015 (target year of the project) almost achieved target figures (97% of target). The power generation slightly below the target in 2015 might</p>

¹ At the time of the ex-post evaluation, the main electricity suppliers are Israel and Egypt.

² National Development Plan after 2016 was under preparation at the time of ex-post evaluation.

reflect fluctuations in generating efficiency mainly due to insolation and dusts, thus showing the effectiveness of the introduction of the PV system. Moreover, operation and maintenance (O&M) of project facilities are properly conducted by PENRA and Jerusalem District Electricity Company (JDECO) at the time of ex-post evaluation owing to the soft component of the project, and thus it can be said that there have been effects of the soft component. Furthermore, various groups such as students, companies and overseas diplomatic corps conduct site visits to the project facilities approximately once a month on average, and PR activities for promotion of utilization of renewable energy are conducted. For university students, in particular, PENRA organizes environmental summer camps including study tour to the project facilities besides accepting individual visits.

<Impact>

This project was the first introduction of a grid-connected PV system in Palestine. PENRA provides the Ministry of Environmental Affairs of the Palestinian Authority with information on this project, and the Ministry introduced this project in international conferences on climate change (in Jordan, United Arab Emirates (Dubai) and Tunisia, etc.). Moreover, a PV system of 500kW has been installed for 120 households in Tubas since project completion, and another PV system of 500kW is planned to be installed in the same area. According to PENRA and JDECO, this project served as an impetus for installing such grid-connected PV system in Palestine. Based on the above findings, it can be said that this project has contributed to demonstration of initiatives of Japan to promote efforts for climate control.

Regarding other impacts, no negative impact on natural environment has been observed and no land acquisition and resettlement has been occurred under the project.

<Evaluation Result>

In light of the above, the effect of the project has been observed mostly as planned. Therefore the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Baseline 2009 Planned Year	Target 2015 3 Years After Completion	Actual 2012 Completion Year	Actual 2013 1 Year After Completion	Actual 2014 2 Years After Completion	Actual 2015 3 Years After Completion
Indicator 1: Net power generation (kWh/year)	0	422,000	168,876 ⁽¹⁾	351,414 ⁽²⁾	431,802	409,932
Indicator 2: Reduction of CO ₂ Emission (t/year) ⁽³⁾	0	290.6	116.3	242.0	297.4	282.3

Source: Ex-Ante Evaluation Sheet, questionnaire survey and interview with PENRA and JDECO

Note: (1) The facilities installed under the project started operation in July 2012, and the figures above are those of August to December 2012. The amount of net power generation from August 2012 to July 2013 was 487,548.5kWh, which exceeded the target. (2) The reason for substantially falling below the target in 2013 was due to breakdown of some equipment procured under the project. JDECO repaired the equipment at its own expense in the same year and power generation capacity of the facility was recovered. (3) The amount of lifecycle CO₂ emission in oil thermal power generation (power generation end): 742.1g-CO₂/kWh. The amount of lifecycle CO₂ emission in solar power generation (power generation end): 53.4g-CO₂/kWh. Reduction of CO₂ emission by solar power generation: (742.1-53.4) x 422,000/1,000,000=290.6t-CO₂

3 Efficiency

Although the project cost was as planned (ratio against the plan: 100%), project period exceeded the plan (ratio against the plan: 127%)³, because the procurement/installation period was prolonged mainly due to the change of country of manufacture of the network transformer. It was confirmed that output of this project was produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

At the time of ex-ante evaluation, O&M of the project facilities was planned to be conducted by PENRA, among which O&M of special high-voltage substation equipment only was planned to be outsourced to JDECO, which was in charge of management of power distribution networks. Thus, PENRA was planning to employ two electrical engineers and a security guard (night-time). At the time of ex-post evaluation, an engineer belonging to JDECO conducts O&M of the project facilities and a staff of PENRA supervises the O&M. While there has been a change in O&M system, daily and periodical inspections are properly conducted and target figures of net power generation of the project facilities have been achieved, and thus there seems to be no problem regarding O&M system. In January 2017, O&M of the project facilities was transferred to a developer in charge of operation of Jericho Agro-Industrial Park (JAIP Corporation). JAIP Corporation has already concluded an agreement on outsourcing of O&M of the project facilities with a private company that has considerable experience of O&M of PV systems (CREATIVE Corporation), and proper O&M is planned to be conducted. However, if O&M by these companies is not properly conducted, O&M is supposed to be conducted by PENRA and JDECO again. PENRA has continuously been the owner of the facilities. Since JAIP Corporation assumes O&M responsibility as of January 2017, the amount equivalent to the cost of electricity generated with the project facilities is deducted from the electricity bill to be paid by the Corporation.

<Technical Aspect>

The number of staff who received the soft component (technical training on maintenance) is five in PENRA and two in JDECO. In PENRA, one of these five staff supervises O&M of the project facilities by JDECO, while in JDECO, an engineer who is different from the above two staff who attended the training conducts O&M based on the O&M manual and the maintenance plan prepared under the project. It is judged that there is no problem in the technical aspect, as O&M is conducted properly⁴. When JAIP Corporation becomes in charge of O&M of the project facilities, it is considered that there will be no problem in the technical aspect, as CREATIVE Corporation has considerable experience of O&M of PV systems.

³ The actual project period was calculated in the same way as the planned period, i.e., with the signing on the consultant contract as the starting point. Besides, it took nearly 10 months from the conclusion of the G/A to the consulting contract.

⁴ According to JDECO, engineers who attended the training of the soft component have been transferred to other sections. However, the JDECO staff in charge of O&M of the project facilities at the time of the ex-post evaluation is also in charge of O&M of other PV systems in Jericho, and the project facilities are maintained without problems.

<Financial Aspect>

At the time of ex-ante evaluation, O&M cost of the project facilities was estimated to be 128,340 Shekel annually including personnel expenses, electricity cost for operation of equipment such as the data management and monitoring system and the large-sized display monitor, water charges and consumables expenses. The actual O&M cost (paid by JDECO) is 83,200 Shekel in 2013, 146,200 Shekel in 2014 and 83,200 Shekel⁵ in 2015, resulting in less amount than the amount estimated during ex-ante evaluation except for 2014. The reason for O&M cost having increased in 2014 was that some equipment of the project facilities were broken down and repaired. O&M including repairing of broken-down equipment is carried out appropriately with the necessary O&M budget secured from the revenue from electricity generation. A certain amount of O&M budget has been spent as necessary every year. The financial condition of JDECO is considered as relatively stable in medium and long terms.

<Current Status of Operation and Maintenance>

At the time of ex-post evaluation, daily and periodical inspections of the project facilities are conducted based on the maintenance plan. The facilities and equipment installed under the project are in mostly good conditions⁶. Consumables and spare parts are properly procured and managed.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the institutional technical and financial aspects of the implementing agency and the current status of O&M. Therefore, the sustainability of the project effect is high.

5 Summary of the Evaluation

Through the project, regarding enhancement of power generation capacity and diversification of energy sources as the project objectives, the amount of power generation has increased and emission of CO₂ has been reduced, and thus project effects have been observed as planned. Regarding increasing awareness among people on utilization of renewable energy, PR activities on the PV system have been conducted. Moreover, initiatives of Japan to promote efforts for climate control have been demonstrated through introduction of this project in international conferences etc. As for sustainability, no problem has been observed in terms of the institutional, technical and financial aspects and the current status of O&M. As for efficiency, the project period exceeded the plan.

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

III. Recommendations & Lessons Learned

Recommendations to implementing agency (PENRA):

As of July 2016, the O&M system, in which JDECO conducts O&M of the project facilities and PENRA supervises JDECO, has been established and target figures of net power generation have been achieved. Following the transfer of the responsibility over O&M of the project facilities to the developer of Jericho Agro-Industrial Park in January 2017, the actual O&M work is outsourced to CREATIVE Corporation that has experiences of O&M of PV systems. In that way, it is expected that target figures of net power generation will be continuously achieved. However, if technical problems occur, PENRA needs to provide technical support.

Lessons learned for JICA:

As a result of providing assistance in response to the needs for a grid-connected PV system in Palestine as a precedent for other subsequent PV generation projects, this project became a model of grid-connected PV systems, which have gradually been diffused in the country after project completion. In this way, this project is a successful example of importance of providing timely assistance to development needs in recipient countries.

⁵ The JICA exchange rate for December 2015: 1 Shekel = 31.613 yen.

⁶ (1) Some equipment of data management and monitoring system was broken down at the time of site survey in May 2016. The equipment was already repaired as of January 2017. (2) During the defects inspection (2013), it was found that water supply pipes have not been installed into the project facilities, and recommended to PENRA to promptly install the pipes, as sufficient amount of water is necessary for cleaning of PV modules etc. However, at the time of ex-post evaluation, it is still under coordination between Jericho city and the supervisory agency of Jericho Agro-Industrial Park, and the pipes have not yet been installed. Thus, cleaning is conducted using water delivered with water supply tanks. Nonetheless, no problem has occurred to date with cleaning with water from tanks.



Solar Panel



Monitoring Room

Country Name	The Project for Urgent Rehabilitation of Water Supply System in the Capital City Podgorica
Montenegro	

I. Project Outline

Background	The water supply system of Podgorica consisted of intake facilities with transmission pump, disinfection facilities and distribution facilities. Of these pumping facilities, the vital and main part of the system, Mareza 2 pump station had a half of total amount of transmission and distribution, however, water transmission flow of Mareza 2 pump had decreased significantly owing to severe performance deterioration and ex-ordinary vibration resulting from the pumps of aged about 25 years. In addition, the unbalance flow in the pipeline occurred due to decrease of distribution water flow and pressure and thereby resulted water failure at several zones.				
Objectives of the Project	To provide stable water supply services to citizens of Podgorica by replacing four pumps in Mareza 2 pump station and installing facility and distribution monitoring system, thereby contributing to improvement of living condition.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: Podgorica City 2. Japanese side: Replacement of four pumps, pump control system and related equipment at Mareza 2 pump stations, and installation of water distribution monitoring system 3. Montenegro side: (1) Mareza 2 pump station: Dismantling work of existing pumps/motors, and others (2) Monitoring system: Procurement of cables, kiosk and piping materials and equipment for telecommunication system. Installation of Civil and building work for kiosk and concrete pit, piping work for pipe, fitting, valve, etc., installation work for monitoring equipment, wiring work for various kinds of cables and others 				
Ex-Ante Evaluation	2009	E/N Date	May 13, 2010	Completion Date	September 28, 2011
		G/A Date	May 23, 2010		
Project Cost	E/N Grant Limit/ G/N Grant Limit: 596 million yen, Actual Grant Amount 345 million yen				
Implementing Agency	Public Enterprise Podgorica Water Supply and Sewerage (PWS)				
Contracted Agencies	Tokyo Engineering Consultants Co., Ltd., Torishima Pump Mfg. Co., Ltd.				

II. Result of the Evaluation**1 Relevance**

<Consistency with the Development Policy of Montenegro at the time of ex-ante and ex-post evaluation>

This project has been highly consistent with development policy of Montenegro. At the time of ex-ante evaluation, in accordance with the independence of Montenegro in year 2006, the water supply system was decided to be improved under responsibility of each municipality. Podgorica prepared the Long-term Infrastructure Scheme (year 2007-2017) as a part of the urban development plan in year 2007 accordingly. At the time of ex-post evaluation, development plans such as Montenegro Development Directions 2015-2018 cover the water supply issue including the necessity of the rehabilitation and expansion of water supply systems in all municipalities.

<Consistency with the Development Needs of Montenegro at the time of ex-ante and ex-post evaluation>

The project has also been highly relevant with Montenegro's development needs for improving water supply system. At the time of ex-ante evaluation, water transmission from Mareza 2 pump station, which had a half of total amount of transmission and distribution of water supply system of Podgorica had decreased as a result of aging pumps, and it affected the living conditions for habitants. At the time of ex-post evaluation, the population which the target facilities serve has continued to grow because of migration to the capital city and therefore water demands have been continuously increased.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was also consistent with Japan's ODA policy at the time of ex-ante evaluation: Restoration and development of social and economic infrastructure was one of the priority areas of ODA to Montenegro according to the ODA Country Databook 2009.

<Evaluation Result>

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

2 Effectiveness/Impact

<Effectiveness>

The project has achieved its objectives, "to provide stable water supply services to citizens of Podgorica". Indicators of quantitative effects – such as "capacity of water distribution pumps", "population served with stable water supply", "population in water supply suspension" and "energy loss" – achieved the targets that were set at the time of ex-ante evaluation.

All four pumps and pump control system at Mareza 2 pump station as well as water distribution monitoring system procured under the project function well¹. Capacity of Mareza 2 pump station has improved from 544l/s to 960l/s. Whole population in Podgorica is served with stable water supply after the project was completed while the number of population served with stable water would have dropped if the project was not implemented due to the limited capacity. In addition, population increased as the migration to Podgorica is larger than expected. After the project was completed, there is no water suspension for population in areas where suspension occurred frequently

¹ The monitoring system is functioning without difficulties, however, part of the software related to reporting function is malfunctioning. Although PWS has tried to sort it out with the supplier, the issue is still pending. PWS can use data collected through system, but they have to extract it and analyze it manually.

before the project implementation. According to the interviews with several water users from targeted areas, water supply system is functioning without restrictions.

As expected at the time of ex-ante evaluation, the safety of water has improved: The content of residual chlorine has reduced after installing the monitoring system. The content of residual chlorine after the project implementation is between 0.15 -0.3mg/litter whereas the value before the project was 0.4mg/litter (The standard set by the city public office is 0.5 mg/litter). The good example is residential area Tolosi where residents often complained on water quality before the project. Upon installation of chlorine measurement instrument in District Metering Area (DMA) under the project, problem was overcome.

<Impact>
After the project was completed, water leakage rate has improved. The monitoring system facilitates detection of leakage at water pipes network as well as illegal connections to water supply system. PWS took measures such as replacement of pipes accordingly, and informed that Non-Revenue Water rate is currently 48.31%, of which physical loss is 26-27% and commercial e loss is 20-22%. As physical loss of 40.9% was reported at the time of ex-ante evaluation, it can be said that water leakage rate has improved. In addition, PWS started using mechanisms for combating illegal connection, and they expect that with other measures, they will reach 98-99% of paid bills of all invoiced services soon.

