

Country Name	<b>The Program for Emergency Water Supply for Addressing Climate Change</b> <b>(Programme d'urgence pour l'approvisionnement en eau pour faire face au changement climatique)</b>
Republic of Niger	

**I. Project Outline**

Background	<p>Japan announced the establishment of the Cool Earth Partnership in 2008 aiming at supporting developing countries to achieve both greenhouse gas emission reduction and economic growth. As part of the mechanism of the partnership, a new grant aid scheme named “Program Grant Aid for Environment and Climate Change” was created in 2008. Niger was one of the countries to be benefitted from this initiative/program.</p> <p>In Niger, decrease in rural water source recharge due to the decline of groundwater level caused by climate change in recent years, suspension of water supply in urban areas due to interruption of operation of water supply facilities as a result of deterioration of electricity supply situation were constraining factors to the improvement of water supply rate.</p>				
Objectives of the Project	To strengthen the capacity for implementing measures for climate change by procuring emergency water supply equipment, equipment for water supply facilities, and development and rehabilitation equipment for groundwater, thereby contributing to supplying safe and stable water in the target areas and improvement of the hygiene there.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: All 8 regions, especially 4 regions (Niamey, Tillabéri, Dosso, and Maradi) where equipment for groundwater development/rehabilitation are mainly used.</li> <li>2. Japanese side: <ol style="list-style-type: none"> <li>(1) Procurement of (i) equipment for emergency water supply (portable water quality test instruments, plastic bags, and water trucks), (ii) equipment for water supply facilities (generators), and (iii) equipment for development and rehabilitation of ground water (derrick cranes and service rigs)</li> <li>(2) Technical Assistance (Soft component) on implementation of emergency water supply, Operation and Maintenance (O&amp;M), and securing of O&amp;M cost</li> </ol> </li> <li>3. Niger side: Securing places for keeping/storing equipment</li> </ol>				
Planning	2008	E/N Date	March 31, 2009	Completion Date	September 27, 2011
		G/A Date	April 9, 2009		
Project Cost	E/N Grant Limit/G/A Grant Limit: 400 million yen, Actual Grant Amount 397 million yen				
Implementing Agency	Ministry of Hydraulics and Environment (from April, 2011) (the “Ministry”)				
Contracted Agencies	Japan International Cooperation System, HELICOM CORPORATION INC, Toyota Tsusho Corporation, and Sirius Corporation				

**II. Result of the Evaluation**

< Special perspectives considered in the ex-post evaluation >

- Ex-ante evaluation sheet was not prepared for this project, and therefore, effects of the project are evaluated under this ex-post evaluation based on the intended effects specified in the preparatory survey report.

- There were some limitations for data collection on quantitative effects: 1) the change of personnel responsible for the execution of the project by the Ministry, and 2) the lack of an efficient system or structure of data collection on emergency operations in the Ministry. Regarding the indicator 3, “capacity of well and development of wells”, data is only available for Tillaberi Region for because other regions do not record data.

1 Relevance
<p>&lt;Consistency with the Development Policy of Niger at the time of planning and ex-post evaluation&gt;</p> <p>This project has been highly consistent with Niger’s development policy. At the time of planning, “Accelerated Development and Poverty Reduction Strategy 2008-2012” aimed at improving water supply rate (100% in urban areas and 80% in rural areas by 2012). At the time of ex-post evaluation, Niger, by adopting the Millennium Development Goals (MDGs) through its Economic and Social Development Program 2012-2016 pledged to reduce by half the number of people without access to safe drinking water and basic sanitation.</p> <p>&lt;Consistency with the Development Needs of Niger at the time of planning and ex-post evaluation&gt;</p> <p>The project has been also highly relevant with Niger’s development needs for improvement of water supply. At the time of planning, people did not have access to stable water supply. Water supply rate in Niger was as low as 71.79% in urban areas and 62.19% in rural areas in 2008. The low water supply rate was partly because ground water level dropped in rural areas due to climate change. Also, operation of water supply facilities was suspended in urban areas due to the shortage of power supply. At the time of ex-post evaluation, efforts on village water supply have been made and the coverage rate for drinking water needs increased to 66.48 per cent in 2011. This level of coverage is, however, insufficient to reach the target of MDGs set at 80% coverage by 2015 and needs to be enhanced.</p> <p>&lt;Consistency with Japan’s ODA Policy at the time of planning&gt;</p> <p>The project was also consistent with Japan’s ODA policy for Niger at the time of ex-ante evaluation. Japan placed priority on basic human needs in accordance with the implementation of Poverty Reduction Strategy Paper in Niger including water supply, according to ODA Country Databook 2008.</p>

<Evaluation Result>

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

2 Effectiveness/Impact

<Effectiveness>

The project has partially achieved its objectives, “to strengthen the capacity for implementing measures for climate change”. Indicators of quantitative effects such as “Emergency water supply,” and “Improvement of well capacity and development of wells (for rural water supply)” which were set at the time of project planning have improved<sup>1</sup>. No data was obtained on “Suspension of water supply”.

Emergency water supply to those who were affected by disasters such as droughts and floods was carried out. The number of affected people to whom the water is supplied through the equipment (plastic bags, water trucks and portable water quality test instruments) procured under the project increased. For example, during the period covering the last half of 2011 and throughout 2012, the work under emergency interventions was carried out by the Ministry through the training center for water and sanitation named the Water and Sanitation Techniques Training Center (CFTEA). This work included the following activities: (1) Cleaning, disinfection and analysis of the water quality of the cemented well in the village of Tamalalaou due to pollution. (2) Use of water trucks by the regional water scarcity management committee in Zinder Region. For example, for three months, these trucks ensured the supply of water to the populations of the remote areas and those located in high elevations who only randomly receive water from the existing network. (3) Boring and/or pumping tests on water in wells in Dosso and Tillaberi regions. (4) Physico-chemical and bacteriological analysis of water available to population in all regions of Niger.

Although the decrease in the number of water suspension by the use of the generators procured by the project was expected, the data on the suspension of water supply was not obtained. According to the Niger Water Development Corporation (SEEN: Société exploitation des Eaux du Niger), a private water operating company, which carries out Operation and Maintenance (O&M) of the generators procured under the project, the generators have faced frequent breakdowns from the outset. At the time of ex-post evaluation, 14 out of 23 generators did not perform. The majority of breakdowns relates to the problem of a choke coil which triggers the safety devices. There are also frequent engine failures that cannot be repaired because of lack of spare parts on the local market. Sometimes, engines were repaired by taking parts of the old generators

As to the improvement in capacity of well and the number of newly developed wells, the progress is observed in the region of Tillaberi but other regions do not have data. On the use of the equipment on this aspect, although 8 derrick cranes were procured under the project, they are used very little (Occupancy rate is 10%, according to the regional department of hydraulic Niamey). They are currently stored at the level of the regional department of hydraulics of Niamey (in the headquarters) due to lack of funds to convey them to the different regions, although it was expected that each regional department of hydraulics utilizes the derrick crane whenever necessary. But they are occasionally used. For example, they were used for the cleaning, disinfection and emptying of cemented wells in the departments of Filingué and Tillabery between 2011 and 2012. When an emergency arises, the Direction of Resources Financiers and Material (DRFM) of the Ministry is seeking funds to move derrick cranes.

As a result of implementation of technical assistance (soft component), technical capacity for emergency water supply as well as O&M of equipment has been enhanced. Emergency water supply is carried out without any trouble. Maintenance checkups as well as operation of the equipment are carried out properly based on the manuals developed by the project. The technical assistance included a component for securing O&M costs for regional department of hydraulics by setting the proper water charge and by establishing rental system of derrick cranes. However, no action is taken on this aspect as the derrick cranes are still stored at the central level.

<Impact>

Water supply rate has improved with the project especially in emergency areas such as Tera and Kandagi, as trucks, service rigs, derrick cranes, plastic bags and water analysis devices have been used on several occasions not only for emergency water supply, but for disinfection, cleaning, boring, and analysis of the quality of the water of the cemented wells and boreholes in order to ensure the continuation of the drinking water supply for those who are affected by disasters. As to the improvement of the hygiene of the target people, no improvement on the incidence of diarrhea is observed.

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 somewhat observed. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

	Before the project 2009	Actual Value at the project completion (2011)	Actual Value (2012)	Actual Value (2013)	Actual Value (2014)	Actual Value (2015)	Actual Value at the year of Ex-post evaluation (2016)
Indicator 1: Emergency water supply							
1-1 The number of operations of plastic bags and water trucks	50	700	715	730	740	730	520
1-2 The number of use of portable water quality test instruments	200	256	412	430	360	290	300
1-3 The number of people to whom water is supplied through the equipment procured under the project	1,000	1,600	1,600	1,600	1,600	3,200	3,200

<sup>1</sup> No targets were set at the time of planning.

Indicator 2: Water suspension							
2-1 Number of water suspension	817 times	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2-2 Hours of water suspension	1,440.93 hours	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Indicator 3: Capacity of well and development of wells*							
3-1 The number of rehabilitated wells	55	63	75	95	105	125	n.a.
3-2 The number of newly developed wells	20	38	45	69	80	90	n.a.

\*Data is only available for Trillaberi Region.

Source : JICA internal documents, questionnaire and interviews with the Ministry and SEEN

### 3 Efficiency

Although the project cost was within the plan (ratio against the plan: 99%), project period exceeded the plan (ratio against the plan: 162%), due to delay in delivery of equipment.

Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Institutional Aspect>

O&M of the equipment is carried out by DRFM of the Ministry, and SEEN. DRFM owns the equipment and is responsible for their sustainable use, installation, operation, and maintenance of the equipment. As for the generators, DRFM is the owner of the equipment, the Niger Water Heritage Company (SPEN: Société de Patrimoine des Eaux du Niger), a public water property company, administers it, and SEEN under the guidance of SPEN is responsible for O&M. These executing agencies including DRFM will use the equipment properly and report their conditions to JICA annually. Some problems are observed in the institutional aspects: The fact that the equipment is managed by DRFM and actual use of the equipment is carried out by CFTEA leads to a problem of coordination. Also, there is no structure which deals specifically with emergency response.

At the time of ex-post evaluation, the number of staff at DRFM is 16 and the number of staff allocated to the regional department of hydraulics is 342 while the number of staff of SEEN is 700. The number of staff for O&M is sufficient as the number is in the increasing trend, and to carry out O&M of the equipment.

#### <Technical Aspect>

The Ministry and SEEN have the competence for the O&M, as they carry out the O&M without trouble as mentioned above. Especially, SEEN is capable as it currently operates and maintains more than 200 generators, and has an appropriate system for updating technical skills for maintenance. However, the Ministry of Hydraulics does not have a regular plan or a system to revise the technical skills of officers, due to the difficulty in finding the financial resources.

#### <Financial Aspect>

The secured budget after passing the national assembly based on the Finance Act<sup>2</sup> are often lower than the one requested by the Ministry. The budget for DRFM and regional departments of hydraulics is not sufficient accordingly.

Table: Requested and approved budget of Ministry of Hydraulics and Environment  
(Unit: CFA)

	2013	2014	2015
Requested budget	132,975,241,000	139,496,215,000	133,081,825,000
Approved budget	52,966,352,376	45,121,413,669	120,000,495,905

Usually departments have difficulties to find funds that are not planned in advance, but for the duration of the project, the project supported the Ministry to register a budget in the national budget around the month of July each year. The Ministry expects that this registration becomes a habit for the Ministry and departments to secure all necessary funds.

SEEN does not disclose the financial data, however, there is budget for maintenance according to SEEN.

#### <Current Status of Operation and Maintenance>

Some of the equipment items, especially generators are not functioning well as mentioned above. However, this is not due to the lack of proper checkup, but it is because of the poor quality of the equipment procured. Regular maintenance is carried out appropriately. Spare parts are difficult to find in the local market.

#### <Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional and financial aspects and current of status of O&M of the implementing agency. Therefore, the sustainability of the project effect is fair.

<sup>2</sup> Fiscal year of Niger is from January to December. Usually, Ministry of Economy and Finance decides the budget framework of the following year in March, and each ministry makes a budget around June and July. The discussions are held in August and will be passed through the national assembly in December.

## 5 Summary of the Evaluation

The project has partially achieved its objectives, “to strengthen the capacity for implementing measures for climate change”, as the indicators of quantitative effects set at the time of planning have improved. Especially, water was supplied to those who were affected by disasters. However, the improvement of well capacity and development of new wells may have underperformed, considering the limited use of the derrick cranes procured under the project. Besides, majority of the generators procured under the project are not functional. For sustainability, some problems have been observed in terms of the institutional and financial aspects and current of status of O&M of the implementing agency such as lack of coordination among departments, insufficient budget and some of the equipment items being unfunctional. For efficiency, the project period exceeded the plan.

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

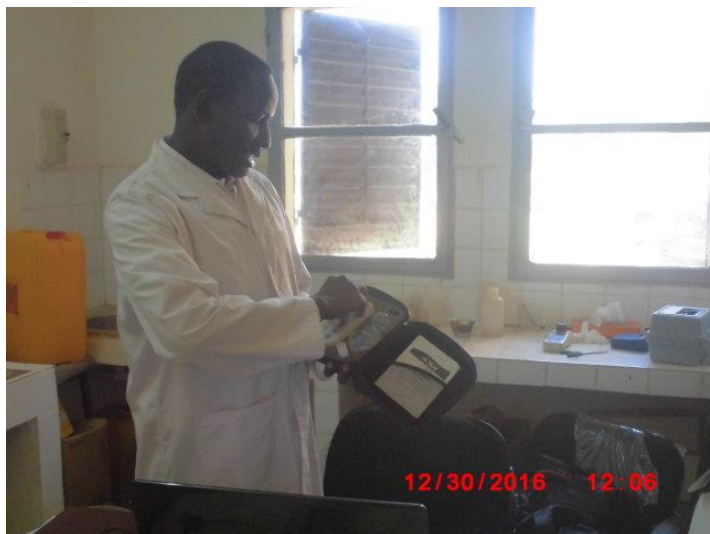
## III. Recommendations & Lessons Learned

### Recommendations to implementing agency

- The Ministry of Hydraulics and Environment is recommended to make the necessary arrangements to transport the remaining equipment to the regional department of hydraulics.
- The Ministry of Hydraulics and Environment is recommended to secure the funds used to maintain the equipment. During the project period, the project supported the ministry to register a budget in the national budget around the month of July each year. The ministry is recommended to continue this procedure to include all necessary funds of departments including DRFM in advance so that they are able to secure funds for maintenance of the equipment.

### Lessons learned for JICA:

- Many of the generators procured under the project have frequently faced breakdowns shortly after the handover. Hydraulic technicians who use the equipment were not associated with the choice of equipment or their advice were not taken into account as well because the suppliers were selected made based on the price. It was necessary to take into account the technical and interoperability of the equipment proposed by the Ministry on the quality, the performance and the durability of equipment in the selection of the supplier;
- To ensure their proper use and maintenance of the equipment, it would be better to get the similar models of equipment that the officers in the department are used to use. In addition, accompanying the equipment with the spare parts and training of the agents of the department not only on the use of the equipment, but also the maintenance and the replacement of spare parts would be effective. Also, it is desirable for the project to encourage the implementing agency to mobilize a sufficient budget for the maintenance of equipment and execution of activities dedicated to the implementing agency in order to ensure the sustainability of the project



Utilization of Water quality test equipment provided by the program in the laboratory of Tillabery



Generator used by SEEN on the site of Libore (Tillabery region)



Country Name	<b>Project for Capacity Development of Wastewater Sector through reviewing the Wastewater Management Master Plan in DKI Jakarta</b>
Republic of Indonesia	

**I. Project Outline**

Background	In DKI Jakarta <sup>1</sup> where the capital of Indonesia is located, people had been suffering from environmental problems such as repeated flooding, poor sanitation, water shortage and land subsidence by excessive exploitation of groundwater. In 1991, JICA and the Directorate General of Human Settlements (DGHS), the Ministry of Public Works (MPW) (Currently Ministry of Public Works and Housing; MPWH) jointly formulated a master plan (M/P) featuring drainage, sewerage and sanitation development in DKI Jakarta for the target year of 2010. However, the development of the sewerage systems was not able to be proceeded as planned and their coverage remained low. Meanwhile, the Government of Indonesia planned to improve the coverage of sewerage service in major cities nationwide including DKI Jakarta. Under these circumstances, the Government of Indonesia made a request to the Government of Japan for technical cooperation to assist the revision of the wastewater management master plan.				
Objectives of the Project	Through (1) developing or revising laws and regulations on wastewater management and (2) revising the wastewater management master plan in DKI Jakarta, the project aimed that capacity of MPW (Current MPWH) for development of legal system and capacity of DKI Jakarta Provincial Government for development of the M/P are enhanced (project purpose level) and thereby contributing to proper policy making, establishment of system and plan in wastewater sector and implementation of the revised M/P is implemented (overall goal level). 1. Overall Goal: (1) Proper policy, system and plan in wastewater sector are established. (2) DKI Jakarta has enough capacity to improve wastewater sector conditions. 2. Project Purpose: Capacity of Ministry of Public Works and DKI Jakarta in formulation of wastewater sector policies and wastewater management plan is enhanced.				
Activities of the project	1. Project site: DKI Jakarta 2. Main activities: (1) The project develops or revises laws and regulations on wastewater management. (2) The project revises the wastewater management master plan in DKI Jakarta. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 14 persons 2) Trainees received: 14 persons 3) Equipment: PCs, Auto CAD (Computer-Aided Design), GIS software (ArcGIS) and others Indonesian Side 1) Staff allocated: 33 persons 2) Office space: Project offices 3) Local costs: Meeting expenses and allowance				
Ex-Ante Evaluation	2010	Project Period	July 2010-June 2012	Project Cost <sup>2</sup>	(Ex-ante) 250 million yen (Actual) 250 million yen
Implementing Agency	1) Directorate General of Human Settlement (DGHS), MPW (Currently Ministry of Public Works and Housing; MPWH), 2) DKI Jakarta Provincial Government, 3) Wastewater Management Enterprise, City of Jakarta (PD PAL Jaya)				
Cooperation Agency in Japan	Ministry of Land, Infrastructure and Transport				

**II. Result of the Evaluation<sup>3</sup>**

< Special perspectives considered in the ex-post evaluation >

As the next steps for indicators of the Project Purpose are set in the Overall Goal, continuation status of project effects is evaluated in "Status of achievement of Overall Goal at the time of ex-post evaluation."

**1 Relevance**

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

The project was consistent with development policy of Indonesia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, MPWH was preparing "the Strategic Plan for the Ministry of Public Works 2010-2014" under "the National Development Plan 2010-2014". Under this Strategic Plan, MPWH aimed at increasing the sewerage coverage ratio to 20% in 15 large cities including DKI Jakarta. DKI Jakarta Provincial Government also promoted development of sewerage system under "the Medium-Term Development Plan of DKI Jakarta 2008-2012". At the time of project completion, promotion of sewerage system development was accommodated in "the Jakarta Spatial Plan 2030" and was also raised in "the Medium-Term Development Plan of DKI Jakarta 2013-2017".

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

The project was consistent with the needs for wastewater management in Indonesia both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, MPWH was preparing "the Domestic Wastewater Law as of December 2009" and therefore MPWH needed advices from Japanese experts for further improvement of the contents and finalization of the process. Also, the

<sup>1</sup> Daerah Khusus Ibukota Jakarta (Special State Capital of Jakarta)

<sup>2</sup> The project cost was calculated based on the rules and standards of ex-post evaluation

<sup>3</sup> "Relevance", "Effectiveness/Impact", "Efficiency" and "Sustainability" of the project will be rated by three grade evaluation ("high", "fair", and "low")

M/P of 1991 needed to be reviewed in accordance with the development of DKI Jakarta. At the time of project completion, the feature of this project, the revision of M/P, was to clarify the problem not only in off-site systems<sup>4</sup> but also that of a septic tank and individual wastewater treatment plant (ITP) for commercial buildings, which were relevant to issues on on-site systems<sup>5</sup> in DKI Jakarta. The M/P also proposed the concrete countermeasures to them.

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

The project was consistent with Japan's ODA policy. "Country Assistance Program for Indonesia", developed in November 2004, includes assistance for the improvement of public services including water and sanitation under "Assistance to Create a Democratic and Fair Society", as one of the priority areas in the Program.

<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. Although the project aimed at submitting Domestic Wastewater Law, it was changed to the Sanitation Law during the project period in response to the request from the parliament to MPWH to draft the Sanitation Law which targets both of wastewater and rainwater. (The rainwater is not included in the scope of the project). The "Sanitation Law" was drafted under the project, however, it was not submitted to the parliament (indicator 1-1) by the time of project completion. Drafted regulation and standards related to the Sanitation Law were prepared and submitted to the Ministry of MPWH in November 2011 (indicator 1-2). An action plan of implementation of revised Wastewater Management Master Plan in DKI Jakarta was developed (indicator 2), and adopted in Governor Regulation of DKI Jakarta No. 41 of 2016 about the "Master Plan on the Development of Infrastructure and Facilities on the Domestic Wastewater Treatment".

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

The Overall Goals (Both Overall Goal 1 and Overall Goal 2) have been mostly achieved. The enactment process of "the Sanitation Law" was postponed after discussion in the committee composed by several stakeholders considering. It was because further discussion is required to avoid duplication with existing laws and regulations. Since laws and regulations which regulate wastewater management was urgently needed to develop wastewater treatment system in Indonesia, MPWH finally decided to select clauses related to wastewater management out of clauses in the draft of "Sanitation Law" and regulate them in the ministry decree, considering its urgency. The ministry decree on domestic wastewater management was enacted in March 2017 without waiting for enactment process of "Sanitation Law". The above decree includes regulations and standards drafted during the Project. In the meantime, the ministry decree which covers the minimum standard service of local governments on water supply and sanitation management was established on February 24, 2014.

The revised M/P is being implemented. The project proposed development of off-system in Zone No.1 and No.6 and improvement of on-site system as prioritized projects for short term development plan (by 2020). At the time of ex-post evaluation, off-site system development in Zone 1 has been implemented (Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014) and in Zone 6 is ready to start (Pre-request for Japan's ODA Loan has been submitted and the project has been appraised).

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

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

<Evaluation Result>

In light of the above, the Project Purpose was mostly achieved at the time of project completion as the Sanitation Law was drafted but not submitted to the parliament, while regulation and standards were drafted and submitted to MPWH, and an action plan of implementation of M/P was developed. The Overall Goals have been mostly achieved as the ministry decree which regulate domestic wastewater management is enacted including its regulation and standards, and the revised M/P is being implemented. Therefore, the effectiveness/impact of the project is fair.

### Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Capacity of Ministry of Public Works and DKI Jakarta in formulation of wastewater sector policies and wastewater management plan is enhanced.	Indicator 1-1: Draft Domestic Wastewater Law is submitted to the parliament.	<u>Status of the achievement: not achieved</u> (Project Completion) The Sanitation Law was under drafting in MPWH as of February 2012 and the preparation of an "academic text" (a draft based on hearings with universities, research institutes, and local governments) for the Law was likely to be finalized. After the development of the academic text, it was expected that the draft of Sanitation Law had been submitted to the parliament by the end of 2012 and the Law was going to be promulgated in 2013. (Ex-post evaluation) The "academic text" was discussed in the committee composed of several related ministries prior to the submission to the parliament. During the discussion in the committee, there was an opinion that the Sanitation Law should include not only waste water and drainage, but also solid waste. However, considering there was already existing Law No. 18/2008 on Waste Management, it was expected that it would need a long discussion to reach consensus among related ministries, especially with Ministry of Environment and Forestry. Considering that regulation on wastewater management was urgently required, finally the MPWH decided to regulate wastewater management in ministry decree instead of continuing the enactment process of the Sanitation Law at this stage. The ministry decree No. 4/2017 of domestic wastewater management has enacted.
	Indicator 1-2: Draft regulation and standards related to Domestic	<u>Status of the achievement: achieved</u> (Project completion) A draft of regulation and standards was submitted to MPW.

<sup>4</sup> Off-site systems remove wastewater from the sources for treatment elsewhere (such as treatment by sewerage system).

<sup>5</sup> On-site systems treat wastewater on or near the sources (such as treatment by septic tank).

	Wastewater Law are submitted to MPW.	(Ex-post evaluation) Regulations and standards related to Domestic Wastewater Law are regulated in attachments of the ministry decree No. 4/2017 of domestic wastewater management.																			
	Indicator 2: An action plan of implementation of revised Wastewater Management Master Plan in DKI Jakarta is developed (with information on timeframe, target organization/section in charge, source of the budget for each work item).	<u>Status of the achievement: achieved</u> (Project Completion) The action plans were developed and described in the Final Report (FR) (Ex-post evaluation) An action plan of the implementation of the revised Wastewater Management Master Plan in DKI Jakarta has been implemented. The Master Plan on the Development of Infrastructure and Facilities on the Domestic Wastewater Treatment was enacted as Governor Regulation of DKI Jakarta No. 41 of 2016.																			
(Overall goal) (1) Proper policy, system and plan in wastewater sector are established. (2) DKI Jakarta has enough capacity to improve wastewater sector conditions.	Indicator 1-1: Domestic Wastewater Law is enacted.	<u>Status of the achievement: partially achieved</u> (Ex-post Evaluation) The ministry decree No. 4/2017 of domestic wastewater management was enacted in March 2017.																			
	Indicator 1-2: Regulations and standards related Domestic Wastewater Law are enacted.	<u>Status of the achievement: achieved</u> Regulations and standards are regulated in the ministry decree No. 4/2017 of domestic wastewater management. In addition, the ministry decree which regulates the minimum standard service of local governments on water supply and sanitation management was established on February 24, 2014 (The Minister of Public Works & Housing Regulation No.1/PRT/M/2014 on “the Minimum Service Standard on Public Works and Spatial Planning”).																			
	Indicator 2-1 Finance is prepared.	<u>Status of the achievement: mostly achieved</u> (Ex-post evaluation) Finance is being prepared. (Refer to the Indicator 2-2 below.)																			
	Indicator 2-2: Revised wastewater management master plan is implemented.	<u>Status of the achievement: mostly achieved</u> (Ex-post evaluation) The revised wastewater master plan is implemented to some extent.																			
		<table border="1"> <thead> <tr> <th>Priority Projects</th> <th>Status of F/S</th> <th>Status of Finance (with sources)</th> <th>Status of implementation</th> <th>Implementing agency</th> </tr> </thead> <tbody> <tr> <td>Off-site system in Zone No.1</td> <td>Done</td> <td>Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)</td> <td>- The land for the Wastewater Treatment Plant (WWTP) of Zone 1 has been allocated by DKI Jakarta Provincial Government - Engineering Services (E/S) for Zone 1 is on-going.</td> <td>MPWH DKI Jakarta Provincial Government</td> </tr> <tr> <td>Off-site system in Zone No.6</td> <td>Done</td> <td>Pre-request for Japan’s ODA Loan has been submitted and the project has been appraised. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)</td> <td>- The land for WWTP of Zone 6, phase 1 has been allocated by DKI Jakarta Provincial Government</td> <td>MPWH DKI Jakarta Provincial Government</td> </tr> <tr> <td>On-site system</td> <td>n.a</td> <td>n.a.</td> <td>n.a.</td> <td>n.a</td> </tr> </tbody> </table>	Priority Projects	Status of F/S	Status of Finance (with sources)	Status of implementation	Implementing agency	Off-site system in Zone No.1	Done	Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for the Wastewater Treatment Plant (WWTP) of Zone 1 has been allocated by DKI Jakarta Provincial Government - Engineering Services (E/S) for Zone 1 is on-going.	MPWH DKI Jakarta Provincial Government	Off-site system in Zone No.6	Done	Pre-request for Japan’s ODA Loan has been submitted and the project has been appraised. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for WWTP of Zone 6, phase 1 has been allocated by DKI Jakarta Provincial Government	MPWH DKI Jakarta Provincial Government	On-site system	n.a	n.a.	n.a.
Priority Projects	Status of F/S	Status of Finance (with sources)	Status of implementation	Implementing agency																	
Off-site system in Zone No.1	Done	Loan Agreement for Metropolitan Sanitation Management Investment Program: Engineering Services for Sewerage System Development in DKI Jakarta was signed in February 2014. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for the Wastewater Treatment Plant (WWTP) of Zone 1 has been allocated by DKI Jakarta Provincial Government - Engineering Services (E/S) for Zone 1 is on-going.	MPWH DKI Jakarta Provincial Government																	
Off-site system in Zone No.6	Done	Pre-request for Japan’s ODA Loan has been submitted and the project has been appraised. (Japan’s ODA Loan and budget of DKI Jakarta Provincial Government)	- The land for WWTP of Zone 6, phase 1 has been allocated by DKI Jakarta Provincial Government	MPWH DKI Jakarta Provincial Government																	
On-site system	n.a	n.a.	n.a.	n.a																	
		<ul style="list-style-type: none"> <li>- As to the improvement of on-site system, the DKI Jakarta Provincial Government has started the construction of communal/decentralized WWTPs by its own budget and some by foreign loan (Islamic Development Bank: IDB). According to the ministry decree No. 4/2017 of domestic wastewater management, decentralized WWTPs with more than 10 households are defined as off-site system.</li> <li>- Regular desludging has been implemented in some pilot areas under a pilot project of USAID cooperation program.</li> <li>- Construction of new sludge treatment plant which was proposed by the project was suspended, as the land acquisition was not progressed. Instead, it is being planned to integrate sludge treatment plants to WWTPs. In the meantime, construction of a sludge treatment plant is being integrated to off-site system in Zone 6.</li> <li>- The Detailed Engineering Design of Zone 2, 3, 4, 5, 7, 8, 10 were completed by PD PAL Jaya.</li> <li>- The locations of WWTP of 14 zones have been officially determined in Governor Regulation of DKI Jakarta No 41 of 2016.</li> </ul>																			

### 3 Efficiency

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

### 4 Sustainability

#### <Policy Aspect>

All the related policy and regulations from national level to local level support the sewerage system development. In RPJMN (National Mid-Term Development Plan) 2015-2019, MPWH aimed at achieving 100-0-100 by 2019. 100% access to water supply; 0% of slum areas; 100% access to proper sanitation. RPJPD (the Regional Long-Term Development Plan) of DKI Jakarta 2005 – 2025, to support the mission of DKI Jakarta for the construction and development of infrastructure and facilities for the region, focused on among others, sewage management, clean water, housing and settlement. RPJMD (the Regional Mid-Term Development Plan) of DKI Jakarta 2013-2017 includes off-site sewerage system development and set the performance target including Zone 1 and Zone 6. And the Governor of DKI Jakarta has already established some policies to support the project, among others is Peraturan Gubernur No.41 Tahun 2016 (Governor Regulation No.41 Year 2016) about the “Master Plan for The Development of Infrastructure and Means of Domestic Waste Water Management”.