According to the interviews with several water users from targeted areas, as water supply system is functioning without restrictions, living conditions of residents have improved.

No negative impacts on the natural environment were observed, and no land acquisition occurred under this project.

<Evaluation Result>

In light of the above, the effect of the project has been observed as planned. Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

	Before the project 2009	Target figure at target year (2012)	Actual Figure at target year (2012)	The most recent Actual Figure (2015)
Indicator 1: Capacity of water distribution pumps (6 pump stations) (litter/second)	1,677 (Breakdown) (1) Capacity of Mareza 2: 544 (2) Capacity of Other 5 pump stations: 1,133	2,051 (Breakdown) (1) Mareza 2: 960 (2) Other 5 pump stations: 1,091 ^{*1}	2,051 (Breakdown) (1) Mareza 2: 960 (2) Other 5 pump stations: 1,091	2,150 (Breakdown) (1) Mareza 2: 960 (2) Other 5 pump stations: 1,190 ^{*2}
Indicator 2: Population served with stable water supply	101,382	177,410	187,000	210,000
Indicator 3: Population in water supply suspension	25,370	0	0	0
Indicator 4: Energy loss (MW/Year)	1.64	0	0	0

*1 Capacity of 5 pump stations was assumed to be reduced by performance drop of 1.25% per year.

*2 As a result of spread of water network, PWS closed some wells and opened new ones in boundary areas. Therefore, the capacity has not reduced.

Source: JICA internal documents, questionnaire and interviews with PWS

3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 58%, 75%). Therefore, the efficiency of the project is high.

4 Sustainability

<Institutional Aspect>

Operation and Maintenance (O&M) of the pumps and monitoring system procured under the project is carried out by PWS. PWS operate financially independent under the City Manager of Podgorica. Maintenance service/electro mechanical department under O&M sector is responsible for O&M of electrical and mechanical equipment, O&M sector/pumping station service is responsible for monitoring of water production and IT service/SCADA² department is responsible for monitoring, data analysis and maintenance for monitoring system. Coordination between O&M sector and IT department is functioning well. Total number of staff in PWS has increased and sufficient number of staff is allocated to each department mentioned above.

<Technical Aspect>

The staff members of PWS have sufficient skills to carry out O&M of the pumps and monitoring system procured under the project. O&M of pumps and motors at Mareza 2, basic operation and replacement of hardware components at monitoring system can be easily done with its own capacities. PWS staff commented that the selection of monitoring system without remote operation function was appropriate for enhancing their skills. After acquired knowledge with monitoring function, PWS is now ready for one step further. They are planning to establish the complete SCADA system including remote operation in the near future. However, skills and knowledge on software component of monitoring system and calibration of equipment at measuring points need to be strengthened, according to PWS. PWS does not have training programs to regularly improve and/or update technical skills on maintenance.

<Financial Aspect>

Financial condition of PWS could be recognized as stable. According to the financial information of PWS, maintenance cost has been fully secured and PWS invested in infrastructure improvement. By 2015, Mareza 1 pump station was renovated and 5 new pumps were

² SCADA stands for Supervisory Control and Data Acquisition.

installed. Constant works on pipe network are ongoing. In addition, PWS plans to increase prices of their services since average monthly bill to appropriate level.

<Current Status of Operation and Maintenance>

Inspection and regular maintenance activities have been carried out in right manner. Procurement of spare parts and necessary consumables can be done easily.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the institutional, financial and current status of operation and maintenance aspects of the implementing agency, while some problem has been observed in technical aspect due to relatively weak skills on software component and calibration of equipment, as well as lack of regular training system. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project has achieved its objectives, “to provide stable water supply services to citizens of Podgorica” as indicators of quantitative effects – such as “capacity of water distribution pumps”, and “population served with stable water supply”, “population in water supply suspension” and “energy loss”– achieved the targets. As an impact, water leakage rate has improved and living conditions have improved. As for sustainability, no problem has been observed in terms of the institutional, financial and current status of operation and maintenance aspects of the implementing agency, while some problem has been observed in technical aspect due to relatively weak skills on software component and calibration of equipment, as well as lack of regular training system.

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

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

- It is recommended to PWS to continue sorting out the problem of reporting function of the monitoring system.
- It is strongly recommended to PWS to establish system of education and training for staff in charge for operation and maintenance. Currently, the weakest point related to the technical capacity is notified at segments software component of monitoring system and calibration of equipment at measuring points. Therefore, PWS should start with training including these issues at earliest possible convenience.

As discussed during the evaluation survey, for implementing training efficiently, PWS is recommended to organize joint training on monitoring system on yearly level with other two cities (Niksic and Danilovgrad) and their Water Supply Companies who also established monitoring system.

Lessons learned for JICA:

- The manner JICA evaluated the capacity of the implementing agency properly and proposed a realistic input is crucial for project implementation and its outcome. The monitoring system under the project aimed at monitoring and accumulating data at the main control center. This was the first step towards the application of SCADA system in the project area. Subsequently, PWS was required to expand it based on the project in future in order to establish the complete SCADA system including remote operation, control operation by using accumulated data. PWS staff commented that they were surprised when JICA informed them that the project would provide them monitoring system without remote operation. But they confirmed that they are aware now that JICA decision was correct. It is necessary to have experience with monitoring system in order to become capable to go one step further on remote function which requires higher responsibility.



Four pumps at Mareza 2 pump station



Monitoring room at Mareza 2 pump station

Country Name	The Project for Improvement of Medical Equipment in Kinshasa University Hospital (Le projet d'aménagement en équipements des Cliniques Universitaires de Kinshasa)
Democratic Republic of the Congo	

I. Project Outline

Background	The health system in Democratic Republic of the Congo (hereinafter "DR Congo") had been weak due to long years of conflicts, and the number and quality of medical facilities and staff were inadequate and thus the performance of health indicators was extremely low. For example, infant mortality (under five years old) was 205 per 1,000 births (as of 2006), maternal mortality was 1,100 per 100,000 births (as of 2005), morbidity of tuberculosis was 645 per 100,000 population (as of 2006), and morbidity of HIV (15 years old and over) was 2,933 per 100,000 population (as of 2005). Kinshasa University Hospital (Cliniques Universitaires de Kinshasa: UNIKIN) was a top-referral hospital in the country, providing maternal and child health services and trainings for medical staff in the country. However, many of necessary medical equipment in the hospital were deteriorated and out of order, which was an obstacle to providing appropriate level of medical services and trainings.				
Objectives of the Project	The objective of the project is to improve medical services and capacity of conducting medical trainings related to obstetrics/gynecology and neonate/pediatrics in Kinshasa University Hospital (UNIKIN) by procuring medical equipment for these departments, thereby contributing to strengthening of the hospital's function as a top-referral hospital.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: Kinshasa City 2. Japanese side <ol style="list-style-type: none"> (1) Procurement of medical equipment for departments related to obstetrics/gynecology and neonate/pediatrics (135 items in total)¹ (2) Soft components (trainings and seminar) on strengthening maintenance system of medical equipment and maternal and child health care 3. DR Congo's side <ol style="list-style-type: none"> (1) Construction of a shed to place an electricity generator (2) Protection and reinforcement works for a room where a mammography is placed (3) Provision of water supply, water discharge, electricity and medical gas, reinforcement of hospital facilities (including repair of leaking roof) and removal of old equipment for installation of procured medical equipment 				
Ex-Ante Evaluation	2009-2010	E/N Date	May 18, 2010	Completion Date	April 22, 2012
Project Cost	E/N Grant Limit: 728 million yen, Actual Grant Amount: 622 million yen				
Implementing Agency	Cliniques Universitaires de Kinshasa (UNIKIN)				
Contracted Agencies	International Total Engineering Corporation (ITEC), SIRIUS corporation				

II. Result of the Evaluation

1 Relevance
<p>Consistency with DR Congo's development policy at the time of ex-ante evaluation and ex-post evaluation</p> <p>This project has been highly consistent with DR Congo's development policy, as reduction of maternal and infant mortality is emphasized in policy documents such as the Health Care Development Master Plan (PDDS 2000-2009) (at the time of ex-ante evaluation) and the National Plan for Health Sector Development (PNDS 2011-2015) (at the time of ex-post evaluation) etc.</p> <p>Consistency with DR Congo's development needs at the time of ex-ante evaluation and ex-post evaluation</p> <p>UNIKIN has been one of top-referral hospitals and important training/education hospitals in DR Congo since before the time of ex-ante evaluation to the time of ex-post evaluation. The needs for medical equipment, particularly those related to maternal and child health, have been high as the maternal and child mortality has remained high in the country. Therefore, the project has been highly consistent with DR Congo's development needs.</p> <p>Consistency with Japan's ODA policy at the time of ex-ante evaluation</p> <p>The project was also consistent with Japan's ODA policy as stated in the ODA Country Data Book (2008), which states that cooperation would be provided to DR Congo that contributes to an improvement of basic living environment and community development, prioritizing health sector.</p> <p>Evaluation result</p> <p>In light of the above, relevance of this project is high.</p>

¹ Major items included the followings:

- Neonatal/pediatrics department: patient monitor, echography, infant incubator, etc.
- Obstetrics/gynecology department: echography, operation table, laparoscope, etc.
- Resuscitation/anesthesia department: anesthesia machine, defibrillator, patient monitor, etc.
- Diagnostic imaging department: automatic/manual developing device, general radiographic X-ray, mammography, CT scanner, etc.
- Laboratory/blood bank: medical freezer, Elisa analyzer, blood cell counter, etc.
- Others: sterilizer, generator, ambulance, etc.

2 Effectiveness/Impact

Effectiveness

Among 135 items of medical equipment procured under the project, the survey conducted for ex-post evaluation for the 44 main items revealed that around 80% of them are regularly used, 9% are partially used and 11% are not used². Some equipment such as biochemical analyzer, polymerase chain reaction (PCR) apparatus etc. are not used due to a lack of reactors, spare parts and consumables. UNIKIN has not been able to purchase reactors and spare parts for some equipment, as providers are not available in Kinshasa or the hospital cannot afford to buy the chemicals. Mammography and laparoscope are not used due to a lack of trained staff who can properly use these equipment. Moreover, mammography and Elisa analyzer have never been connected to a printer due to a lack of software compatibility.

Regarding quantitative effects, the number of outpatients in obstetrics/gynecology and neonate/pediatrics departments (Indicator 1) and the number of cesarean operation (Indicator 2) in 2014 are less than baseline figures in 2008. This can be explained by the fact that besides this project, nearby secondary hospitals were rehabilitated/developed after the project was completed and started to receive many simple cases who used to consult directly in UNIKIN in the past. Also, a private pediatric hospital opened in the same health zone with UNIKIN. This hospital was initiated by one of the professors of UNIKIN, and some medical staff or specialists were trained by UNIKIN. The hospital now shares the number of pediatric patients mostly as first contact due to the accessibility and the presence of specialists.

The number of gynecological operation (Indicator 3) in 2014 is 242% against the target. This is mainly due to the number of complicated cases referred to UNIKIN, especially cases referred from secondary hospitals around and other hospitals by dint of the equipment provided. According to the gynecology-obstetric department of UNIKIN, most of gynecology-obstetrics operations were referred cases.

The number of radiographic examination (Indicator 4) in 2014 is 65% against the target. This is partly because the mammography is not used, and partly because other hospitals now conduct CT examinations. It can be noted that some staff in charge of CT in those hospitals were trained in UNIKIN with the CT scanner procured by this project. On a qualitative level, UNIKIN reported positive changes such as the followings: (i) the utilization of the CT-scanner improved the diagnosis of hemorrhagic and ischemic types of cerebrovascular accidents (Department of Medical Imaging); (ii) the equipment provided in the Department of Anesthesia-Resuscitation improved also the vital prognostic of respiratory failure cases and the practices of thoracic surgery and persistent ductus arteriosus surgery operations become possible and more effective now than before.

The number of medical students and staff who participated in clinical/practical trainings in obstetrics/gynecology and neonate/pediatrics departments has been increasing in recent years, however, it could not be verified to what extent the number has increased compared with that of before the project, as the baseline figure is not available.

Impact

As mentioned above, the receiving of referral cases from secondary hospitals where some medical staff trained by UNIKIN work, and better services with the equipment provided by the project have strengthened the function of UNIKIN as a top referral hospital, although referral statistics are not available³.

Infant mortality (under five years old) has been reduced from 205 per 1,000 births in 2006 to 104 per 1,000 births in 2014 and maternal mortality has been reduced from 1,100 per 100,000 births in 2005 to 846 per 100,000 births in 2014. Although it cannot be clearly proven, it appears that the project has contributed to the improvement through strengthening the technical platform of UNIKIN as a top referral and a tertiary hospital⁴.

All the medical wastes are treated in the incinerator at UNIKIN. While there is no regular monitoring with regard to the radiation leakage, no radiation leakage has been detected, no negative impact on natural environment has been observed, nor has land acquisition been occurred under this project.

Evaluation result

Around 80% of the main equipment procured under this project have been well utilized. With these equipment and training, the project has partially achieved its objective of improving medical services and capacity of conducting medical trainings related to obstetrics/gynecology and neonate/pediatrics in UNIKIN. The lower performance of some quantitative indicators than expected can be at least partly explained by the improvement of the capacity of secondary hospitals to which this project has indirectly contributed through development of human resources in UNIKIN. Although not quantitatively verified, the expected impact of strengthening UNIKIN as a top referral hospital was observed.

In light of the above, effectiveness/impact of the project are fair.

Quantitative Effects

Indicator	Before the project (2008)	Target (2013)	Actual result (2012)	Actual result (2013)	Actual result (2014)
Indicator 1: The number of outpatients in obstetrics/gynecology department (person)	1,394	3,000	Not available	Not available	1,257
Supplemental Information 1 for Indicator 1: The number of outpatients in neonate/pediatrics department (person)	3,335 ⁽¹⁾	-	Not available	Not available	2,003
Supplemental Information 2 for Indicator 1: The number of inpatients in obstetrics/gynecology department (person)	808	-	Not available	Not available	811
Supplemental Information 3 for Indicator 1: The number of inpatients in neonate/pediatrics department (person)	1,306	-	Not available	Not available	672

² While 135 items of equipment were procured under the project, as it is difficult to check all the equipment, main equipment (44 items) indicated in JICA internal document were chosen to be surveyed.