#### <Institutional Aspect>

The roles and responsibilities of DGHS, MPWH have been clear and unchanged. DGHS is composed of approximately 2,494 employees including about 150 staff members in the Directorate of Sanitation Environmental Development. In the Directorate of Sanitation Environmental Development, the Sub-directorate of Technical Planning and Controlling is responsible for sanitation/sewerage related legislation and the Sub-directorate of Sanitation is responsible for operation of sanitation/sewerage. As an agency which oversees wastewater management, the number of staff is sufficient, however, the number of staff who has experiences and skills on advanced wastewater treatment facilities is limited, as there has been few modern and large-scale wastewater treatment facilities. In addition, the limited number of middle class officials is a common problem for all ministries.

Water Resource Department of DKI Jakarta, that was reformed from Water Management Department of DKI Jakarta in January 2017, has functions of planning, development, management, maintenance, controlling, monitoring, evaluation, research, security of water resources, such as rain water, surface water/raw water, sea water and management of waste water/sewage. In January 2017, 15 staff members were allocated to the Division of Wastewater, Raw Water and Water Supply of Water Resource Department. The number of staff is still sufficient at this moment, however, the number of experienced staff and has knowledge and skills on wastewater management is limited.

The DKI Jakarta Provincial Government is basically responsible for undertaking the sewage works while DGHS is overseeing the Provincial Government. Due to the insufficient funding resources on the part of the Provincial Government, DGHS is financially supporting the part of the construction. “Project for Improving Planning Capacity for Sewerage System in DKI Jakarta” (Technical cooperation project) has extended support for clarifying the roles and responsibilities of the stakeholders.

PD PAL Jaya, a local government owned company, is also in charge of services to manage/treat wastewater. Main responsibilities are management of septic tanks, operation of wastewater facilities in Zone 0 and construction of secondary, tertiary and house connecting pipes and O&M. PD PAL Jaya has promoted a good governance system, e.g. applying billing system such as e-billing to its customers to ensure business transparency.

#### <Technical Aspect>

DGHS has enough techniques to undertake its duties and responsibilities for sanitation/sewerage system. The Directorate of Sanitation Environmental Development of DGHS has technical staff as there are 10 to 15 engineers who have a master degree. Skills and techniques transferred under the project have been passed to staff assigned to the department. The Water Resource Department of DKI Jakarta does not have enough experiences and techniques to undertake its duties and responsibilities for sanitation/sewerage system. PD PAL Jaya has enough experiences and techniques in operation and management of existing sanitation/sewerage system as 56% of its staff has bachelor or master degree, yet it is necessary to strengthen their techniques and skills on advanced wastewater treatment system. Therefore, JICA has continuously supported the DKI Jakarta Provincial Government for their capacity development under the above mentioned technical cooperation project “Project for Improving Planning Capacity for Sewerage System in DKI Jakarta”.

#### <Financial Aspect>

DGHS are mobilizing loans from APBN (Indonesian National Income and Expenditure Budget), JICA (for construction of sewage system for Zone 1 and 6).

Table 1: Financial statement of DGHS

(Unit: bil IDR)

Year		2012	2013	2014	2015	2016
DGHS	Allocation Fund	13,843	21,911	14,548	19,798	17,718
	Expenditure	12,894	20,934	13,942	18,563	14,203
Environmental Sanitation Dev.	Allocation Fund	2,609	2,634	2,341	3,374	3,350
	Expenditure	2,045	2,370	2,148	3,146	2,796
Wastewater Sector	Allocation Fund	567	774	708	1,382	1,200
	Expenditure	563	670	545	702	970

According to the DKI Jakarta Provincial Government, DKI Jakarta has a budget required to undertake its roles and responsibilities for sanitation and sewage system at this moment. Besides, DKI Jakarta has support from DGHS, as mentioned above.

Table 2: Sanitation/Sewerage related budget of DKI Jakarta Provincial Government

	(Unit: Trillion Rupiah)		
	2013	2014	2015
Applied budget	n.a.	n.a.	n.a.
Approved budget	3.1	6.1	5.1

\*The figure is not only related to sanitation or sewerage but also with other physical programs.

Table 4: Financial status of PD PAL Jaya

	(Unit: Million Rupiah)		
	2013	2014	2015
Revenue	47,194	54,149	57,618
Expenditure	26,609	29,533	36,959

<Evaluation Result>

In light of the above, problems have been observed in terms of institutional and technical aspects, although the institutional aspect has been fostered by the technical cooperation project mentioned above. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project purpose was mostly achieved at the time of project completion as the Sanitation Law was drafted but not submitted to the parliament, while regulation and standards were drafted and submitted to MPWH, and an action plan of implementation of M/P was developed. The Overall Goals have been mostly achieved as the ministry decree which regulates domestic wastewater management is enacted including its regulation and standards, and the revised M/P is being implemented. As for sustainability, on one hand, there are some challenges in institutional and technical aspects such as limited number of experienced and skilled staff and technical capacity. On the other hand no challenges have been observed in policy and financial aspects. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

**Recommendations to Implementing Agency**

In further implementing the M/P, the Provincial Government is recommended to strengthen its capacity in terms of institutional and technical aspect by stages in accordance to a physical infrastructure construction progress and to continue its commitment in terms of responsibility and finance in implementing the sewerage management.

**Lessons Learned to JICA**

Although the project envisaged that the draft domestic wastewater law to be submitted to the parliament (indicator 1-1 of the project purpose), it was difficult to achieve this target during the two-year project period. Before setting the indicator, it was necessary to thoroughly review the standard procedures for the enactment and judge whether the procedures can be completed within the planned project period and with the planned input in order to set attainable indicators and targets. In addition, risks of policy change and procedures during a process of enactment of laws and regulations by the Government of Indonesia/Implementing Agencies should be considered as an important assumption at the time of project formulation.



Conceptual Drawing of Zone-1 WWTP at Waduk Pluit



Country Name	<b>Project on Capacity Building for Asset Management of Road and Bridges</b>
Republic of Indonesia	

**I. Project Outline**

Background	The Indonesian government had developed and operated a management system for roads and bridges with assistance mainly from the World Bank and Australian Agency for International Development (AusAID). While basic technical skills for inspection of assets (roads and bridges) and system operation etc. were necessary to operate an asset management system <sup>1</sup> efficiently, the Indonesian government was unable to implement them sufficiently. Enhancement of technical skills and establishment of organizational structure for effective operation of an asset management system were strongly required.												
Objectives of the Project	Through enhancing knowledge and capacity of project counterparts (C/Ps) and drafting guidelines, regulations and technical instructions, the project aimed at developing technical and organizational process of inspection, data collection, evaluation of conditions and maintaining assets and improving competency of asset analysis in pilot areas, thereby contributing to efficient and effective management of road and bridges, better services for road users and longer life of assets. The project objectives set forth are as follows: 1. Overall Goal: (1) Efficient and effective management of road and bridges through their life time by optimal budget allocation and proper preservation activities. (2) Better services for road users and longer life of an asset with relevant and precautionous maintenance and rehabilitation. 2. Project Purpose: (1) Technical and organizational process of inspection, data collection, evaluation of conditions and maintaining assets is developed systematically in pilot areas. (2) Competency of asset analysis based on the actual data collected in pilot areas is improved.												
Activities of the project	1. Project site: Jakarta, Bandung (where project offices were located) Pilot Project Sites: West Java, Banten, West Kalimantan and East Kalimantan Provinces (for pilot activities to cover various infrastructure conditions) 2. Main activities: (1) Review existing documents/data and identify main challenges; (2) Conduct training on improvement of inspection, data collection, maintenance and rehabilitation; (3) Draft technical documents, manuals and guidelines for survey/inspection, data collection, updating status, and collaboration works etc., introduce new technology for preventive maintenance, develop Supporting Map for Pavement Management (SMPM), Expert System <sup>2</sup> and a more efficient and effective nationwide bridge inspection system to supplement the Integrated Road Management System (IRMS; the existing road asset management system in Indonesia), and conduct pilot activities; and (4) Provide guidance on basic principle of asset management and engineering principles including asset value assessment, and analyze the existing management systems based on the concept of proper asset management 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%;">Indonesian Side</td> </tr> <tr> <td>1) Experts: 7 persons</td> <td>1. Staff allocated: 9 persons</td> </tr> <tr> <td>2) Trainees received: 13 persons</td> <td>2. Office space for Japanese Expert, electricity</td> </tr> <tr> <td>3) Overseas activities cost</td> <td>3. Operational expenditure for pilot inspection and travel expenses for maintenance</td> </tr> </table>					Japanese Side	Indonesian Side	1) Experts: 7 persons	1. Staff allocated: 9 persons	2) Trainees received: 13 persons	2. Office space for Japanese Expert, electricity	3) Overseas activities cost	3. Operational expenditure for pilot inspection and travel expenses for maintenance
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Ex-Ante Evaluation	2009	Project Period	November 2009 – June 2012	Project Cost	(ex-ante) 198 million yen (actual) 246 million yen								
Implementing Agency	Ministry of Public Works, Directorate General of Highways (Bina Marga)												
Cooperation Agency in Japan	Oriental Consultants Co., Ltd.												

**II. Result of the Evaluation**

1 Relevance
<Consistency with the Development Policy of Indonesia at the time of ex-ante evaluation and project completion> The project has been consistent with Indonesia's development policy on 'maintaining the performance of already constructed roads' and 'reducing the backlog of the maintenance of transportation infrastructure and facility' etc. as set forth in <i>the National Medium-Term Development Plan (RPJMN) (2004-2009)</i> and <i>RPJMN (2010-2014)</i> .
<Consistency with the Development Needs of Indonesia at the time of ex-ante evaluation and project completion> At the time of ex-ante evaluation, among approximately 35,000 km of national roads, approximately 14% was rated "Bad" (3%) or "Poor" (11%) on a four-point scale, and among approximately 88,000 bridges, it was expected that over 50% would need to be replaced or rehabilitated by 2026, and it was urgently required to manage assets such as roads and bridges and to rehabilitate them efficiently and

<sup>1</sup> An asset management system in this context refers to a system of budget planning for maintenance of roads/bridges based on the conditions of such infrastructures.

<sup>2</sup> SMPM and Expert System are tools for road and bridge management designed to be incorporated to the existing asset management system in Indonesia. SMPM is for planning of road pavement maintenance, and Expert System is for planning of bridge rehabilitation.

effectively. At the time of project completion, it is considered that needs of asset management are still high as condition of some national roads was still “Bad” (4.3%) or “Poor” (6.5%).

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

The project was consistent with Japan’s ODA policy, as *the Country Assistance Program for Indonesia* (2004) states that Japan will provide assistance to set up the public goods (water, sanitation, roads, electricity, etc.) necessary for local development as well as to improve the maintenance and management systems for these public services.

<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>

Project Purposes were achieved by the time of project completion. The rules on inspection, data collection, evaluation of conditions and maintenance were compiled in the *Guideline for Road Preservation Management* and *Diagnosis of Bridge Damage and Rehabilitation* drafted based on the situation analysis, and revised and finalized based on the pilot activities (Indicator 1-1 and Indicator 1-2). Many seminars and technical workshops were conducted and tools such as SMPM were developed, which were evaluated by the Japanese experts to have led to improvement of competency and maintenance capability at the field level (Indicator 2).

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

The project effects have been partially maintained since project completion. The same rules are still applied under IRMS in the networking level, i.e., the Head Office of Bina Marga, especially Directorate of Road Preservation and Directorate of Bridge. The methods given in the *Guideline for Road Preservation Management* and *Diagnosis of Bridge Damage and Rehabilitation* are still utilized especially in Working Level (Balai, Satker<sup>3</sup> in Pilot Project Area). Regarding various tools developed under the project, SMPM has not been utilized since project completion due to adjustment of guidelines, manuals, etc., that is ongoing within Bina Marga coupled with insufficient transfer of knowledge of SMPM utilization following the organizational restructuring<sup>4</sup>. On the other hand, the Expert System (bridge inspection system) which the project supported to develop under the project has been utilized by Bina Marga. There have also been some increases of awareness in Bina Marga to obtain precise data on road and bridge conditions and apply appropriate treatments according to their conditions.

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

Overall Goals have been partially achieved by the time of ex-post evaluation. Effective and efficient management of inspection and maintenance works has been maintained by Bina Marga through the Long-Segment Maintenance Contract (LSMC) Program<sup>5</sup> (Indicator 1-1). As for data collection and analysis, road condition data is collected based on International Roughness Index (IRI), utilizing the technology which has been constantly developed to minimize the required time for collecting such data and to obtain more efficient and accurate results (Indicator 1-2). Regarding budget allocation for maintenance, budgeting for road inspection, maintenance and rehabilitation has become more systematic and accurate through the direct outcomes of this project, since Bina Marga has become able to collect data on actual field conditions (Indicator 1-3). However, contribution of this project to those indicators is not clear except for the Expert System for bridges mentioned above. Road conditions are generally on improving trends in terms of percentage of “poor” or “bad” national roads. As for user’s satisfaction, while no data was available, it can be naturally inferred that the satisfaction might have been improved considering the current road conditions of some pilot projects (no disruption of traffic due to road conditions).

<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 Project Purposes were achieved by the time of project completion, the project effects have been partially maintained since project completion, and the degree of achievement of Overall Goals 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) 1. Technical and organizational process of inspection, data collection, evaluation of conditions and maintaining assets is developed systematically in pilot areas.	1-1. Systematic rules on inspection, data collection, evaluation of conditions and maintenance is testified through pilot activities.	Status of the achievement: achieved (partially continued) (Project Completion) <i>Guideline for Road Preservation Management</i> and <i>Diagnosis of Bridge Damage and Rehabilitation</i> were drafted based on the situation analysis. (Ex-post Evaluation) Under the IRMS, each Satker has collected data on road and bridge conditions utilizing the same method used in the pilot activities to decide the necessity of road and bridge maintenance.
	1-2. The finalized draft of guidelines, manuals, regulations and technical instruction	Status of the achievement: achieved (partially continued) (Project Completion) <i>Guideline for Road Preservation Management</i> and <i>Diagnosis of Bridge Damage and Rehabilitation</i> were revised and finalized. These guidelines/manuals were to be translated into Indonesian by Bina Marga and to be shared on its website. (Ex-post Evaluation) Above guidelines/manuals have been translated into Indonesian. While the guidelines/manuals are not available on website, the methods given in them are still utilized especially in Working Level.

<sup>3</sup> Both Balai and Satker are regional working units of Bina Marga. Under Balai in each region, Satker is responsible for each section. In Balai, asset management is conducted by Satker P2JN (Planning and Supervising of National Road).

<sup>4</sup> In the process of the adjustment, SMPM was replaced by an updated version of similar software in excel file called RAMS (Road Asset Management System) adapting the approach of SMPM by assistance from Australian Government.

<sup>5</sup> LSMC is an approach to replace direct labor with contracting out for routine and major road maintenance.

2. Competency of asset analysis based on the actual data collected in pilot areas is improved.	2. Direction of improvement of asset management system  <i>(Note: This indicator was interpreted as status (i.e., improvement and utilization) of the asset management system.)</i>	Status of the achievement: achieved (partially continued) (Project Completion) Many seminars and technical workshops were conducted, which were evaluated by the Japanese experts to have led to enhancement of competency of staffs. Moreover, tools such as SMPM were developed, which contributed to improvement of maintenance capability at the field level. (Ex-post Evaluation) While SMPM is no longer utilized, the Expert System for bridges has been utilized by Bina Marga. There have been some increases of awareness in Bina Marga to obtain precise data on road and bridge conditions and apply appropriate treatments according to their conditions.
(Overall goal) 1. Efficient and effective management of road and bridges through their life time by optimal budget allocation and proper preservation activities.	1-1. Systematic inspection and maintenance works is implemented based on the experience of the project.	(Ex-post Evaluation) partially achieved, i.e., the indicator was achieved, but the contribution of this project is not clear enough especially regarding road maintenance. Bina Marga is now conducting LSMC Program for inspection and maintenance works for road. Under this program (Contract), periodic inspection for road is conducted in order to have a concrete idea to select inspection and maintenance work method. After this project, bridge inspection has become more systematic by combining the previous techniques utilized since 1992 with identification and interpretation techniques for damaged bridge structure and element introduced by this project.
	1-2. Efficient data is collected and analyzed.	(Ex-post Evaluation) partially achieved Road condition data is collected based on IRI, utilizing the technology to minimize the required time for collecting such data and to obtain more efficient and accurate results.
	1-3. Efficient budget allocation for maintenance	(Ex-post Evaluation) partially achieved Through the outcomes of this project, budgeting for road inspection, maintenance and rehabilitation has become more systematic and accurate, since data collected is based on actual field conditions. The planned budget is actually allocated.
2. Better services for road users and longer life of an asset with relevant and pre-cautious maintenance and rehabilitation.	2. Road conditions and user's satisfaction is improved.	(Ex-post Evaluation) partially achieved Ratio(%) of national roads classified as Poor or Bad Before the project: 14% of total 35,000km 2013: 7% of total 38,570km 2014: 6% of total 38,570km 2015: 11% of total 47,017km 2016: 14% of total 47,017km (Classification is based on IRI. Note: some roads were re-categorized to "national road" in 2015 and it might have made the result after 2015 worse than before 2014.)  Longer life: no data available. Bridge condition: no data available User's satisfaction: no data available

Source: JICA internal document, Questionnaire survey and interview with Bina Marga, road condition data provided by Bina Marga

### 3 Efficiency

Both the project cost and the project period exceeded the plan (ratio against the plan: 123% and 108%, respectively), mainly due to the extension of the period for dispatching experts in the third year in response to the increase in the number of sites for pilot activities and covering some administration related matters. Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

To be in line with *RPJMN 2015-2019* that aims to maintain balance between national transportation oriented and local/regional transportation oriented, Bina Marga is applying the LSMC (2016-). By applying this policy, Bina Marga emphasizes road and bridge asset management activity as very important in order to determine the needs for detail road maintenance/rehabilitation.

#### <Institutional Aspect>

Under the new President Joko Widodo Administration, Ministry of Public Works has recently been restructured to Ministry of Public Works and Housing. Bina Marga also has several changes in its organization, and at the time of ex-post evaluation, it consists of Director General, Secretary of Director General, Directorate of Road Network Development (Planning Section), Directorate of Road Development, Directorate of Road Preservation, Directorate of Bridge, and Directorate of Toll Road, City and Regional Facility. Among them, Directorate of Road Preservation is responsible for road asset management, and Directorate of Bridge is responsible for bridge asset management. Under Bina Marga, the number of Balai was increased from 11 at the time of project completion to 18 at the time of ex-post evaluation. As mentioned above, such changes were followed by the adjustment of existing guidelines, etc., which led to non-utilization of SMPM developed under this project. According to interview to Bina Marga, nevertheless, there is sufficient number of staff in Bina Marga including regional offices such as Balai and Satker etc. for effective asset management of roads and bridges.

#### <Technical Aspect>

At the time of ex-post evaluation, most C/Ps still work on road and bridge asset management in Bina Marga, however, some have retired and some have been transferred to other positions which are not related to asset management of roads and bridges. While many C/Ps have sustained their skills and knowledge acquired under the project, skill level of most staff in regional offices such as Balai and Satker is not sufficient to conduct effective and comprehensive road and bridge asset management. Moreover, some standard operation procedure (SOP) and equipment to determine appropriate methods for road and bridge maintenance are not available in these regional offices. To improve the situation, Bina Marga has been providing some training related to road and bridge asset management with its staffs every year in several provinces, while it is not clear such training is enough for improving/retaining staff's skills.

#### <Financial Aspect>

After project completion, central government budget of approximately 1,500 to 1,800 million Rupiah has been allocated annually to Bina Marga for routine road maintenance works, approximately 2,200 to 3,000 million Rupiah has been allocated annually for periodic road rehabilitation works, and approximately 9,000 to 11,000 million Rupiah has been allocated annually for road structure improvement. The amount of budget allocated for road and bridge preservation and maintenance has been increasing every year, however, the amount is not sufficient to conduct effective asset management of roads and bridges. Moreover, the budget for Bina Marga including for road preservation has been reduced recently due to the government's revenue shortfall.

#### <Evaluation Result>

In light of the above, some 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 project, targets set in indicators for Project Purposes were achieved by the time of project completion, the project effects have been partially maintained since project completion, and the degree of achievement of the Overall Goal is partial at the time of ex-post evaluation. As for sustainability, some problems have been observed in terms of the institutional, technical and financial aspects. As 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.

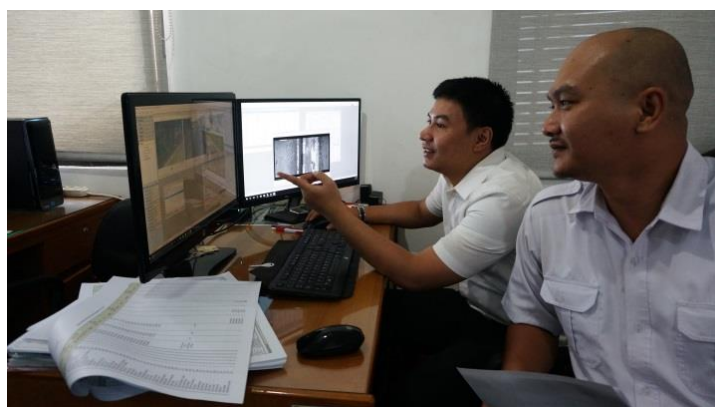
### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

- Bina Marga is advised to continue and improve the asset management for road and bridge not only in Head Office level and pilot project but also in all Balai and Satker P2JN under Bina Marga. Since 2015 Bina Marga has been under restructuring and a new Directorate (i.e Road Preservation and Directorate of Bridge) could focus more with asset management, we advise that the guideline and software produced under this project could be utilized in the new directorate as a basis by updating or formulating a similar software which can help Bina Marga to overcome problems especially in budgeting the allocation for road and bridge rehabilitation.

#### Lessons learned for JICA:

- Some of the tools developed under this project was not used after project completion due to organizational changes, while the same approach was used with a new software developed with assistance from other development partners. For sustainability of project effects, JICA should have kept longer cooperation to Bina Marga to perfectly ingrain the method into the institution free of influence from the change of institution structure. When planning a technical cooperation project to develop a system, the project period should be set carefully taking into consideration that it may take time for such a system to take root in the organization. For example, a longer cooperation period than the period required for developing the system, or phasing of the project into the pilot phase and the embedding (dissemination) phase, can be considered.
- The guidelines were translated into Indonesian language only after project completion, which may have affected transfer of knowledge and thus continuing utilization of the methods and tools developed under the project. JICA should have prepared all the guideline in dual language (English and Indonesian) from the beginning in order for staffs and operators in Balai can understand better and continue to utilize the obtained method and software efficiently.



Discussion on road maintenance in Balai office



Pilot Project Site for bridge maintenance

Country Name	<b>Improving the Capacity of the National TB Control Program through implementation of the 2<sup>nd</sup> National TB Prevalence Survey</b>
Kingdom of Cambodia	

**I. Project Outline**

Background	<p>Cambodia was one of the 22 high Tuberculosis (TB) burden countries with the number of TB cases of 664 per 100,000 population which was the worst level in Asia (estimation by WHO in 2009). Cambodia made efforts on TB control through establishment of the National Center for Tuberculosis and Leprosy Control (CENAT). Japan had comprehensively supported their efforts through grant aid project to rehabilitate facilities and to provide equipment for CENAT and technical cooperation projects to strengthen capacity for TB control based on CENAT in order to enhance Directly Observed Treatment, Short course (DOTS), which is the TB control strategy recommended by the World Health Organization (WHO). However, there were remaining issues to conduct the 2nd National TB Prevalence Survey, which was scheduled in 2010, by their own capacity since the survey required large scale and high accuracy to collect data. Therefore, the government of Cambodia requested the government of Japan a technical cooperation project to support the entire process of the National TB Prevalence Survey (the Survey).</p>						
Objectives of the Project	<p>Through development of survey protocol and implementation of the Survey, and enhancement of diagnostic network of the National TB Control Program based on quality bacteriological examination, the project aimed at strengthening capacity of the National TB Control Program, there by contributing to reduction of TB morbidity and mortality in Cambodia.</p> <ol style="list-style-type: none"> <li>Overall Goal: TB morbidity and mortality are reduced.</li> <li>Project Purpose: Capacity of the National TB Control Program is strengthened through implementation of the National TB Prevalence Survey.</li> </ol>						
Activities of the project	<ol style="list-style-type: none"> <li>Project site: Whole country of Cambodia</li> <li>Main activities: 1) Development of the Survey Protocol and Survey Manuals and conducting field operation according to the Protocol, 2) Producing the Survey result, 3) Assessing and calibrating TB surveillance based on the Survey results, 4) Reviewing and revising the National TB Control Strategies, 5) Development of the training modules and delivery of trainings on testing and examination</li> <li>Inputs (to carry out above activities)</li> </ol> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Japanese Side</p> <ol style="list-style-type: none"> <li>Experts: 10 persons</li> <li>Acceptance of trainees in Japan: 6 persons</li> <li>Equipment: PCs, Portable X-ray Units, X-ray film Processor, Incubator, Electrical Generator, etc.</li> <li>Local Cost: Cost for the National TB Prevalence Survey</li> </ol> </td> <td style="width: 50%; vertical-align: top;"> <p>Cambodia Side</p> <ol style="list-style-type: none"> <li>Counterpart personnel: 71 persons</li> <li>Land and Facilities: Office spaces for the Japanese experts in CENAT, etc.</li> <li>Local cost: Cost for the National TB Prevalence Survey.</li> </ol> </td> </tr> </table>					<p>Japanese Side</p> <ol style="list-style-type: none"> <li>Experts: 10 persons</li> <li>Acceptance of trainees in Japan: 6 persons</li> <li>Equipment: PCs, Portable X-ray Units, X-ray film Processor, Incubator, Electrical Generator, etc.</li> <li>Local Cost: Cost for the National TB Prevalence Survey</li> </ol>	<p>Cambodia Side</p> <ol style="list-style-type: none"> <li>Counterpart personnel: 71 persons</li> <li>Land and Facilities: Office spaces for the Japanese experts in CENAT, etc.</li> <li>Local cost: Cost for the National TB Prevalence Survey.</li> </ol>
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Ex-Ante Evaluation	2009	Project Period	January, 2010 to January, 2013	Project Cost	(Ex-ante) 350 million yen (Actual) 314 million yen		
Implementing Agency	National Center for Tuberculosis and Leprosy Control (CENAT), Ministry of Health (MoH)						
Cooperation Agency or Contract Agency in Japan	Japan Anti-Tuberculosis Association, The Research Institute of Tuberculosis						

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Cambodia at the time of ex-ante evaluation and project completion&gt;</p> <p>The project was consistent with the Cambodia's development policies of, "the National Health Strategic Plan for Tuberculosis Control in the Kingdom of Cambodia (2006-2010, 2011-2015)" and "the National Health Policies and Strategies for Tuberculosis Control in the Kingdom of Cambodia (2006-2010, 2011-2015)", which prioritized "implementation of the National TB Prevalence Survey as one of the important strategies to achieve the National Tuberculosis Control Program (NTP)".</p> <p>&lt;Consistency with the Development Needs of Cambodia at the time of ex-ante evaluation and project completion &gt;</p> <p>The project was consistent with the Cambodia's development needs to implement the National TB Prevalence Survey with higher degree of accuracy in order to make more effective TB control strategy based on reliable survey results.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of ex-ante evaluation&gt;</p> <p>The project was consistent with the Japan's ODA policy to support for the vulnerable groups, including through the health sector such as TB control, which was prioritized in the Country Assistance Plan for Cambodia (2002).</p> <p>&lt;Evaluation Result&gt;</p> <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 achieved by the project completion. The skills and outcomes obtained through the project activities for the Survey have contributed to implementation of the six components of “the Stop TB Strategy”. Also, the Survey results, such as statistical significance of a decrease in TB prevalence which indicates effects of the DOTS strategy, were referred to formulate The National TB Control Strategic Plan (2016-2020).

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

The project effects have been mostly continued since the project completion. The number of health institutions delivering the DOTS service steadily increased even after the project completion. At the time of ex-post evaluation, 6 national hospitals, 104 referral hospitals, 1,170 health centers, 111 health posts and 11 private hospitals provided the DOTS service. The treatment success rate against the detected cases has remained high at 93% because of the NTP activities. In terms of TB/HIV control, the proportion of TB patients screened for HIV has been sustained at more than 80% and all the Operational Health Districts (ODs) have provided TB/HIV services. Also, 11 Multi Drug Resistant (MDR)-TB treatment sites has been sustained since 2011. However, the number of ODs introducing the Private-Public Mix (PPM) DOTS decreased from 37 in 2011 to 0 in 2015 due to the lack of budget and the number of cases diagnosed as TB by PPM also decreased to 0 in 2015. The International Standard for TB Care (ISTC) has not been practiced at CENAT because the standard required is too high. ODs and health centers have been utilizing CENAT national training manual on TB case finding and treatment for health center and referral hospital. Therefore, the manuals developed by the project for PPM and ISTC were not utilized at the time of ex-post evaluation. In terms of the community DOTS, 861 out of 1,153 HCs in the country implemented at the time of ex-post evaluation. However, the budget constraint hampered improvement of the proportion of the HCs implementing the Community DOTS. In particular in 2014, the proportion of the HCs implementing the community DOTS sharply dropped to 52% due to the lack of funding.