³ According to UNIKIN, a reference note is directly attached to the medical record. However, the statistical service of the hospital has just been restructured and could not find this information in the central archives in the survey of this ex-post evaluation.

⁴ JICA is particularly the only donor that has contributed in strengthening the technical platform of a tertiary hospital (which can provide high level medical examination services) such as UNIKIN for over two decades, while some other donors have supported hospitals of primary or secondary levels.

Indicator 2: The number of cesarean operation (case)	425	552	Not available	301	369
Indicator 3: The number of gynecological operation (case)	0	53	Not available	Not available	128
Indicator 4: The number of radiographic examination (CT and mammography) (case)	0	1,300	Not available	Not available	849
Supplemental Information 4: The number of medical students participated in clinical trainings in obstetrics/gynecology and neonate/pediatrics departments (person)	Not available	-	395	652	312 (obstetrics/gynecology only)
Supplemental Information 5: The number of medical staff participated in practical trainings in obstetrics/gynecology and neonate/pediatrics departments (person)	11 (obstetrics/gynecology only)	-	57 (neonate/pediatrics only)	64 (neonate/pediatrics only)	70 (neonate/pediatrics only)

Note: (1) The baseline year for supplemental information 1 is 2007.

Source: Ex-Ante Evaluation Sheet, JICA internal document, questionnaire survey to UNIKIN

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 85%), the project period exceeded the plan (ratio against the plan: 116%) because it took more time for detailed design and bidding than expected. Therefore, efficiency of the project is fair.

4 Sustainability

Institutional aspect

Before the project implementation, the allocated number of staff in obstetrics/gynecology and neonate/pediatrics departments in UNIKIN was considered to be sufficient to handle equipment procured under the project and provide medical services to patients. The number of doctors in these departments has increased by approximately 20% at the time of ex-post evaluation, and thus the allocated number of doctors is considered to be sufficient. However, data on the number of other staff such as nurses and maintenance staff is not available, and thus it could not be verified whether the number of staff other than doctors is sufficient to properly handle and conduct daily and periodic preventive maintenance and repair of medical equipment at the time of ex-post evaluation.

Technical Aspect

Trainings were provided under the project to strengthen maintenance system of medical equipment in UNIKIN. However, demonstration and guidance on how to check newly procured equipment were not provided under the project due to a delay of handing over of equipment. According to UNIKIN, regular checking of medical equipment is conducted by maintenance staff, however, their technical level is not sufficient to properly conduct daily and periodic maintenance.

Financial Aspect

The amount of UNIKIN's revenue from hospital fee in 2014 is approximately twice the amount estimated in the preparatory study. Maintenance cost of medical equipment and facilities in 2014 is approximately three times of the amount estimated before the project implementation. As had been expected, use of the equipment procured by this project created additional revenue. On the one hand, such a revenue reduced operation cost of the equipment (e.g. the revenue gained with the utilization of the CT scanner helped the diagnostic imaging department to acquire a power generator for an exclusive usage of the CT scanner with a good fuel consumption). On the other hand, the additional revenue allowed purchase of additional medical equipment, which increased the required maintenance cost. While detailed data on maintenance cost of equipment procured under the project is not available, according to UNIKIN, the amount of hospital revenue is generally not sufficient to procure necessary spare parts and consumables for medical equipment.

Current Status of O&M

The CT scanner is temporarily out of service at the time of ex-post evaluation. Maintenance of CT scanner was conducted by manufacturer's agency called MEDILOC. However, the staff of MEDILOC, who was trained under the project to conduct the maintenance of CT scanner, has left the company, and the company itself has closed down. UNIKIN wishes to contact directly the manufacturer in Japan to repair the CT scanner. Maintenance of other equipment procured under the project is regularly conducted by UNIKIN staff, and approximately 80% of 44 main items procured under the project is utilized at the time of ex-post evaluation, as explained above. The inventory and maintenance book of equipment provided under the project is partially utilized, and there is an upgrading plan to replace equipment that has reached service life. However, spare parts and consumables for medical equipment are not procured and managed properly due to financial constraints. Moreover, UNIKIN wishes to contact directly the providers of spare parts in Japan and procure them, as providers in Kinshasa are scarce.

Evaluation result

In light of the above, sustainability of project effects is fair, as it is not clear whether the number of staff (apart from doctors) in UNIKIN is sufficient to properly handle and maintain the procured medical equipment, technical level of UNIKIN staff and hospital revenue are not sufficient to properly maintain procured equipment and providers of necessary spare parts for some equipment are not available in Kinshasa, while the current status of most (80%) of main equipment is considered to be in a good condition.

5 Summary of the Evaluation

The project has partially achieved its objectives: the number of patients and examinations decreased while the number of gynecological operation increased. Nevertheless, the lower performance of some quantitative indicators than expected can be at least partly explained by the improvement of the capacity of secondary hospitals to which this project has indirectly contributed through development of human resources in UNIKIN. Although not quantitatively verified, the expected impact of strengthening UNIKIN as a top referral hospital was observed. As for sustainability, there are some uncertainty or problems in institutional, technical and financial aspects, as sufficiency of the number of staff could not be adequately verified, technical level of UNIKIN staff and hospital revenue are not sufficient to properly maintain procured medical equipment and providers of necessary spare parts for some equipment are not available in Kinshasa. As for efficiency, the project period exceeded the plan.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

1. For more effective and efficient operation of referral systems, UNIKIN is recommended to firmly operate the restructured statistics system including referral statistics and manage data and information.
2. To ensure sustainability of the effects of this project, UNIKIN is recommended to (i) train directly the users who receive equipment on preventive and curative maintenance, and (ii) relocate underused equipment in other departments where they can be efficiently utilized.

Lessons learned for JICA:

1. A project targeted to a university hospital can expect effects that are not confined to the targeted hospital but to other hospitals in a way that the staff who belongs to or are trained in that targeted hospital may work in other hospitals. Therefore, it should be considered that indicators such as the number of patients/clinical examinations may not simply increase if the project is successful in training staff of other hospitals and strengthening the referral system.



CT scanner



Incubators in the neonatal unit

Country Name	The Project for Safe School Reconstruction in Devastated Areas of Earthquake in Offshore of Padang in West Sumatra Region
Republic of Indonesia	

I. Project Outline

Background	The earthquake (magnitude 7.6) on September 30, 2009 caused the enormous damage over the West Sumatra Province, in particular Padang City and Padang-Pariaman District. There were about 1,119 people died or missed, 1,214 people seriously injured and 1,688 people harmed. Total damage and losses were estimated as 21.6 trillion Rupiah, and those in education sector in West Sumatra were estimated as 618.8 billion Rupiah ¹ . Among 1,003 damaged schools in West Sumatra, collapsed or seriously damaged rooms were 259 in Padang City and 1,140 in Padang-Pariaman District in primary schools and 158 in Padang City and 222 in Padang-Pariaman District in junior high schools (all figures are as of 2009). Consequently, there was an increased need for securing safe schools for children and temporary shelters for residents as disaster risks management.				
Objectives of the Project	To provide a safe school environment for children and temporary shelter for nearby residents by reconstructing and enhancing seismic capacity of primary and junior high schools damaged by the Padang earthquake, thereby contributing to reduction of disaster risks.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project site: Padang City and Padang-Pariaman District in West Sumatra Province 2. Implementations of the Japanese side: Provision of grant necessary for reconstruction of seven primary schools and three junior high schools (Original plan: six primary schools and three junior high schools) 3. Implementations of Indonesian side: Installation of fence, gates, sports court and furniture, and final disposal of debris etc. 				
Ex-Ante Evaluation	2010	E/N Date	March 18, 2010	Completion Date	August 13, 2012
		G/A Date	June 7, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 549 million yen, Actual Grant Amount: 549 million yen				
Implementing Agency	Government of West Sumatra Province, Education Office of Padang City Municipality and Padang-Pariaman District				
Contracted Agencies	Japan International Cooperation System (JICS/ procurement agent) Yachiyo Engineering Co., Ltd., PT. ADHI KARYA (Persero) Tbk, PT. SURYA ABADI INDOTAMA				

II. Result of the Evaluation

<Special perspectives considered in the ex-post evaluation>

• The project was implemented by using procurement agent services and, the number of schools to be reconstructed was increased from nine in total to ten in total by utilizing the unused balance of project cost.

1 Relevance

<Consistency with the Development Policy of Indonesia at the time of ex-ante and ex-post evaluation>

This project has been highly consistent with Indonesia's development policy, as strengthening disaster control capabilities and reconstruction of schools are set in policy documents such as "National Medium Term Development Plan (RPJMN)(2010-2014)", "Action Plan for Rehabilitation and Reconstruction of Post-Earthquake Areas in West Sumatera Province 2009-2011", "Disaster Management Plan of West Sumatra Province 2008-2012" and "RPJMN(2015-2019)" at the time of both ex-ante and ex-post evaluations.

<Consistency with the Development Needs of Indonesia at the time of ex-ante and ex-post evaluation>

At the time of ex-ante evaluation, existing school buildings were structurally fragile, and earthquake-resistant construction was required to protect students' lives from future earthquakes. At the time of ex-post evaluation, the schools reconstructed under the project are still needed as a place for education and temporary shelter in case of disaster for students and nearby residents. Besides earthquakes, the schools which are located relatively close to coast line (less than 3,000 meters) are needed as temporary shelter in case of tsunami. Therefore, the project has been consistent with Indonesia's development needs.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was also consistent with Japan's ODA policy as stated in the Country Assistance Program for Indonesia (2004), in which 'assistance for peace and stability' including reconstruction was prioritized.

<Evaluation Result>

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

2 Effectiveness/Impact

<Effectiveness>

The project has mostly achieved its objectives, "to provide a safe school environment for children and temporary shelter for nearby residents". The actual number of students who have education in ten schools reconstructed under the project has been more than the target figure since project completion (Indicator 1). Regarding the number of people who can use these ten schools as shelter in case of disaster, the theoretical value calculated based on the actual capacity of the reconstructed schools exceeded the target due to the additional construction of a school (Indicator 2). On the other hand, the field survey and interview result showed that the number of people who actually utilize the schools as evacuation shelter may depend on the location and type of disaster, i.e., if it is too close to the coastline such as some schools in Padang City, people may evacuate to other safer places that may not be affected by tsunami. Nonetheless, according to interviews conducted for ex-post evaluation with teachers of reconstructed schools², 88% (21/24) of respondents think that safety of students against earthquakes has been improved at schools after project completion, and 100% (24/24) of respondents feel that students are currently studying in a safe environment, due to strengthened building structures and higher safety standard, which was realized by the

¹ 1 yen = Approximately 102.11 rupiah in 2009.

² Interviews were conducted for ex-post evaluation with (1) seven teachers of Enam Lingkung primary school in Padang Pariaman, (2) seven teachers of V Koto Kampung Dalam primary school in Padang Pariaman, and (3) ten teachers of Padang junior high school (the total number interviewed: 24).

project.

<Impact>

As for the expected impact, “contributing to reduction of disaster risks”, local authority and residents are aware that school buildings reconstructed under the project are quake-resistant and can be used as shelter when earthquake occurs, as information sharing was conducted for local authority, some local communities and other local stakeholders at the handing over ceremony of school buildings, and the local authority and teachers who participated have shared the information with the local residents. Moreover, information dissemination for local residents has also been conducted by local authority through the Local Disaster Management and Fire Fighting Agency (BPBD-PK) in Padang City, since three reconstructed schools in the city are located in tsunami affected area. While there have been only a few minor earthquakes in project-targeted areas since project completion, reconstructed school buildings of two junior high schools in Padang City have actually been used as shelter during earthquake, and enrollment rate at these schools has increased, although the data was not available, due to their reputation of strengthened building structure (more quake-resistant) and improved educational environment. Therefore, it can be said that this project has contributed to reduction of disaster risks, as it was confirmed that the schools reconstructed by this project are regarded by local authorities and residents as shelters in case of disaster.

Regarding other impacts, no negative impact on natural environment has been observed and no land acquisition and resettlement has occurred under the project.

<Evaluation Result>

In light of the above, the effect of the project has been observed mostly as planned. Therefore, the effectiveness/impact of the project is high.

Quantitative Effects

Indicators	Before the project (2010)	Target 2015 ⁽¹⁾ 3 years After Completion	Actual 2013 1 Year After Completion	Actual 2014 2 Years After Completion	Actual 2015 3 Years After Completion
Indicator 1: The number of students who have education in schools reconstructed by the project (person)	0	Approximately 3,000 ⁽²⁾	3,000 ⁽³⁾	3,088 ⁽³⁾	3,118 ⁽³⁾
Indicator 2: The number of people who can use schools reconstructed by the project as shelter in case of disaster (person)	0	Approximately 75,700 ⁽⁴⁾	79,191 ⁽⁵⁾	79,191 ⁽⁵⁾	79,191 ⁽⁵⁾

Source: JICA internal documents, Ex-Ante Evaluation Sheet, and interviews with National Disaster Management Agency (BNPB), Government of West Sumatra Province, Education Office of Padang City and Padang-Pariaman District

Note: (1) In ex-ante evaluation sheet, it is stated that the target year for evaluation is 2014, which is three years after project completion (The project was planned to be completed in October 2011). However, the project was completed in August 2012. Thus, in ex-post evaluation, the target year should be changed to 2015 (three years after project completion). (2) The target figure of Indicator 1 is based on the number of students of the originally-targeted nine schools. (3) Actual figures of Indicator 1 are the total number of students in ten schools reconstructed under the project. Out of the 3,118 students in 2015, the additionally-constructed primary school enrolls 124 students. (4) The target figure of Indicator 2 is based on the capacity of the originally-targeted nine schools. (5) The actual figures for Indicator 2, i.e., capacity of the reconstructed schools is calculated as (a) x (b), where (a) is the ratio of planned capacity to planned total floor area = 75,700 persons / 13,942.4m² = 5.4 persons/m² and (b) is the total floor area of the actually-constructed schools = 13,864.8m² (original 9 schools) + 800.8m² (additional 1 school) = 14,665.6m².