After the project completion, the operational surveys have been conducted: 2 surveys supported by JICA, 2 surveys supported by the WHO (cost analysis) and operational cost analysis on the Active Case Finding (ACF)<sup>1</sup> under collaboration among CENAT and the National University of Singapore, University of Health Science (UHS). Also, new training manuals were developed based on results of the National TB Prevalence Survey. In addition, TB REACH<sup>2</sup> developed new algorithms for TB diagnosis<sup>3</sup> in adult and children based on the survey results for the ACF intervention since 2012.

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

The Overall Goal has been achieved. The TB prevalence rate and the mortality rate by TB reduced by more than 50% from 1990 to 2014. In addition, the incidence rate and death rate (morbidity rate) of TB have continuously declined from 2010 to 2015. Those improvements in the indicators attributed to the strong NTP activities and well-coordinated support by the development partners.

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

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

### <Evaluation Result>

In light of the above, the project achieved the Project Purpose and the Overall Goal. Therefore, the effectiveness/impact of the project is high.

#### Achievement of project purpose and overall goal

Aim	Indicators	Results																																																						
(Project Purpose) Capacity of the National TB Control Program is strengthened through implementation of the National TB Prevalence Survey.	(Indicator 1) All components of Stop TB Strategy* are carried out with high quality.  *The Stop TB Strategy: WHO's global strategy to dramatically reduce the global burden of TB by 2015, which was launched in 2006.	<p><u>Status of the achievement: Achieved</u></p> <p>(Project Completion)</p> <ul style="list-style-type: none"> <li>● The skills and outcomes obtained through the project activities for the Survey have contributed to the following six components of the Stop TB Strategy.               <ol style="list-style-type: none"> <li>i) Pursue high-quality DOTS expansion and enhancement</li> <li>ii) Address TB/HIV, multi-drug resistant TB, and the needs of poor and vulnerable population</li> <li>iii) Contribute to the health system strengthening (HSS) based on primary health care</li> <li>iv) Engage all care providers</li> <li>v) Empower people with TB, and communities through partnership</li> <li>vi) Enable and promote research</li> </ol> </li> </ul> <p>(Ex-post evaluation) Mostly continued.</p> <p>[No. of health institutions delivering of DOTS services] (Component i and iv)</p> <table border="1"> <thead> <tr> <th></th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>National hospitals</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> </tr> <tr> <td>Referral hospitals</td> <td>74</td> <td>83</td> <td>82</td> <td>89</td> <td>102</td> <td>104</td> </tr> <tr> <td>Health centers</td> <td>942</td> <td>979</td> <td>1,068</td> <td>1,103</td> <td>1,153</td> <td>1,170</td> </tr> <tr> <td>Health post</td> <td>49</td> <td>67</td> <td>123</td> <td>91</td> <td>110</td> <td>111</td> </tr> <tr> <td>Private hospitals</td> <td>-</td> <td>4</td> <td>8</td> <td>11</td> <td>11</td> <td>11</td> </tr> </tbody> </table> <p>[Treatment success rate] (Component i, ii and vi)</p> <table border="1"> <thead> <tr> <th></th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>No. of detected cases (a)</td> <td>17,441</td> <td>15,884</td> <td>14,572</td> <td>13,554</td> <td>11,755</td> </tr> </tbody> </table>		2011	2012	2013	2014	2015	2016	National hospitals	6	6	6	6	6	6	Referral hospitals	74	83	82	89	102	104	Health centers	942	979	1,068	1,103	1,153	1,170	Health post	49	67	123	91	110	111	Private hospitals	-	4	8	11	11	11		2011	2012	2013	2014	2015	No. of detected cases (a)	17,441	15,884	14,572	13,554	11,755
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<sup>1</sup> Systematic screening for active TB is defined as the systematic identification of people with suspected active TB, in a predetermined target group, using tests, examinations or other procedures that can be applied rapidly. (WHO)

<sup>2</sup> TB REACH is the Stop TB partnership. The main objective of TB REACH is to increase case detection of TB, detect the disease as early as possible, and ensure timely and complete treatment while maintaining high TB cure rates.

<sup>3</sup> Algorithms are flowchart showing procedures of TB diagnosis.

No. of cases with successful treatment (b)	16,389	14,836	13,525	12,587	10,963
% of treatment success (a)/(b)	94%	93%	93%	93%	93%

[TB/HIV and MDR-TB Control] (Component ii)

	2011	2012	2013	2014	2015	2016
% of TB patients screened for HIV	More than 80%	83%	84%	81%	83%	N.A.
% of ODs providing TB/HIV services	100%	100%	100%	100%	100%	100%
No. of MDR-TB treatment sites	11	11	11	11	11	11

[Introduction of PPM] (Component iv)

	2011	2012	2013	2014	2015
No. of ODs introducing PPM	37	35	35	27	0
No. of cases diagnosed as TB by PPM	691 (2%)	763 (2%)	660 (1.7%)	465	0

[Community-DOTS and communities' participation ] (Component v)

	2011	2012	2013	2014	2015	2016
No. of HCs implementing Community-DOTS	857	827	816	577	861	861
% of HCs implementing Community-DOTS (No. of HCs implementing Community-DOTS/Total No. of HCs)	89%	84% (827/979)	83% (816/979)	52% (577/1,103)	75% (861/1,153)	75% (861/1,153)

(Indicator 2)  
TB Control Program activities are carried out based on the Survey results.

Status of the achievement: Achieved  
(Project completion)

- The Survey results, such as statistical significance of decrease in TB prevalence among the population over 15 which indicates effects of the DOTS strategy, were referred used to formulate the National TB Control Strategic Plan (2016-2020) .
- The Survey was appropriately conducted and the results were compiled in accordance with the protocol which was developed by the project, reviewed by WHO and approved by MOH.

(Ex-post Evaluation) Continued

- New training manuals were developed in 2013
- New algorithms for TB diagnosis in adult and children based on ACF intervention since 2012 were developed by TB REACH.

(Overall goal)  
TB morbidity and mortality are reduced.

(Indicator 1)  
Prevalence rate and mortality rate due to tuberculosis are reduced by 50% by 2015, compared with ones in 1990.

Status of achievement: Achieved  
(Ex-post Evaluation)

Indicator	1990 (a)	2010	2014 (b)	Reduction (a)-(b) (c)	Reduction Rate (c)/(a)
Prevalence rate*	1,670	660	668	1,002	60%
Mortality rate*	157	61	58	99	63%

\*Per 100,000 cases

(Indicator 2)  
Incidence rate of TB and death rate continue to be on the decline.

Status of achievement: Achieved  
(Ex-post Evaluation)

Indicator	1990	2010 (a)	2015 (b)	Reduction (a)-(b) (c)	Reduction Rate (c)/(a)
Incidence rate*	574	473 (-17.6%)	380	93	19.7%
Death rate (Morbidity rate)*	157	61 (60.1%)	58	3	4.9%

\*Per 100,000 cases

### 3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 90% and 100%, respectively). Therefore, efficiency of the project is high

### 4 Sustainability

#### <Policy Aspect>

The government of Cambodia has continuously prioritized control of three major communicable diseases of TB, Malaria and HIV/AIDS, and has continued to implement national programs to control TB, such as the National TB Control Strategic Plan (2016-2020).

#### <Institutional Aspect>

The organizational setting for NTP has been enhanced through increases in the numbers of the health institutions providing the TB control services from 2012 to 2016 at the time of ex-post evaluation: Since MoH established more health facilities nationwide and NTP uses national health structure to provide TB treatment services, the number of institutions providing the TB control services steadily increased over the years. The TB Laboratories (214 to 215), the National Hospitals (no change at 8), the Referral Hospitals (83 to 104), the Health Centers (979 to 1,170), the Health Posts (67 to 111) and ODs (77 to 95). The total number of staffs engaged in implementation of NTP at CENAT is 113 staffs in the units such as the Hospital Unit, the Technical Bureau, the Laboratory Unit, the Outpatient Department (OPD) Unit, the Pharmaceutical Unit and the CXR (Chest X-Ray) Unit. The total number of medical and health staffs engaged in NTP nationwide is 3,121 in the medical/health institutions, such as the TB Laboratories, the National Hospitals, the Referral Hospitals, the Health Centers, the Health Posts and ODs. The largest number of staffs (2,340) is deployed for the Health Center. The number of facilities offering the TB control service is sufficient and the institutional structure is sustainable.

#### <Technical Aspect>

CENAT has delivered the following 6 training courses: TB care for pediatrics, TB/HIV, TB research and treatment, TB care for prisoner, Radiology and MDR-TB. However, there are rooms to improve technical capacity of physicians and technicians as well as health staffs. For the physicians, interpretation of radiography is a necessary skill for detection of TB but they need to improve CXR reading capacity. Although skills for bacteriological examination including culture examination and smear examination are essential for the laboratory technicians, they are required to improve skills of Fluorescent Microscopy and liquid culture and Drug Susceptibility Test (DST). All subnational level health facilities surveyed by the ex-post evaluation have been following guidelines and protocols provided by CENAT on research and TB treatment. The Provincial Health Departments (PHDs) have conducted monitoring at PHD and OD levels periodically with financial support from CENAT. Some health centers reported lack of skilled staffs due to retirement of TB staffs.

#### <Financial Aspect>

The total budget required to operate NTP increased from 22.0 million USD in 2012 to 30.8 million USD in 2015. The projected necessary budgets for 2016 and 2017 slightly decrease to 28.6 million USD and 27.8 million, respectively. The budget of CENAT has also steadily increased from 0.89 million USD in 2012 to 1.13 million USD in 2015 and is projected to increase to 1.34 million USD in 2017. The Global Fund for Fight to AIDS, Tuberculosis and Malaria (GFATM) and the United States Agency for International Development (USAID) have been the two largest donors for NTP in recent years. While the government of Cambodia increased their own budget from 1.5 million USD in 2012 to 2.0 million USD in 2015, the donors heavily supported the budget for NTP and the available amount of budget has fluctuated by the amount of fund provided by the donors. In recent years, the amount funded by the donors has been declining because donors' priority has shifted their support from vertical program based support to health system strengthening. As a result, the gap between the necessary budget and available resources increased from 7.8 million USD in 2012 to 14.3 million USD in 2015. Further increase in the national budget allocation to NTP is strongly needed to sustain current level of the activities.

#### <Evaluation Result>

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

### 5 Summary of the Evaluation

The project achieved the Project Purpose (for enhancing the capacity of NTP) and achieved the Overall Goal (for reducing TB morbidity and mortality). As for sustainability, the organizational setting for implementation of NTP has been sustainable under the policy endorsement. The number of staffs in CENAT and the number of medical and health staffs who have been engaged in implementation of NTP have been sufficient while the number of health facilities steadily increased. Also, the health staffs at sub-national level health facilities have been following the guidelines and protocols provided by CENAT on research and TB treatment in order to provide the TB diagnosis and DOTS. On the other hand, there are some challenges in the technical and financial aspects. The technical capacity of physicians and laboratory technicians for detection of TB are needed to improve. The budget for NTP has been decreasing after the increases from 2012 to 2015 because the donors have reduced their financial support for NTP.

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

## III. Recommendations & Lessons Learned

### Recommendations for Implementing Agency: (MoH and NTP)

- Inadequacy of regular refresher training for staffs in TB sections of health facilities at OD and health center level presents an urge for more updated, frequent and regular staff capacity training to sustain high quality NTP implementation. Therefore, scaled up utilization of training manual developed by the project is required in addition to existing training guidelines and protocols.
- Staffing for NTP has not shown a major issue. However, it is necessary that existing staffs and new staffs in particular, improve their knowledge, skill and technical capacity.
- Further advocate for increasing financing of the NTP activities is essential to ensure sustainability of NTP.

### Lessons learned for JICA:

- When JICA considers of terminating long-term support, in order to ensure sustainability especially on financial aspect, an exit strategy such as strengthening of financial management should be planned from the time of project formulation for the final phase of the support

and be carefully formulated with consensus and collaboration with not only the implementing agency but also other development partners concerning budgeting and funding during the project implementation. Although activities for ensuring sustainability may not directly relates to individual project's project purpose, it should be included as project activities in the last phase of series of cooperation in the same area or theme.



Mobile Health Check-up Activity



Active Case Finding Activity

Country Name	<b>The Project for Improvement of Power Sector Management</b>
Lao People's Democratic Republic	

**I. Project Outline**

Background	<p>In Laos, the power sector played a vital role in national socio-economic development. Many projects were being planned and implemented for power source development and improvement of transmission and distribution networks in order to increase electrification rate in the country. In this context, improvement of administrative structures and legislative provisions were key factors for supply of stable and safe electricity in Laos. Based on the request from the government of Laos, JICA supported two technical cooperation projects: "the Project on Electric Power Technical Standard Establishment (STEP I) (2000- 2003)" and "the Project for Lao Electric Power Technical Standards Promotion (STEP II) (2005- 2008)". Through these projects, the Lao Electric Power Technical Standards (LEPTS), including guidelines, safety rules and inspection manuals for LEPTS were established. Nevertheless the power sector administration at the national level was in the process of capacity development, it was not able to fully act as a powerful engine pulling the provincial authorities forward. Therefore, improvement of power sector administration and capacity for project management on both national and provincial levels were still necessary.</p>												
Objectives of the Project	<p>Through preparation of documents for examination and inspections of power facilities, trainings for the LEPTS trainers and conducting seminars on LEPTS in the target provinces, the project aimed at strengthening regulatory function of the electricity power sector, thereby contributing to an increase in the number of electricity power facilities suiting LEPTS as well as stable supply of electric power.</p> <ol style="list-style-type: none"> <li>Overall Goal: The number of electric power facilities that suit LEPTS increase and the electric power is stably supplied.</li> <li>Project Purpose: Regulatory function of the electric power sector is strengthened.</li> </ol>												
Activities of the project	<ol style="list-style-type: none"> <li>Project site: Vientiane (main project site), Champasak province, Xieng Khouang province and Savanakhet province (pilot sites)</li> <li>Main activities: 1) Preparation of documents for examination and inspections for power facilities and establishment of the Department of Energy Management (DEM) as a regulatory body, 2) delivery of trainings for the LEPTS trainers, 3) Conducting seminars on LEPTS in the target provinces and preparation and revisions of casebooks</li> <li>Inputs (to carry out above activities) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">Japanese Side</td> <td style="width: 50%; border: none;">Lao Side</td> </tr> <tr> <td style="border: none;">1. Experts: persons: 16 persons</td> <td style="border: none;">1. Staff allocated: 23 persons</td> </tr> <tr> <td style="border: none;">2. Acceptance of trainees in Japan: 14 persons</td> <td style="border: none;">2. Land and Facilities: Project office</td> </tr> <tr> <td style="border: none;">3. Equipment: Portable GPS, video camera and office equipment (printer, scanner, etc.)</td> <td style="border: none;"></td> </tr> </table> </li> </ol>					Japanese Side	Lao Side	1. Experts: persons: 16 persons	1. Staff allocated: 23 persons	2. Acceptance of trainees in Japan: 14 persons	2. Land and Facilities: Project office	3. Equipment: Portable GPS, video camera and office equipment (printer, scanner, etc.)	
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Ex-Ante Evaluation	2010	Project Period	August 2010 – January 2013	Project Cost	(Ex-ante) 290 million yen (Actual) 297 million yen								
Implementing Agency	Department of Energy Management (DEM), Ministry of Energy and Mines (MEM)												
Cooperation Agency or Contract Agency in Japan	Chubu Electric Power Co., Inc. The Kansai Electric Power Company, Incorporated												

**II. Result of the Evaluation****<Special perspectives considered in the ex-post evaluation>**

The Japanese experts and the implementing agency recognized failure of logics and inappropriate indicators for the Project Purpose and the Overall Goal in the Project Design Matrix (PDM) during the project implementation, but PDM was not modified. Therefore, this ex-post evaluation excluded the following inappropriate indicators to verify the achievement level of the Project Purpose and the Overall Goal

(Verification of the Project Purpose)

- .The indicator 4 for the Project Purpose was inappropriate because the project did not include the activities for substantial capacity development of the Provincial Department of Energy Management (PDEM) though PDEM had limited technical capacity. Therefore, the indicator 4 was not included to verify the achievement level of the Project Purpose.
- The indicator 5 and 6 for the Project Purpose were inappropriate because the Laos Electricity (Electricité du Laos: EDL) was not the main target counterpart of the project and no activities related to technical assistance to EDL was included in the project. Therefore, the indicator 5 and 6 were not included to verify the achievement level of the Project Purpose.

(Verification of the Overall Goal)

- The Overall Goal include "stable supply of electric power" and the indicator 2 for the Overall Goal was set as "the total number of unplanned power cuts." However, since there are various causes to induce unplanned power cuts, such as operational failures other than the quality of power facility development projects, it was difficult or impossible to verify contribution of the project to stable power supply.

**1 Relevance****<Consistency with the Development Policy of Laos at the time of ex-ante evaluation and project completion>**

The project was consistent with the Laos's development policy of "the Power Sector Policy" (2001) aiming at stable and continuous domestic power supply at reasonable price and "the National Plan" (2006-2010 and 2011-2015) to achieve socio-economic development,



industrialization and modernization.

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

The project was consistent with the Laos's development needs of strengthening of regulatory function of the power sector since the government of Laos required the power sector operators to comply with the national technical standards for design, construction and operation of the facilities at the time of ex-ante evaluation and the project completion.

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

The project was consistent with the Japan's ODA policy stipulated by the Country Assistance Plan for Laos (2006) to prioritize socio-economic infrastructure development and improvement of administrative capacity in public sector.

<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 project completion. Only one project document was reviewed by DEM (Indicator 1) and 12 inspections were conducted by DEM (Indicator 2). The indicator 3 was not verified because no project should have been reviewed during the project period. Other indicators of 4-6 were not applicable for verification of the achievement level of the Project Purpose because no activity to enhance relevant capacities of PDEM, DEM and EDL was included in the project

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

The project effects have been mostly continued since the project completion. The number of documents reviewed by DEM base on the practical examination and inspection instruction increased to 10 in 2013 and decreased to 6 in 2014 and 2 in 2015 since it depends on the number of project proposed. At the provincial level, the project documents have been reviewed by PDEMs based on the practical examination and inspection instruction as well. More numbers of project documents have been reviewed by PDEMs in the three target provinces of Champasak, Xieng Khouang and Savanaket than by PDEMs in the non-target provinces of Saravanh and Luangphrabang. The numbers of project documents reviewed by PDEMs have been fluctuated year by year due to the number of actual project application which can be affected by external factors such as the investment environment, including the economic situation. The number of inspection activities has increased to 52 in 2013, 67 in 2014 and 65 in 2015. In addition, on the sites for power facility development sites, LEPTS and the guideline have been reference for EDL and other independent power producers (IPPs) as standards of implementation and management of power facilities and development projects. According to the interviews with 4 IPPs, DEM conducted inspection of the power facilities in compliance with all the steps of LEPTS, preparing minutes of inspection to be agreed by all parties involved and issued permission letter for impounding and certifying completion of project after final inspection. However, LEPTS and its associated documents have not been used or applied for a few power facilities development projects. It is because EDL has mobilized external funds for those projects and project owners or lenders have preferred to apply their own technical standards rather than LEPTS<sup>1</sup>. Although the owner of the project is required to nominate the chief technical engineer who is responsible for technical supervision in accordance with LEPTS, EDL has difficulty to assign the chief engineer to projects which EDL owns, but assigned project managers to supervise field work, management and coordination on a project basis.

<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. For the period from 2013 to 2015, 22 power facilities were newly approved by DEM. Since the total installed capacity of power generation in the country increased from 2,985.95 MW to 3,797.95 MW for the same period, the project might have contributed to improvement of quality of power generation facilities newly installed in the country.

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

Some positive impacts of the project were confirmed by the ex-post evaluation. Based on the field inspections, DEM updated the casebook of LEPTS compiling samples of power facilities development projects with photos in order to make DEM and PDEM staffs deeper understandings on the key points and the articles of LEPTS to be referred when they conduct site inspections. Through the Technical Assistance for Capacity Building in the Hydropower and Mining Sectors Project (HMTA) supported by the World Bank (WB), DEM has disseminated the contents and procedures of LEPTS to all stakeholders at the meetings and workshops. No negative impact was confirmed.

<Evaluation Result>

In light of the above, the project partially achieved the Project Purpose and the Overall Goal through application of LEPTS to power facility development projects although there were logical failures of the verifiable indicators for the Project Purpose and the Overall Goal in the project design. Therefore, the effectiveness/impact of the project is fair.

### Achievement of project purpose and overall goal

Aim	Indicators	Results						
(Project Purpose) Regulatory function of the electric power sector is strengthened.	(Indicator 1) The number of reviewed project documents (F/S*, D/D**, etc.) by DEM based on the practical examination and inspection instructions.  *F/S: Feasibility Study **D/D: Detail Design	<u>Status of the achievement: Partially achieved</u> (Project Completion) ● One project document (basic design report) was reviewed by DEM. (Ex-post evaluation) Continued [No. of project documents reviewed by DEM based on the practical examination and inspection instructions] <table border="1"> <thead> <tr> <th>2013</th> <th>2014</th> <th>2015</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>6</td> <td>2</td> </tr> </tbody> </table>	2013	2014	2015	10	6	2
2013	2014	2015						
10	6	2						

<sup>1</sup> In particular, in case of IPPs funded or owned by foreign investors such as Chinese, it might be difficult for MEM to enforce them to follow LEPTS in some cases.

	(Indicator 2) The number of inspection activities by DEM based on the practical inspection instructions	<p><u>Status of the achievement: Achieved</u> (Project completion)</p> <ul style="list-style-type: none"> <li>12 inspections were conducted by DOE.</li> </ul> <p>(Ex-post Evaluation) Continued. [No. of inspection activities by DEM based on the practical inspection instructions]</p> <table border="1"> <tr> <td>2013</td> <td>2014</td> <td>2015</td> </tr> <tr> <td>52</td> <td>67</td> <td>65</td> </tr> </table>	2013	2014	2015	52	67	65																										
2013	2014	2015																																
52	67	65																																
	(Indicator 3) The number of reviewed project documents (F/S, D/D, etc.) by PDEM based on the practical examination and inspection instructions	<p><u>Status of the achievement: Not achieved</u> (Project completion)</p> <p>PDEM did not review any project documents during the project period because of no submission of project document to be reviewed by PDEM .(Ex-post evaluation) Achieved. [No. of project documents reviewed by PDEMs based on the practical examination and inspection instructions]</p> <table border="1"> <tr> <td></td> <td>2013</td> <td>2014</td> <td>2015</td> </tr> <tr> <td><b>Target Province</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Champasak province</td> <td>78</td> <td>95</td> <td>45</td> </tr> <tr> <td>Xieng Khouang province</td> <td>50</td> <td>54</td> <td>56</td> </tr> <tr> <td>Savanakhet province</td> <td>114</td> <td>208</td> <td>159</td> </tr> <tr> <td><b>Non-target Province</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Saravanh province</td> <td>24</td> <td>10</td> <td>22</td> </tr> <tr> <td>Luangphabang province</td> <td>7</td> <td>6</td> <td>3</td> </tr> </table>		2013	2014	2015	<b>Target Province</b>				Champasak province	78	95	45	Xieng Khouang province	50	54	56	Savanakhet province	114	208	159	<b>Non-target Province</b>				Saravanh province	24	10	22	Luangphabang province	7	6	3
	2013	2014	2015																															
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Luangphabang province	7	6	3																															
	(Indicator 4) The number of electric power facilities reports from PDEM to DEM	<p><u>Status of the achievement: Not applicable</u></p> <ul style="list-style-type: none"> <li>No electric power facilities report was submitted from PDEM to DOE because PDEM did not conduct inspection due to their limited technical capacity.</li> <li>Since the terminal evaluation report confirmed that the indicator had not been able to be achieved by the project activities, , this indicator is not applicable.</li> </ul>																																
	(Indicator 5) The number of internal inspection activities by EDL based on the practical inspections	<p><u>Status of the achievement: Not applicable</u></p> <ul style="list-style-type: none"> <li>Since the project did not include any activities for capacity development of EDL on internal inspection, this indicator is not applicable.</li> </ul>																																
	(Indicator 6) Electric power facilities reports from EDL to DEM include the matter related to LEPTS	<p><u>Status of the achievement: Not applicable</u></p> <ul style="list-style-type: none"> <li>Since the project did not include any activities for capacity development of EDL related to submission of the reports from EDL to DEM this indicator is not applicable.</li> </ul>																																
(Overall goal) The number of electric power facilities that suit Lao Electric Power Technical Standard (LEPTS) increase and the electric power is stably supplied.	(Indicator 1) The total number of DEM- approved electric power facilities.	<p><u>Status of achievement: Achieved</u> (Ex-post Evaluation) [The number of power facilities approved by DEM]</p> <table border="1"> <tr> <td>2013</td> <td>2014</td> <td>2015</td> <td>Total</td> </tr> <tr> <td>6</td> <td>12</td> <td>4</td> <td>22</td> </tr> </table>	2013	2014	2015	Total	6	12	4	22																								
	2013	2014	2015	Total																														
6	12	4	22																															
(Indicator 2) The total number of unplanned power cuts.	<p><u>Status of achievement: Impossible to verify</u> (Ex-post Evaluation)</p> <ul style="list-style-type: none"> <li>The number of power facilities complying with LEPTS does not directly affect the number of unplanned power cuts and it was difficult to verify contribution of the project to reduction of the number of unplanned power cuts since there were other various causes of unplanned power cuts such as operational failures.</li> </ul>																																	

Source : Terminal Evaluation Report, Data provided by DEM and PDEMs of Champasak, Xieng Khouang, Savanakhet, Saravanh, and Luangphabang, interviews with IPPs (Nam Ngum V Hydropower Company, Nam Pay Hydropower Company, Nam Ngiep I Hydropower Company, and Nam Ngum II Hydropower Company)

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

### 4 Sustainability

#### <Policy Aspect>

According to the Article 22 and 23 of the Laos Electricity Law which was amended in 2017, the new installations, expansions, rehabilitations, designs, constructions and operation and maintenance of power facilities and infrastructure are required to comply with LEPTS. Also, the guideline for implementation of “the Policy for Sustainable Hydropower Development of Lao PDR” clearly defines the compliance with LEPTS by the Article 5.5 and 5.6. In addition, concession agreements (CAs) for power development projects between the government of Laos and project owners who will own power facilities to be constructed need to define on the obligation of the both parties for compliance with LEPTS, including examination and inspection of the developed power facilities by MEM.

#### <Institutional Aspect>

[DEM]

There was no change in responsibilities and roles of DEM related to compliance with LEPTS for the power facility development

project. DEM assigned 25 staffs and the number of staff has been sufficient to conduct the related activities to supervise compliance with LEPTS by EDL and IPPs. MEM checks the compliance of LEPTS at planning (F/S) and design stage, construction stage and operation stage. When the project is not properly designed, constructed or operated in accordance with LEPTS, MEM requests the project owners or the power operators to revise the design or suspends to give approval for further step forward.

[PDEMs]

PDEMs were restructured in accordance with the Ministerial Decree of MEM issued in August 2012. However, overall role and function of PDEMs has remained same and most of the staffs trained by the project have continued their works in the target provinces. On the other hand, in the target provinces, while PDEM Champasak has a sufficient number of staffs (9 staffs), PDEMs Xieng Khouang and Savanakhet have the insufficient number of staffs (6 and 5, respectively). The recruitment of staff depends on the quota provided by MEM, and thus, it is difficult for PDEMs to obtain the sufficient number of staffs as their requirement.

<Technical Aspect>

[DEM]

The staffs of DEM have sustained their skills and knowledge to conduct review project documents for power facility development projects and inspections on the project sites in accordance with LEPTS. DEM has conducted in-house trainings and technical transfer in order to apply LEPTS. Also, technical officers of DEM have enhanced their capacity to check designed documents and to conduct inspection of power facility development projects in accordance with LEPTS under HMTA.

[PDEMs]

Although the technical staffs of the target PDEMs trained by the project continued their works at the target provinces, PDEMs of Xieng Khouang and Savanakhet faced lack of some basic technical knowledge, such as civil engineering and mechanical engineering, for checking project documents in accordance with LEPTS. On the other hand, DEM delivered trainings for PDEM staffs in order to maintain and improve their technical knowledge and skills based on LEPTS. Also, MEM delivered 3 times of a theoretical training on LEPTS and 14 time of On-the Job training (OJTs) on practical inspection for PDEMs and EDL for the period from 2013 to 2015<sup>2</sup>. In addition, PDEMs have organized in-house technical exchanges, such as technical transfer from senior engineers to junior engineers.

<Financial Aspect>

[DEM]

The annual budget of DEM increased from 10 million kips in 2013 to 110 million kips in 2015. For conducting the LEPTS related activities, the budget has not been sufficient but the project owners provided financial support to conduct necessary activities by DEM for inspections and examinations. Also, DEM has received a support by WB for dissemination, trainings, and workshops on LEPTS.

[PDEMs]

No budget data was available for PDEMs except PDEM Xieng Khouang. The annual budget of PDEM Xieng Khouang increased from 126 million kips in 2013 to 160 million kips in 2015. However, since the budget allocated to PDEMs covered only cost of administrative works and did not cover cost for the activities related to LEPTS because of the fiscal constraints of the government of Laos. PDEMs also received financial support by the project owners to conduct necessary activities, including visit the project sites by the PDEM staffs for inspection of the construction works.

<Evaluation Result>

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

#### 5 Summary of the Evaluation

The project partially achieved the Project Purpose for application of LEPTS by DEM and PDEMs for power facility development projects and also partially achieved the Overall Goal for the increase in the number of power facilities in compliance with LEPTS. As for sustainability, the number of technical staffs of PDEMs and their technical skills to apply LEPTS have not been sufficient and the budgets allocated to DEM and PDEMs have not been sufficient to conduct the necessary activities to apply LEPTS. As for efficiency, the project cost slightly 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 MEM]

Although DEM and PDEM have tried to comply with the requirement of LEPTS, there is not fully sufficient budget and allocation of human resource with good knowledge and understandings on LEPTS as well as actual experiences on civil works or mechanical operation of hydropower facilities to implement the necessary activities and improve the capacity of relevant agencies, such as DEM and PDEMs, for compliance with LEPTS from the government of Laos. Appropriate allocation or effort should be made by MEM continuously.

Lessons learned for JICA:

[Necessity of appropriate logics in PDM]

As mentioned above, there were logical failures in PDM of this project, including casual relations between the Project Purpose and the Overall Goal, the scope of project activities and the Project Purpose and appropriateness of the verifiable indicators. However, although the logical failures were recognized by the counterparts and the Japanese experts, the PDM was not modified. As a result, those logical failures made difficulties to verify project effects and impacts based on the PDM at the time of ex-post evaluation. Therefore, at the stage of project design, it is essential to make PDM logically appropriate in order to ensure project effects led by the planned project activities within the project scope and to adequately verify project effects based on PDM. Also, it is inevitable to timely modify PDM when logical failures are identified during the project implementation.

<sup>2</sup> 35-40 officers from PDEMs and EDL participated in each training.



Nam Ngum 2 Power Company Limited which is one of the IPP company and was received examination and inspection by DEM



PDEM Luangprabang

Country Name	<b>Project on Capacity Development for Urban Water Supply Utilities in the Central Region</b>
Socialist Republic of Viet Nam	

**I. Project Outline**

Background	Sufficient, reliable and safe water supply to the increasing urban population had been a challenge in Viet Nam. Setting “supply of safe water” as a priority area, Ministry of Construction (MOC) issued the regulation to Water Supply Companies (WSCs) to be responsible for Water Safety Plan (WSP) in 2008. At the same time, MOC had strived for strengthening a human resource development system. The training centers had been established in the North and South Regions. Capacity development of WSCs in the Central Region had remained as one of the urgent issues for safe water supply so that, in 2009, establishment of Training Center for Water Sector in the Central Region (TC) in Thua Thien Hue Province was determined. Meanwhile, WSC of Thua Thien Hue Province (HUEWACO), with support of a JICA’s technical cooperation project, “The Project on Human Resource Development for Water Sector in the Middle Region of Vietnam” (2007-2009), completed WSP and declared “Safe Drinking Water” in Hue City in 2009. At the terminal evaluation of the project, it was recommended to widely extend the technical know-how of HUEWACO gained through the project to other WSCs in the Central Region.				
Objectives of the Project	<p>The Project aimed at initiating capacity development of the WSCs, in strengthened collaboration among relevant organizations, in the Central Region of Viet Nam, which is oriented to WSP through (i) raising awareness of top management of the WSCs regarding human resource management, (ii) establishing short-term retraining courses targeting the existing staff of the WSCs at the newly established TC, and (iii) promotion of operational handbooks for WSCs<sup>1</sup>, thereby strengthening capacity of the WSCs for provision of safe water.</p> <ol style="list-style-type: none"> <li>Overall Goal: Capacity of the WSCs for provision of safe water in the Central Region is strengthened.</li> <li>Project Purpose: Capacity development of the WSCs in the Central Region, which is oriented to WSP initiated through strengthened collaboration of the relevant organizations.<sup>2</sup></li> </ol>				
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: The Central Region (18 Provinces/City in total<sup>3</sup>)</li> <li>Main Activities: <ul style="list-style-type: none"> <li>-Organization of workshops and study tours in Viet Nam oriented to WSP by MOC, targeting top management of the 18 WSCs.</li> <li>-Development of retraining courses oriented to WSP for WSCs by TC, training of its lecturers, implementation of the retraining courses and development of a retraining manual by TC.</li> <li>-Upgrade/improvement of the operational handbooks of HUEWACO, development of reference operational handbooks for other WSCs based on the handbooks of HUEWACO, provision of assistance to 5 pilot WSCs<sup>4</sup> in applying the handbooks to their conditions by HUEWACO.</li> </ul> </li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>Japanese Side</b> <ol style="list-style-type: none"> <li>Experts: 25 persons (4 long-term experts and 21 short-term experts)</li> <li>Trainees Received: 32 persons</li> <li>Equipment: equipment for distribution management, operation and maintenance (O&amp;M) of facilities, water quality management, and training management, etc.</li> <li>Local Costs: travel cost for participants of training, workshops, study tours, etc.</li> </ol> </td> <td style="width: 50%; vertical-align: top;"> <b>Vietnamese Side</b> <ol style="list-style-type: none"> <li>Staff Allocated: 29 persons (2 from MOC, 7 from TC, and 20 from HUEWACO)</li> <li>Land, Building and Facilities: office spaces for Japanese expert team at TC and HUEWACO, 2 buildings for TC with a training yard, facilities for training, etc.</li> <li>Running Expenses: per diem for C/Ps, office expenses, running costs for organization of workshops, cost for rehabilitation of existing 2 buildings for TC and construction of training yard, etc.</li> </ol> </td> </tr> </table> </li> </ol>			<b>Japanese Side</b> <ol style="list-style-type: none"> <li>Experts: 25 persons (4 long-term experts and 21 short-term experts)</li> <li>Trainees Received: 32 persons</li> <li>Equipment: equipment for distribution management, operation and maintenance (O&amp;M) of facilities, water quality management, and training management, etc.</li> <li>Local Costs: travel cost for participants of training, workshops, study tours, etc.</li> </ol>	<b>Vietnamese Side</b> <ol style="list-style-type: none"> <li>Staff Allocated: 29 persons (2 from MOC, 7 from TC, and 20 from HUEWACO)</li> <li>Land, Building and Facilities: office spaces for Japanese expert team at TC and HUEWACO, 2 buildings for TC with a training yard, facilities for training, etc.</li> <li>Running Expenses: per diem for C/Ps, office expenses, running costs for organization of workshops, cost for rehabilitation of existing 2 buildings for TC and construction of training yard, etc.</li> </ol>
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Project Period	June 2010 - June 2013 (3 years)	Project Cost	(ex-ante) 300 million yen, (actual) 286 million yen		
Implementing Agency	Ministry of Construction (MOC) (as an executing organization); The Training Center for Water Sector in the Central Region (TC); Construction and Water Supply Company of Thua Thien Hue Province (HUEWACO) (Thua Thien Hue Water Supply Joint Stock Company since 2017)				
Cooperation Agency in Japan	Ministry of Health, Labor and Welfare; Yokohama Waterworks Bureau (YWWB)				

**II. Result of the Evaluation**

< Special Perspectives Considered in the Ex-Post Evaluation >

-Target year for the Overall Goal: Although the target year is not specified in the Project Design Matrix (PDM), Detailed Planning Survey Report defines the Overall Goal as the objective which is expected to be achieved in 3 to 5 years after completion of the Project. For this

<sup>1</sup> Operational handbooks on 5 technical fields (water treatment, distribution management, O&M of facilities, internal training and customer service) and human resource development (HRD).

<sup>2</sup> “The relevant organizations” include MOC, WSCs, training organizations, Vietnam Water Supply and Sewerage Association (VWSA) and Provincial People’s Committee (PPC).

<sup>3</sup> Nghe An, Ha Tinh, Quang Binh, Quang Tri, and Thua Thien Hue (Central Coast); Da Nang, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Binh Thuan, Khanh Hoa and Ninh Thuan (South Central Coast); and Kon Tum, Gia Lai, Dak Lak, Dak Nong, and Lam Dong (Central Highlands).

<sup>4</sup> WSCs in Nghe An and Quang Tri. (Central Coast); Da Nang and Khanh Hoa (South Central Coast); Dak Lak (Central Highlands).



ex-post evaluation, therefore, the target year shall be 5 years from the completion of the Project (i.e. June 2018). If the Overall Goal and its indicator(s) are not achieved/partially achieved at the time of ex-post evaluation, likelihood of achievement by the target year shall be confirmed with grounds for judgement.

-Indicator a for the Overall Goal (Improvement of steps for preparation of WSPs in 18 WSCs): Improvement is supposed to be compared with the situation at the start of the Project as per the note of the Indicator in the PDM. However, the information collected at the start of the project (in February 2011) covered only 11 WSC so that improvement cannot be assessed for the other 7 WSCs. In addition, one of the 11 WSCs, HUEWACO, had completed WSP before the start of the project. The targets of the survey for the Indicator a, therefore, shall be limited to the remaining 10 WSCs, i.e., an alternative indicator – improvement of steps for preparation of WSP in the 10 WSCs for which the information at the start of the project is available – shall be used.

## 1 Relevance

<Consistency with the Development Policy of Viet Nam at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation and project completion, improvement of water supply services was a priority area as described in such government policy documents as the “Ten-Year Socio-Economic Development Strategy” (2006-2015), the “Five-Year Socio-Economic Development Plan (SEDP)” (2011-2015), and the “Orientation for Development of Water Supply for the Urban Area until 2025, and Vision towards 2050” approved in 2009.

<Consistency with the Development Needs of Viet Nam at the Time of Ex-Ante Evaluation and Project Completion >

At the time of ex-ante evaluation, the need for capacity development of WSCs in the Central Region, oriented to WSP, was high as explained in the “Background” above. At the time of project completion, necessity of preparing WSP in line with the WHO’s guidelines was confirmed through the issuance of Circular by MOC in 2012 that stipulates the procedure for preparing WSP (and it corresponds to WHO’s guidelines as promoted by the Project); and the WSCs needed to have capacity to follow the said Circular.

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

The project was consistent with Japan’s Country Assistance Program for Viet Nam (2009), which set “environmental conservation” as one of the four priority areas, focusing on the construction and improvement of facilities concerning water quality management and water supply as well as urban environmental management including the related administrative capability.

<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. “Development Policy on Human Resources in WSCs” was drafted instead of a concrete plan on HRD of WSCs in the Central Region as envisaged in the PDM<sup>5</sup>, based on the views and ideas of the relevant organizations summarized through study tours, thematic workshops etc. organized by MOC<sup>6</sup> (Indicator a), and a total of 18 retraining courses concerning WSP were conducted in the newly established TC in collaboration with HUEWACO, in which cumulative total of 349 persons of 18 WSCs participated (Indicator b). All of the 5 pilot WSCs have developed the first draft of the WSPs (Indicator c).

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

The project effect is continued at the time of ex-post evaluation. The draft of “Development Policy on Human Resources in WSCs” was not finalized by MOC due to lack of budget. However, some of its ideas, such as roles and functions of organizations in HRD system, are incorporated in the Prime Minister’s Decision approving “National Program on Ensuring safe water supply during 2016-2025” issued in 2016. Therefore, it is expected that during the implementation of this program, policies related to HRD in WSCs would be elaborated<sup>7</sup>. Meanwhile, the retraining courses for WSCs have been provided by TC, using the materials developed by the project. From June 2013 to June 2017, a total of 35 courses were conducted upon request from WSCs, in which cumulative total of 676 persons participated. Average number of training participants per year is almost at same level as the one during the project. Further, all of the 5 pilot WSCs have completed their WSPs. Two WSPs have been already approved by the respective PPCs and in use. In addition, 4 out of 5 pilot WSCs have been utilizing the all operational handbooks on technical fields developed through the project. They have also finalized the handbooks on HRD and put them into use. The other WSC temporarily does not use the handbooks on some fields because it has a plan to update them once ongoing privatization of the company and upgrading of organization structure and facilities is completed.

<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 progress in steps for preparation of WSP are observed in most of the WSCs (Alternative Indicator to Indicator a). All of the 5 pilot WSCs have completed their WSPs (Indicator b). In addition, 7 more WSCs among the 17 WSCs which had not completed WSPs prior to the project have completed their WSPs. Compared with the situation in the base year (2010), the measured value of the residual chlorine and turbidity of all pilot WSCs have been either improved or still within the national drinking water standards (Indicator c).

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

The project has not had negative impacts on the natural and social environments. Many other positive impacts have been observed. For example, cooperation between TC and HUEWACO, strengthened during the project is maintained and further developed (see “Institutional Aspect” of “Sustainability” below). All of the pilot WSCs have shared knowledge and skills acquired through the project to other WSCs as resource organizations. The other WSCs have formulated or are in the process of formulating their operational handbooks, using the reference handbooks and the manual for the reference handbooks prepared through the project. Furthermore, cooperation among the Implementing Agencies (TC and HUEWACO) and the Cooperating Agency in Japan (YWWB), which was nourished during the project,

<sup>5</sup> Development of draft of a nation-wide policy was discussed and agreed in the third Joint Coordinating Committee (January 2013), which coincided with the terminal evaluation.

<sup>6</sup> The draft was expected to be further modified after the project completion based on the results of the survey on HRD situation of WSCs nationwide to be conducted by MOC. (Terms of reference of the survey was developed and agreed before the project completion). The modified draft was going to be finalized through hearing of opinions of PPCs, WSCs and other relevant ministries.

<sup>7</sup> The Prime Minister’s Decision itself only mentioned about tasks related to capacity building for safe water supply. Therefore, MOC and related organizations need to elaborate details in guidance documents for implementation of the Decision.

has been extended to Da Nang Water Supply Joint Stock Company (DAWACO) and a WSC and the Training Center in the Southern Region (i.e. The 6-party cooperation (2015-2018)).

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved at the time of project completion, and the project effect was continued. The Overall Goal was achieved at the time of ex-post evaluation, and many other positive impacts have been revealed. Therefore, the effectiveness/impact of the project is high.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results																																		
(Project Purpose) Capacity development of the WSCs in the Central Region, which is oriented to WSP, is initiated through strengthened collaboration of the relevant organizations	a. Concrete plan on HRD through collaboration of the relevant organization in the Central Region is drafted by MOC*	Status of the Achievement: achieved (partially continued) (Project Completion) - “Development Policy on Human Resources in WSCs” was drafted. (Ex-post Evaluation) -The draft was not finalized but has been overridden by the Prime Minister’s Decision issued in 2016, in which some ideas of the draft have been incorporated.																																		
	b. Number of participants of the training courses concerning WSP in the Training Center (at least 192 participants of 18 WSCs)	Status of the Achievement: achieved (continued) (Project Completion) - 349 persons of 18 WSCs participated in 18 training courses in 2 years from 2011-2013. (Ex-post Evaluation) -676 persons of 5 WSCs <sup>8</sup> participated in 35 training courses in 4 years from June 2013-June 2017. Average number of training participants per year after the project completion (169 persons) is 97% of the one during the project (175 persons).																																		
	c. WSP is drafted by the pilot WSCs by the end of the Project	Status of the Achievement: achieved (continued) (Project Completion) - All of the pilot WSCs developed the first draft of the WSPs (Ex-post Evaluation) -WSP has been completed in all 5 pilot WSCs. 2 WSPs already approved by PPC and implemented. Another 2 submitted to PPC for approval. The other one just completed in August 2017.																																		
(Overall Goal) Capacity of the WSCs for provision of safe water in the Central Region is strengthened	a. Steps for preparation of WSP in the 18 WSCs are improved <sup>9</sup> . (Alternative Indicator) Steps for preparation of WSP in the 10 WSCs, for which the information at the start of the Project is available, are improved.	(Ex-post Evaluation) mostly achieved -Steps for preparation of WSP have been improved in 8 of the 10 surveyed WSCs. -One WSC has postponed the preparation of WSP due to the privatization of the companies -One WSC is still in the progress of preparation of WSP but did not show clear progress in each step.																																		
	b. WSP is completed in the pilot WSCs	(Ex-post Evaluation) achieved -WSP has been completed in all 5 pilot WSCs.																																		
	c. Water quality of the pilot WSC is improved in major parameters (residual chlorine and turbidity) comparing to situation at starts of the Project	(Ex-post Evaluation) mostly achieved <Average residual chlorine and turbidity in the pilot WSCs>																																		
		<table border="1"> <thead> <tr> <th rowspan="2">Pilot WSCs</th> <th colspan="2">Residual Chlorine (mg/l)*</th> <th colspan="2">Turbidity (NTU)*</th> </tr> <tr> <th>2010 (base year)</th> <th>2016</th> <th>2010 (base year)</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>Nghe An</td> <td>0.5</td> <td>0.35-0.5</td> <td>0.28</td> <td>0.575-1.25</td> </tr> <tr> <td>Quang Tri</td> <td>0.28</td> <td>0.36</td> <td>1.72</td> <td>0.9</td> </tr> <tr> <td>Da Nang</td> <td>0.7</td> <td>&lt; 0.5</td> <td>0.57</td> <td>0.5</td> </tr> <tr> <td>Khanh Hoa</td> <td>0.89</td> <td>0.68</td> <td>0.39</td> <td>0.43</td> </tr> <tr> <td>Dak Lak</td> <td>0.48</td> <td>0.43</td> <td>n/a</td> <td>0.42</td> </tr> </tbody> </table>	Pilot WSCs	Residual Chlorine (mg/l)*		Turbidity (NTU)*		2010 (base year)	2016	2010 (base year)	2016	Nghe An	0.5	0.35-0.5	0.28	0.575-1.25	Quang Tri	0.28	0.36	1.72	0.9	Da Nang	0.7	< 0.5	0.57	0.5	Khanh Hoa	0.89	0.68	0.39	0.43	Dak Lak	0.48	0.43	n/a	0.42
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		<p>*The national standards as per National Technical Regulation on Drinking Water Quality are as follows: -Residual chlorine: within 0.3~0.5mg/l -Turbidity: under 2 NTU Regarding residual chlorine, the interviewed WSCs commented that the national standard is somewhat unrealistic, and it was suggested that a range of 0.1 - 1 mg/l for residual chlorine could be more practical.</p>																																		

Source: Project Completion Report, questionnaire survey and interview to MOC, TC, and WSCs

<sup>8</sup> According to Director of TC, other WSCs in the Central Region did not have the demand for retraining or used the services provided by other training provider such as VWSA and universities in their vicinity.

<sup>9</sup> “Steps for preparation of WSP” are compared with situation at start of project, and evaluated based on “the 10 Steps for Development of WSP” of WHO as per the PDM.

### 3 Efficiency

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

### 4 Sustainability

#### <Policy Aspect>

Improvement of water supply service continues to be a priority area in “Ten-Year Socio-Economic Development Strategy” (2011-2020), the SEDP (2016-2020), “Development Orientations for Water Supply for Urban Area and Industrial parks through 2025 with a vision toward 2050” (2016-2025), and “National Program on Ensuring safe water supply during 2016-2025”.

#### <Institutional Aspect>

Organizational structure for provision of safe water and capacity development for WSCs in the Central Region has been established At MOC, Water Supply Department is responsible for policy issues. TC has organized retraining courses for WSCs in the Central Region with the number of courses and participants almost at the same level as the ones during the project implementation. Cooperation between TC and HUEWACO strengthened during the project is maintained afterwards, and they are jointly developing a new training program for improvement of workers’ skill levels. In addition, HUEWACO has started providing training to other WSCs through collaboration with Japanese partners, including YWWB. It also plans to establish its own training center for WSCs nationwide, which is expected to be put into operation in 2018. The roles of WSCs in water supply have been unchanged, but most of them have been transformed from state-owned companies into joint stock companies. With the involvement of private sector, management and operation of WSCs are expected to be more effective and efficient. As for staffing, the number of lectures at TC is increased from 7 to 10, which is considered sufficient to promote HRD for WSCs as it meets the quota. The number of allocated staff at HUEWACO is reckoned to be sufficient since they cover necessary tasks to implement WSP and provide technical training to other WSCs. Although it is less than the number of quota in the field of human resource management, the tasks are performed by the present number of staff by utilization of information technologies. The pilot WSCs consider that the number of staff, including the staff in charge of HRD, is sufficient to provide safe water in the respective water supply area.

Number of staff allocated at TC, HUEWACO and the pilot WSCs (Unit: person)

Staffing	TC (Lecturers)	HUEWACO	Da Nang	Nghe An	Quang Tri	Đak Lak	Khanh Hoa
Quota	10	453	354	n/a	n/a	n/a	n/a
Actual staff allocated	10	438	360	324	205	116	193

Source: TC and WSCs

#### <Technical Aspect>

The skills and knowledge of the Implementing Agencies and the pilot WSCs are considered sufficient to sustain the effect of the project. At MOC, the key C/Ps have been transferred or promoted, but the handover regarding the project has been sufficient according to the staff of Water Supply Department. At TC, HUEWACO, and the pilot WSCs, most of the C/Ps and the staff trained by the project continue to work in the respective organizations. According to Director of TC, the lecturers, including the new ones, have enough skills to provide training for WSCs, and the materials, developed though the project, have been utilized and revised/ customized to meet the needs of WSCs. HUEWACO has further improved its capacity to provide technical training to other WSCs through continuous collaboration with TC and YWWB. Also, HUEWACO has been utilizing the operational handbooks updated/improved by the project with regular updates to reflect actual operational status. All of the pilot WSCs reckon that their staffs have sufficient skills and knowledge to carry out their tasks according to the operational handbook. As for the equipment provided to TC and HUEWACO, the persons in charge of management have been assigned. The equipment at TC was observed to be in good conditions, but it has been underutilized because most of the retraining courses have been conducted at WSCs as it seems to be more cost-efficient for WSCs. The equipment at HUEWACO is utilized in good condition except for automatic water quality measurement equipment. According to Deputy head of Training and HRD Division of HUEWACO, 3 out of 4 pieces of the equipment have gone out of order because of the severe weather conditions in Hue, but they have not been repaired since it is expensive to purchase spare parts comparing to the cost of new equipment. HUEWACO plans to replace these equipment with new ones which are more suitable to the weather conditions in Hue.

#### <Financial Aspect>

As for TC, revenue consists of training fee and financial support for operational costs provided by CUWC, including personnel expenses. The annual budget was 100 million Viet Nam Dong (VND) in 2014, 494 million VND in 2015, and 355 million VND in 2016. The budget is considered sufficient because, during the aforementioned period, the retraining courses requested by WSCs were implemented as planned and the expenditure was within the budget. HUEWACO’s revenue in 2016 was 444.1 billion VND. According to Deputy head of Training and HRD Division, HUEWACO has secured budget to provide training for other WSCs. With regard to the malfunctioned equipment, HUEWACO plans to replace it with a new one as mentioned above, but the necessary budget is not allocated at the time of ex-post evaluation. Regarding the pilot WSCs, the revenue in 2016 was 408 billion VND at Da Nang, 184 billion VND at Nghe An, 110 billion VND at Dak Lak, and 250 billion VND at Khanh Hoa. For the last 3 years from FY 2014 to 2016, the necessary budget for continuation of the effect (i.e., supply of safe water) is considered to have been secured at each WSC because the revenue was either higher than planned or the same as the plan, and the expenditure was within the budget range.

#### <Evaluation Result>

In light of the above, slight problems have been observed in terms of 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 (i.e. Capacity development of the WSCs in the Central Region, which is oriented to WSP, is initiated through strengthened collaboration of the relevant organizations). The effect of the project has been continued, and the Overall Goal (i.e. Capacity of the WSCs for provision of safe water in the Central Region is strengthened.) has been achieved. Many other positive impacts have revealed. Regarding the sustainability, slight problem has been observed in terms of technical and financial aspects

(underutilization of the equipment provided to TC due to lack of retraining courses at its premises and maintenance of automatic water quality measurement equipment provided to HUEWACO due to delayed budget allocation for new equipment. Nevertheless, the sustainability in the policy and institutional aspects has been ensured. Considering all of the above points, this project is evaluated to be highly satisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

Considering TC's available facilities and qualified lecturers, it has enough capacity to provide more trainings if there is demand. It is recommended that TC soon implements marketing activities to attract more demand for trainings from WSCs. Activities and Marketing plan of TC should be made annually with understanding of which timing in the year that WSCs likely to organize trainings for their staff. In addition to providing trainings for each company upon request, TC is recommended to take initiative in organizing trainings for multi-companies at TC, in consultation with WSCs in advance.

#### Lessons Learned for JICA:

##### 1. Good practices:

The model of Training Center – capable company (HUEWACO) cooperation, which was enhanced during the Project, shows a good practice of involving a capable WSC as a role model and practical trainer in the development and implementation of training program. HUEWACO's role as a trainer for other WSCs, which was practiced during the Project, has been shown as effective and now strongly promoted by HUEWACO. Through the Project, capacity of HUEWACO was further developed with their operational handbooks reviewed and updated. After the Project, HUEWACO has been utilizing these operational handbooks with regular updates to reflect actual operational status. The promotion of operational handbooks based on example of handbooks of a capable WSC (HUEWACO) also seems to be effective. All of the pilot-companies have been able to develop their own operational handbooks during project implementation. The fact that almost all of them are still utilizing these handbooks at the time of ex-post evaluation proved the continuance of project impact.

In addition, the technical know-how of HUEWACO gained through JICA's technical cooperation project, "The Project on Human Resource Development for Water Sector in the Middle Region of Vietnam" (2007-2009), was widely extended to other WSCs in the central region through this project. It can be said that this project is a good practice of utilization of the counterpart personnel whose capacity was enhanced through previous JICA's technical cooperation project.

##### 2. What could have been improved:

When implementing similar policy building activity with expectation that the policy can be finalized by Vietnamese side, it is advisable that the activity should be started at least one year before project completion and the full draft of the policy should be completed with input from both sides before the project completion.

Also, in future projects, selection of equipment installed outside should be made with consideration of natural conditions of the area, such as climate conditions. The severe climate in Thua Thien Hue province, with great difference in temperature between seasons, intensive rain and high humidity in rainy season, is one of the reasons that led to damages to some equipment provided to HUEWACO. Possibility of procuring spare parts by recipient organization should also be considered.



Equipment provided to TC is kept in good conditions



A set of operational handbooks used by DAWACO

Country Name	<b>Project on Forestry Human Resource Development in Western Region of China</b>
People's Republic of China	

**I. Project Outline**

Background	Western region of China <sup>1</sup> was the headwater area of the major rivers in the country such as Chang Jiang and the Yellow River, and thus environmental protection of the region was highly important. Nevertheless, it had scarce forests, and was most seriously suffered from runoff of soil and water and desertification. Since most of the forests in China were either collective forests managed by local groups or national forest farms, the Chinese government promoted the Reform of collective forest right system and the Reform and development on national forest farm. However, progress of both Reforms in the western region was slow compared to other regions due to severe natural environment and shortage of human resources. In particular, human resource development of the personnel at county and/or lower administration levels, responsible for practical works in both Reforms, was insufficient as the training opportunities were very limited. Therefore, it was the urgent need to develop capacity of forestry sector personnel at county and/or lower administration levels to implement both Reforms effectively and promote appropriate forest conservation.												
Objectives of the Project	The project aimed at developing a training system <sup>2</sup> for forestry sector personnel at county and/or lower administration levels in the western region of China to promote the Reform of collective forest right system and the Reform and development on national forest farm through activities in the pilot provinces and autonomous regions (ARs) (i.e. strengthening of cooperation among related departments and organizations of forest bureaus for training on both Reforms, and development of the training systems through implementation of training) and enhancement of information sharing and exchange on policies, good practices, references and the training system relevant to both Reforms in various manners, thereby having the training system on both Reforms disseminated in the western region.												
	<ol style="list-style-type: none"> <li>Overall Goal: Reform of collective forest right system and Reform and development on national forest farm are promoted in the western region of China through dissemination of the training system on both Reforms, which targets forestry sector personnel at county and/or lower administration levels.</li> <li>Project Purpose: Training system for forestry sector personnel at county and/or lower administration levels is developed through activities at pilot provinces and ARs to promote Reform of collective forest right system and Reform and development on national forest farm, which can be applied to the western region of China.</li> </ol>												
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Western region of China</li> <li>Main Activities: 1) understanding of training situation of both Reforms, creation of common understanding with the forestry bureaus about the roles of the related departments and organizations, coordination of training by the related departments and organizations in the pilot provinces/ARs; 2) understanding of the current status of both Reforms and training needs, development and implementation of training courses, support for implementation of extension training by the training participants to disseminate their learning to their colleagues, improvement of the training based on the results of training evaluation by the training participants and monitoring of the training effect in the pilot provinces/ARs; 3) organization of training and seminars for senior officers in the authorities concerned with both Reforms in the western regions, information sharing via newsletter, internet, etc.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side (at the time of project completion)</td> <td style="width: 50%;">Chinese Side (at the time of terminal evaluation)</td> </tr> <tr> <td>1) Experts: (long-term) 5 persons, (short-term) 9 persons</td> <td>1) Staff Allocated: 58 persons</td> </tr> <tr> <td>2) Trainees Received: 25 persons</td> <td>2) Land and Facilities: office for experts</td> </tr> <tr> <td>3) Equipment: vehicles, equipment for training, etc.</td> <td>3) Local Cost: cost for project management, cost for training</td> </tr> <tr> <td>4) Local Cost: cost for training, etc.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side (at the time of project completion)	Chinese Side (at the time of terminal evaluation)	1) Experts: (long-term) 5 persons, (short-term) 9 persons	1) Staff Allocated: 58 persons	2) Trainees Received: 25 persons	2) Land and Facilities: office for experts	3) Equipment: vehicles, equipment for training, etc.	3) Local Cost: cost for project management, cost for training	4) Local Cost: cost for training, etc.	
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Project Period	March 2010-February 2014	Project Cost	(ex-ante) 470 million yen, (actual) 277 million yen										
Implementing Agency	State Academy of Forestry Administration (STAFSA), State Forestry Administration (SFA) Provincial/Autonomous Region Bureau of Forestry and Forestry Academy of each pilot province/autonomous region (Sichuan Province, Shaanxi Province, Ningxia Hui Autonomous Region, and Guangxi Zhuang Autonomous Region) <sup>3</sup>												
Cooperation Agency in Japan	Forestry Agency												

<sup>1</sup> 12 provinces/autonomous regions (hereinafter referred to as "ARs")/direct-controlled municipality (hereinafter referred to as "municipality"): Sichuan Province, Shaanxi Province, Guangxi Zhuang AR (hereinafter referred to as "Guangxi AR"), Ningxia Hui AR (hereinafter referred to as "Ningxia AR"), Inner Mongolia AR, Xinjiang Uighur AR (hereinafter referred to as "Xinjiang AR"), Gansu Province, Qinghai Province, Tibet AR, Yunnan Province, Guizhou Province, and Chongqing City.

<sup>2</sup> "Training system" in the project refers to training style, training curriculum, training method, training material, training evaluation method, etc.