3 Efficiency

Although the project cost was as planned (ratio against the plan: 100%), project period exceeded the plan (ratio against the plan: 138%). Regarding the project period, while the original output (reconstruction of nine schools) was completed within the original project period, one additional school was reconstructed using the remaining balance of the budget, which took seven months more against the planned four months due to a rebidding after the first bidding was failed. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

Daily maintenance that includes cleaning, inspections and minor repairs is the responsibility of each target school. When major repairs are required, the applications from each school shall first be reviewed by the Education Office of city or district to propose budget allocation to the Ministry of Finance (MOF) through Ministry of Education (MOE) and Regional Development Planning Agency (BAPPEDA). After budget proposal has been approved by BAPPEDA, MOE and MOF, major repairs will then be implemented by the Public Works Office of city or district through the Ministry of Public Works and Housing (MOPWH).

At the time of ex-post evaluation, the number of staff in seven project-targeted primary schools is 61 in total and that in three project-targeted junior high schools is 161 in total. Among them, one maintenance staff is assigned for the Security and Cleaning Service in each primary school and one maintenance staff is assigned for the Infrastructure and Facilities in each junior high school, and daily maintenance is usually conducted by them. Major repairs are taken care of by a head of each school, by submitting applications to the Education Office of city or district. The number of staff in these project-targeted schools is sufficient to sustain the benefits of the project, as the schools are operated normally.

<Technical Aspect>

The technical skills of maintenance staff are considered to be generally sufficient, as only minor maintenance, which does not require highly specialized techniques, is conducted in project-targeted schools. However, there is no training system in project-targeted schools to improve and maintain technical skills of maintenance staff. Also, it would have been better if the blueprints of the buildings were shared with the schools, so that they could check electrical/plumbing map for any future repair or retrofitting purposes.

<Financial Aspect>

All schools are annually provided with budget assistance for school operation (Bantuan Operasional Sekolah: BOS) from Education Office of each city or district, and the amount of BOS provided is determined by the unit amount per student (800,000 Rupiah in case of primary schools and 1,000,000 Rupiah in case of junior high schools) and the number of students in the particular year in the school. The

BOS budget can be used for salary of non-permanent staff and minor repair activities, though the amount is very limited. On the other hand, budget for major repairs needs to be allocated from MOF to each school through MOE and BAPPEDA, as explained above. However, based on a rule imposed to international cooperation projects in Indonesia after completion of this project, an official procedure for handing over the school buildings reconstructed under the project from the central government to local governments has not been completed³, and consequently, project-targeted schools cannot submit a request for budget allocation for major repairs. JICA/JICS and BNPB has started discussion to determine appropriate format of documentation for handing over the school buildings to ensure that administrative procedure for asset hand-over can be accepted by both parties. Financial data on actual operation and maintenance (O&M) cost in ten schools reconstructed by the project was not available, since how much of BOS is spent for daily maintenance is not specified, and the cost for major repairs is not yet budgeted.

<Current Status of Operation and Maintenance>

As the amount of BOS budget is very limited, daily maintenance activities have not been conducted properly in project-targeted schools, and consequently, broken parts have been gradually appearing. Minor defects can be repaired through the BOS budget, though the amount that can be utilized is very limited. For major defects, a request for budget allocation for that purpose can only be submitted after all the administrative procedures for asset hand-over is accomplished.

<Evaluation Result>

In light of the above, slight problems have been observed in technical and financial aspects of project-targeted schools and the current status of operation and maintenance. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

Through the project, the project objectives have been mostly achieved. More than the targeted number of students study at the reconstructed schools that are safer than before the project and that can be used as shelter in case of disaster, while there is a concern about the degree of actual use as shelter in case of tsunami. The expected impact was observed, as it was confirmed that the schools reconstructed by this project are regarded by local authorities and residents as shelters in case of disaster. As for sustainability, there are some problems in technical and financial aspects of project-targeted schools and the current status of operation and maintenance, particularly because an appropriate procedure for handing over the school buildings has not been completed. As for 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 implementing agency:

The Government of Indonesia (central government authority) is advised to accelerate budget allocation for a number of major repairs of the broken parts found during the site visit for ex-post evaluation, so that the reconstructed school buildings can become safe and convenient places to conduct education activities.

Lessons learned for JICA:

1. In case where an official certificate of completion of asset handover from the Japanese side to the recipient country side is a prerequisite for budget allocation to local government for operation and maintenance of the concerned asset, the appropriate administrative procedures of handover should be carefully and promptly implemented to ensure minor/major maintenances/repairs in the long run.
2. When supporting school reconstruction projects in earthquake damaged areas, project sites to rebuild school buildings should be carefully examined: if the project is in tsunami prone areas, locations for school building reconstruction can be selected at certain distance from the coastline (e.g., 500 meters/Expected tsunami height is 6m/Hearing from the local authorities concerned) to ensure optimum number of people will actually use the school buildings as safe evacuation places both from earthquake and tsunami.
3. To ensure more sustainable operation and maintenance of the safe school buildings, blueprint of design results as well as electrical/plumbing maps shall be provided to the implementing agency after completion of reconstruction works.
4. To be legally more appropriate and acceptable for public domain, statement on how strong the building can sustain the earthquake/tsunami shall be provided by JICS/Consultant.



Before the project (December 2009)



Upon completion (January 2012)



At ex-post evaluation (May 2016)

Padang Junior High School No.7 in Padang City

³ This project followed the normal procedure of grant aid projects involving procurement agent (i.e., the Japanese government provides funds for construction/procurement, and the procurement agent provides services including management and supervision on overall processes of selection and procurement of goods and services as well as fund management.). However, under the new rule, the granted assets should be officially handed over from the Government of Japan to the Government of Indonesia, and then to the local government in order to allocate the operation and maintenance budget for local government.

Country Name	Project for Climate Change Adaptation for Sustainable Agriculture and Rural Development in the Coastal Mekong Delta
Socialist Republic of Viet Nam	

I. Project Outline

Background	<p>According to investigative researches by Vietnamese and overseas research institutions, Viet Nam had been one of countries which were the most vulnerable to effects of climate change due to global warming. Particularly in the Mekong Delta region, it had been predicted that many areas would suffer from damages such as flood, salt water intrusion and a lack of freshwater etc. due to rising sea levels accompanying climate change, which in turn would affect livelihoods of local residents and cause major difficulties in agriculture and rural development. In order to minimize negative effects of climate change, the Vietnamese government formulated “the National Target Program to Respond to Climate Change” (approved in December 2008), which aimed at mainstreaming a climate change adaptation in social and economic, sectoral and regional development strategies/plans. However, a development plan taking into account effects of climate change had not yet been formulated in agriculture and rural development plans of the Mekong Delta region. In addition, while “the Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector Period 2008-2020” was formulated following the above program, it was required to promptly formulate and implement regional development plans taking into account effects of climate change in order to efficiently achieve targets stated in the framework.</p>											
Objectives of the Project	<ol style="list-style-type: none"> Expected Goals to be achieved by Utilization of Proposed Plan: Priority issues identified in the climate change adaptation Master Plan proposed under this project are solved and effects to reduce negative influences are exerted under climate change in future. Expected Utilization of Proposed Plan by the project: (1) Priority project plans proposed under the project are implemented. (2) Climate change adaptation Master Plan and climate change impact assessment proposed under the project are utilized in considering climate change adaptation solutions and formulating regional development plans in project-targeted areas. Project Purpose: Climate change adaptation solutions for agriculture and rural development in the coastal areas in the Mekong Delta (Master Plan and Priority Project plans) are proposed¹. 											
Activities of the project	<ol style="list-style-type: none"> Project site: Seven provinces in the coastal Mekong Delta (Tien Giang, Ben Tre, Tra Vinh, Soc Trang, Bac Lieu, Ca Mau, and Kien Giang Provinces) Activities: (1) Collect information on rural socio-economy, agricultural and rural development policies and projects etc. of Viet Nam and the Mekong Delta region, (2) Formulate climate change adaptation Master Plan, (3) Implement case studies, (4) Formulate priority project plans, (5) Conduct trainings in Japan, and (6) Hold seminars and workshops etc. Inputs (to carry out above activities) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Vietnamese Side</td> </tr> <tr> <td>1. Experts: 9 persons</td> <td>1. Staff allocated: 14 persons</td> </tr> <tr> <td>2. Trainees received: 4 persons</td> <td>2. Land and facility: Office space</td> </tr> <tr> <td>3. Equipment (equipment and materials for surveys)</td> <td></td> </tr> </table> 				Japanese Side	Vietnamese Side	1. Experts: 9 persons	1. Staff allocated: 14 persons	2. Trainees received: 4 persons	2. Land and facility: Office space	3. Equipment (equipment and materials for surveys)	
Japanese Side	Vietnamese Side											
1. Experts: 9 persons	1. Staff allocated: 14 persons											
2. Trainees received: 4 persons	2. Land and facility: Office space											
3. Equipment (equipment and materials for surveys)												
Ex-Ante Evaluation	2011	Project Period	July 2011 - April 2013	Project Cost	(ex-ante) 215 million yen (actual) 214 million yen							
Implementing Agency	Southern Institute of Water Resources Planning (SIWRP)											
Cooperation Agency in Japan	Sanyu Consultants Inc., NEWJEC Inc.,											

II. Result of the Evaluation

1 Relevance	<p><Consistency with the Development Policy of Viet Nam at the time of ex-ante evaluation and project completion></p> <p>The project has been consistent with Viet Nam’s development policy on ‘conducting assessment of climate change impacts in various sectors and regions’, ‘developing a feasible action plan to effectively respond to climate change’, ‘ensuring the stability of regions and safety of residents’ and ‘stable agricultural production and food security’ etc. as set forth in “the National Target Program to Respond to Climate Change (NTP-RCC) (2008-2020)” and “the Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector Period 2008-2020”, both at the time of ex-ante evaluation and project completion. Moreover, among plans formulated for each sector to promote NTP-RCC, “the Master Plan on Water Management in Mekong River Delta for period 2012-2020 and the orientation to 2050 in the conditions of Climate Change and Sea Level Rise (Decision No.1397/ QD-TTg)”, which was formulated as a plan for the water resource management sector, was approved by the prime minister in 2012.</p> <p><Consistency with the Development Needs of Viet Nam at the time of ex-ante evaluation and project completion></p> <p>Both at the time of ex-ante evaluation and project completion, the Mekong Delta region has been one of the most important regions for Viet Nam’s socio-economy, as approximately one-fifth of the country’s population (approximately 1.8 million people) has been</p>
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¹ This technical cooperation project was different from general technical cooperation projects in that it aimed to prepare a master plan. Accordingly, the project purpose and activities (especially “formulate climate change adaptation Master Plan” and “formulate priority project plans”) are synonymous.

concentrated, and over half of the country's food production has been in the region etc. Moreover, many regions have suffered from damages such as flood, salt water intrusion and a lack of freshwater etc. due to rising sea levels accompanying climate change.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

'Environmental conservation' is stated as a priority area in the Country Assistance Program for Viet Nam (2009), in which it is also stated that "in view of the fact that discussions on the climate change issues are becoming more and more vigorous within the international community, consideration will be devoted to climate change countermeasures in implementing cooperation in priority areas". Therefore, the project was consistent with Japan's ODA policy.

<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: climate change adaptation solutions (Master Plan and priority project plans) for agriculture and rural development in the coastal areas in the Mekong Delta were formulated and the final report was submitted to the government of Viet Nam by the end of the project period.

Moreover, According to the interview with SIWRP, their capacities on planning and implementing climate change adaptation projects for agriculture and rural development, particularly their capacities on climate change analysis and spatial analysis, interview skills, and stakeholder consultation skills etc., were strengthened through on-the-job training (OJT) under this project.

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

The Master Plan formulated under this project has not yet been officially approved by the government of Viet Nam at the time of ex-post evaluation. This is because this project, as a Technical Assistance Project Related to ODA Loan, gave an emphasis to formulation of Japanese ODA loan projects based on priority project plans it formulates so that implementation of specific projects would be prompted, rather than immediately reflecting the proposed plan in Vietnamese government's policies. Even so, however, in all the project targeted provinces, the Master Plan has been utilized as a reference material and information source in formulating multiple plans and projects among action plans for climate change adaptation, agriculture and rural development plans, irrigation plans, projects for construction and rehabilitation of floodgates and dikes etc. Thus, while the Master Plan has not been officially approved, it has been incorporated to policies and plans of each province.

This project selected 30 programs and projects (hereafter referred to as "the constituent programs and projects of the Master Plan") in total for achieving climate change adaptation strategies based on priority issues of climate change², among which four priority projects ((1) Saline Intrusion Prevention Sluice Gate Construction Project, (2) Tra Vinh Fresh Water Recruitment Project, (3) Cropping System Improvement Program toward Climate Change Adaptation, and (4) Capacity Development Project for Flow Water Management in Mekong Delta) were finally proposed. The table below shows the status at the time of ex-post evaluation of four priority projects finally proposed under this project. On the other hand, at the time of ex-post evaluation, it was confirmed that each province in seven project targeted provinces selected around 13 programs and projects among the above 30 constituent programs and projects of the Master Plan and was making efforts to implement them. While progress status of these programs and projects differs in each province³, regarding programs and projects in which no progress has been made, its major reasons are that budgets have not been allocated, many organizations are involved, and/or a chain of instructions for implementation of programs and projects has been unclear due to lack of smooth information sharing in a department etc.

Status at the Time of Ex-Post Evaluation of Four Priority Projects Proposed under this Project

Priority Project	Tien Giang	Ben Tre	Tra Vinh	Soc Trang	Bac Lieu	Ca Mau	Kien Giang
Saline Intrusion Prevention Sluice Gate Construction Project	No progress	Under implementation	Approved, Waiting for implementation (partly supported by the World Bank)	No progress	Under implementation	No progress	Under implementation
Tra Vinh Fresh Water Recruitment Project	Not targeted in this province	Not targeted in this province	Approved, Waiting for implementation	Not selected in this province	Not targeted in this province	Not targeted in this province	Not targeted in this province
Cropping System Improvement Program toward Climate Change Adaptation	No progress	Under implementation	Under implementation	Under implementation	No progress	No progress	Under implementation
Capacity Development Project for Flow Water Management in Mekong Delta	No progress	Under implementation	Under implementation	Under implementation	Under implementation	Under implementation	Under implementation

Source: Questionnaire survey and interview with Ministry of Agriculture and Rural Development (MARD) and SIWRP

² Priority issues of climate change identified under the project in order of importance are; (1) saline water intrusion, (2) drought, (3) rising sea levels, (4) flooding, (5) changing rainfall patterns, and (6) increased temperatures etc.