<sup>3</sup> They were selected as the pilot provinces/ARs because they had climatic conditions representing the northwest and southwest part of China and the progress of both Reforms was different. It was considered that the training systems to be developed there were likely to be useful for other provinces/ARs in the western region.



## II. Result of the Evaluation

### <Special Perspectives Considered in the Ex-Post Evaluation>

-The Overall Goal consists of two levels of objectives i.e., the means (“The training system on Reform of collective forest right system and Reform and development on national forest farm, which targets forestry sector personnel at county and/or lower administration levels, is disseminated”) and the effects (“Both reforms are promoted in the western region of China”). In addition, indicators to measure the achievement of the latter are not specified in the Project Design Matrix (PDM). In view of the above, in the ex-post evaluation, the former shall be regarded as the “Overall Goal” and the latter shall be treated as the “Super Goal”.

-Although the target date for achieving the Overall Goal is not specified in the PDM, there is a statement in the terminal evaluation report that “it is confirmed that the Overall Goal will be achieved by February 2017, three years after completion of the project”. Therefore, in the ex-post evaluation, February 2017 shall be regarded as the target date.

### 1 Relevance

#### <Consistency with the Development Policy of China at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation, the project was consistent with China’s development policy of enhancement of conservation of natural environment, including forests, as set forth in the “11th Five Year Plan for National Economic and Social Development of the People’s Republic of China” (2006-2010). At the time of project completion, it was consistent with the development policy of promotion of protection and rehabilitation of ecosystem as set forth in the “12th Five Year Plan” (2011-2015).

#### <Consistency with the Development Needs of China at the Time of Ex-Ante Evaluation and Project Completion >

At the time of ex-ante evaluation, as mentioned in “Background” above, it was the urgent need to develop capacity of forestry sector personnel at county and/or lower administration levels to effectively implement both Reforms. At the time of project completion, the need for human resource development for both Reforms increased further because full-scale implementation of the Reform of collective forest right system had been started nationwide and official permissions for enforcement of the Reform on development on national forest farm had been granted in some provinces.

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

The project was consistent with one of the priority areas of the Economic Cooperation Plan for China (2001), “cooperation for dealing with global problems such as environmental problems”.

#### <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. STAFA compiled the training systems for forestry sector personnel at county and/or lower administration levels to promote both Reforms, which were developed in the pilot provinces/ARs, into a training system collection that could be applied to the western region (Indicator 1).

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

The achievement status of the Project Purpose is continued. Application of the training system developed through the project has been promoted by SFA and STAFA in the western region. SFA has secured a special budget for dissemination of the outcomes of this project, and, utilizing this budget, STAFA has carried out various dissemination activities such as introduction and promotion of utilization of the training system through implementation of model training in other provinces/ARs and the summary meetings of the project outcome dissemination, dispatch of its staff to give guidance about the training system, and provision of financial support to the forestry academies in the western region, including the pilot provinces/ARs.

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

The Overall Goal was achieved by the time of ex-post evaluation. By the target date (i.e. February 2017), model training applying the training system developed through the project was implemented in 6 provinces/ARs/municipality in the western region other than the pilot provinces/ARs (Indicator 1; the target was “in at least 2 provinces”), and 4,387 people participated in the training in the western region, including the pilot provinces/ARs (Indicator 2; the target was “at least 600 people”). According to STAFA, the reasons that the achievement greatly exceeded the target include strong demand for human resource development for both Reforms and high motivation of the field staff for learning besides the above-stated project outcome dissemination promoted by SFA and STAFA.

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

There are no negative impacts on natural and social environment caused by the project. Other positive impacts of the project include implementation of extension training by the training participants. At the time of training on both Reforms, the training participants were requested to implement the extension training to their colleagues. As a result, according to STAFA, 98% of the training participants in the pilot provinces/ARs have conducted the extension training. STAFA also confirmed through the exchange at a social networking service group that the training participants in other provinces/ARs have conducted the extension training although there is no aggregated data. It can be said that the extension training has been a promoting factor for smooth implementation of both Reforms, which is the Super Goal.

#### <Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved at the time of project completion and the project effect is continued at the time of ex-post evaluation. The Overall Goal is achieved at 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																																																																						
<p>(Project Purpose) Training system for forestry sector personnel at county and/or lower administration levels is developed through the activities at pilot provinces and autonomous regions to promote Reform of collective forest right system and Reform and development on national forest farm, which can be applied to the western region of China.</p>	<p>(Indicator 1) Training systems in the pilot provinces/ARs are compiled into a training system collection by STAFA taking into consideration natural, social and economic conditions and the progress of both Reforms.</p>	<p>Status of the Achievement: achieved (continued) (Project Completion) -STAFA compiled the training systems developed in the pilot provinces/ARs into a training system collection, which was printed and bound. (Ex-post Evaluation) -SFA and STAFA have been promoting application of the training system in the western region.</p>																																																																						
<p>(Overall Goal) The training system on Reform of collective forest right system and Reform and development on national forest farm, which targets forestry sector personnel at county and/or lower administration levels, is disseminated.  *See &lt;Special Perspectives in the Ex-Post Evaluation&gt;</p>	<p>(Indicator 1) The training system developed through the project is applied in at least 2 provinces in the western region other than the pilot provinces/ARs.  (Indicator 2) At least 600 people participate in the training on Reform of collective forest right system and Reform and development on national forest farm in the western region.</p>	<p>(Ex-post Evaluation) achieved - By the target date (i.e. February 2017), training for forestry sector personnel at county and/or lower administration levels, applying the training system developed through the project, had been conducted in 6 provinces other than the pilot ones. - From March to September 2017, training for forestry sector personnel at county and/or lower administration levels, applying the training system developed through the project, was conducted in one more province.</p> <p>(Ex-post Evaluation) achieved &lt;Number of participants in the training at county and/or lower administration levels in the pilot provinces/ARs&gt; (March 2014-February 2017)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Province/AR</th> <th style="text-align: center;">Reform of collective forest right system</th> <th style="text-align: center;">Reform and development on national forest farm</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Sichuan Province</td> <td style="text-align: center;">358</td> <td style="text-align: center;">276</td> <td style="text-align: center;">634</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Shaanxi Province</td> <td style="text-align: center;">906</td> <td style="text-align: center;">990</td> <td style="text-align: center;">1,896</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Guangxi AR</td> <td style="text-align: center;">311</td> <td style="text-align: center;">340</td> <td style="text-align: center;">651</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Ningxia AR</td> <td style="text-align: center;">254</td> <td style="text-align: center;">271</td> <td style="text-align: center;">525</td> </tr> <tr> <td colspan="4" style="text-align: center;">Total</td> <td style="text-align: center;">3,706</td> </tr> </tbody> </table> <p>&lt;Number of participants in the training at county and/or lower administration levels outside the pilot provinces/ARs&gt; (March 2014-February 2017)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Province/AR</th> <th style="text-align: center;">Reform of collective forest right system</th> <th style="text-align: center;">Reform and development on national forest farm</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Chongqing City</td> <td style="text-align: center;">131</td> <td style="text-align: center;">0</td> <td style="text-align: center;">131</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Gansu Province</td> <td style="text-align: center;">100</td> <td style="text-align: center;">151</td> <td style="text-align: center;">251</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Xinjiang AR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">40</td> <td style="text-align: center;">40</td> </tr> <tr> <td style="text-align: center;">4</td> <td>Guizhou Province</td> <td style="text-align: center;">100</td> <td style="text-align: center;">0</td> <td style="text-align: center;">100</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Qinghai Province</td> <td style="text-align: center;">0</td> <td style="text-align: center;">66</td> <td style="text-align: center;">66</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Yunnan Province</td> <td style="text-align: center;">93</td> <td style="text-align: center;">0</td> <td style="text-align: center;">93</td> </tr> <tr> <td colspan="4" style="text-align: center;">Total</td> <td style="text-align: center;">661</td> </tr> </tbody> </table> <p>-From March to September 2017, 66 people in Chongqing City and 69 people in Inner Mongolia AR participated in the training on the Reform and development on national forest farm, targeting at county and/or lower administration levels.</p>		Province/AR	Reform of collective forest right system	Reform and development on national forest farm	Total	1	Sichuan Province	358	276	634	2	Shaanxi Province	906	990	1,896	3	Guangxi AR	311	340	651	4	Ningxia AR	254	271	525	Total				3,706		Province/AR	Reform of collective forest right system	Reform and development on national forest farm	Total	1	Chongqing City	131	0	131	2	Gansu Province	100	151	251	3	Xinjiang AR	0	40	40	4	Guizhou Province	100	0	100	5	Qinghai Province	0	66	66	6	Yunnan Province	93	0	93	Total				661
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2	Gansu Province	100	151	251																																																																				
3	Xinjiang AR	0	40	40																																																																				
4	Guizhou Province	100	0	100																																																																				
5	Qinghai Province	0	66	66																																																																				
6	Yunnan Province	93	0	93																																																																				
Total				661																																																																				

Source: Project Completion Report, questionnaire survey and interview to STAFA

**3 Efficiency**

The project cost and period were within the plan (ratio against the plan: 53% and 100%). Therefore, the efficiency of the project is high.

**4 Sustainability**

<Policy Aspect>

Both Reforms contribute to enhancement of ecosystem conservation and acceleration of improvement of ecological environment, which are regarded as important issues in the "13th Five Year Plan of the National People's Republic of China's Social Economy and Social Development" (2016-2020). Furthermore, policy support for both Reforms has been enhanced through the "Reform Plan for the National Forest Farm" and "Guidance Opinion on Reform of the National Forest Ward" promulgated by the Communist Party of China and the State Council in 2015, and the "Opinion of the State Council on Improvement of the Collective Forest Rights System" promulgated by the State Council in 2016.

<Institutional Aspect>

The organizational system and roles of the Implementing Agencies regarding the training on both Reforms have not been changed. STAFA continues to support dissemination of the training system developed through the project in the western region. In the pilot provinces/ARs, under the coordination of the provincial/ARs' forestry bureaus, the forestry academies plan and implement the training on

both Reforms using the training system developed through the project. In general, the number of staff of the relevant departments of the Implementing Agencies is up to or larger than the quota, and, at STAFA, 3 staff members are allocated for dissemination of the project outcomes on full-time basis. The number of staff of the forestry academies in Sichuan and Shaanxi Provinces is less than the quota, but lecturers have been secured in collaboration with the local universities and research institutes. As the training which applied the system developed through the project has been carried out steadily in the western region, including the pilot provinces/ARs, since the completion of the project, it is considered that, in each Implementing Agency, necessary personnel have been secured to continuously fulfill the respective organizational role stated above.

<The number of staff of the departments relevant to the training on Reform of collective forest right system and Reform and development on national forest farm in the Implementing Agencies>

	STAFA	Sichuan Province		Shaanxi Province		Guangxi AR		Ningxia AR	
		Forestry bureau	Forestry academy	Forestry bureau	Forestry academy	Forestry bureau	Forestry academy	Forestry bureau	Forestry academy
Staff number	35	13	4	35	6	4	5	7	4

Source: Questionnaire survey and interview to STAFA

<Technical Aspect>

Almost all the counterpart personnel at the Implementing Agencies remain in their respective organizations and continue to engage in the work related to the training on both Reforms by using the knowledge accumulated through the project and the project deliverables. According to the Implementing Agencies, the staff of STAFA have sufficient knowledge to disseminate the training applying the training system developed through the project, and the staff of the forestry academies in the pilot provinces/ARs maintain basic knowledge concerning the planning and implementation of the training that applied the training system. In addition, external lecturers are invited through cooperation with the local universities and research institutes so that the technical level necessary for the training on both Reforms is secured. As for the equipment provided to the pilot provinces/ARs, the staff in charge of management have been allocated, maintenance has been appropriately done, and the equipment has been continuously utilized in the training on both Reform according to the report of the Implementing Agencies, which was observed during the field visit to a pilot province.

<Financial Aspect>

In the fiscal year (FY) 2016, 1.7 million yuan was allocated to STAFA as the budget for the training on both Reforms. The budget for the forestry academies in the pilot provinces/ARs was 0.38 million yuan in Sichuan Province, 0.32 million yuan in Guangxi AR, and 0.12 million yuan in Ningxia AR<sup>4</sup>. For the three years from FY 2014, the budget for STAFA was stable, the budget for Ningxia AR gradually increased, and the budget for Sichuan and Guangxi AR varied from year to year, but the expenditure of each organization was within the budget. During the said period, the training on both Reforms, including Shaanxi Province where budget information could not be obtained, was steadily carried out; therefore, the necessary budget is considered to have been secured by each Implementing Agency. Regarding the future prospects, the project effects are likely to continue for the following reasons: application of the training system developed through the project has been mostly completed in the western region; the training budget for the forestry academies in the pilot provinces/ARs are likely to be secured from the past record; and, even if the budget is limited, it can be complemented by the extension training conducted by the training participants.

<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 Evaluation

The project achieved the Project Purpose (i.e. development of the training system for forestry sector personnel at county and/or lower administration levels to promote the Reform of collective forest right system and the Reform of national forest farm, which is applicable to the western region). The effect of the project is continued and the Overall Goal (i.e. dissemination of the training system for forestry sector personnel at county and/or lower administration levels to promote the Reform of collective forest right system and the Reform of national forest farm in the western region) has been achieved. Regarding the sustainability, the policy, institutional, technical, and financial aspects to maintain the project effects have been secured. Considering all of the above points, this project is evaluated to be highly satisfactory.

## III. Recommendations & Lessons Learned

Recommendation to the executing agency:

-It is recommended that STAFA of SFA make maximum effort to continuously secure the budget for the project outcome dissemination at the earliest possible time. If it is difficult to secure a special budget, it is desirable to sustain the project effects within the limited budget by devising ways and means of dissemination, such as posting the teaching materials used in the trainings and records of questions and answer sessions on the website to allow a wide range of forestry sector personnel to access them.

Lessons learned for JICA:

-As in the case of the project, incorporating support for implementation of the extension training by the training participants in the project activities, requesting the participants to conduct the extension training at the time of training, and monitoring the training implementation status as an outcome indicator, could bring about a high impact and increase the possibility to secure the sustainability of the project effect even if the budget of the provinces/ARs is limited.

<sup>4</sup> According to STAFA, the forestry academies in some pilot provinces/ARs have applied/secured the training funds from the budget of the relevant projects in China in addition to the provincial budget to have as many forestry sector personnel as possible trained. The funds from the additional budget, however, are not reflected in the budget amount since the detailed information could not be confirmed.



Opening ceremony of training for senior forestry officers in Inner Mongolia AR

Country Name	<b>The Project for Capacity Development for Promoting Foreign Direct Investment</b>
Mongolia	

**I. Project Outline**

Background	Mongolia had promoted liberalization and privatization of the domestic market rapidly since 1990 and had made and revised many laws related to trade and foreign investment. However, diversification of exports, development of overseas markets and collection of information had been key issues in promoting trade and investment activities with foreign countries. In addition, business in the country had problems such as lack of compliance and transparency of information, corruption and bribery by public officials, complicated procedures related to business, lack of consultation window for the trouble in the business. Although promotion of foreign direct investment (FDI) and improvement of the environment for that purpose (i.e. introduction of "One Window Service etc.) was stated in the government's 4-year plan "Government Action Plan" (2008-2012), Foreign Investment and Foreign Trade Agency (FIFTA), Ministry of Foreign Affairs and Trade (MFAT), lacked the system to provide appropriate services to investors and was not able to play the expected role to promote foreign investment												
Objectives of the Project	<p>The project aimed at strengthening research and coordination for investment promotion in Mongolia through formulation of an action plan for improving the investment environment based on the research results, analysis for improving function for investment service provision, and improvement of a working plan for investment services by Department of Foreign Investment Registration and Regulation (DFIRR (the former FIFTA)), Ministry of Economic Development (MED), with the related organizations (ministries and agencies as well as private economic organizations) involved, thereby improving investment promotion services to the private sector.</p> <ol style="list-style-type: none"> <li>Overall Goal: Investment promotion services to the private sector are improved.</li> <li>Project Purpose: Research and coordination for investment promotion is strengthened.</li> </ol>												
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Mongolia</li> <li>Main Activities: <ul style="list-style-type: none"> <li>-Working Group (WG) consisting of DFIRR (the former FIFTA) and the related organizations conducts research and analyses on the current situation of foreign investment, the needs of the private sector, the necessity of improving the function of DFIRR etc., makes recommendation to improve division of function of the related organizations and investment policy, and drafts the action plan of DFIRR regarding improvement of investment environment.</li> <li>-WG analyses the services provided by investment promotion agencies in other countries and the needs of the private sector for DFIRR (the former FIFTA) in terms of registration service and information provision service.</li> <li>-DFIRR (the former FIFTA), in collaboration with WG, develops a working plan to improve its investment services (i.e. database management, information provision, and One Stop Service (OSS)), develops database management system based on the plan, improves its website, and starts the pilot OSS.</li> </ul> </li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Mongolia Side</td> </tr> <tr> <td>(1) Experts: 7 persons</td> <td>(1) Staff Allocated: 33 persons for WG (13 from DFIRR, 16 from MED, 3 from Mongolian National Chamber of Commerce and Industry (MNCCI), and 1 from Business Council of Mongolia (BCM))</td> </tr> <tr> <td>(2) Trainees Received: (Training in Japan) 7 persons, (Training in the third country) 7 persons</td> <td>(2) Project Office, a meeting room for seminar etc.</td> </tr> <tr> <td>(3) Equipment: Equipment for database and pilot OSS, office equipment such as personal computers etc.</td> <td></td> </tr> <tr> <td>(4) Local Cost: Local consultants etc.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Mongolia Side	(1) Experts: 7 persons	(1) Staff Allocated: 33 persons for WG (13 from DFIRR, 16 from MED, 3 from Mongolian National Chamber of Commerce and Industry (MNCCI), and 1 from Business Council of Mongolia (BCM))	(2) Trainees Received: (Training in Japan) 7 persons, (Training in the third country) 7 persons	(2) Project Office, a meeting room for seminar etc.	(3) Equipment: Equipment for database and pilot OSS, office equipment such as personal computers etc.		(4) Local Cost: Local consultants etc.	
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(4) Local Cost: Local consultants etc.													
Project Period	November 2010 - May 2013	Project Cost	(ex-ante) 167million yen, (actual) 202 million yen										
Implementing Agency	Department of Foreign Investment Registration and Regulation (DFIRR), Ministry of Economic Development (MED) (formerly known as Foreign Investment and Foreign Trade Agency (FIFTA), Ministry of Foreign Affairs and Trade (MFAT)). * DFIRR has been dissolved and reorganized into more than one organizations by the time of ex-post evaluation.												
Cooperation Agency in Japan	Value Planning International, Inc., Koei Research Institute International Corporation												

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- Since the project completion, foreign investment promotion system has been drastically changed because reorganization of ministries and agencies were implemented twice. First, DFIRR of MED, the implementing agency of the project, was dissolved as Investment Mongolia Agency (IMA) was newly established under the Prime Minister following the enactment of Investment Law in October 2013 and reorganization of ministries and agencies in December 2014. Its foreign company registration function was transferred to General Authority for State Registration (GASR). Further, following the reorganization associated with the general election in June 2016, IMA was integrated into National Development Agency (NDA) newly established under the Prime Minister, and GASR was restructured into General Authority for Intellectual Property and State Registration (GAIPSR). In conducting the ex-post evaluation, enough information was not available from NDA, the successor agency of DFIRR. In addition, a survey to the relevant departments of the former MED could not be conducted since the ministries and agencies that took over their roles could not be identified. As such, information was gathered by questionnaire and interview surveys to GAIPSR and the private sector (i.e. MNCCI and BCM) and review of the existing materials. BCM, however, did not provide answer to the questionnaire. In this ex-post evaluation, therefore, evaluation judgement had to be made based on the limited information.

< Special Perspectives Considered in the Ex-Post Evaluation >

- Indicators of the Project Purpose ((1) enhanced coordination among relevant ministries and organizations and (2) quality of investment promotion services of DFIRR (the former FIFTA)) are qualitative, and levels and criteria to be achieved are not clearly stated. In this ex-post evaluation, these indicators are judged to have been achieved when improvement by the project is confirmed from the information described in the existing reports.

- With respect to the Overall Goal Indicator 3 (improvement of rate of Doing Business), the evaluator used not only the ranking that shows Mongolia's position relative to other countries but also the score that shows the level of improvement in Mongolia as supplemental information.

## 1 Relevance

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

The project is consistent with the development policy of the Mongolian government stated in the "Millennium Development Goals-based Comprehensive National Development Strategy of Mongolia" (2007-2021<sup>1</sup>), which aims at improvement of foreign investment environment for the development of the private sector.

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

At the time of ex-ante evaluation, public opinion and parliament intention that domestic investors should not be discriminated was so strong in Mongolia that it was not easy for government agencies to take actions and budgetary measures for improvement of investment environment. Effective information provision to foreign investors, policy planning, capacity development etc. was therefore insufficient. At the time of project completion, the needs for securing a stable investment environment was evident because the government had been trying to revise the Law on the Regulation of Foreign Investment in Entities Operating in the Strategic Sectors (2012), which had brought about decrease of foreign investment, since April 2013.

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

Improvement of foreign investment services, which is aimed by the project, is positioned in a cooperation program "Private sector support (including investment environment improvement) Program" listed under one of the four priority areas of Japan's Country Assistance Program for Mongolia (2004) "Support for institutional development and human resource development responsible for market economy".

<Appropriateness of Project Design/Approach>

During the project implementation, there was a reorganization of ministries and agencies associated with the change of government by the general election in June 2012. FIFTA (under MFAT) was dissolved and its function was transferred to DFIRR (under MED) so that the implementing agency and the members of Joint Coordination Committee of the project were greatly changed. Although the government reorganization was not assumed as a risk in the ex-ante evaluation study (2008), the project activities could be completed at the schedule originally planned by continuing technical transfer mainly to WG members. The Project Design Matrix (PDM) was revised in October 2012 reflecting the changes in the implementation system, and the contents of the deliverables to be produced by the project were changed with the new system in mind. As stated above, the response to the reorganization of ministries and agencies during the project implementation was appropriate. It is noted that the reorganization at that time included integration of the government organizations of which the project aimed at strengthening the coordination i.e. the integration of the four government organizations of the WG members including DFIRR into MED. This also seems to have contributed to smooth implementation of the activities. On the other hand, as will be described later, the reorganization after the project completion in 2014 and 2016 had a highly negative influence over the impact and the sustainability of the project. It was difficult to predict frequent organizational changes such as a reorganization associated with the general election, since future risk of reorganization is affected by politics, which tends to be beyond the control range of the implementing agency to a large extent.

<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. Through project activities, coordination among relevant ministries and organizations in charge of investment issues was enhanced (Indicator 1), and investment promotion services provided by DFIRR (the former FIFTA) was improved in terms of their quality (Indicator 2).

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

Achievement status of the Project Purpose is not continued except for some. Regarding coordination among the investment related ministries and agencies, continuation of the project effect could not be confirmed due to two-time government reorganization, including dissolution of DFIRR. As for coordination with the private sector, however, MNCII has maintained cooperative relationship with DFIRR and its successor agencies. Quality of investment promotion services had been maintained until DFIRR was dissolved. Responses from NDA regarding its service were not available, and no information was confirmed about the continuation of the service such as information provision through OSS. Therefore, it is unlikely that the quality of service as an effect of the project is maintained<sup>2</sup>. At the same time, efforts to reactivate the outputs of this project have begun: The Cabinet Secretariat issued a direction to NDA in December 2017 to establish OSS to address investors' needs confirmed in the past domestic and international investment forums and as part of the strengthening of activities of the Investor Protection Council established within the government in August 2016. In response, NDA has completed an outline of the organizational structure and roles of OSS. Although adequate number of counterparts of the project do not remain at the staff level, utilization of such personnel, who received training under this project, is being planned.

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

The Overall Goal has not been achieved except for some by the time of ex-post evaluation (judged based on the status of achievement of the three indicators: not achieved, unable to verify, and partially achieved, respectively). The number of registered foreign corporate investors has decreased by nearly 60% compared with the start of the project due to influence of the Law on the Regulation of Foreign Investment (enacted in 2012 and abolished in 2014) and decline of resource price in the international market (Indicator 1). Improvement of

<sup>1</sup> In 2016, it was succeeded to "Mongolia Long-term Development Vision 2030" approved in February of the same year.

<sup>2</sup> There is a possibility that necessity to deal with a large number of investors efficiently as in the project implementation may have decreased since the number of investors has decreased due to the decline in resource prices since 2014.

the satisfaction ratio of the private sector with investment procedure in Mongolia could not be confirmed due to lack of data comparable with the beginning of the project since the survey on the satisfaction ratio is not conducted regularly or continuously. Nevertheless, the simplification and shortening of the period of procedures for investors described below may have enhanced investors' satisfaction (Indicator 2). While Mongolia is moving down on the business environment ranking (i.e. "Doing Business") released by the World Bank annually (Indicator 3), the overall score and the "starting a business" score of Mongolia are increasing (Supplemental Information to Indicator 3). Behind such an improvement, the contents of the Law on Investment enacted in October 2013 and entered into force in November 2013 are consistent with the recommendations of one of the project deliverables, the "Road Map of Improvement of FDI management (Registration and Promotion)" (the investment road map), such as simplification of administrative procedures for investors<sup>3</sup>. In addition, the corporate registration period has been reduced through the amendment to the Law on the State Registration of Legal Entities in 2015. The reduction of registration period is also in line with the recommendations based on the current situation survey by the project. In this way it is inferred that the project may have had an impact on this indirectly.

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

The project has not had negative impacts on the natural and social environments. Regarding other positive impacts of the project, the textbooks used in the training of the project is utilized at MNCII for training and seminars related investment and foreign trade.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was achieved at the time of project completion, but continuation of the project effect was not confirmed except for some, and it cannot be said that the Overall Goal was achieved at the time of ex-post evaluation. Therefore, the effectiveness/impact of the project is low.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Research and coordination function for investment promotion is strengthened.	<p>1. Coordination among relevant ministries and organizations in charge of investment issues is enhanced.</p> <p>2. Investment Promotion Services provided by DFIRR (the former FIFTA) are improved in terms of their quality.</p>	<p>Status of the Achievement: achieved (partially continued) (Project Completion)</p> <p>-Cooperative relationship was established between DFIRR (the former FIFTA) and the related agencies (i.e. the former Department of Foreign Trade and Economic Cooperation, MFAT, the former National Development and Innovation Committee, and the former Department of Development Financing and Cooperation, Ministry of Finance), which was strengthened by integration of DFIRR and the related agencies through the reorganization after the general election in 2012. Coordination with the private sector (MNCII, BCM) etc. for improving investment promotion services was also established by exchange of information with relevant organizations.</p> <p>(Ex-post Evaluation)</p> <p>-Through the reorganization after the project completion, investment promotion function of DFIRR has been taken over by NDA, but the ministries and agencies which have taken over the functions of the related agencies integrated in MED then could not be confirmed. On the other hand, the coordination status among the investment related ministries and agencies and the continuation status of the project effects were confirmed as follows.</p> <p>-MNCII signed a Memorandum of Understanding of cooperation with DFIRR and its successor organizations i.e. IMA and NDA so that the cooperative relationship has been maintained.</p> <p>- NDA is implementing a joint agreement with GAIPSR and the General Department of Taxation to improve the foreign investment registration process as well as validity of information.</p> <hr/> <p>Status of the Achievement: achieved (not continued) (Project Completion)</p> <p>-Though the project, it became possible for DFIRR to provide information through OSS, to reflect the needs of private sector in its services, to provide accurate and timely information through utilization of the database for FDI statistics, and to improve customer service through utilization of the equipment for the pilot OSS.</p> <p>(Ex-post Evaluation)</p> <p>-According to GAIPSR and MNCII, the quality of the investment promotion service had been maintained until dissolution of DFIRR. Responses regarding NDA's service were not available, and no information was confirmed in available documents about the continuation of the service such as information provision through OSS. However, NDA has started efforts to establish OSS based on the government's direction. Also, it was heard that investors' confidence has been restored and business activities have recovered for the past two years through activities of the Investor Protection Council.</p> <p>- Utilization of the few remaining counterpart personnel, who received training under this project, is being planned to enhance the quality of the services of OSS to be established.</p>
(Overall Goal) Investment promotion services to the private sector are improved	1. The number of investors registered with DFIRR (the former FIFTA) increases.	(Ex-post Evaluation) not achieved

<sup>3</sup> During the project implementation, the contents of the investment road map were reconsidered after the government reorganization took place, and as results, policy and institutional recommendations, which would cater to broader investment management, were made in addition to those related to investment promotion services.



	<Number of registered foreign investment companies in Mongolia>						
	2009 (reference)	2010 (base year)	2013 (project completion)	2014	2015	2016	
	Number of registration	545	659	396	345	302	282
2. Satisfaction rate of the private sector with investment procedure in Mongolia increases.	(Ex-post Evaluation) unable to verify -Survey on satisfaction of Mongolian investment procedures by private investors is not conducted periodically or continuously so that there is no data comparable with the start of the project. The exact degree of improvement is therefore unclear.						
3. Rate of "Doing Business" improves.  Supplemental Information: The score of "Doing Business" improves.	(Ex-post Evaluation) partially achieved -The overall ranking was dropped by 2 ranks from 62nd to 64th in 190 countries between 2016 and 2017. - Mongolia's overall score improved from 67.31 in 2016 to 68.15 in 2017, and the "starting a business" score (at least partly attributed to the reduction of registration period realized in 2015) improved from 91.33 in 2015 to 92.55 in 2016 and 2017.						

Source : Project Completion Report, questionnaire survey and interview to GAIPSR and MNCII, website of NDA, Final Report for Information Collection and Verification Survey on Business Environment and Promotion of Investment in Mongolia, website of "Doing Business"

### 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: 120%). Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

Promotion of foreign investment continues to be an important issue in the "Mongolia Sustainable Development Vision 2030" (2016-2030) approved by the parliament in 2016 and the "Government Action Program" (2016-2020). In addition, the legal environment is being improved, including enactment of the Law on Investment 2013. Also, the Mongolian government has adopted Law on Development Policy and Planning at the parliament in November 2015. Implementation of this law facilitates clearer understanding of national policies among the government, the private sector and investors, and adds positive implications on long-term plans of private companies.

#### <Institutional Aspect>

Since the project completion, the government's foreign investment promotion structure has undergone a major change through the reorganization of ministries and agencies. Foreign investment promotion function of DFIRR, the implementing agency of the project, is taken over by General Investment Policy Division and Registration, Information and Promotion Division of NDA via IMA, and the activities for information provision, FDI statistical data management etc. supported by the project are conducted by Registration, Information and Promotion Division. As described in "Effectiveness/Impact", it was confirmed that NDA has just started its efforts to reactivate the outputs of this project. A total of 13 staff is allocated to the above investment related divisions of NDA, and more staff members including the counterparts of this project are likely to be assigned for the establishment of OSS. Although further organizational changes are not planned at the time of ex-post evaluation, it is not certain if the current system shall be maintained in the future, considering that government reorganization has been repeated at the time of regime change after general election and cabinet reshuffle so far. To solve such issues of personnel change and consolidate the public-sector personnel policy, the Mongolian government managed to amend Law on Public Service in December 2017. This amendment would enable the government to introduce a public servant employment system based on the principle of merit system (performance and ability). Improvement of the personnel retention rate is expected as this amendment comes into effect in January 2019.

#### <Technical Aspect>

Frequent change of counterparts of FIFTA/DFIRR due to the staff transfer was regarded as a problem during the project implementation. Many counterparts at the time of the project completion have been either transferred or resigned due to two-time government reorganization after the project completion, and it was not confirmed whether they utilize the knowledge and technology transferred through the project within the organization or share them with their colleagues. The FDI statistical database system (a server) provided to DFIRR is installed at Information Technology Division (ITD) of GAIPSR via GASR. GAIPSR carries out FDI registration operations with its new servers, but it also utilizes the server provided under this project for extraction of old data, as well as the user manual developed by the project. Maintenance is appropriate because an engineer of ITD is in charge of equipment management and there has been no abnormality so far. While the customer service of the pilot OSS has been abolished after the organizational restructuring, major pilot OSS equipment provided under this project such as a photocopier and a smart board are used at General Investment Policy Division and Registration, Information and Promotion Division of NDA for investment promotion, etc.

#### <Financial Aspect>

An answer of NDA on the budget for foreign investment promotion was not obtained, and the budget situation was thus not confirmed. According to GAIPSR, maintenance budget for the server provided under this project is included in the IT related budget, and there is no prospect of reduction. However, as mentioned in the "Technical Aspect", the role of this server for maintaining project effects is limited. The Mongolian government is undertaking economic and fiscal reconstruction within the IMF's support framework (involving other donors) for three years from May 2017, which may put financial restrictions on governmental organizations.

#### <Evaluation Result>

In light of the above, no problem has been observed in the policy aspect. While sufficient information could not be obtained for the institutional, technical, and financial aspects of the implementing agency, it was confirmed that some administrative and legislative conditions for continuation of project effects have been secured. Securement of the necessary conditions for continuation of project effects was not confirmed, either, which causes a major concern. Therefore, the sustainability of the effectiveness through the project is fair.

## 5 Summary of the Evaluation

The project achieved the Project Purpose (i.e. strengthening research and coordination function for investment promotion). The effect of the project, however, has not been continued except for some (i.e. collaboration between MNCCI and DFIRR and its successors), and the Overall Goal has not been achieved except for some, either. Regarding the sustainability, the policy aspect has been ensured, and partial undertakings were confirmed in the institutional, technical, and financial aspects. As for the efficiency, the project cost exceeded the plan. Considering all of the above points, this project is evaluated to be unsatisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

- The institutional sustainability of government agencies continues to be a major issue. The government of Mongolia needs to take measures concerning the sustainability of the organizations and the retention of staff.
- It is desirable that NDA and the government of Mongolia review the result of the project (i.e. the investment road map) and use it for future FDI related work since it is consistent with the current investment law.

#### Lessons learned for JICA:

##### Measures to be taken in case there is a risk of large-scale reorganization after project completion

The repeated reorganization of ministries and agencies had a negative impact on the effectiveness, the impact, and the sustainability of this project. In order to minimize the risk associated with the reorganization, JICA and the implementing agency should have incorporated certain activities to address the risks. For example, they should have developed the plans for institutional building in the (sub-) sector as a whole rather than the ones for a single organization, and should have worked on Mongolia side to formalize such plans during the project implementation.

On the other hand, though limited, situations that seemed to be continuing effects were observed at the time of ex-post evaluation. This seems to be because of the project's recommendations which may have led to the revision of the law and involvement of the private sector (i.e. the Chamber of Commerce), which was not affected by the government reorganization, in the project. They can be referred to as good practices of dealing with the risk.

Even if the above-stated measures are taken, the risk of reorganization of ministries and agencies is strongly influenced by politics and tends to be beyond the control range of the implementing agency to a large extent. Therefore, in a country like Mongolia, where reorganization is frequent and influencing, the aid coordinating organization should be involved from the project implementation period so that JICA can request to respond in case that the implementing agency is dissolved. Also, JICA should consider the follow-up mechanism in case that the implementing agency is dissolved immediately after the project completion as in this project since such mechanism is not clear now.

##### Improvement of investment promotion service in resource-rich countries

Continuation of the customer services established in this project could not be confirmed. Behind it lies a possibility that necessity to deal with a large number of investors efficiently as in the project implementation may have decreased since the number of investors has decreased due to the decline in resource prices since 2014. When planning cooperation on investment promotion services in a resource-rich country like Mongolia, it is necessary to keep in mind that the sustainability of the services to be improved by the cooperation may be affected by future fluctuation of resource price.

Country Name	<b>Project for Strengthening of the Capacities for Rural Tourism Development in the Eastern Region of El Salvador</b>
Republic of El Salvador	

**I. Project Outline**

Background	In El Salvador, many of the developed tourism sites are concentrated in the Western Region. Although the Eastern Region <sup>1</sup> has rich tourism resources, basic tourism infrastructure had not been well developed for attracting both domestic and foreign investments. In order to boost the tourism industry in the Eastern Region, it was identified that strengthening of capacities of the related organizations such as the Ministry of Tourism (MITUR), the Salvadorian Corporation of Tourism (CORSATUR) and the Committee of Tourism Development (CDT) as well as the reinforcement of cooperation among the related organizations including the private sector was needed.														
Objectives of the Project	By strengthening the capacity development of MITUR, CORSATUR and CDTs/ADTs* through pilot project implementation and elaborating an Activity Model of CDTs/ADTs for the tourism development, the project aimed at developing a sustainable mechanism of the tourism development in the Eastern Region to benefit to the local communities, thereby contributing to development of community tourism based on local resources. *When a CDT satisfies certain organizational and financial requirements, it is approved as an independent entity and turns to be named a Tourism Development Association (ADT).														
Activities of the project	<ol style="list-style-type: none"> <li>Overall Goal: Community tourism based on distinctive local resources is developed in the Eastern Region.</li> <li>Project Purpose: A sustainable mechanism of tourism development to benefit the local community in the Eastern Region is established through a public-private partnership.</li> </ol>														
Activities of the project	<ol style="list-style-type: none"> <li>Project site: 13 municipalities in the Eastern Region (Santa Rosa de Lima, Bolívar, San José, Yucuaiquín, Pasaquina, Yayantique, San Alejo, La Unión, El Carmen, Chiriagua, Intipuca, Conchagua, and Meanguera del Golfo)</li> <li>Main activities: Analysis of the tourism development conditions, formulation of the tourism guidelines, implementation of the pilot tourism projects, training of the related organizations on tourism development and promotion, etc.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Salvadoran Side</td> </tr> <tr> <td>1) Experts: 6 persons</td> <td>1) Staff allocated: 12 persons</td> </tr> <tr> <td>2) Training in Japan: 5 persons</td> <td>2) Land and facilities: Office space, etc.</td> </tr> <tr> <td>3) Training in the third country: 78 persons</td> <td>3) Operation cost for the project activities.</td> </tr> <tr> <td>4) Equipment: vehicle, PCs, office equipment, etc.</td> <td></td> </tr> <tr> <td>5) Operation cost for pilot project implementation, etc.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Salvadoran Side	1) Experts: 6 persons	1) Staff allocated: 12 persons	2) Training in Japan: 5 persons	2) Land and facilities: Office space, etc.	3) Training in the third country: 78 persons	3) Operation cost for the project activities.	4) Equipment: vehicle, PCs, office equipment, etc.		5) Operation cost for pilot project implementation, etc.	
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5) Operation cost for pilot project implementation, etc.															
Project Period	July 2010 to July 2013	Project Cost	(ex-ante) 370 million yen, (actual) 371 million yen												
Implementing Agency	Ministry of Tourism (MITUR), Salvadoran Tourism Corporation (CORSATUR)														
Cooperation Agency in Japan	None.														

**II. Result of the Evaluation**

[Special perspectives considered at the ex-post evaluation]

- The framework of the Activity Model introduced by the project is explained as follows. CDT is established with support of CORSATUR for reactivation of local tourism development and functions as the core for encouraging tourism promotion activities. Through conducting such activities, capacity building of CDT is achieved, and the tourism development concept is formulated, tourism development projects are implemented, and activities of promotion and marketing of the developed tourism products are conducted. The knowledge obtained through these activities is fed back to the following tourism development activities.

<b>1 Relevance</b>
<p>&lt;Consistency with the Development Policy of El Salvador at the time of ex-ante evaluation and project completion&gt;</p> <p>The tourist sector was regarded as one of the priority areas for the national development plan, the “Five-year Development Plan” (2010-2014 and 2014-2019), and various strategies for tourism development are described in the “National Policy of Tourism 2013”. Therefore, the project was consistent with development policies of El Salvador at both the time of the ex-ante evaluation and project completion.</p> <p>&lt;Consistency with the Development Needs of El Salvador at the time of ex-ante evaluation and project completion&gt;</p> <p>Issues related to development of the tourism sector included capacity development of the related organizations such as MITUR, CORSATUR and CDTs. Both at the ex-ante evaluation and project completion, there were needs for capacity building of these organizations and also strengthening of their collaboration as an established mechanism for tourism development. Thus, the project was relevant with these needs.</p> <p>&lt;Consistency with Japan’s ODA Policy at the time of ex-ante evaluation&gt;</p> <p>The Economic Policy Dialogues were conducted every year from 2004, in which one of the intersectoral development themes was the regional development with prioritization in the Eastern Region. And, one of the four priority areas was revitalizing the economy and job creation<sup>2</sup>. Thus, the project was consistent with Japan’s ODA policy for El Salvador at the time of the ex-ante evaluation.</p>

<sup>1</sup> The Eastern Region consists of four departments: Usulután, San Miguel, Morazán and La Unión.

<sup>2</sup> Ministry of Foreign Affairs (2011). “ODA Databook 2010”

<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. Roles and positions of CDTs/ADTs for tourism development were clearly explained in the Activity Model developed by the project (Indicator 1); CDTs/ADTs are responsible for tourism infrastructure development and maintenance, tourism events, research on tourism, coordination with related organizations, and so on. The Activity Model was developed based on the implemented pilot projects and was approved by CORSATUR as the base for the national programs for tourism promotion (Indicator 2). Regarding the number of the employees in the tourism sector, there were no statistics or compiled data for the target municipalities (Indicator 3). Based on the 34 questionnaire responses received from the members of the target 13 CDTs/ADTs, it is presumed that the employment in the tourism sector has increased in their municipalities (29% answered “very much” and 50% “a little”).

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

The project effects have mostly continued. Roles and positions of CDTs/ADT are clearly stated in the “National Policy of Tourism 2013” which is still effective at the time of the ex-post evaluation. They have sustained functions for tourism promotion, and mainly worked for events related to the national tourism promotion campaign named “Pueblos Vivos” (Active Towns). Among the five pilot projects supported by the project, four of them have continued, which have involved new municipalities: the tourist map in Conchagua, mangrove tours in Intipucá, tourist signs in San Alejo, El Carmen, Chirilagua, La Unión, Conchagua, and island tour in Meanguera del Golfo, Zacatillo and Conchagua. The pilot project of the tourism and environmental education project has been suspended due to lack of municipality involvement, but the MEGATEC<sup>3</sup> of La Unión, which provided technical support to the project activities during the project, has a plan to implement it in other municipalities in the Eastern Region in near future. Regarding the number of the employees in the tourism sector, the data were available from six municipalities out of 11. The number has increased in four municipalities since the tourism promotion started based on the Activity Model. In the municipalities where the data were not available to compile, the interviewed personnel of the municipalities and CDTs/ADTs consider that the number has been on an increasing trend based on the increasing tourism business such as hotels and restaurants and participants in the festivals of “Pueblos Vivos.”

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

It is judged that the Overall Goal has been mostly achieved. Since the project completion, the Activity Model developed by the project has been incorporated in a part of the National Tourism Policy, and it has been diffused to other municipalities by CORSATUR via the Tourist Attention Centers (CATs) through trainings and workshops, and promotion of the La Unión Office of CAT which is the regional branch of CORSATUR. Based on this Model developed by the project, the number of the tourism products developed by local communities has almost tripled from 46 (2013) to 128 (2016) (Indicator 1). Various examples of the tourism products were confirmed, including handcrafts made of local materials, traditional dances and festivals, tours inside and outside the town, island tours, local gourmet products, and so on. Regarding the number of the employees in the tourism sector in the Eastern Region, the data were not available as there was no formal census (Indicator 2). However, it is assumed by the interviewed personnel of CORSATUR and MEGATEC that it has been increasing from the following factors: i) The number of the employees in the tourism sector in the whole country has been increasing (from 149,002 in 2013 to 189,897 in 2016)<sup>4</sup>; ii) New hotels have started the business; and iii) The number of the students has increased in tourism.

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

Following positive impacts have been confirmed. First, tourism promotion activities based on the Activity Model developed by the project have been launched in several non-target municipalities in the Eastern and other regions, including La Palma (Department of Chalatenango, Central Region) and Ruta de la Paz of (Department of Morazán, Eastern Region), and new tourism projects have been implemented such as the mangrove tour in La Pirraya (Department of Usulután, Eastern Region) and the fishing tours in Costa del Sol of (Department of La Paz, Central Region) and La Libertad of (Department of La Libertad, Central Region). Second, more women have been involved in tourism development activities and contributed to the local economies than before the project, such as promotion activities, handcrafts creation, restaurant and hotel staff. Forth, based on the project experience, MITUR has developed the guidelines named “Tourism Planning Guide: An Instrument for the Local Development in El Salvador” (2016) and “Sustainable Tourism: Articulator Axis of Economic, Social and Environmental Development in El Salvador” (2017). These have been distributed to the tourism related stakeholders including municipalities. No negative impact made by the project has been reported.

<Evaluation Result>

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

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) A sustainable mechanism of tourism development to benefit the local community in the Eastern Region is established through a public-private partnership.	1. The role and position for CDTs/ADTs are stipulated.	Status of achievement: <u>Achieved (Continued)</u> . (Project Completion) - Roles and positions of CDTs/ADTs are explained in the Activity Model. (Ex-post Evaluation) - Roles and positions of CDTs/ADT are clearly stated in the “National Policy of Tourism 2014”, and are known to 8 out of the 11 interviewed personnel of CORSATUR and municipalities.
	2. The Model (JICA La	Status of achievement: <u>Achieved (Continued)</u> .

<sup>3</sup> MEGATEC articulates two levels of technical education: Middle Education and Higher Education. There are three MEGATEC campuses in the country, including MEGATEC La Unión.

<sup>4</sup> The census was not conducted at the regional level, but the national data was obtained from records of the registered employees in the national social security system.

	Unión Model) is approved by CORSATUR as a national standard.	(Project Completion) - The first version of the Activity Model was developed for diffusion to the four departments in the Eastern Region in May 2013. It was approved by CORSATUR by the project completion (July, 2013). (Ex-post Evaluation) - The Model has been used by CORSATUR, as a base for their programs including the annual tourism fair of “Pueblos Vivos”. It has been referred to by both target municipalities and non-target municipalities.										
	3. The number of employees in tourism sector in some areas of the pilot project area is increased.	Status of achievement: <u>Mostly achieved (Mostly continued)</u> . (Project Completion) - According to the 34 questionnaire responses received from the members of the target 13 CDTs/ADTs in February 2013, most of them think that the employment in the tourism sector has increased in their municipalities (29% answered “very much” and 50% “a little”). (Ex-post Evaluation) - Among the 11 surveyed municipalities, the data on the number of the employees in the tourism sector were available in the six municipalities, and the number has increased in the four municipalities. Out of the five municipalities where the data were not compiled, the interviewed officers and CDTs/ADTs of four municipalities consider that the number has been on an increasing trend.										
(Overall goal) Community tourism based on distinctive local resources is developed in the Eastern Region.	1. Tourism products developed by local community are increased in the Eastern Region.  2. The number of employees in tourism sector in the Eastern Region is increased.	Status of achievement: <u>Achieved</u> . (Ex-post Evaluation) - The number of the tourism products developed by local communities based on the Activity Model has increased. <table border="1"> <tr> <td></td> <td>2013</td> <td>2014</td> <td>2015</td> <td>2016</td> </tr> <tr> <td>No. of the developed tourism products</td> <td>46</td> <td>60</td> <td>104</td> <td>128</td> </tr> </table> Status of achievement: <u>Mostly achieved</u> . (Ex-post Evaluation) - The data were not available for the Eastern Region. The interviewed CORSATUR and MEGATEC consider that the number of the employees in the tourism sector in the Eastern Region has been on an increasing trend from the facts: i) increase of the employees in the tourism sector in the whole country; ii) expansion of the tourism the business in the region; and iii) increase of the number of the students majoring in tourism.		2013	2014	2015	2016	No. of the developed tourism products	46	60	104	128
	2013	2014	2015	2016								
No. of the developed tourism products	46	60	104	128								

Source: Terminal Evaluation Report, Project Completion Report, interview with CORSATUR, CAT La Unión, MEGATC and 11 target municipalities.

### 3 Efficiency

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

### 4 Sustainability

#### <Policy Aspect>

Tourism development and promotion in the Eastern Region are prioritized in the “Master Plan for Sustainable and Inclusive Development in the Eastern Region of El Salvador (2015-2025)”. As mentioned earlier, the Activity Model is considered as part of the “National Policy of Tourism 2013” and the base for the national tourism programs. Also, the “National Tourism Plan 2020” includes strategies which are relevant to the project components such as coordination with private enterprises and local administration, capacity building of the local stakeholders in tourism, and so on.

#### <Institutional Aspect>

The organizational structure for tourism development has remained almost the same as that during the project period; MITUR is responsible for policy planning and CORSATUR undertakes tourism promotion including support for municipalities. In 2017, MITUR conducted workshops for the purpose of related actors’ sharing experiences and improving tourism products and services. At the municipality level, CDTs/ADTs are in charge of tourism infrastructure development and maintenance, tourism events, research on the tourism, coordination with related organizations, and so on. Also, municipalities are supposed to be involved in these activities based on the plan of CDTs/ADTs. Depending on each tourism concept and available touristic resources some CDTs/ADTs form a groups named “circuits” (Eastern Coast Circuit of five municipalities, Carnival Circuit of 4 municipalities, etc.). Among the 11 municipalities surveyed by the ex-post evaluation, six are still active such as provision of the public space and equipment for the tourism events, allocation of budgets for local festivals, promotion of local hand crafts, etc. On the other hand, other five municipalities do not pay much attention in the tourism sector. According to the interviewed personnel of CORSATUR and CAT, the number of the personnel for tourism development is not sufficient, but more personnel assignment is not expected as the government has a policy not to increase the positions due to the budget constraints. As for CDTs/ADTs, the number of the members varies from 0 to 15. All of them answered that it is not sufficient to perform their duties, except one ADT (Intipucá).

#### <Technical Aspect>

The interviewed personnel of CORSATUR and CAT La Unión answered that they have sustained sufficient knowledge on tourism development and promotion. They judge so because they learned from the project activities and they also give trainings to CDTs/ADTs and other related actors such as local tourism business owners. The guidelines developed by the project were revised by CORSATUR with additional good practices manuals and still utilized. On the other hand, CDTs/ADTs members do not have sufficient knowledge on tourism promotion, according to the interviewed personnel of CORSATUR. They answered that, although they are given training opportunities on development of business by CORSATUR, the National Commission of Small and Medium-sized Enterprises (CONAMYPE) and Local Economy Development Association, they still lack promotion techniques and innovative thinking.

Table: Budget of CORSATUR (thousand USD)

	2013	2014	2015	2016	2017 (plan)
CORSATUR	\$13,039	\$12,589	\$13,697	\$14,424	\$15,864
CATs	\$347	\$213	\$256	\$339	\$410

Source: CORSATUR.

<Financial Aspect>

The budget of CORSATUR comes from the central government through MITUR and the revenue of the tax related to tourism services. The budget of CORSATUR has increased since the project completion, but they answered that it is not sufficient for assisting all CDTs/ADTs in the country. The budget of all CATs has been on an increasing trend, and it is not sufficient, either, according to CORSATUR. As for CDTs/ADTs, the data were available only from ADT Intipucá (annually 700 USD). Its member answered that it is not sufficient for maintenance of some equipment, as some events are not profitable. Members of other CDTs answered that the revenues from members' fee, donations and festival profits are not sufficient to fully conduct their tourism development activities.

<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 Project Purpose was mostly achieved and the effects have mostly continued. Concretely, through implementation of the pilot projects and capacity building of CDTs/ADTs, the Activity Model for tourism promotion in the Eastern Region was developed by the project, and the Model was approved by CORSATUR as the national standard. Since the project completion, CDTs/ADTs have sustained their functions, and most of the pilot projects have continued. It is judged as the Overall Goal has been mostly achieved, as more tourism products have been developed in the Eastern Region and the employment has been presumably enlarged. The project experience has been diffused to other municipalities, where new tourism promotion projects have been launched. Regarding the sustainability, the number of personnel engaged in tourism promotion is not sufficient, and some municipalities are not active in tourism promotion activities. However, the Activity Model is considered as part of the National Policy and the organizational structure for tourism development has remained the same since the project completion. The budget of CORSATUR has increased every year, though it is not sufficient for supporting the municipalities and CDTs/ADTs' activities.

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

### III. Recommendations & Lessons Learned

Recommendations for implementing agency:

- It is recommended for MITUR to encourage municipalities, which are not fully involved in tourism, to participate in the discussion to elaborate the next plan as planned, which will succeed the "National Policy of Tourism 2013" and "National Tourism Plan 2020", in order to make the plans more attractive and feasible for the municipalities and promote the use of the Activity Model and CDTs/ADTs in their tourism activities.
- It is recommended for CORSATUR to identify the resources, such as partnership with private sector, so that CDTs/ADTs can implement and promote their activities, utilizing the resources.
- It is recommended for MITUR and CORSATUR to include a session in their tourism related seminars and workshop where CDTs/ADTs can share their experience and techniques in development and promotion of products and activities so that the CDTs/ADTs can learn from each other and further improve their activities.
- It is recommended for MITUR and CORSATUR to share the project experience related to the Activity Model with other projects. For example, experiences in developing tourism products made of local/regional materials and tourism tours/fairs utilizing local/regional resources could be adopted in the project of CONAMYPE and JICA for promoting One Village One Product (OVOP) which aims at the local/regional branding for socio-economic development.

Lessons learned for JICA:

- The Activity Model developed by the project has been well promoted in the target and non-target municipalities and produced various positive impacts, such as increase in new projects and products and employment in the tourism sector. The Activity Model has continued successfully, because, firstly, it was developed as a practical model based on the experience from implementation of the pilot projects. Secondly, capacity building of CDTs/ADTs who are main actors in the Activity Model was conducted based on the detailed analysis of their capacity at the planning phase. Thirdly, the project succeeded in incorporating the Activity Model in the national policy, by involving various actors including CDTs/ADTs and other actors related to the project in the discussion for elaboration of the national policy. In projects in which a model is developed for future diffusion, it is important to (i) try to make a practical one through the trial-error during the project period, (ii) examine the capacities of the main users before the project and design the capacity building, and (iii) incorporate the model in the national policy by involving project related actors at different levels in discussion for elaboration of the national policy.





Promotional Stand for Mangrove Tour at Pueblos Vivos Fair 2017 for Intipucá, La Unión

**Circuito 51  
City Tours  
22 y 23 Julio  
2017**

**Itinerario**

**Día #1**

- ✓ Práctica de Surf en playa las Flores Chirilagua
- ✓ Almuerzo en restaurante playa El Cuzco
- ✓ Tour de Kayak en Playa Estacion de Intipucá
- ✓ Cano Show en playa Las Tunas Conchagua
- ✓ Alojamiento Hotel Porto Bello ciudad La Unión.

**Día #2**

- ✓ Visita a Isla Zacatillo y desayuno playero
- ✓ Recreos por bahía La Unión
- ✓ Almuerzo en Playa Playitas
- ✓ Visita a Mirador Espiritu de la Montaña volcán Conchagua
- ✓ Regreso a San Salvador.

**Presio de promoción**  
\$75 PP

Reservación con: Heidi Carolina Robles Teléfono: (503) 7878-8279/2604-0478  
Correo: heidi\_carolina@pueblosvivos.com.ec

Promotional material for "Eastern Coast Circuit"

Country Name	<b>Project for Strengthening People Empowerment Against HIV/AIDS in Kenya (SPEAK) Phase 1&amp;2</b>
Republic of Kenya	

**I. Project Outline**

Background	<p>Following the launch of the 2<sup>nd</sup> National Health Sector Strategic Plan (NHSSP II, 2005 – 2010), HIV/AIDS continued to be one of the priority public health problems targeted for response by the Government of Kenya. Kenya had been implementing a successful multi-sectoral response to HIV/AIDS under the leadership of National AIDS Control Council (NACC). In order to tackle the HIV pandemic, HIV Testing and Counseling (HTC) was one of key approaches adopted as an entry point for prevention as well as care and treatment. The Government of Kenya aimed to reach universal access goal of 80 % of Kenyans knowing their HIV status by the year 2010, but only 36% had been attained.</p> <p>In line with the national strategy, the technical cooperation project for Strengthening of People Empowerment against HIV/AIDS in Kenya, christened SPEAK Project (hereafter referred to as “Phase1”) was implemented from 2006 to 2009. Phase1 made significant contribution towards the achievement of the target by development of the National HTC Guidelines, which standardized various HTC services. Phase1 contributed to increase accessibility of HTC services. In the process of scaling up of HTC services, however, the Government of Kenya faced numerous challenges in achieving targets for universal access. One of the challenges to be urgently addressed was improving quality of HTC service and thus the implementation of a succeeding project (hereafter referred to as “Phase2”) was requested. (Phase 1 and Phase 2 are hereafter collectively referred to as “the project” in this report)</p>		
Objectives of the Project	<p>Through standardizing HTC related services, trainings for HIV counselling and testing service providers and awareness building activities on HIV in the Phase 1 and enhancement of management and coordination capacity of the National AIDS and Sexually Transmitted Disease (STI) Control Programme (NAS COP), and quality control (QC) and quality assurance (QA) of HTC services in the Phase 2, the project aimed at provision of quality HTC services at HTC delivery points, and thereby contributing to increase in the number of Kenyans tested for HIV.</p> <ol style="list-style-type: none"> <li>Overall Goal: The number of Kenyans (especially the youth aged 15-24 years) tested for HIV increases annually.</li> <li>Project Purpose: Quality HTC (HIV Testing and Counseling) services are provided at HTC service delivery points.</li> </ol> <p>(Note) The objectives of the project were restructured for this ex-post evaluation based on the actual frameworks of the Phase 1 and Phase 2 since there were logic inconsistencies in the design of the projects. Details are explained in “Special Perspectives Considered in the Ex-post Evaluation”.</p>		
Activities of the project	<p>(Phase 1)</p> <ol style="list-style-type: none"> <li>Project site: NASCOP in Nairobi</li> <li>Main activities: 1) Rolling out new M&amp;E tools and maintaining HTC related database, 2) standardizing HTC related services, harmonizing HTC related guidelines, training curriculum, and improving coordination among NASCOP, 3) producing and broadcasting radio programmes to increase awareness and understanding of HIV issues, 4) training of HTC service providers.</li> </ol> <p>(Phase 2)</p> <ol style="list-style-type: none"> <li>Project sites: NASCOP in Nairobi and HTC Model Sites in Nairobi, Nakuru and Mombasa Counties</li> <li>Main activities: (1) Strengthening of management and coordination capacity of NASCOP (development of national strategies, service standards and other necessary tools, development of business plan and others) (2) Conducting training of HTC service providers, (3) enhancement of QC and QA, (4) improving data quality for HIV programs, (5) facilitating and evaluating of full application of QC/QA/ QI measures for HTC in the demonstration sites, and (6) Informing national policies with the results of the evaluation of the application of QC/QA/QI.</li> </ol> <p>Inputs for Phase 1 and Phase 2 (to carry out project activities)</p> <p>Japanese Side</p> <ol style="list-style-type: none"> <li>Experts: 2 persons (Phase 1), 4 persons (Phase 2)</li> <li>Trainees received (Japan and the third country training): 13 persons (Phase 2 only)</li> <li>Equipment: container (project office), vehicles, PCs and others (Phase 1), vehicle and others (Phase 2)</li> <li>Local expenses: training expenses, printing costs, radio programmes (contracted to BBC WST) (Phase1), training expenses (Phase 2)</li> </ol> <p>Kenyan Side</p> <ol style="list-style-type: none"> <li>Staff allocated: 41 persons (Phase 1), 56 persons (Phase 2)</li> <li>Provision of Project offices</li> <li>Local Expense: utility fee (Phase 1), part of training expenses (Phase 2)</li> </ol>		
Project Period	(Phase 1) July 2006-June 2009 (Phase 2) January 2010-January 2014	Project Cost	(Phase 1) (ex-ante) 380 million yen, (actual) 294 million yen (Phase 2) (ex-ante) Approximately 400million yen, (actual) 371 million yen

Implementing Agency	(Phase 1) National AIDS and STI Control Programme (NAS COP), Ministry of Public Health and Sanitation, Provincial AIDS and STI Coordinators (PASCOs) and District AIDS and STI Coordinators (DASCOs) (Phase 2) NAS COP
Cooperation Agency in Japan	-

## II. Result of the Evaluation

### < Special Perspectives Considered in the Ex-Post Evaluation >

There were some logical inconsistencies in the Project Design Matrix (PDM) for both Phase 1 and the Phase 2. Although better quality of HTC services and change in the people's behavior to the risk of HIV infection through awareness building lead to the greater number of people having HIV test, the Project Purpose for Phase 1 was to increase in the number of people taking HIV testing which should have been an expected impact of the project and the Overall Goal of the Phase 2 was provision of quality HTC services which should have been the intended outcome of both Phase 1 and Phase 2 as the Project Purpose. The original PDMs were as follows:

#### (Phase 1)

- Overall Goal: People's behavior to the risk of HIV infection is changed by HIV testing promotion.
- Project Purpose: The number of Kenyans (especially the youth aged 15-24 years) tested for HIV increases annually.