³ Among the constituent programs and projects of the Master Plan in each province, the number of programs and projects in which some progresses have been observed (such as having been approved and being implemented etc.) by the time of ex-post evaluation is ten in Tien Giang Province, 13 in Ben Tre Province, six in Tra Vinh Province, eight in Soc Trang Province, six in Bac Lieu Province, eight in Ca Mau Province, and four in Kien Giang Province. The total number of programs and projects in which some progresses have been observed is 55 (approximately 60%) out of 91 (13 programs and projects x 7 provinces) in total.

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

The degree of achievement of the objectives of the priority project plans proposed under this project were not assessed at the time of this ex-post evaluation as they are expected to be achieved in medium- and long terms.

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

No negative impacts on natural environment were observed and no land acquisition and resettlement occurred under this project.

<Evaluation Result>

In light of the above, the project purpose was achieved by the time of project completion, and it was confirmed that utilization of the plans proposed under the project and the implementation of the priority project plans have partially progressed. Therefore, the effectiveness/impact of the project is fair.

3 Efficiency

Both the project cost and project period were within the plan (ratio against the plan: 100% and 90%, respectively). Therefore, efficiency of the project is high.

4 Sustainability

<Policy Aspect>

“NTP-RCC (2008-2020)”, “the Action Plan Framework for Adaptation and Mitigation of Climate Change of the Agriculture and Rural Development Sector Period 2008-2020” and “the Master Plan on Irrigation in the Mekong River Delta from 2012 to 2020 and Orientations to 2050 in Relation to the Condition of Climate Change and Rising Sea Levels” (Decision No.1397/ QD-TTg) stated above are still effective at the time of ex-post evaluation, showing the continuation of the policy foundation to promote implementation of the Master Plan and the priority projects proposed by this project.

<Institutional Aspect>

Before project implementation, it was expected that a responsible organization of priority project plans proposed under the project would be Ministry of Agriculture and Rural Development (MARD), and the implementing agencies would be Hydraulic Project Investment and Construction Management Board No.10 (HPICM (10)), Permanent Representative Office (PRO), Department of Agriculture and Rural Development (DARD), Central Project Office Unit 10 for Mekong Delta regions (CPO (10)), Sub-national Institute of Agricultural Planning and Projection (Sub-NIAPP), SIWRP, and each province in Mekong Delta regions. However, as explained above, the Master Plan formulated under the project has not yet been officially approved by the government of Viet Nam, and it is not clear where the responsibility for promotion of the Master Plan lies and which organizations are responsible organizations and implementing agencies of priority project plans. Thus, it is difficult to judge whether institutional structures and the number of staff of organizations in charge are sufficient to properly implement priority project plans. On the other hand, according to interviews with seven project targeted provinces, while it is not clear which organizations are responsible for promoting the Master Plan formulated under the project at the provincial level, it has been confirmed that DARD is mainly in charge of promotion of projects stated in the Master Plan. In addition, as stated above, a certain progress has been observed in priority project plans proposed under this project, and thus, it is considered that a certain number of staff have been secured for implementation of priority project plans. In interviews with related organizations to the constituent programs and projects of the Master Plan (including those other than the priority projects) in each province, there were comments from six out of seven provinces that the progress is because of “existence of officers in charge of the project(s)” or “allocation of enough number of officers for implementation of the project(s)”.

<Technical Aspect>

As stated above, it is not clear where the responsibility for promotion of the Master Plan formulated under the project lies and which organizations are responsible organizations and implementing agencies of priority project plans. Thus, it is difficult to judge whether the technical levels of organizations in charge are sufficient to properly implement priority project plans. However, as a certain progress has been observed in priority project plans proposed under the project, it is considered that certain technical levels have been secured for implementation of priority project plans. As mentioned in “Effectiveness/Impact”, reasons for slow progress pointed out by the relevant organizations in each province were mainly budgetary or institutional issues, and there were no comments pointing out technical issues.

<Financial Aspect>

Detailed data on budgets for implementing priority project plans proposed under the project was not available except a few. While sufficient amount of budget for implementing all of the priority project plans are not secured, certain progress has been observed in priority project plans as stated above, and thus, it is considered that a certain amount of budget has been secured for implementation of priority project plans. Each relevant organization commented that the constituent projects and programs of the Master Plan (including the priority project plans) that are in progress are implemented with funding from the central budget, provincial budget and/or donors (individual assistance from JICA, the World Bank, ADB, Oxfam, etc. and through a platform (Support Program to Respond to Climate Change (SP-RCC)) funded by multiple donors) .

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional, technical and financial aspects. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project purpose was achieved by the time of project completion, and it was confirmed that utilization of the plans proposed under the project and the implementation of the priority project plans have partially progressed after the project was completed. As for sustainability, there are some problems in institutional, technical and financial aspects, as the Master Plan formulated under this project has not yet been officially approved by the government of Viet Nam, and it is not clear which organizations are responsible organizations and implementing agencies of priority project plans.

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

III. Recommendations & Lessons Learned

Recommendations to Implementing Agency:

As pointed out in the Mekong Delta coordination meetings where each donor and Vietnamese government have dialogues, the fact that

responsible organizations for promotion of projects are not clear and coordination is not properly conducted within the Vietnamese government is an issue of the government. In order to continuously implement projects in the implementation stage and promptly implement projects in the planning stage among priority project plans proposed under this project, it is important to clarify responsible organizations for promotion of projects and establish a mechanism in which the Vietnamese government conducts overall coordination responsibly. Moreover, situations of climate change and accompanying priority issues may change over time, and thus, it is important to update the Master Plan and detailed plans of each priority project as necessary.

Lessons learned for JICA:

As stated above, it was found out that which organizations in the central and provincial governments are mainly responsible for the Master Plan formulated under the project is not clear since the government has not officially approved the Master Plan yet. When implementing a similar project in future, it is necessary to request the partner country to formulate a government plan on how to utilize project effects after project completion and to clarify organizations responsible for overall coordination and promotion of each project. This request should be made one year prior to its completion, i.e., when the master plan is being drafted.



Proposed Project Site of Saline Intrusion Prevention Sluice Gate

Construction Project in Ben Tre Province

Country Name	The Project for Airport Security System Improvement				
Republic of Indonesia					
I. Project Outline					
Background	Indonesia had sought to improve safety for air passengers, crew members, airport users and airport facilities for sustainable economic and social development. The Directorate General of Civil Aviation (DGCA) established a Ministry of Transportation Decree in 2002, which prescribed airport security equipment according to the scale of the airport. In 2004, the Government of Japan granted security equipment to seven major airports by “the Project for Improvement of the Security Equipment in Major Airports and Ports Facilities”. Also, Japan granted technical assistance through “the Study on Major Airports Security System Enforcement Plan” from 2004, and the DGCA proceeded with the revision of National Civil Aviation Security Program and Airport Security Program, and further reinforcement of the nation’s aviation security system, including the services of education and training to speed up compliance with the Aviation Security Standard of International Civil Aviation Organization (ICAO). Moreover, Japan implemented technical cooperation project, “the Project for Contingency Exercises on Aviation Security” from 2006. However, the above-mentioned studies and technical cooperation found that, even with the security system at each Indonesian airport, weaknesses remained in the aspects of equipment as well as other facilities, and efforts were required for improvements at each airport, in the way ICAO standards recommend.				
Objectives of the Project	To strengthen the airport security system at six major airports (Medan, Batam, Jakarta, Surabaya, Denpasar, and Makassar) by procuring airport security equipment and providing technical assistance and trainings, thereby contributing to achievement of the security level that is in compliance with international aviation security standards.				
Contents of the Project	<ol style="list-style-type: none"> Project Site: Medan (Polonia, currently Kuala Namu) Airport, Batam (Hang Nadim) Airport, Jakarta (Soekarno-Hatta) Airport, Surabaya (Juanda) Airport, Denpasar (Ngurah Rai) Airport, and Makassar (Hasanuddin) Airport Japanese side: (1) Provision of grant necessary for procurement of airport security equipment (X-ray screening equipment, walk-through metal detector, anti-explosive container, equipment for Emergency Operation Center (EOC), indoor CCTV camera, outdoor CCTV camera, lighting etc.)¹, (2) Technical Assistance (soft component of Grant Aid) Indonesian side: Securing of the installation place of the equipment and power supply etc. 				
Ex-Ante Evaluation	2009	E/N Date	June 25, 2010	Completion Date	August 16, 2012
		G/A Date	November 8, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 621 million yen , Actual Grant Amount: 340 million yen				
Implementing Agency	Directorate General of Civil Aviation (DGCA), Ministry of Transportation				
Contracted Agencies	Oriental Consultants Co., Ltd., Marubeni Corporation				

II. Result of the Evaluation

<Special perspectives considered in the ex-post evaluation>

- In ex-ante evaluation, quantitative indicators for effectiveness were not defined, and only qualitative indicators were stated. As it is difficult to set quantitative indicators for this project, effectiveness of the project is evaluated based on qualitative indicators only in this ex-post evaluation.
- In ex-ante evaluation, indicators for impact were not clearly defined. In this ex-post evaluation, impact (contributing to achievement of the security level that is in compliance with international aviation security standards) is judged as produced (achieved) if it is confirmed that the airport security system at six airports comply with international (ICAO) aviation security standards.

1 Relevance

<Consistency with the Development Policy of Indonesia at the time of ex-ante and ex-post evaluation>

This project has been highly consistent with Indonesia’s development policy, as the improvement and strengthening of aviation security are set in policy documents and regulations such as the *Blue Print for Air Transportation (2005-2024)*, *the Law No. 1 (2009)* (Chapters 348 and 349 regarding Aviation Security Facility) and the *Strategic Plan of DGCA (2015-2019)* at the time of both ex-ante and ex-post evaluations.

<Consistency with the Development Needs of Indonesia at the time of ex-ante and ex-post evaluation>

Six airports targeted by the project were and are major airports (Airport Class D) in Indonesia at the time of both ex-ante and ex-post evaluations. To comply with the ICAO security standard, strengthening of security equipment and general security screening performance of the whole airport were indispensable.

<Consistency with Japan’s ODA Policy at the time of ex-ante evaluation>

The project was also consistent with Japan’s ODA policy as stated in the *Country Assistance Program for Indonesia (2004)*, in which ‘assistance for peace and stability’ including measures against terrorism was prioritized.

<Evaluation Result>

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

2 Effectiveness/Impact

¹ X-ray screening equipment, walk-through metal detector and indoor CCTV camera were procured for Batam Airport only, and outdoor CCTV camera was procured for Surabaya Airport only. These were in accordance with the original plan.

<Effectiveness>

The project has achieved its objectives, “to strengthen the airport security system at six major airports”. While there had been no CCTV at Surabaya Airport and incomplete surveillance had been conducted using old CCTV at Batam Airport before project implementation, real-time surveillance has been enabled by the CCTV procured under the project at these airports (Indicator 1). Also, while inspection of passengers’ baggage had sometimes been done without any equipment at Batam Airport before project implementation, thorough inspection of passengers’ baggage has been enabled at the airport by the X-ray screening equipment and the walk-through metal detector procured under the project (Indicator 2). There are usually approximately 5,000 passengers per day at the airport and all of them are inspected with the procured equipment currently. Moreover, while removal of explosives had not been safely done in the six airports before project implementation², explosives can now be removed safely using the anti-explosive container procured under the project, and evacuation areas of passengers and users of airport terminals have been specified at all of six airports³. Regardless of no actual case of explosive threat, anti-explosive containers have been used during Emergency Relief Training (Penanggulangan Keadaan Darurat: PKD) at the project-targeted airports (Indicator 3). In this way, anti-explosive containers are ready to be used for real explosive threat at all of these airports anytime. Regarding effects of the soft component, according to the targeted airports, trainings to improve security inspection skills and operation and maintenance (O&M) of equipment are regularly provided.

<Impact>

The expected impact, “contributing to achievement of the security level that is in compliance with international aviation security standards”, has been achieved. The result of DGCA audit has shown a good result in all of the targeted airports, i.e., no negative finding has been pointed out since 2013. The result of ICAO audit in October to November 2015 also showed a very good result, as the score of the audit reached over 90%.

<Evaluation Result>

In light of the above, the effect of the project has been observed as planned. Therefore the effectiveness/impact of the project is high.

3 Efficiency

In terms of output, additional 12 CCTV cameras were procured, as the number of tenant in the corridor of terminal buildings increased compared with the number at the time of ex-ante evaluation, and rooms to handle passengers’ money were added in terminal buildings. Moreover, procurement of explosive detector was canceled, based on the request from DGCA due to insufficiency of O&M system for the equipment. The project cost was significantly lower than the plan (ratio against the plan: 55%), as a result of competitive bidding. On the other hand, the project period exceeded the plan (ratio against the plan: 112%) due to the delay in administration process of import duty for another project that had to be settled together with this project. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

Denpasar, Surabaya and Makassar Airports are operated by Angkasa Pura -I (AP-I), Jakarta and Medan Airports are operated by Angkasa Pura -II (AP-II), and Batam Airport is operated by DGCA. According to each airport, four staff are in charge of operation of security equipment procured under the project and four staff are in charge of maintenance of these equipment at Denpasar Airport, 24 staff are in charge of operation and 25 staff are in charge of maintenance at Surabaya Airport, two staff are in charge of operation and two staff are in charge of maintenance at Makassar Airport, and eight staff are in charge of operation and nine staff are in charge of maintenance at Medan Airport. At Batam Airport, there are 132 staff in total in charge of operation of the entire security equipment and nine staff in total in charge of maintenance (the number of staff in charge of O&M of equipment procured under the project is not known). The total number of O&M staff in Jakarta Airport is 22 personnel. According to each airport, the current number of O&M staff is sufficient, as O&M is conducted properly, any problems and damages are handled immediately, and most equipment procured under the project function properly.

<Technical Aspect>

As mentioned above, the training system for proper O&M of procured equipment, which was established under the soft component of this project, has been maintained and O&M staff have sufficient skills at all of six airports. In fact, the Ministry of Transportation Decree No. KM 24/2009 states that all airports should conduct PKD every two years, and all airports operated by the airport management companies (AP-I and II) comply with it. Also, the Minister Regulation No. PM 64/2011 states that O&M personnel of airports (aviation technicians) are required to have a license that should be renewed periodically.

Manuals provided under the project including training manual have also been utilized at these airports except for Medan Airport, where the manual was lost during the relocation from Polonia (the former airport) to Kualanamu. This lack of manual does not affect the conduct of O&M in Medan Airport, as the staff members carry out what is covered under by the manual without problems.

<Financial Aspect>

Data on DGCA’s current budget allocation for O&M at Batam Airport is not available. However, BP Batam (the central Government institution that is authorized and is in charge for the development of Batam island) decided to allocate part of the budget from DGCA for O&M of equipment procured under the project in 2016, though the budget amount is still under discussion. Net profit of both AP-I and AP-II has largely increased at the time of ex-post evaluation, compared with that of before project implementation (286 billion Rupiah in 2006, 645 billion Rupiah in 2013 and 929 billion Rupiah in 2014 at AP-I, and 435 billion Rupiah in 2006, 1,033 billion Rupiah in 2013 and 1,098 billion Rupiah in 2014 at AP-II). With such increasing profit, according to each airport, O&M budget of security equipment is sufficiently secured, as all equipment are maintained properly and damages are repaired immediately.

<Current Status of Operation and Maintenance>

There are maintenance plans of the entire equipment including those procured under the project and maintenance of these equipment is conducted daily, weekly, monthly and annually at the project-targeted airports. Most equipment procured under the project function well at the time of ex-post evaluation.

<Evaluation Result>

² Even before project implementation at Jakarta Airport, explosives were able to be removed out doors of the airport.

³ Evacuation area is both land side (parking area in case an incident occurs in a terminal building) and air side (service road and apron in case an incident occurs in the waiting room/boarding gate).

In light of the above, no problem has been observed in terms of the institutional, technical and financial aspects of the implementing agency and current status of operation and maintenance. Therefore, the sustainability of the project effect is high.

5 Summary of the Evaluation

Through the project, the project objectives have been achieved, as real-time surveillance within and outside the airport, thorough inspection of passengers' baggage and safe removal of explosives have been enabled and the training system to improve security inspection skills and O&M of equipment has been established at project-targeted airports. The expected impact has also been achieved, as the result of ICAO audit showed a very good result. As for sustainability, no problem has been observed in terms of the institutional, technical and financial aspects of the implementing agency. As for efficiency, the project period exceeded the plan.

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



Procured X-ray machine & walk-through metal detector in Batam Airport

Country Name	The Project for Urgent Improvement of Water Supply System in Bemos-Dili (Phase 1) (Phase 2)
Democratic Republic of Timor-Leste	

I. Project Outline

Background	The Dili Water Supply System supplied 32,000 m ³ /day (May 2007) of treated water for approximately 160,000 city residents of Dili (estimated value of March 2006) from the Dili central water treatment plant (Urgent grant aid construction project by Japan in 2000) and Bemos water treatment plant (the Japanese grand aid project “Project for Improvement of Water Supply in Dili” in 2005) having the raw water taken from Bemos river conveyed through the Bemos raw water main system. However, the Bemos raw water main system had been severely damaged due to the floods caused by torrential rain occurred in the years 2004 and 2005. In order to restore the damaged Bemos raw water main system, the Japanese grant aid project “the Project for Urgent Improvement of Water Supply System in Bemos-Dili” was implemented upon the request of the government of Timor-Leste in 2009-2010. After signing the construction contract in January 2010, however, unusual rainfall and floods occurred in March, April and May 2010 in the area of upstream of Bemos River, which caused further damages to existing pipeline and facilities, furthermore extending the erosion and change of existing ground condition at the river bank. Therefore, it was necessary to modify the design of the damaged structures as well as to take countermeasure for landslide. In such circumstances, the phase 2 of the target project was planned.				
Objectives of the Project	To secure the stable raw water supply from the Bemos River and to improve the safety of the Bemos raw water main system by rehabilitation of raw water transmission facilities, thereby contributing to improvement of water supply service in Dili city.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: Dili city 2. Japanese side <ul style="list-style-type: none"> • Renovation and construction works for 15 structures of raw water main systems such as Bemos Intake, Inlet and Grit Chamber Pipeline, Revetment at Right Bank River Terrace, Installation of Valves and Wash-outs, Lower Service Reservoir and Valve Chamber at Bemos Water Treatment Plant, etc. 3. Timor-Leste side: <ul style="list-style-type: none"> • Land acquisition for grit chamber at the downstream of the Bemos Intake • Clear and level the project sites • Provision of project office and utilities • Provision of proper access road to the project office 				
Ex-Ante Evaluation	(Phase I) 2009 (Phase II) 2010	E/N Date	(Phase I) May 26, 2009 (Phase II) January 31, 2011	Completion Date	(Phase I) November 23, 2011 (Phase II) February 24, 2012
Project Cost	E/N Grant Limit: (Phase I) 694 million yen / (Phase II) 272 million yen Actual Grant Amount: (Phase I) 666.9 million yen / (Phase II) 271.4 million yen				
Implementing Agency	National Directorate of Water Service (DNSA), Minister of Public Works, Transport and Communications				
Contracted Agencies	Sanyu Consultants Inc., Dai Nippon Construction				

II. Result of the Evaluation

1 Relevance
<p><Consistency with Development Policy of Timor-Leste Government at the time of ex-ante and ex-post evaluation> This project was consistent with Timor-Leste’s development policy of “improvement of Dili water supply system” as set forth in the policy documents including the Annual Action Plan (2007, 2008) and the Strategic Development Plan (2011- 2030).</p> <p><Consistency with Development Needs of at the time of ex-ante and ex-post evaluation> This project met the development needs of Timor-Leste to secure safe and stable water supply in Dili water supply system and to recover the flood damage by improvement of Bemos raw water main system. Since the source of water supply in Dili city heavily depends on the surface water taken from Bemos River, to secure Bemos raw water main system is still important.</p> <p><Consistency with Japan’s ODA Policy for Timor-Leste at the time of ex-ante evaluation> Although the first Japan’s Country Assistance Policy for Timor-Leste (later issued in 2012) was not formulated at the time of ex-ante evaluation, the project was consistent with Japan’s Official Development Policy for Timor-Leste at the time of 2008 to prioritize development and maintenance infrastructure as one of the four priority areas.</p> <p><Evaluation Results> In the light of above, the relevance of this project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness> The project has achieved its objectives, “to secure the stable raw water supply from the Bemos River and to improve the safety of the Bemos raw water main system by rehabilitation of raw water transmission facilities”. The daily raw water supply volume increased from 7,800 m³/day in 2010 to 8,900 m³/day in 2015 which met the target value of 8,800 m³/day. Also the number of days to stop raw water supply per year due to removal works of sand and sediment reduced from 7 days/ year before the project in 2010 to 0-1 day/year after the project completion. The safety of the Bemos raw water main system has been improved. Due to strengthening of the protection of Bemos raw water system by rehabilitation, the frequency of damage by the flood was reduced in comparison with pre project implementation. As mentioned above, failure of raw water supply rarely occurs after post project implementation. This failure happened only in rainy season due to inflow of sands and gravels into intake facilities caused by the flood. As a result of decrease in frequency of damage by the flood, the</p>

maintenance of raw water main system especially during the rainy season became easier in comparison with the pre project implementation.
<Impacts>

The project contributed to improvement of water supply in Dili city. The supply of treated water in Dili city has increased significantly as the total water supply volume at Bemós water treatment plant and Dili Central water treatment plant increased from 3,312,000 m³/year in 2008 to 5,034,528 m³/year in 2014, which indicated a growth rate at 152% between 2008 and 2014. However, according to DNSA, not all the figures of the table are correct because water flow meters are often out of order, in addition, some of the figures are not consistent with annual raw water supply. But the tendency of increasing the amount of treatment water can be certainly recognized. On the other hand, there is a problem in accessibility of treated water at customers' level due to the poor condition of the distribution network in Dili city.

Water Supply Volume in Dili city

(unit: m³/year)

	2008 Baseline	2012 Actual	2013 Actual	2014 Actual
Water supply volume at Bemós WTP	936,000	1,123,000	1,460,600	1,898,208
Water supply volume at Dili Central WTP	2,376,000	2,340,000	2,448,000	3,136,320
Total	3,312,000	3,463,000	3,908,600	5,034,528

Source: DNSA

Note: WTP (Water Treatment Plant)

No negative impact on the natural environment was observed and no land acquisition and resettlement of people were associated with the project.

<Evaluation Result>

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

Quantitative Effects

Indicator	(Before the project) Year 2010 Actual	(Target year) Year 2015 Planned	Year 2011 Actual	Year 2012 Actual	Year 2013 Actual	Year 2014 Actual	(Ex-post evaluation) Year 2015 Actual
Indicator 1 ^(Note 1) Daily raw water supply volume (1,000 m ³ /day)	7.8	8.8	8.7	8.9	8.8	8.9	8.9
Indicator 1 ^(Note 1) Annual raw water supply volume (1,000 m ³ /year)	2,850	3,220	3,175.5	3,248.5	3,212	3,248.5	3,248.5
Indicator 2 ^(Note 2) Number of days to stop raw water supply per year (day/year)	7	0	0	1	0	1	0

Sources: The ex-ante evaluation summary sheet and response to the questionnaire by Ministry of Public Works.

Note 1: Raw water supply volume means the volume of raw water supplied from Bemós river intake to the Dili and Bemós water treatment plants.

Note 2: Number of days to stop raw water supply per year means number of days to stop the raw water supply from Bemós river intake to the Dili and Bemós water treatment plants by removal works of sand and sediment.

3 Efficiency

Both the project cost and project implementation period were within the plan (100% and 92% respectively), the efficiency of this project is high.

4 Sustainability

<Institutional Aspect>

The operation and maintenance (O&M) agency of the project facility is the National Directorate of Water Service (DNSA), the Ministry of Public Works, Transport and Communications. DNSA is responsible for water supply services in Timor-Leste. The O&M of the Bemós raw water main system was directly handled by Dili Water Supply Department under DNSA. The total number of staff in Dili Water Supply Department is 121 including 38 in Production Unit, 5 intake keepers and 11 plant operators (3 operators for the Bemós WTP, 6 operators for the Central WTP, 1 operator for the Lahane WTP, and the 1 operator for the Benamauk WTP). Each WTP has to be operated 24 hours a day and 7 days a week by only the plant operator. DNSA conducts daily check and periodical maintenance and the major maintenance is outsourced to private maintenance agency each time. The allocated number of staff is not sufficient to conduct the daily check and periodic maintenance.

In addition, the procurement system of DNSA requires long time to procure necessary materials for O&M. Due to the stagnation of procurement, inadequate O&Ms are observed. For example, chemical materials for purification were not procured and some WTPs were operated without the chemical materials.

<Technical Aspect>

The JICA's Technical Cooperation "Capacity Development Project for Water Supply System in Dili and four Towns (2008- 2011)" and dispatch of the Advisor on Improvement of Water Supply of DNSA (2012-2015) contributed to improve the O&M technical capacity of DNSA and Dili Water Supply Department. The above JICA's cooperation provided technical transfer on O&M to the operators of WTPs, conducted training by the operators in MWA (Metropolitan Water Authority) in Bangkok for a week, and also some DNSA Staff have joined group training on water sector conducted in Japan. After the above JICA's cooperation, DNSA has been operating facilities by utilizing the manual and guideline for O&M of the facilities prepared through the JICA Project. However, DNSA's technical capacity is still not enough to fully undertake O&M. According to DNSA, the capacity of O&M on area of network, modeling, mapping system, leakage detection program and asset management need to be further developed and upgraded. Also there are very limited private maintenance agencies with enough technical skills and experience of the major maintenance works, specifically associated to waterworks project facilities.

In order to cope with the above situation, DNSA has been conducting the Public Private Partnership (PPP) feasibility study for Dili Water Supply System with the aim to assess the most viable PPP method that suit to the condition of Dili Water Supply System to ensure the sustainability of O&M and financial improvement in the near future.

<Financial Aspect>

The budget approved for DNSA usually got reduced against the requested/planned budget. DNSA received one million USD for O&M budget in 2014, however, it was not enough to fully conduct required O&M including procurement of necessary spare parts. On the other hand, DNSA received only 138,000 USD in 2014 for water charge revenue. This low water charge revenue issue may be caused by several reasons such as: lacking efforts on bill collection, a high water leakage rate and illegal connections in the distribution network. This limited O&M budget led to the shortage of O&M manpower and weak technical capacity of DNSA.

<Current Status of Operation and Maintenance>

As stated above, a full scale daily check and periodic maintenance for all project facilities has not been conducted due to a shortage of manpower, limited technical capacities and lack of necessary materials. However, operation and maintenance of the major facilities has been done within a certain range. For example, the operators in charge of Bemos raw water main system conduct the daily check for the Lower Service Reservoir in Bemos WTP. Physically the WTP is still in good condition. Thus, Lower Service Reservoir does not necessarily need a periodic maintenance. Also it is observed that some part of land nearby the grid chamber has been re-occupied by a community to grow vegetables, but so far it has not yet impeded the operation of project facilities. DNSA has collocated two operators to take care of the intake and the community occupied area in order to avoid the damage. Since the project facilities are still new, the project facilities have been functioning well so far and do not require major maintenance for a certain period of time.

<Evaluation Results>

Therefore, there are some problems in the institutional and technical aspects, and a major problem in financial aspect, the sustainability of this project effect is low.

5 Summary of the Evaluation

The project has achieved its objectives, “to secure the stable raw water supply from the Bemos River and to improve the safety of the Bemos raw water main system by rehabilitation of raw water transmission facilities”. The quantitative indicators such as the daily raw water supply volume and the number of days to stop raw water supply per year met the target respective values. Also the safety of the Bemos raw water main system has been improved as frequency of damage by the flood was reduced due to strengthening of the protection of Bemos raw water system. The project contributed to improvement of water supply in Dili city as the total supply of treated water in Dili city expanded by 152% between 2008 and 2014.

As for sustainability, there are problems in terms of institutional, technical and financial aspects due to shortage of O&M staff, technical capacity and O&M budget. Meanwhile, the project facilities have been functioning well so far and do not require major maintenance for a certain period of time.