#### (Phase 2)

- Overall Goal: Quality HTC (HIV Testing and Counseling) services are provided at HTC service delivery points.
- Project Purpose: National capacities to scale up quality HTC services are strengthened.

- For this ex-post evaluation, therefore, it was required to restructure the actual project framework for both Phase 1 and Phase 2 in order to verify actual achievements by Phase 1 and Phase 2 based on "the project designs actually intended." The Project Purpose and the Overall Goal of Phase 1 and Phase 2 were reclassified as mentioned in "Project Outline" above and "Effectiveness/Impact" of phase 1 and that of phase 2 were integrally evaluated in order to capture the outcome brought about by the project as a whole.
- Sustainability of the project effects were also integrally assessed for Phase 1 and Phase 2 during this ex-post evaluation since the project effects were not able to be separated by each of Phase 1 and Phase 2.

## 1 Relevance

### <Consistency with the Development Policy of Kenya at the Time of Ex-Ante Evaluation and Project Completion>

Phase 1 was consistent with the development policy of Kenya. At the time of ex-ante evaluation, "the Kenya National HIV/AIDS Strategic Plan 2005/6—2009/10 (KNASP) prioritized expanding Voluntary Counseling and Testing (VCT)". At the time of project completion, KNASP (2005/2006-2009/10)" identified "prevention of new infections" as one of the three pillars.

Phase 2 was consistent with the development policy of Kenya. At the time of ex-ante evaluation, the Government of Kenya was drafting "Kenya National HIV/AIDS Strategic Plan: KNASP III (2009/2010-2012/2013)" in which HIV service delivery was one of the four pillars. It planned to provide quality HIV service in line with guidelines and standards at 80% of the service delivery point by 2013. At the time of project completion, "the Kenya Health Sector Strategic and Investment Plan (KHSSIP) (2013-2017)" articulated among others a strategic objective to reduce the burden of communicable conditions. Among the health service packages to be provided is prevention of HIV and STIs. Similarly, "the Kenya AIDS Strategic Framework (2014/15-2018/19)" identifies scaling up of effective approaches to HIV prevention among them innovative HTC models.

### <Consistency with the Development Needs of Kenya at the Time of Ex-Ante Evaluation and Project Completion >

Phase 1 was consistent with the development needs of Kenya for HIV/AIDS service delivery. At the time of ex-ante evaluation, Kenya was one of the countries with a high rate of HIV infection (6.7% as of 2003). Though people have knowledge on HIV testing and HIV/AIDS, behavior changes to avoid the risk of infection were not widely taken in the population. At the time of project completion, the target age group of Phase 1 also remained appropriate: "the Kenya AIDS Indicator Survey 2007" (KAIS) (Preliminary Report) indicated that the infection rate of the youth age 15-24 remained high and that women age 15-24 were 4 times more likely to be infected than men.

Phase 2 was consistent with the development needs of Kenya for HIV/AIDS service delivery. At the time of ex-ante evaluation, the rate of adults (15-64 years old) who tested for HIV in 2007 was 36%, which was far lower than the targeted 80%. At the time of project completion, HIV infection continuously remained a serious issue in Kenya. According to the Kenya AIDS indicator survey 2012, the HIV positive ratio was estimated to be 5.6%, which means the rate had not been improved so much in past years.

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

The project was also consistent with Japan's ODA Policy. Japan's "Country Assistance Program to Kenya 2000" prioritized the health sector and especially highlighted the support for measures to tackle HIV/AIDS.

### <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 deemed to be partially achieved by the time of project completion as a part of indicators (set to measure the achievement of the Project Purpose of the logic model made under the ex-post evaluation) such as "the proportion of facilities achieving the National HTC standards." (indicator 1) was attained, while there is no data for "Discrepancy rate of HIV testing (false positive/negative) is minimized" (indicator 2), and "Client's satisfaction for HTC services is improved." (indicator 3). Many Development Partners (DPs) such as USAID, JHPEIGO (a non-profit organization by Johns Hopkins University), CDC (US Center for Disease Control), USAID/WHO, The Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) supported HTC services and therefore, the project contributed to the improvement in HTC services to some extent.

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

After the project was completed, measures for HIV/AIDS testing have continuously shown improvement. The number of facilities providing HTC services has increased from 5,345 in 2013 to 6,524 in 2016. As to the quality of services, there was no data available to show the number of facilities achieving the national HTC standards, nor the discrepancy rate of HIV testing. However, the field survey by

the ex-post evaluation revealed that national tools for quality management were still being referenced in service provision. Also, the HTC service providers indicated that they still offer quality services following the national quality standards<sup>1</sup>. Though data on the discrepancy rate of HIV testing is not available<sup>2</sup>, DPs continue to help facilities create an enabling environment for quality HTC services, such as the support for training programs, revision of tools and distribution of Standard Operation Procedures (SOPs), guidelines and relevant job aids. This has minimized the possibility of discrepancy of HIV testing results. In one instance, one HTC counselor said, “I have never encountered nor seen any discrepant test results”. It was also noted that county Medical Laboratory Technologists provide regular supervision to the HTC providers with an aim of improving proficiency and quality in service provision. Although client satisfaction surveys have not been conducted recently a report by Kenyatta National Hospital (KNH): Exit Interviews at KNH VCT and Prevention Centre, 2014, which looked at client exit interviews, indicated that the clients perceived KNH as having high standards and that is why they opted to receive services there.

Many of the national standards and tools developed by the project (through technical working group headed by NASCOP) are in use and have been revised. However, some are still waiting to be revised. NASCOP continues to receive support from DPs such as GFTAM, USG (USAID, U.S. President's Emergency Plan for AIDS Relief (PEPFAR), CDC), to develop guidelines, curricula, IEC materials and to print and disseminate these to the counties. The partners support the work of the various technical working groups headed by NASCOP.

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

The Overall Goal is mostly achieved. The number of Kenyans annually tested for HIV surpassed the target for KNASP III and significantly increased from 10.6 million in 2013 to 13.1 million in 2016. The field survey results did not have disaggregated data for the youth aged 15-24 years. The numbers of Kenyans tested annually rose beyond the target projections due to:

- 1) major shift of strategy from voluntary testing to provider HTC since 2014
- 2) buy in by health providers who have promoted HTC to all patients.
- 3) DPs have supported the scale up of HIV testing and treatment and others.

Regarding the indicator 2, due to the declining trends in HIV prevalence (Kenya AIDS Indicator Survey, 2012), while the number of clients newly testing positive for HIV has declined and so is the number being enrolled into care and treatment from newly tested clients, ratio of the number of new clients receiving care against the number of people who are newly found positive by HIV testing has been worsened. According to the former HTC Manager at NASCOP, the decline in the ratio of clients receiving care to those newly tested positive is mainly attributed to the following factors; (1) Loss of newly tested clients found positive in follow up at HIV treatment sites after referral, (2) Client / patient factors such as self-denial and refusal to enroll for treatment, and (3) Challenges in the referral system for HIV treatment services

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

As a result of promotion of HIV testing, people now have a lot of information about HIV, what it is, how it is transmitted, how to prevent and even what to do if it is HIV positive. However, the field survey did not yield any hard evidence to indicate that this has translated to behavior change towards the risk of HIV infection.

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

<Evaluation Result>

In light of the above, through the project, the Project Purpose was partially achieved at the time of project completion, the effects of the project partially continued after the project completion and the Overall Goal is mostly achieved. Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results				
(Project Purpose) Quality HTC (HIV Testing and Counseling) services are provided at HTC service delivery points. (phase 2-overall goal, phase 1-output 4)	Indicator 1: % of facilities achieving the National HTC standards	Status of the Achievement: achieved (partially continued) (Project Completion) The target: 50%, Actual result: 73.4% (Ex-post Evaluation)				
			2013	2014	2015	2016
		Percentage of facilities achieving the National HTC Standards	73.4%	n.a	n.a	n.a
		No. of facilities achieving the National HTC Standards	n.a	n.a	n.a	n.a
		No of total facilities which provide HTC services	5,345	5,829	6,190	6,524
		(Reference) At the project completion of phase 1, the project improved the quality of HTC services, as the output 4, “the quality HIV testing services are provided at VCT centers and other clinical settings”. The project achieved the indicator of “Totally 30% of applied sites pass the accreditation”.				
	Indicator 2: Discrepancy rate of HIV testing (false positive/negative) is minimized.	Status of the Achievement: unverifiable(continuity unverifiable) (Project Completion) No data is available. (Ex-post Evaluation) No data is available.				

<sup>1</sup> During the field survey it was observed that, national tools that were developed through the project and distributed to the HTC sites are being referenced in service provision. However, according to Sub-CASCO (County HIV /AIDS and STI Control Officer) in one of the county’s, some of the tools are out of stock because of budget constraints. The counties are not able to reprint and redistribute the tools to be used at the facilities. Nonetheless, the service providers are still able to offer quality HTC services and adhere to a large extent the quality standards.

<sup>2</sup> In 2013, there was a data abstraction exercise sponsored by the project that aimed at among other things looking at discrepancy rates but due to the changing systems from Dry Blood Spot (DBS) to Proficiency Testing (PT) made this hard to determine.

	Indicator 3: Client's satisfaction for HTC services is improved.	Status of the Achievement: unverifiable(partially continued) (Project Completion) No data is available (Ex-post Evaluation) No data is available. However, exit Interviews at KNH VCT and Prevention Centre in 2014 indicated that the clients perceived KNH as having high standards										
(Overall Goal) The number of Kenyans (especially the youth aged 15-24 years) tested for HIV increases annually. (phase 1-project purpose)	Indicator 1: At least 4 million of Kenyan adults per year are tested according Kenya National AIDS Strategic Plan (KNASP) III targets.	Status of Achievement: achieved (Ex-post Evaluation) <b>Number of adults per year tested</b> <table border="1"> <thead> <tr> <th></th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>No. of adults who are tested</td> <td>10,653,166</td> <td>6,544,584</td> <td>14,370,536</td> <td>13,190,088</td> </tr> </tbody> </table>		2013	2014	2015	2016	No. of adults who are tested	10,653,166	6,544,584	14,370,536	13,190,088
		2013	2014	2015	2016							
No. of adults who are tested	10,653,166	6,544,584	14,370,536	13,190,088								
Indicator 2: Ratio of # of new clients receiving care: # of people who are newly found positive by HIV testing	Status of the Achievement: achieved (Ex-post Evaluation): Achieved Actual result: 0.73:1 <table border="1"> <thead> <tr> <th></th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>ratio of # of new clients receiving care: people who are newly found positive by HIV testing</td> <td>1.07:1</td> <td>0.74:1</td> <td>0.66:1</td> <td>0.73:1</td> </tr> </tbody> </table>		2013	2014	2015	2016	ratio of # of new clients receiving care: people who are newly found positive by HIV testing	1.07:1	0.74:1	0.66:1	0.73:1	
	2013	2014	2015	2016								
ratio of # of new clients receiving care: people who are newly found positive by HIV testing	1.07:1	0.74:1	0.66:1	0.73:1								

Source: JICA internal documents, questionnaires and interviews with NASCOP staff, former Counterpart in charge of HTC services and interviews with HTC counselors (8 HTC counselors from 10 model sites visited during the filed survey)

### 3 Efficiency

(Phase 1) Both the project cost and the project period were within the plan (ratio against the plan: 77%, 100%).  
(Phase 2) Both the project cost and the project period were within the plan (ratio against the plan: 93%, 100%).  
Therefore, the efficiency of the project is high.

### 4 Sustainability

#### <Policy Aspect>

The latest government policies as of ex-post evaluation continuously specify the necessity and importance of HIV prevention and control. "Kenya HIV Prevention Revolution Road Map-countdown to 2030" by Ministry of Health indicates that "HTC is a cornerstone for this Prevention Roadmap in order to identify eligible and high risk populations for targeted HIV prevention interventions and is a routine primary health intervention". In addition, "the Kenya AIDS Strategic Framework (2014/15–2018/19)" identifies scaling up of effective approaches to HIV prevention among them innovative HTC models.

#### <Institutional Aspect>

NASCOP has an organization structure and staff establishment necessary to carry out its core mandate of HIV policy formulation, development of standards and guidelines, quality assurance and technical assistance to counties. However, the number of staff allocation is not sufficient. In HTC services, there is only one program officer deployed. This one person is not sufficient to monitor current status, or even support the scale up of quality HTC activities.

HTC service provision is now mandated to county governments as health service delivery is a devolved function specified in Schedule 4 of the Constitution of Kenya. The County Departments of Health Services are headed by a County Executive Committee (CEC) Member in charge of health, supported by a Chief Officer of Health (COH) as the Accounting Officer. The County Health Management Teams (CHMTs) are led by County Directors of Health (CDH) and manage the technical services. As members of the CHMT, County AIDS and STI Coordinators (CASCOs) are responsible for management of the HIV program activities at County level. Counties ensure availability of health staff with appropriate skills, commodities and tools for service provision. Counties have varied requirements for human resources for health depending on their local capacities and health needs. However, according to NASCOP the key management positions for disease control programs have the required staff establishment across counties.

#### <Technical Aspect>

NASCOP has qualified staff with sufficient experience in HIV program management. In terms of providing technical support, while there is still room for developing quality management tools, printing and disseminating these to the rest of the country, NASCOP implements Continuous Professional Development (CPD) programs with University of Maryland, USA, and holds regular Continuing Medical Education sessions (CMEs) for skills upgrade, professional development and accreditation of staff by relevant authorities..

On the part of county governments, they have departments of health technically led by Directors of Health Services. They are in-charge of preventive, promotive, clinical, and rehabilitative as well as community health services. In terms of management, there exist County Health Management Teams (CHMTs) with technical expertise across the health system.

#### <Financial Aspect>

Although NASCOP did not avail data on financing, HIV prevention, care and treatment still remains a high priority for the Government of Kenya. NASCOP is funded from the Exchequer to execute its mandate and also receives external technical and financial support from DPs. The counties are also funded from the Exchequer to provide health services as one of the priority devolved functions.

Overall, there are still significant contributions by DPs particularly USG, GFTAM among others.

#### <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, such as insufficient number of personnel, limited capacity to provide technical support, and dependence on support from DPs. Therefore, the sustainability of the effectiveness of interventions through the project is fair.

### 5 Summary of the Evaluation

The project partially achieved the Project Purpose at the time of project completion, as the indicator, "the proportion of facilities achieving the National HTC standards." was attained. Although some data were not obtained, the provision of quality services in accordance with the national quality standards is continued after the project completion. The Overall Goal is mostly achieved as the

number of Kenyans who tested for HIV significantly increased.

As for sustainability, although slight problems have been observed in terms of institutional, technical and financial aspects, no problem has been observed in terms of policy aspect.

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

### III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

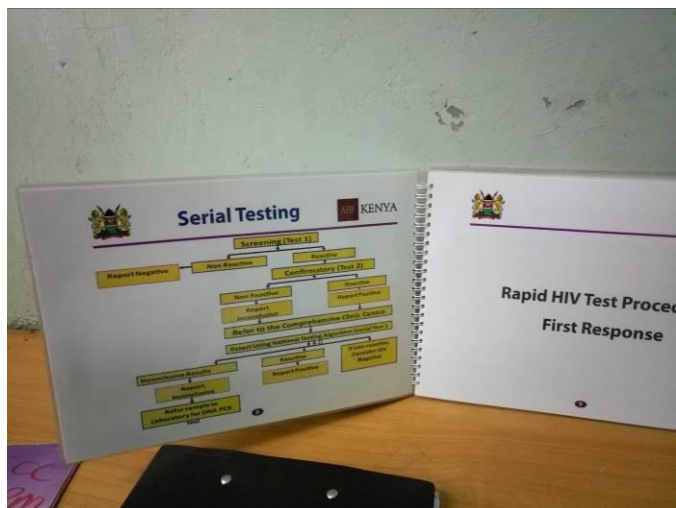
NASCOP is recommended to:

- review and update of guidelines, SOPs, job aids by accelerating the work of Thematic Technical Working Groups (TWGs) at NASCOP
- conduct training of HTC managers and service providers (conduct CPD and CME activities at NASCOP and County Departments)
- activate and roll out the Proficiency Testing (PT) program for HTC service providers nationally.
- strengthen management of strategic information, and monitoring and evaluation (M&E)
- conduct mentorship and support supervision to counties
- conduct technical support to HTC model sites, and
- develop and implement strategies to increase domestic financing for HIV response by advocating for increased Exchequer financing for HIV services and by mobilizing resources from the private sector

County Department of Health is recommended to increase domestic financing for HIV response by advocating for increased Exchequer financing for HIV services and by mobilizing resources from the private sector.

Lessons Learned for JICA:

- It was difficult to collect data at the ex-post evaluation stage. At the project planning and monitoring stage, it is important to set indicators which data can be collected on routine basis for monitoring and also during the post project implementation stage.
- Where routine M&E data sets are not sufficient for monitoring of the post project implementation stage, data management activities such as re-designing or modification of databases and data quality audits could be included as part of project outputs



SOPs at HTC Service Point at Model Site (July 2017)



HTC Service Trolley supplied in Phase 2 (July 2017)

Country Name	<b>Project for the Comprehensive Transport and Trade System Development Master Plan</b>
United Republic of Tanzania	

**I. Project Outline**

Background	Tanzania has the port of Dar es Salaam, the gateway to East Africa, and in addition, it has international corridors that greatly influence the transport and trade of Tanzania and the neighboring countries. In particular, the four major development corridors identified in the “10-year Transport Sector Investment Programme” (2007), namely, the Dar es Salaam, Central, Tanga and Mtwara Development Corridors, have a large influence on the livelihood and economic activities of these countries. However, there were many obstacles for the smooth and seamless transport and trade, such as unpaved roads, inefficiency of and low reliability on the railway transportation, limited handling capacity of ports and inefficient connections and procedures between transport modes.										
Objectives of the Project	By preparing the transport origin to destination (OD) data and Master Plan for nationwide transport and trade system, the project aimed at developing future visions of development corridors for 2030 and freight transport strategies thereby developing capacity of the related organization on project planning and management, and ultimately contributing to facilitation of interregional transport and trade through efficient intermodal transport of multiple transport modes.										
	<ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>1</sup>: Interregional transport and trade are facilitated through the efficient intermodal transport of the multiple transport modes.</li> <li>Expected utilization of the proposed plan: (1) Future visions of development corridors for 2030 and their freight transport strategies are concretely developed as the master plan; and (2) Capacity of the related organizations on program/project planning and implementation related to the transport plan is improved.</li> </ol>										
Activities of the Project	<ol style="list-style-type: none"> <li>Project site: Tanzania mainland</li> <li>Main activities: The study team (1) conducted survey and analysis of the current status of the transport sector; (2) conducted the network analysis and demand forecast; (3) complemented the strategy for nationwide transport and trade system, (4) Prepared the Master Plan for nationwide transport and trade system; (5) implemented the pre-feasibility study; and (6) conducted technology transfer.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Tanzanian Side</td> </tr> <tr> <td>1) Mission members: 20 persons</td> <td>1) Staff allocated: Personnel of MOWTC.</td> </tr> <tr> <td>2) Training in Japan: 5 persons</td> <td>2) Land and facility: Office space, etc.</td> </tr> <tr> <td>3) Operation cost: hiring 1 Tanzanian professional and 3 assistants, etc.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Tanzanian Side	1) Mission members: 20 persons	1) Staff allocated: Personnel of MOWTC.	2) Training in Japan: 5 persons	2) Land and facility: Office space, etc.	3) Operation cost: hiring 1 Tanzanian professional and 3 assistants, etc.	
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Project Period	August 2011 to February 2013	Project Cost	(ex-ante) 350 million yen, (actual) 462 million yen								
Implementing Agency	Ministry of Transport (Ministry of Works, Transport and Communications (MOWTC) from 2015)										
Cooperation Agency in Japan	PADECO Co., Ltd., Nippon Koei Co. Ltd, International Development Center of Japan Incorporated										

**II. Result of the Evaluation**

<Special perspectives considered at the ex-post evaluation>

- As “expected utilization of the proposed plan,” one of the two objectives set forth at the ex-ante evaluation was “Future visions of development corridors for 2030 and their freight transport strategies are concretely developed as the master plan.” However, since the master plan was one of the project outputs, it is not appropriate as an indicator of the utilization status of the proposed plan. Therefore, this was used as an indicator for the outputs to achieve the project goal.

<Evaluation constraint>

- As “expected utilization of the proposed plan,” one of the indicators was set forth as “facilitation of the interregional transport and trade through the efficient intermodal transport of the multiple transport modes.” For understanding of this indicator, it was intended to use the following data: time of transport and trade, cost of transport and trade, traffic volume, cargo volume, and freight income, though most of which were not available.

**I Relevance**

<Consistency with the Development Policy of Tanzania at the Time of Ex-Ante Evaluation and Project Completion>

The project was consistent with Tanzanian development policies, as transport was positioned as a priority sector in the National Strategy for Growth and Reduction of Poverty (2010-2014).

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

Though major development corridors had been improved, the proportion of roads which were paved was still low and obstacles remained for smooth and seamless transport and trade still at the project completion, including inefficient rail transport and its low reliability, limited capacity of ports, connection and procedure between transport modes.

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

In the Country Assistance Plan for Tanzania (2008), under the pillar of growth and reduction of income poverty, infrastructure was one of the priority areas.

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



<Evaluation Result>

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

2 Effectiveness/Impact

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

The Transport and Trade Master Plan (Master Plan) was developed with the pre-feasibility studies. The Tanzanian Strategic Environmental Assessment (SEA) was conducted on the Master Plan and approved by the State Minister in Charge of Environment in February 2014. The Master Plan developed by the project includes strategies for freight transport development, port sector development, road sector development, and railway sector development. It also includes institutional development strategies and proposes projects for 2030. MOWTC answered at the ex-post evaluation that they are satisfied with the Master Plan because it was a comprehensive plan which included transport demand forecast and suggested projects for implementation and it was useful for planning.

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

The developed Master Plan has been utilized. For the subsectors of air, inland port, sea port, road and railway, a total of 41 infrastructure projects were proposed. Among the 18 proposed projects for the time frame 2013-2017, 4 were completed<sup>2</sup>, 9 projects are under implementation and 5 projects are planned. Also, 23 proposed projects for the time frame 2018-2022 and 2023-2030, 5 projects are under implementation. Through planning and implementation of the proposed projects, MOTWC and other agencies have improved their capacity for program/project planning and implementation, according to MOWTC.

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

It is too early to judge the achievement status of the Expected Goals through the Proposed Plan. The following analysis was made for reference. The developed Master Plan proposes strategies and projects until 2030, and 18 out of 41 proposed projects were completed or are under implementation. As of June 2017, no data were available for time of transport and trade, cost of transport and trade, traffic volume, cargo volume, and freight income, though, with regard to the time of transport and trade, with the bus rapid transit system introduced in some projects, the time to and from the central business district has been reduced in the opinion of MOWTC. With regard to promotion of the modal shift between ships and trains, some of the projects such as Dar es Salaam port improvement project and standard gauge rail construction have started recently. MOWTC presumes that the modal shift would be promoted when the government completes those projects.

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

No particular impact has been confirmed at the ex-post evaluation.

<Evaluation Result>

In light of the above, through the project, the Master Plan for transport and trade system development was developed, which includes future visions of development corridors for 2030 and their freight transport strategies, and some projects proposed by the Master Plan have been implemented. Furthermore, capacity of the related organizations on project management has been improved. Therefore, the effectiveness/impact of the project is high.

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

Aim	Indicators	Results
(Utilization Status of the Proposed Plan) 1. Future visions of development corridors for 2030 and their freight transport strategies are concretely developed as the master plan 2. Capacity of the related organizations on program/project planning and implementation related to the transport plan is improved	1. Utilization status of the prepared Master Plan	Status of achievement: Achieved. (Ex-post Evaluation) - 18 proposed projects for the time frame 2013-2017, 4 were completed, 9 projects are under implementation and 5 projects were planned. Also 23 proposed projects for the time frame 2018-2022 and 2023-2030, 5 projects are under implementation. - The Master Plan has been used by MOWTC and implementing agencies as a reference material for project planning and implementation, and MOWTC judges their capacity on project planning and implementation related to the transport plan has been improved. <Supplementary information> - The Master Plan developed by the project includes strategies for freight transport development, port sector development, road sector development, and railway sector development. It also includes institutional development strategies and proposes projects for 2030.
(Expected Goals through the Proposed Plan) (Not to be evaluation) 1. Interregional transport and trade are facilitated through the efficient intermodal transport of the multiple transport modes	1. Facilitation of the interregional transport and trade through the efficient intermodal transport of the multiple transport modes	Status of achievement: Not verified. (Ex-post Evaluation) - No exact data were available for time of transport and trade, cost of transport and trade, traffic volume, cargo volume, and freight income, since they have not been measured yet.
2. Promotion of the modal shift	2. Promotion of the modal shift	Status of achievement: - Not verified (Ex-post Evaluation) - The government has started port improvement and construction of the standard gauge rail, and the modal shift between ships and trains will be promoted after completion of those projects.

(Source) MOWTC.

3 Efficiency

Both of the project cost and period exceeded the plan because it took more time and cost for the approval process of SEA than expected (ratios against the plan: 131% and 112%, respectively). Therefore, the efficiency of the project is fair.

<sup>2</sup> Completed projects are “JNIA Cargo Terminal Development” (Tanzania Airport Authority), “Refurbishment of Container Terminal for Kigoma Port” of Tanzania Port Authority (TPA), “Community Service Project: Six Cluster Ports on Tanganyika and Kiwira on Nyasa” (TPA) and “Kasanga Port Development Phase I” (TPA), as of July 2017.

#### 4 Sustainability

##### <Policy Aspect>

Development of transport and trade has been prioritized in the National Transport Policy. According to MOWTC, some proposed projects by the Master Plan was adopted by the Five-Year Development Plan (FYDP II).

##### <Institutional Aspect>

The Department of Policy and Planning of MOWTC is responsible for monitoring the implementation status of the pilot projects proposed in the Master Plan. The number of the personnel for this responsibility is 5 and it is sufficient for coordinating implementing agencies, according to the Department of Policy and Planning. For monitoring, performance agreements are annually exchanged with these agencies. The responsible section or personnel for revision of the Master Plan has not been decided, because there has not been such necessity. For implementation of the proposed projects in the Master Plan in the subsectors of air, inland port/sea port, road and rail, the responsible are Tanzania Airport Authority (TAA), Tanzania Ports Authority (TPA), Tanzania National Roads Agency (TANROADS), and Reli Assets Holding Company (RAHCO), respectively. In all agencies, the personnel in charge is the directorate of the responsible section and the number is sufficient, according to MOT.

##### <Technical Aspect>

MOWTC judges that the technical level of all the implementing agencies (TAA, TPA, TANROADS and RAHCO) is sufficient for implementation of the proposed projects in the Master Plan, based on the monitoring of their performance. If they have necessity for upgrading the technical level, new personnel will be recruited. Also, MOWTC has acquired sufficient techniques for project monitoring, as they have conducted it without difficulties.

##### <Financial Aspect>

Projects proposed by the Master Plan have been implemented annually using the Medium-Term Expenditure Framework. The budget sources include allocation from the central government and supports from the World Bank, African Development Bank, Kuwait Foundation, etc. As of 2016, 1,526 million USD were disbursed for 14 projects which have been implemented and of which the financial data were confirmed. However, some proposed projects have not secured financing from the government yet, because of the limited financial resources for competing demands between transport and social developmental issues.

##### <Evaluation Result>

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

#### 5 Summary of the Evaluation

In the project, the Master Plan for transport and trade system development which satisfy MOTWC was developed. Several projects proposed in the Master Plan have been implemented, and capacity of MOWTC and other implementing agencies has been improved. Since only 4 were completed and 14 are ongoing among the 41 proposed projects, it is too early to strictly verify the results of utilization of the Master Plan as a whole at the ex-post evaluation. Regarding the sustainability, though there have not been problems of MOWTC and implementing agencies regarding the organizational structure and technical levels for planning and implementing the proposed projects, there have been budget constraints for some projects. As for the project efficiency, both of the project cost and 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:

- For verification of effects of utilization of the Master Plan developed by the project, it is recommended to MOWTC to set indicators such as transport time, transport cost, traffic/cargo volume and freight income and measure the effects when all related projects are completed. It would be effective to convince the financing authority to secure budgets by showing the performance.



Opening Ceremony of Construction of Mwl. Nyerere-N. Mandela Flyover. An intervention to ease congestion along Dar port access road for smooth cargo movement to hinterland and land locked countries.