In light of the above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendation for Implementing Agency;

- Budget allocation for O&M Bemos Water Treatment Plant should be sustained in order to hold up a periodical maintenance for the facilities.
- Technical capacity of staffs and operators should be improved continuously through in-country training program or overseas training program in order to upgrade knowledge and technical skills of O&M.
- In order to improve the profitability of DNSA as well as improve the accessibility of water supply service at the final beneficiaries (i.e. customers), DNSA should urgently create a task force team to detect illegal connections and leakages in the distribution networks.
- DNSA should now on discuss with the central government about the establishment of frameworks to make DNSA as an autonomy institution such as a public enterprise or to make DNSA install public enterprise accounting. DNSA is considering the importance to obtain adequate water revenue. However, the water revenue cannot be utilized by DNSA, themselves because the water revenue is once incorporated in the revenue of the Timor-Leste government and the operation cost of DNSA is allocated by the government regardless of its water revenue. If DNSA could have an independent accounting system from the government which allows DNSA to utilize its water revenue by themselves, improvement of financial issues could be expected in the long run and this would motivate DNSA to tackle with collecting water revenue harder.

Lessons learned to JICA

- Management of a water supply system including intake facilities and water treatment plants, requires appropriate operation and maintenance (O&M) capacity. In this project, the limited technical capacity and management system by O&M agency was witnessed. However, considering the fact that this project was implemented for the purpose to avoid the worst scenario, i.e. operation failure, in a vulnerable post conflict country such as Timor-Leste, it should have been suggested to the counterpart during the planning stage that a separate support by JICA or other donor agencies would be needed for the management including O&M after the emergency rehabilitation.

Furthermore, when providing grant aid for an emergency rehabilitation project of an existing facility, it would be advisable to agree on a separate “project life” which is different from that for a provision of new facility. In the future, it should be considered to set the durable life of equipment provided under the emergency rehabilitation project as the “project life”. Then, construction of new facility or major rehabilitation work within the set expiry period should be suggested to the implementing agency during the planning stage.



Lower Service Reservoir



Bemos Water Treatment Plant Facilities

Country Name	The Project for the Replacement of Air Navigation System at Kamuzu International Airport
The Republic of Malawi	

I. Project Outline

Background	Kamuzu International Airport (KIA) was constructed during 1977-82, and a terminal building, air traffic control tower and air navigation system were developed by Japanese ODA loan projects in 1980s. Most of the existing equipment related to air navigation were installed before inauguration of the airport, thus being outdated. Also the spare parts were not available due to the product obsolescence. Even so, the Department of Civil Aviation of Malawi (DCA) had contrived ways to maintain the existing equipment within its capacity. However it came to such extent that the International Civil Aviation Organization (ICAO) and International Air Transportation Association (IATA) recommended necessary measure to comply with the international standard by duly providing safe and reliable aviation infrastructure.				
Objectives of the Project	To ensure safe and efficient aircraft operations at Kamuzu International Airport meeting to the international standards of ICAO in terms of air navigation/safety equipment by modernization and rehabilitation of air navigation systems, thereby contributing to the increase of air transport at Kamuzu International Airport.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: Kamuzu International Airport (KIA), Lilongwe 2. Japanese side <ul style="list-style-type: none"> • Procurement of equipment (incl. transportation, installation, adjustment and testing) <ul style="list-style-type: none"> ➢ Air Traffic Control and Communications System ➢ Radio Air Navigation System ➢ Aeronautical Round Lighting System ➢ Emergency Power Supply System • Operation and Maintenance training as Technical assistance (Soft component of Grant Aid) 3. Malawi side: <ul style="list-style-type: none"> • Renovation of buildings and rooms for installation • Removal of existing equipment for installation • Provision of power supply and telecommunication services to each site • Repair of existing main power supply and communication network cables in the site • Repair of existing power cables and isolation transformers for aeronautical ground lights 				
Ex-Ante Evaluation	2010	E/N Date	January 26, 2011	Completion Date	November 2012
		G/A Date	January 26, 2011		
Project Cost	E/N Grant Limit/ G/N Grant Limit: 778 million yen, Actual Grant Amount: 653 million yen				
Implementing Agency	Department of Civil Aviation (DCA), Ministry of Transportation and Public Infrastructure (MTPI)				
Contracted Agencies	Aviation Systems Consultants Co., Ltd.				

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Malawi at the time of ex-ante and ex-post evaluation> This project is consistent with Malawi's development policy of "to prove a safe, efficient, reliable aviation infrastructure that complies with international standards" as set forth in the policy documents including <i>Malawi Growth Development Strategy (MGDS) (2006-2010)</i> and <i>MGDS II (2011-2016)</i>.</p> <p><Consistency with the Development Needs of Malawi at the time of ex-ante and ex-post evaluation> This project met the development needs of Malawi to modernize air navigation systems of KIA to meet the international standards of ICAO.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation> This project was consistent with Japan's ODA policy for Malawi to support improvement of transportation and traffic infrastructure as one of the three priority areas agreed at the assistance policy dialogue in June 2009.</p> <p><Evaluation Result> In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project objectives were partially achieved. Regarding the coverage of aero-nautical ground lights in key areas in KIA, the airstrip increased from 60% (2010) to 90% (2016), the taxiing way increased from 0% (2010) to 75% (2016), and the tarmac (apron) increased from 70% (2010) to 100% (2015). However, since the collection of the data had never been officially requested to the DCA until this ex-post evaluation was conducted, the data for the time before 2015 was not available at the time of ex-post evaluation. Therefore, it was difficult to confirm the status of coverage of aero-nautical ground lights in key areas between 2012 and 2014 or 2015. Since aero-nautical ground lights are very important system for safety aircraft operation during nights and bad weather, the coverage rate should be maintained at 100%. In this sense, the coverage of aero-nautical ground lights in air stripe and taxiing way did not reach to 100% at the time of ex-post evaluation. According to DCA, one of the two computers to control aero-nautical ground lights broke down two years ago. It was sent to manufacturers in the United Kingdom and they advised that it could not be repaired due to the nature of the fault, and also could not be replaced to new ones because the warranty period had expired. Because of budgetary constraints, the government of Malawi has not replaced it. The effect of this is that only one computer is working and if this one breaks down too, landing lights will have to be controlled</p>

manually from the control board on the ground. While, although the status of landing and take-off failure/accident at KIA was unknown before project implementation, it was confirmed that no serious landing and take-off failure/accident has occurred at KIA since the project completion in 2012.

As qualitative effects of the project, improvements in safety of aircraft operations at KIA by the equipment installed by the project have been confirmed at the time of ex-post evaluation. According to the interviews with two major airline companies which use KIA, Kenya Airways and Malawian Airways as well as the Air Traffic Controllers (ATC), they recognized the tangible improvement in safe and efficient aircraft operations at KIA especially during the night and bad weather after the project completion. For example, aircraft diversions due to bad weather were reduced tremendously after installation of the Instrument Landing System (ILS). DCA considered that the equipment procured by the project met the physical requirement of ICAO standard in terms of air navigation/safety equipment. As JICA technical cooperation project "Project for Capacity Development for Air Navigation Services" (2014-2016) was provided in order to improve the capacity of air traffic controllers based on the outputs of this project, aircraft operations at KIA has been improved in safety and efficiency as well. In addition, it should be noted that the rehabilitation works of runway, taxiway and tarmacs (aprons) implemented in parallel with this project by the assistance of other donors such as the Arab-Bank for Economic Development in Africa and the OPEC Fund for International Development attributed to the above improvements.

As results of trainings on operation of equipment such as ground-to-air communication system and ILS conducted by the project in order to ensure safe and efficient aircraft operation by proper utilization of equipment installed by the project, the competence of personnel in the Telecommunications Engineering Division (TED), KIA has been improved to some extent. TED staff members were able to carry out weekly inspections and where necessary, preventive maintenance of the newly installed project equipment as well as to prepare and utilize the Equipment Maintenance Management Manual.

<Impact>

The project has several positive impacts on the status of air transportation at KIA. The number of take-off and landing increased more than double from 6,044 (2010) to 14,231 (2014). Similarly, the number of passengers increased more than double from 204,800 (2010) to 457,572 (2014). Though there was a decline in domestic cargo volume, the international cargo volume expanded from 4,044,904 tons (2012) to 5,658,238 tons (2015). It is considered that the project as well as the assistance of other donors has contributed to the above positive impacts.

Table 1: Status of Air Transportation at KIA

	Baseline 2010	Actual 2012	Actual 2013	Actual 2014	Actual 2015
No. of take-off and landing (no./year)	6,044	5,635	13,972	14,231	N.A.
No. of passengers (person/year)	204,800	373,479	401,823	457,572	N.A.
Domestic cargo volume (tons/year)	N.A.	296,106	337,884	113,755	80,672
International cargo volume (tons/year)	N.A.	4,044,904	4,594,505	5,107,718	5,658,238

Sources: Department of Civil Aviation (DCA)

Note: No. of passengers include both domestic and international passengers.

No negative impact was observed and no land acquisition and resettlement of people was associated with the project.

<Evaluation Result>

In light of the above, while a certain effect of the project has been observed, it is considered that the improvement with supports by the other donors has contributed to the project effects. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicator	Baseline 2010 Baseline year	Target 2015 3 years after completion	Actual 2012 Completion year	Actual 2013 1 year after completion	Actual 2014 2 year after completion	Actual 2015 3 year after completion	Actual Ex-post evaluation year (As of September 2016)
Indicator 1 Coverage of aero-nautical ground lights in Airstrip (%)	60	100*	N.A.	N.A.	N.A.	N.A.	90
Indicator 2 Coverage of aero-nautical ground lights in Taxiing way (%)	0	100*	N.A.	N.A.	N.A.	N.A.	75
Indicator 3 Coverage of aero-nautical ground lights in Tarmac (%)	70	100*	N.A.	N.A.	N.A.	100	100
Supplement information 1 Landing failure/ accident (no./year)	N.A.	N.A.	0	0	0	0	N.A.
Supplement information 2 Take-off failure/ accident (no./year)	N.A.	N.A.	0	0	0	0	N.A.

Source: Department of Civil Aviation (DCA)

Note: *The relevant international standards, such as the ICAO standards, do not necessarily require to fulfill the target value of 100% for the indicators of coverage of aero-nautical ground lights.

3 Efficiency

Although the project cost was within the plan (ration against the plan: 84%), the project period was exceeded the plan (ration against the plan 120%) because a part of procurement process was delayed. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

The Department of Civil Aviation (DCA) is responsible for operation and maintenance (O&M) of the project equipment. In particular, Telecommunication Engineering Division (TED) of KIA is directly engaged in charge of O&M of the equipment under the supervision of DCA. There are six competent engineers in TED and 12 engineers with a minimum knowledge and skills in the electronics and telecommunications engineering were recruited additionally in December 2015. However, DCA considered that the number of TED staff was still not enough to conduct the O&M activities effectively at the time of ex-post evaluation.

In January, 2017, the Cabinet of Malawi approved a bill to establish the Civil Aviation Authority (CAA) and the bill will be debated and it is expected to be passed by the parliament by the end of February, 2017. In the case where CAA is established, the Authority can be more powerful to recruit and retain necessary personnel and to ensure financial resources as well. It is expected that retention and recruitment of personnel will be addressed satisfactorily by an autonomous CAA to be established near future.

<Technical Aspect>

In addition to the O&M training by the project, DCA provided several training courses covering various components of air navigation and O&M of the equipment, and TED technicians participated to the related training courses. The manuals prepared by the project such as the Equipment Inspection Manual, the Equipment Ledger, and the Spare Parts Management Log have been fully utilized for inspection and diagnosis of the equipment.

As mentioned above, the technical capacity of TED has been improved to some extent and they can conduct weekly inspections, preventive maintenance of the equipment newly installed by the project as well as to prepare and utilize the Equipment Maintenance Management Manual.

<Financial Aspect>

DCA received 200 million Malawian kwacha (MWK) in 2013, 350 million MWK in 2014, and 250 million MWK in 2015 for the O&M budget. However, according to DCA, allocated budgets are not sufficient to exercise the sufficient O&M activities for the project equipment including procurement for spare parts.

<Current Status of Operation and Maintenance>

At the time of ex-post evaluation, the most of the project equipment has been maintained in good condition except the aero-nautical round lighting system since DCA has been carrying out weekly inspections and preventive maintenance as much as possible under the limited manpower and budgetary condition. As mentioned earlier, the computer for switching on/off the landing lights have broken down and its repair has been suspended for over two years due to unavailability of maintenance budget for replacement. In the case that TED cannot deal with troubles by themselves, they normally outsource the maintenance to the private companies. DCA indicates that there are challenges in procurement of spare parts and consumables due to financial and other reasons. It is expected that necessary spare parts can be more easily procured by the improvement in financial resources when the Civil Aviation Authority is established with more power.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional, financial and current status of operation and maintenance aspects of the implementing agency. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project objectives were mostly achieved. The coverage of aero-nautical ground lights in key areas the airs partially met their respective target values. After the project, the tangible improvement in safe and efficient aircraft operations at KIA especially during the night and bad weather were observed. The project has several positive impacts on the number of take-off and landing, the number of passengers and the international cargo volume at KIA. Those improvements were also attributed by the JICA technical cooperation project and the airport rehabilitation projects by other donors. For sustainability, slight problems have been observed in terms of the institutional, financial and current status of operation and maintenance aspects of the implementing agency due to limited human and financial resources. Regarding efficiency, the project period was longer than the plant due to a delay in a part of procurement process.

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

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

- In order to meet ICAO standards, the DCA should make a continues effort to put in place regulatory reforms such as establishment of an Independent Civil Aviation Authority and an independent Air Traffic Investigations Body as recommended by ICAO in collaboration with related government ministries and agencies. It is expected that establishment of the autonomous CAA will mitigate performance challenges faced by the current DCA.

Lessons learned for JICA:

- The preparatory survey of this grant aid project (2010) studied the supply and procurement conditions of spare parts in Malawi such as availability of local agents/representatives of suppliers, the procurement procedure of spare parts in the Malawi government, and after-sale service by the suppliers. However, the ex-post evaluation found that DCA faced difficulties in procurement of some spare parts and consumables due to the existing government procurement regulation. For example, DAC tried to import a toner of printers from other countries such as South Africa because it was not available in the domestic market. However, the existing government procurement regulation did not allow an advance payment to the service providers but no company would deliver the toner without an advance payment. Therefore, when studying the supply and procurement conditions of spare parts of the project equipment, more attention should be paid on the details of the procurement procedure and regulations of the counterparts and sharing the information with stakeholders.
- The project conducted the O&M training for the counterpart staff as a technical assistance of this grant aid project in the soft component. However, the training program mainly focused on the operation of the project equipment but not on the maintenance of the equipment. In order to strengthen the technical capacity of TED for the maintenance of equipment, the training program in the soft component more focusing on the maintenance aspect including establishment of maintenance manuals of each equipment can be more effective.



Control Console



ILS- Glide Path



ILS - Localizer



Control Room

Country Name	The Project for Replacement of South Rukuru Bridge on the Main Road M001
Republic of Malawi	

I. Project Outline

Background	The Main Road M001 (M1) is a trunk route of Malawi with total length of 1,108 km traversing the country from Songwe bordering Tanzania to Marka bordering Mozambique. It not only plays a critical role for domestic distribution of goods but also serves as an international artery to support distribution from and to Tanzania, Mozambique, Zambia and Republic of South Africa. The existing Rukuru Bridge was a one-lane bridge despite its location over M1, causing a bottleneck in traffic and distribution of goods. It was a temporary structure (a Bailey bridge), which became decrepit after more than 30 years of use. As a result, the speed limit (10 km/h) and load restriction (16.3 tons as design load) had been imposed. In addition, the South Rukuru River running beneath the Rukuru Bridge was joined by the tributary Lura River at a location 30 m upstream from the present bridge and the site around the bridge was filled with deposits of boulders and driftwood from the Lura River, severely damaging the bridge piers. Against the background, the Government of Malawi requested the Government of Japan for a grant aid for construction of a new bridge to replace the Rukuru Bridge.				
Objectives of the Project	To ensure smooth traffic and eliminate traffic bottleneck in crossing the South Rukuru River by replacing the existing Rukuru Bridge to the South Rukuru Bridge on M1, thereby contributing to growth in traffic volume as well as improvement of distribution of goods through M1.				
Contents of the Project	<ol style="list-style-type: none"> 1. Project Site: Rumphi District, Northern Region 2. Japanese side: Construction of a reinforced concrete bridge (2 lanes), Bank protection work, Construction of access roads, Installation of sidewalks, Removal of boulders and driftwood associated with bridge construction, etc. 3. Malawian side: Building demolition/relocation, Land acquisition, Land renting, Surveillance of general construction sites, Withdrawal of the existing bridge, etc. 				
Ex-Ante Evaluation	2009	E/N Date	17 February 2010 (Phase I) 30 March 2012 (Phase II)	Completion Date	31 July 2012 (Phase I) 12 December 2012 (Phase II)
		G/A Date	22 March 2010 (Phase I) 12 April 2012 (Phase II)		
Project Cost	E/N Grant Limit / G/N Grant Limit: 883 million yen (Phase I); 111 million yen (Phase II) Actual Grant Amount: 851 million yen (Phase I); 109 million yen (Phase II)				
Implementing Agency	Roads Authority				
Contracted Agencies	Central Consultant Inc., Dai Nippon Construction				

II. Result of the Evaluation

1 Relevance
<p><Consistency with the Development Policy of Malawi at the time of ex-ante and ex-post evaluation></p> <p>The project was consistent with Malawi's comprehensive national strategy "Malawi Growth and Development Strategy (MGDS)" (2006-2010) which aimed to ensure sustainable economic growth through infrastructure development as a step to poverty reduction and in which the transport development was placed as one of the six key priority areas. Under the current MGDS II (2011-2016), the transport infrastructure is categorized as one of the nine key priority areas and road infrastructure is also sub-categorized as one of the most important modes of the transport sector.</p> <p><Consistency with the Development Needs of Malawi at the time of ex-ante and ex-post evaluation></p> <p>The project has been consistent with Malawi's road transport needs that safe, highly-efficient and economical transport services in key corridors should be established.</p> <p><Consistency with Japan's ODA Policy at the time of ex-ante evaluation></p> <p>The project was consistent with Japan's ODA basic policy towards Malawi (2009), which placed the transportation infrastructure development as one of the priority areas.</p> <p><Evaluation Result></p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p><Effectiveness></p> <p>The project achieved its objective. As for one of the quantitative indicators "vehicle weight allowance of the South Rukuru Bridge," the weight allowance achieved 43 tons against the target of 43 tons. Although the exact data on this indicator could not be obtained at the ex-post evaluation since it requires a technical quantity survey, an acceptable weight of the Bridge was designed with a maximum load of 43 tons at the planning of the project and the weight allowance of constructed bridge should be 43 tons. As for another indicator "average traveling speed on the Bridge," the average speed is estimated to be approximately 40 km/h against the target of 60 km/h. Although the exact data on this indicator could not be obtained at the ex-post evaluation as well, the figure was estimated based on the interview with the Traffic Section of Rumphi District of Malawi Police Services as well as the result of actual measurement during site survey of the ex-post evaluation. One reason why the average speed does not reach 60 km/h as the target figure is that there are sharp bends on the approach (access road) to the Bridge and drivers need to reduce their speed before the Bridge. Another reason is that according to the Traffic Section of Rumphi District of Malawi Police Services, the speed limit is regulated under 50 km/h when drivers pass through the area so that the original target should have been set as less than 50 km/h. Considering these facts, this indicator can be judged as 'mostly achieved' since the average traveling speed on the Bridge increased from 10 km/h before the project to 40 km/h after the project.</p> <p>Regarding the qualitative effects of the project, according to the interviews with four drivers who was crossing the South Rukuru Bridge</p>

as well as eight local residents who live around the area at the field survey of the ex-post evaluation, traffic congestions on the Bridge have never happened since the project completion. While traffic congestions on the old Rukuru Bridge were usually caused by single lane which allowed only one vehicle at a time, two vehicles can cross the new South Rukuru Bridge from both directions now. In addition, according to the interview with local residents, the risk of accidents around the Bridge has reduced significantly owing to installation of sidewalks. The Rumphu Police Station also indicated that no traffic accident had been reported since the Bridge was constructed. Furthermore, according to the Roads Authority, raising the height of bridge and access roads by 2.5m and conducting bank protection works have mitigated flood damage.

<Impact>

Regarding the growth in traffic volume and improvement of distribution of goods through M1, any clear evidence on the expected impact of the project could not be obtained at the ex-post evaluation. According to the traffic survey¹ conducted for this ex-post evaluation, approximately 30 vehicles per hour on average passed the South Rukuru Bridge, which are almost the same volume of traffic obtained at the traffic survey conducted at the ex-ante evaluation and it means the traffic volume has been maintained after the project. On the other hand, according to an interview with three grocery stores in the neighborhood of the Bridge, they reduced their business sales after the new bridge was constructed since they used to have more sales because of stranded drivers and passengers by the frequently broken down bridge, but in reality the number of grocery stores increased from five at the time of the ex-ante evaluation to more than 10 at the time of ex-post evaluation. In fact the parking bay was placed around the Bridge with a view to maintaining their commercial opportunities.

At the ex-ante evaluation, removal of four buildings (not residences) and land acquisition around the Bridge were planned to be made due to the project and the compensation for the removed buildings and land acquisition was to be dealt with in accordance with the relevant laws and regulations of Malawi. According to the Roads Authority, the number of affected households was 17 in the end and the compensation to them was properly made in accordance with the laws and regulations of Malawi. The District Commissioner's office of Rumphu also mentioned that they used the same formula prepared by the Ministry of Lands and Housing in compensating people in similar situations across the country. On another front, no negative impact on natural environment has been observed in the project².

<Evaluation Result>

In light of the above, a certain effect of the project has been observed. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicators	Baseline 2009 Baseline Year	Target 2013 Completion Year	Actual 2013 Completion Year	Actual 2014 1 Year After Completion	Actual 2015 2 Years After Completion	Actual 2016 3 Years After Completion
Indicator 1 Vehicle weight allowance of the Bridge	16.3 tons	43 tons	43 tons	43 tons	43 tons	43 tons
Indicator 2 Average traveling speed on the Bridge	10 km/h	60 km/h	N.A.	N.A.	N.A.	Approximately 40 km/h

Source: JICA internal documents, interview with the Traffic Section of Rumphu District of Malawi Police Services and drivers passing the Bridge

3 Efficiency

This project consists Phase I and II. Some construction works such as bank protection, part of ditch digging, asphaltic pavement and lane marking were cut out of Phase I as a consequence of readjustment of the original project scope due to a delayed schedule as well as an increase in the project cost. The cancelled works at Phase I, however, were constructed and completed in Phase II and the final project outputs produced by Phase I and II were as planned.

Based on the above, the planned project cost was 883 million yen (Phase I only) and the actual cost was 960 million yen (including Phase I and Phase II) (ratio against the plan: 109%). Due to rapid escalating prices of construction material as well as fuel from 2011 onward, the project cost exceeded the plan. The planned project period was 26 months (Phase I only) and the actual period was 33 months (including Phase I and Phase II) (ratio against the plan: 127%). Due to a worsening situation of fuel shortage in Malawi from the beginning of 2011, the construction work was also significantly delayed, resulting in a seven-month delay in total.

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

4 Sustainability

<Institutional Aspect>

The Roads Authority under the Ministry of Transport and Public Works is in charge of construction, maintenance and inspection of roads and bridges throughout the country. The Roads Authority has three regional offices namely Northern, Central and Southern, and the Northern Region Office is in charge of maintenance of the South Rukuru Bridge. The Northern Region Office had five civil engineers and three inspectors at the time of ex-ante evaluation and has eight qualified engineers including inspectors at the time of ex-post evaluation. The actual maintenance works for the South Rukuru Bridge and access roads have been undertaken by private companies contracted by the Roads Authority on a need basis and according to the Northern Region Office, the present number of engineers is sufficient to manage the regular maintenance works of the Bridge and the inspection of the Bridge has been actually conducted under these engineers on a monthly basis.

<Technical Aspect>

¹ The survey was conducted for two days during 12:00-14:00 hours on 15 June 2016 and 9:00-12:00 hours on 16 June 2016.

² There was a consideration on the issue of sexually transmitted diseases (STD) caused by construction workers of the project at the ex-ante evaluation and some measures on this issue had been actually taken during the project period: e.g. a workshop on HIV/AIDS prevention was organized collaborating with the Japan Overseas Cooperation Volunteers (JOCV) deployed around the Rumphu area, and contraceptive devices, enlightening pamphlets and posters on prevention of STD were distributed at the project office. Although no statistical and quantitative evidence which verifies the casual relationship on this issue was found at the ex-post evaluation, according to the interview with local residents, they indicated that promiscuity and marital problems had happened around the Rumphu area during the construction works of the Bridge since many construction workers came from outside the area.

The civil engineers of the Northern Region Office have good knowledge on the maintenance of roads and bridges. According to an interview with these engineers at the ex-post evaluation, they are competent in undertaking their tasks and conducting regular inspection. In addition, the Roads Authority has a training plan which assures improvement of technical skills on their works: e.g. they have been dispatching the staff to the training program offered by donor agencies such as EU, World Bank and JICA. For instance, some staff from Roads Authority joined the JICA's training programs such as "Road Maintenance and Management" and "Comprehensive Bridge Engineering."

<Financial Aspect>

The maintenance works required after the completion of South Rukuru Bridge consist of daily inspection, cleaning and repair, the cost of which was estimated to be 3,780,000 MKW on the annual average at the ex-ante evaluation. While there had been no budget allocation for the maintenance of the South Rukuru Bridge in the first two years after the project completion since the Bridge was still new, the amounts allocated in subsequent years were 7,542,000 MKW in FY2014/15 and 12,570,000 MKW in FY 2015/16, which are more than the planned annual budget.

<Current Status of Operation and Maintenance>

The Roads Authority has carried out the following maintenance activities of the South Rukuru Bridge: 1) removal of sand and dirt accumulating in bridge deck, drain pipes, areas around bearings, gutters and other drain facilities; 2) inspection and repair of bank protection and riverbed protection works after floods, 3) removal of boulders, driftwood, etc. after floods; 4) weeding of road shoulders and slope surfaces. Although there was no major damage observed at the Bridge and access roads by the field survey of ex-post evaluation, some small manhole covers of drainage ditches and an ODA signboard got stolen after the project completion. These items have not been replaced after the theft due to the following reasons; the function of bridge itself has not been affected by their absences, there has been no serious effect on vehicles and pedestrians passing the Bridge, and appropriate materials for them have not been in stock at the Roads Authority.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the institutional/technical/financial/current status of operation and maintenance aspects of the implementing agency. Therefore, the sustainability of the project effect is high.

5 Summary of the Evaluation

The project achieved its objective, to ensure smooth traffic and eliminate traffic bottleneck in crossing the South Rukuru River. Although the exact data on the quantitative indicators could not be obtained at the ex-post evaluation, with the increases in vehicle weight allowance of the South Rukuru Bridge as well as in average traveling speed on the Bridge, it is confirmed that the problem of traffic congestions on the Bridge has been resolved with two lanes and that the risk of traffic accidents of pedestrians has been also reduced with sidewalks. However, any clear evidence on the expected impact such as growth in traffic volume and improvement of distribution of goods through M1 could not be obtained at the ex-post evaluation. Regarding the sustainability of the project, no problem has been observed in the institutional, technical and financial aspects of the Roads Authority and no major damage was observed at the current Bridge and access roads at the time of ex-post evaluation. On the other hand, the project cost as well as project period exceeded the plan due to a worsening situation of fuel shortage in Malawi from 2011 onward and rapid escalating prices of construction material and fuel accordingly.

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

III. Recommendations & Lessons Learned

Lessons learned for JICA:

- The exact data on the quantitative indicators as well as on project impacts could not be obtained at the ex-post evaluation and it was difficult to evaluate especially the project impacts based on clear evidences. JICA and the implementing agency should make a consensus at the time of ex-ante evaluation on the contents of quantitative indicators to be set to measure the project's effects and when, who and how often the data on indicators should be collected. JICA also should properly inform the implementing agency that the ex-post evaluation of the project is to be conducted three to five years after the project completion and the implementing agency is responsible for providing the data on the set indicators. In addition, JICA should regularly check whether the implementing agency is monitoring the data on indicators. In case they are not monitoring or the set indicators themselves are not adequate, it is important to consider a solution after discussion with the implementing agency.



South Rukuru Bridge



Interviewing with a truck driver who passed the Bridge