Country Name	<b>Project for Capacity Building for Enhancement of the Geothermal Exploration Technologies</b>
Republic of Indonesia	

**I. Project Outline**

Background	The “Fast-Track Program (Crash Program II)” (2010) aimed to develop about 10,000 MW of new power sources by 2014, out of which 3,977 MW was planned through geothermal power. Indonesia was endowed with about 29,000 MW of geothermal power development potentials, but only about 1,200 MW was developed as of 2010. It was deemed important to expedite geothermal power development. The Center for Geological Resources (CGR) of Geological Agency (GA) is responsible for regional and detailed resource surveys in order to identify prospective geothermal fields. However, CGR faced difficulties in terms of using integrated data formats, collecting highly accurate resource data and conducting quantitative evaluation of geothermal reservoirs.												
Objectives of the Project	Through capacity building of CGR on geothermal resource exploration, the project aimed at supporting CGR for provision of geothermal resource information for both government and companies to develop geothermal power, thereby contributing to accelerating geothermal power development in Indonesia.												
	Overall Goal: To accelerate geothermal power development in Indonesia. Project Purpose: Center for Geological Resources (CGR) of Geological Agency (GA) provides geothermal resource information for both government and companies to develop geothermal power.												
Activities of the project	<ol style="list-style-type: none"> <li>Project site: CGR (Bandung)</li> <li>Main activities: Trainings and seminars on geothermal resource survey, geothermal resource exploration for reservoir evaluation and geothermal resource exploration technology for geothermal wells, development of the database on resources, etc.</li> <li>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 from Japan: 20 persons</td> <td>1) Staff allocated: 29 persons</td> </tr> <tr> <td>2) Training in Japan and third country: 12 persons</td> <td>2) Land and facilities: Office space, training room, vehicles, etc.</td> </tr> <tr> <td>3) Equipment: isotope water analyzer, water quality test kits, PC, software for reservoir modeling and remote sensing, ion chromatograph, etc.</td> <td>3) Equipment for exploration and analysis</td> </tr> <tr> <td>4) Operation cost.</td> <td>4) Operation cost.</td> </tr> </table> </li> </ol>			Japanese Side	Indonesian Side	1) Experts from Japan: 20 persons	1) Staff allocated: 29 persons	2) Training in Japan and third country: 12 persons	2) Land and facilities: Office space, training room, vehicles, etc.	3) Equipment: isotope water analyzer, water quality test kits, PC, software for reservoir modeling and remote sensing, ion chromatograph, etc.	3) Equipment for exploration and analysis	4) Operation cost.	4) Operation cost.
Japanese Side	Indonesian Side												
1) Experts from Japan: 20 persons	1) Staff allocated: 29 persons												
2) Training in Japan and third country: 12 persons	2) Land and facilities: Office space, training room, vehicles, etc.												
3) Equipment: isotope water analyzer, water quality test kits, PC, software for reservoir modeling and remote sensing, ion chromatograph, etc.	3) Equipment for exploration and analysis												
4) Operation cost.	4) Operation cost.												
Project Period	October 2010 to September 2013	Project Cost	(ex-ante) 360 million yen, (actual) 298 million yen										
Implementing Agency	Center for Geological Resources (CGR), Geological Agency (GA), Ministry of Energy and Mineral Resources (MEMR)												
Cooperation Agency in Japan	West Japan Engineering Consultants, Inc.												

**II. Result of the Evaluation**

[Special perspectives considered at the ex-post evaluation]

- Based on the recommendation from the terminal evaluation, the indicators of the Overall Goal were revised under agreement between CGR and the project team in August 2013. However, among the seven revised indicators, the Indicators 3, 6 and 7 were accumulated data of the Indicators 1, 4 and 5, respectively. Therefore, achievement of the Overall Goal was verified with the Indicators 1, 2, 4 and 5.

- Some of the originally set indicators were used as those for verification of other impacts.

- The Indicator 2 of the Project Purpose was the “number of data used for setting working area for geothermal development (WKP).” In the terminal evaluation, this indicator was not used, because it was difficult to count the number of data since various surveys were conducted before WKPs were approved. Instead, the “number of the fields used for setting WKPs” was used as an indicator. This was used also at the ex-post evaluation.

- No target figure was set in the four indicators of the Project Purpose. At the ex-post evaluation, it was judged as “achieved” if there was improvement or increase.

**1 Relevance**

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

The project was consistent with the development policy of the Government of Indonesia, as it set forth the geothermal power development plans by laying out the Geothermal Road Map in 2004 and 2005 with a target to develop 9,500MW geothermal power by Year 2025 and “Fast-Track Program (Crash Program II)” in 2010 to develop geothermal power volume of 3,977 MW by Year 2014. The “Crash Program II” was still effective at the time of the project completion.

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

Energy consumption in Indonesia was increasing rapidly with the high economic growth. The country was endowed with about 29,000 MW of geothermal power development potentials, but only 1,189 MW was developed as of 2010. There were great needs for capacity building related to geothermal exploration, and thus the project was relevant with the development needs of Indonesia at the time of the ex-ante evaluation and project completion.

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

In the Country Assistance Program for the Republic of Indonesia (2004), one of the priority areas was set as “assistance to realize sustainable growth driven by private sector.” One of the development issues under this priority is the “Building Economic Infrastructure,” and importance of increasing power generation capacity was emphasized in this regard. Thus, the 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 mostly achieved by the project completion. Through the project activities and procured equipment, CGR improved its capacity of detailed studies on geothermal resource exploration and integrated interpretation. As a result, CGR became able to study more areas (Indicator 1), have more fields for setting WKPs (Indicator 2), and then more working areas were newly approved (Indicator 3). Thus, CGR became capable of providing geothermal resource information and data. However, the number of the accesses to CGR data from private developers did not increase (Indicator 4), because biddings for WKPs were suspended in 2012. The reason for this suspension was that there was a plan to issue new regulations on renewable energy feed-in tariff.

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

It is judged that the project effects have partially continued from the following reasons. First, since the project completion, CGR has continued exploration surveys, though the number of the surveys depends on the budget and collected data on 3Gs (geology, geochemistry and geophysics) and gradient thermal drilling, and this has resulted in the stable number of the fields used for setting WKPs. Private developers' access to the data collected by CGR has increased, because MEMR issued the Geothermal Potential Profile in 2012 which has drawn their attention to geothermal development. Second, on the other hand, few working areas have been newly approved for the last three years, because several prospected areas were taken for preliminary survey but the result did not meet the geoscientific criteria to be proposed WKPs. However, at the time of the ex-post evaluation, there were more than 20 WKPs still waiting for tendering. In other words, if the approved WKPs increases while the tendering process is limited, there will be more WKPs in the waiting in the pipeline. That is why MEMR has limited the approval of new WKPs<sup>1</sup>, even though CGR has capability sufficient for setting 3-4 WKPs per year.

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

The Overall Goal has been partially achieved. Concretely, the achievement level of the approval of WKPs and power generation potentials have been partial. First, WKPs prepared by both CGR and other institutions have not been approved by MEMR as planned (Indicator 1). The reason is that many tenders have been suspended due to the waiting of the issuance of new regulations on feed-in tariff. Second, power generation potentials of approved WKPs have not increased as planned, either (Indicator 2). Main reasons include: limited number of approved WKPs; land acquisition problem, and other non-technical issues such as budget restrictions.

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

Following positive impacts have been confirmed. First, capacity of geothermal power generation has increased to 1,838 MW in 2017 from 1,341 MW in 2013, which is attributed to expansion of existing WKPs and new development of existing WKPs. Second, based on the project experience, CGR has improved new methodologies for example using isotope, three-dimensional magnetotelluric (3D MT) and reservoir analysis for geothermal exploration. There has been no negative impact on the natural environment.

### <Evaluation Result>

In light of the above, the project purpose was mostly achieved and the effects have partially continued. The Overall Goal has been partially achieved, though 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) CGR of GA provides geothermal resource information for both government and companies to develop geothermal power	1. The number of studied areas by CGR	Status of achievement: <u>Achieved (Partially continued)</u> . (Project Completion) - The number of the studied areas increased: 14 (2010), 16 (2011), 17 (2012) and 19 (2013). (Ex-post Evaluation) - The number of the studied areas has been on a decreasing trend: 26 (2014), 22 (2015), 18 (2016) and 22 (as of July 2017).												
	2. The number of fields used for setting WKP	Status of achievement: <u>Achieved (Continued)</u> . (Project Completion) - The number of the fields used for setting WKPs increased from 2 in 2010 to 4 in 2013. (Ex-post Evaluation) - The number of fields used for setting WKPs has been mostly stable: 3 (2014), 4 (2015), 3 (2016) and 3 (as of July 2017).												
	3. The number of newly approved working areas	Status of achievement: <u>Achieved (Not continued)</u> . (Project Completion) - The number of newly approved working areas increased from 0 to 5 by the end of 2012. (Ex-post Evaluation) - The number of newly approved working areas has decreased: 11 (2014), 0 (2015), 4 (2016) and 1 (as of July 2017).												
	4. The number of access by private developers to the data collected by CGR	Status of achievement: <u>Partially achieved (Continued)</u> . (Project Completion) - The number of the private developers' access to the data collected by CGR increased but then decreased: 45 (2010), 50 (2011), 36 (2012) and 30 (2013). (Ex-post Evaluation) - The number of the private developers' access to the data collected by CGR has increased: 30 (2014), 65 (2015), 107 (2016) and 135 (as of July 2017).												
(Overall goal) To accelerate geothermal power development in Indonesia.	1. Number of WKPs (prepared by CGR and other institutions) approved by MEMR	Status of achievement: <u>Partially achieved</u> . (Ex-post Evaluation) - The number of WKPs (prepared by CGR and other institutions) approved by MEMR reached the target only in 2014.												
		<table border="1"> <thead> <tr> <th></th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>Plan</td> <td>7</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> </tr> </tbody> </table>		2013	2014	2015	2016	2017	Plan	7	5	5	5	5
	2013	2014	2015	2016	2017									
Plan	7	5	5	5	5									

<sup>1</sup> Intervene in MEMR's decision making related to approval of WKP was not included in the project scope.

	Actual	0	11	0	3	0
2. Number of approved WKPs prepared by CGR	Status of achievement: <u>Partially achieved.</u> (Ex-post Evaluation) - The number of approved WKPs prepared by CGR reached the target only in 2014.					
	2013	2014	2015	2016	2017	
Plan	5	4	4	4	4	
Actual	0	7	0	2	1	
4. Power generation potentials of approved WKPs (prepared by CGR and other institutions)	Status of achievement: <u>Partially achieved.</u> (Ex-post Evaluation) - The power generation potentials of approved WKPs (prepared by CGR and other institutions) reached the target in 2014 and 2016.					
	2013	2014	2015	2016	2017	
Plan	300	370	340	370	319	
Actual	0	1,340	60	665	97	
5. Power generation potentials of approved WKPs (prepared by CGR)	Status of achievement: <u>Partially achieved.</u> (Ex-post Evaluation) - The power generation potentials of approved WKPs (prepared by CGR) reached the target in 2014 and 2017 and mostly achieved the target in 2016.					
	2013	2014	2015	2016	2017	
Plan	270	70	0	220	274	
Actual	0	487	0	213	274	

Source: Terminal Evaluation Report, Project Completion Report and data provided by MEMR.

### 3 Efficiency

The project cost was within the plan, but the project period exceeded the plan (ratio against the plan: 83% and 120%, respectively) due to the delay of provision of the equipment and additional technology transfer based on CGR's requests. Therefore, the project efficiency is fair.

### 4 Sustainability

#### <Policy Aspect>

Geothermal power development is prioritized in the "National Energy Policy Roadmap for Energy Mix until 2025," and it is a priority program for MEMR.

#### <Institutional Aspect>

CGR's functions for geothermal power development have been the same as those during the project period: surveys on geothermal resources, information provision on the availability of geothermal resources, evaluation of the area for preparation of geothermal exploration, management of the national database, etc. There are 43 personnel in the Functional Group of CGR, but it is not sufficient to perform the mentioned functions. Though CGR has proposed MEMR additional personnel assignment, it still suffers from staff shortage, especially young engineers (geochemists, geophysicist and drilling engineers). However, the prospect of additional young staff to CGR in the near future is considered difficult, since the central government has a policy not to increase government employees. Because of this reason, CGR conducts outsourcing of the field work.

#### <Technical Aspect>

CGR itself considers that its personnel have sufficient knowledge and skills for geothermal power development, as they have conducted data acquisition, processing, and interpreting data without problems. When new staff joins CGR, technical training is given to them by MEMR. The handbook on geothermal resources developed by the project has been utilized by CGR personnel.

#### <Financial Aspect>

The budget source of CGR is the allocation from the central government. The budget has decreased from 47 billion IDR in 2014 to 26 billion IDR in 2017, because the government has put more priority in infrastructure development. The decrease in budget is expected to happen in 2018 as well. It has not been sufficient to conduct all the mandated functions of CGR, so it has to limit programs and activities with available resources.

#### <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 Purpose was mostly achieved at the project completion and the effects have partially continued. Concretely, through the project activities CGR improved capacity for providing geothermal information and CGR's geothermal information has been accessed by more private developers. Also, CGR's activities such as WKPs study have been conducted continually. However, geothermal power development has not been promoted as targeted as the Overall Goal due to the limitation of WKP approval and tender by MEMR. Regarding the sustainability, CGR lacks several technical staff, especially young staff, and budget to perform all the mandated functions. As for the efficiency, the project cost was within the plan, while 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:

- Even though CGR provides private developers with quality information for geothermal resources, it cannot lead to geothermal power development unless MEMR sets bidding opportunities for geothermal permit license. It is recommended to MEMR to stably approve WKP and conduct tender as well as to provide budget for human resources of CGR.

#### Lessons learned for JICA:

- CGR improved capacity for conducting studies on WKPs and providing geothermal information. However, since biddings for geothermal exploration permit license have been suspended, very few WKPs have been approved by MEMR. As a result, geothermal power

development has been limited. It is crucial to make clear the project focus and scope at the project formulation stage. If the project aims at developing a certain section or organization's capacity development and then expects impacts for which other organization or government's involvement and commitment are required, the project should provide not only technology transfer and equipment provision, but also work on policy and institutional development for producing and continuing impacts, by encouraging the implementing agency and other governmental agencies to assign necessary budget and personnel. On the other hand, if the project only aims at developing a certain section or organization's capacity development as the Project Purpose and involves only the target section and organization in the project scope, the Overall Goal and its indicator should be related to impacts for which it could be responsible.



Equipment provided by the project (MT/TDEM and MT Equipment)



Equipment provided by the project (Ion Chromatograph)



Country Name	<b>The Project for Capacity Building for Efficient Power System Development in Rwanda</b>
Republic of Rwanda	

**I. Project Outline**

Background	<p>In Rwanda, in 2008, the critically low electrification rate of 5% was hindering not only improvement of living standards of the people but also the economic growth of the country recovering from the damages by the genocide in 1994. The government of Rwanda has been setting out improvement of electrification as one of the long-term national goals in the “Rwanda Vision 2020”. On the other hand, the electricity supply, which mainly covered the metropolitan area including Kigali, was unstable because of deterioration and degradation of the distribution systems. Therefore, development of the training system for improvement of technical capacity, especially for operation and maintenance of the power system, was an urgent issue. Under those situation, the government of Rwanda requested a technical cooperation project to establish a training system and capacity development for technical staffs of Energy, Water and Sanitation Authority (EWSA) for better operation and maintenance (O&amp;M) of power facilities.</p>		
Objectives of the Project	<p>Through development of the training policy and trainings for the core-trainers and the core-engineers to deliver technical trainings as well as establishment of GIS database for the distribution system in Kigali, the project aimed at improvement of the training system of EWSA, thereby contributing to improvement of operation and maintenance activities for power facilities of EWSA.</p> <ol style="list-style-type: none"> <li>Overall Goal: Operation and maintenance (O&amp;M) activities for power facilities of EWSA are improved.</li> <li>Project Purpose: Training system for operation and maintenance of power facilities is improved.</li> </ol>		
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Rwanda (Pilot sites: Nyarugenge and Nyamirambo in Kigali city)</li> <li>Main Activities: 1) Developing and authorizing the Training Policy of EWSA, 2) Developing database for distribution system in Kigali using GIS, 3) Delivery of on-site practical trainings of power facilities for the core-trainers and the core-engineers, 4) Evaluating training effects for the core-trainers and the core-engineers.</li> <li>Inputs (to carry out above activities)</li> </ol>		
	Japanese Side	Rwandan Side	
	<ol style="list-style-type: none"> <li>Experts: 9 persons</li> <li>Trainees Received: 2 persons</li> <li>Equipment: GIS software, GPS, PC, Printer, Software for Transmission system analysis, training equipment for distribution system</li> <li>Local Cost: Cost of vehicles and project activities including inks and paper</li> </ol>	<ol style="list-style-type: none"> <li>Staff Allocated: 42 persons</li> <li>Land and Facilities: Project office space and the training center</li> <li>Local Cost: Cost of GIS surveyor, administrative costs for the distribution technician trainings, cost for preparation for the Gasata diesel power plant for the core-engineer training</li> </ol>	
Project Period	March, 2011 – March, 2014	Project Cost	(ex-ante) 350 million yen, (actual) 420 million yen
Implementing Agency	Ministry of Infrastructure (MININFRA) Rwanda Energy Group (REG) (EWSA was reorganized to REG in July 2014)		
Cooperation Agency in Japan	Nippon Koei Co., LTD.		

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Rwanda at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>The project was consistent with the Rwanda’s development policies of “the Rwanda Vision 2020”, - “the Economic Development and Poverty Reduction Strategy (EDPRS) 2008-2012” and “the Second Economic Development and Poverty Reduction Strategy 2013-2018”, prioritizing capacity building of individuals and organizations in the electricity sector for provision of electricity to 270,000 households by 2012 as well as achievement of the electrification rate of 100% across the country through off-grid and on-grid solutions by 2018.</p> <p>&lt;Consistency with the Development Needs of Rwanda at the Time of Ex-Ante Evaluation and Project Completion &gt;</p> <p>The project was consistent with the Rwanda’s development needs of capacity building of engineers and technicians operating and maintaining power facilities under EWSA as well as establishment of internal training system for the capacity building in EWSA. The needs did not change from the time of ex-ante evaluation to the time of project completion.</p> <p>&lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;</p> <p>The project was consistent with the Japan’s ODA policy for Rwanda based on the annual policy dialogue on economic cooperation between Rwanda and Japan in 2010 prioritized support for the three areas including economic infrastructure and industrial development, especially road traffic and energy.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Status of Achievement for the Project Purpose at the time of Project Completion&gt;</p> <p>The Project Purpose was achieved by the project completion. The internal trainings on the O&amp;M of distribution system by the core-trainers who were trained by the project (Indicator 1) were implemented five times at the Training Center by October 2013. OJTs on</p>

the O&M of the transmission system (Indicator 2) were conducted through the on-site trainings of basics of construction and supervision for the engineers at actual construction sites by the core-engineers trained by the project. In terms of OJTs on the O&M of hydropower generation plants (Indicator 3), the OJTs by the core-engineers trained by the project started as planned. The core-engineers of diesel power generation plants trained by the project conducted trainings for newly assigned plant managers and engineers (Indicator 4). For training evaluation (Indicator 5), 3 monitoring reports for the trainings of hydropower plants were prepared by the core-engineers and 1 review report for the 4th technician training on distribution system at the Training Center was prepared. However, any training evaluation report for OJTs on transmission system and diesel power generation plants was not prepared.

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

The project effects have been partially continued since the project completion. The internal technical training system established by the project, including the internal technical trainings on the O&M of the distribution system at the Training Center and OJTs at the transmission system and the power generation plants, have not continued because of the restructuring of EWSA<sup>1</sup>. Since the core-trainers and the core-engineers have got promoted or have been transferred to other positions, they have not been engaged in the internal technical trainings for other engineers and technicians. In addition, the Training Center, which was established in 1988 in order to train necessary technicians and engineers for O&M of power facilities, became a property of the Water and Sanitation Corporation which was separated from EWSA as a part of the restructuring. In terms of monitoring and evaluation activities to assess the training effects, any training evaluation report has not been made after ending the project due to no person in charge of it under the organizational restructuring of REG.

The GIS distribution system database, which was established by the project for efficient and effective O&M of the distribution system with underground cables, has been continuously utilized by REG, and its coverage has expanded to the low voltage distribution lines in the whole country over Kigali city where was the site covered by the project. This is because the GIS staffs trained by the project have still taken responsibilities for operating, maintaining and updating the GIS database.

<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. While internal technical trainings or OJTs by core-trainers for engineers or technicians of hydropower and diesel power generation plants (Indicator 1) have stopped since the project completion, the internal technical trainings on distribution and transmission systems have limitedly been sustained for newly recruited engineers and technicians by using the training manuals, textbooks and materials developed by the project.

Regarding improvement of the O&M of the power facilities (Indicator 2), the overall restoration time of power facilities reduced from 9,341 minutes in 2016 to 7,744 minutes in 2017. The project might have partly contributed to the improvement of power system by the improved technical capacity to identify troubles and to take necessary actions for trouble shooting. The number of accidents in the distribution system and the hydropower generation plants have been limited: 3 times a year in the entire distribution system in 2016 and as of July 2017, respectively, and 2 times in only 2015 but no accident in other years at the hydropower generation plants. The patrol and inspection of the transmission system, which is the main maintenance activity for the transmission system, has been continuously implemented by the engineers of the Transmission Department of the Energy Utility Corporation Limited (EUCL) twice a year for the period from 2014 to 2017. At the diesel power generation plants, the lubrication system has been maintained by the REG engineers while the complex system has been maintained by the manufacturer. Since the project completion, no accident has occurred in the diesel power plants.

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

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

<Evaluation Result>

In light of the above, the Project Purpose was achieved but the project effects have been partially continued and the Overall Goal has been partially achieved. Therefore, the effectiveness/impact of the project is fair.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Training system for operation and maintenance of power facilities is improved.	(Indicator 1) By the end of the project, the internal trainings by core-trainers for operation and maintenance of distribution system at the Training Center are implemented at least three times.	Status of the Achievement: Achieved (Project Completion) • Five times by October 2013 (Ex-post Evaluation) • To be verified as level of achievement of the Overall Goal (Indicator 1).
	(Indicator 2) By the end of the project, OJTs by the core-engineers for operation and maintenance of transmission system are started.	Status of the Achievement: Partially Achieved (Project Completion) • Trainings on necessary skills for operation of transmission for the core-engineers were conducted by the Japanese experts but OJTs by the core-engineers for other engineers did not start. • On-site trainings for the core-engineers and other engineers at the construction sites were conducted in order to learn basics of maintenance of transmission system but OJTs by the core-engineers for other engineers did not start. (Ex-post Evaluation) • To be verified as level of achievement of the Overall Goal (Indicator 1).

<sup>1</sup> The power sector of EWSA was transformed to REG and its subsidiaries of the Energy Utility Corporation Limited (EUCL) and the Energy Development Corporation Limited (EDCL).

	(Indicator 3) By the end of the project, OJTs by the core-engineers for operation and maintenance of hydropower generation plants are started.	Status of the Achievement: Achieved (Project Completion) • OJTs by the trained core-engineers started. (Ex-post Evaluation) • To be verified as level of achievement of the Overall Goal (Indicator 1).																												
	(Indicator 4) By the end of the project, OJTs by the core-engineers for operation and maintenance of diesel power generation plants are started.	Status of the Achievement: Achieved (Project Completion) • Trainings for newly assigned plant managers and engineers were conducted by the core engineers as OJTs. (Ex-post Evaluation) • To be verified as level of achievement of the Overall Goal (Indicator 1).																												
	(Indicator 5) By the end of the project, at least one training evaluation report for each of the above internal trainings and OJTs is prepared.	Status of the Achievement: Partially achieved (Not continued) (Project Completion) • 3 monitoring reports were prepared for the training sessions by the core-engineers of the hydropower plants. • A review report for the 4th technician training (distribution system) at the Training Center was prepared. (Ex-post Evaluation) • Any report has not been prepared after the project completion.																												
(Overall Goal) Operation and Maintenance (O&M) activities for power facilities of EWSA are improved.	(Indicator 1) The technical training for engineers and technicians are continued. i) Refreshing and upgrading training for the trained core-trainers and core-engineers ii) Core-trainers/Core-engineers training for newly assigned engineers iii) Distribution: distribution technician training by the core-trainers iv) Transmission: on-site trainings by the core-engineers, including patrol and inspection of the transmission system and supervision of construction works, v) Hydropower plants: theoretical trainings and OJTs by the core-engineers, vi) Diesel power plants: theoretical trainings and OJTs by the core-engineers	(Ex-post Evaluation) Partially Achieved • Technical trainings have been delivered for only the newly assigned engineers and technicians under the new structure of EUCL/EDCL but the internal technical training system established by the project has been discontinued. • Any training for engineers of hydropower and diesel power generation plants has stopped. [No. of internal trainings by core-trainers for technicians or engineers] <table border="1"> <thead> <tr> <th colspan="2">Type of Trainings</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017 (Plan)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Distribution System</td> <td>No. of trainings</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>No. of participants</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td rowspan="2">Transmission System</td> <td>No. of trainings</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> <tr> <td>No. of participants</td> <td>4</td> <td>4</td> <td>5</td> <td>6</td> </tr> </tbody> </table>	Type of Trainings		2014	2015	2016	2017 (Plan)	Distribution System	No. of trainings	4	4	4	4	No. of participants	5	5	5	5	Transmission System	No. of trainings	4	4	4	4	No. of participants	4	4	5	6
Type of Trainings		2014	2015	2016	2017 (Plan)																									
Distribution System	No. of trainings	4	4	4	4																									
	No. of participants	5	5	5	5																									
Transmission System	No. of trainings	4	4	4	4																									
	No. of participants	4	4	5	6																									
	(Indicator 2) Improvement of O&M activities are recorded and periodically reviewed at each power facility as follows: i) Reduction of restoration time for each power facility ii) Decrease in the number of accidents for distribution system and hydropower plants iii) Implementation of patrol and inspection for transmission system iv) Identification of cause of troubles for diesel power generation plants.	(Ex-post Evaluation) Partially Achieved • The overall restoration time of power facilities per year: 9,341 minutes in 2016 and 7,741 minutes in 2017. • The number of accidents in the power facilities have been limited. [No. of accidents in each system or plant] <table border="1"> <thead> <tr> <th></th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017 As of July</th> </tr> </thead> <tbody> <tr> <td>Distribution System</td> <td>N.A.</td> <td>N.A.</td> <td>3</td> <td>3</td> </tr> <tr> <td>Transmission Line</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Hydropower Generation Plants</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> </tr> </tbody> </table> • The patrol and inspection for transmission has been conducted 2 times per a year. • Identification of cause of troubles for diesel power generation plants has been sustained.		2014	2015	2016	2017 As of July	Distribution System	N.A.	N.A.	3	3	Transmission Line	0	0	0	0	Hydropower Generation Plants	0	2	0	0								
	2014	2015	2016	2017 As of July																										
Distribution System	N.A.	N.A.	3	3																										
Transmission Line	0	0	0	0																										
Hydropower Generation Plants	0	2	0	0																										

Source : Terminal Evaluation Report (EN), Questionnaire and Interviews with REG/EUCL/EDCL

### 3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 120%) due to an additional input of a Japanese expert specifying human resources development in order to promote the activities to set up internal training system in EWSA.

Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

There has been no policy change in Rwanda since the project completion. While the Vision 2020 targets the extension of power supply, EDPRS II (2013-2018) aims at the extension of domestic interconnectivity of the country through improvement of infrastructure, including power networks.

#### <Institutional Aspect>

##### [Internal Training System]

The restructuring process of the former EWSA has been still on going. Although the new organizational plan includes the internal technical training system, the organizational structure to conduct the internal technical trainings and OJTs at the power facilities has not

been confirmed yet at the time of ex-post evaluation. Therefore, no core-trainers for the internal technical training and no core-engineers for OJTs at the power facilities has been assigned. While the Human Resources Department of REG is in charge of training evaluation, the new organizational structure does not have a training evaluation system based on the ones proposed by the project. REG deploys 14 staffs for the human resource management and trainings for the staffs of the two subsidiaries of EUCL and EDCL.

The training center, which had been a part of assets owned by EWSA, was handed over to the Water and Sanitation Corporation (WASAC), which was the entity in charge of water supply and sanitation separated from the former EWSA. REG has a plan to construct a new training center in in Gahanga area, Kicukiro District, in Kigali City.

[O&M activities for the Power facilities]

Under the new structure of the power sector, REG is responsible for management of the power sector business as a holding company. As mentioned above, REG owns EDCL and EUCL. While EDCL is in charge of planning and development of power supply facilities, EUCL is responsible for operation and maintenance (O&M) of the power supply system. EUCL has the Department of Distribution for the distribution system, the Department of Transmission for the transmission system and the Department of Generation for the hydropower generation plants and diesel power generation plants.

Each of EUCL and EDCL have deployed the sufficient numbers of engineers and/or technicians for the O&M activities: EUCL has 95 staffs for the distribution system and 130 staffs for the transmission system and 124 staffs for the hydropower plants and 38 staffs for the diesel power plants.

[GIS distribution system database]

The Planning Department of EUCL has been in charge of the distribution system database based on GIS which had been established by the project. The GIS team trained by the project transferred to EUCL and three staffs were newly recruited in 2015. It has 6 staffs for operating, maintaining and updating the database so that they are sufficient to carry out their tasks.

<Technical Aspect>

[Internal Technical Training and OJTs]

The core-trainers and the core-engineers trained by the project have sustained the knowledge and skills to deliver the internal technical trainings and OJTs. However, there is no chance for them to transfer their skills and knowledge to other engineers and technicians since the internal technical training system has not been functioning in the new organization. On the other hand, the training manuals, textbooks and materials for the internal technical trainings or OJTs at the power facilities have still been utilized by REG even after the project.

[O&M of the power facilities]

Since the O&M of the power facilities have been improved by the reduced restoration time, the limited number of accidents at the power facilities, and the improved maintenance activities by the engineers, the engineers and/or technicians have sustained the necessary skills and knowledge about the O&M of each power facility.

[GIS distribution system database]

The staffs trained by the project have sustained their knowledge and skills to utilize and to update the distribution system database based on GIS and still been involved in the database without any influence brought by the organizational restructuring so that they have expanded its coverage from Kigali city to the whole country after ending the project. The training manuals of GIS elaborated by the project have been still useful. These manuals have been utilized for OJTs of the newly recruited staffs.

<Financial Aspect>

As the organizational restructuring in REG has been on going, there is no any available data for REG and its subsidiaries.

<Evaluation Result>

In light of the above, some 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 achieved the Project Purpose and partially achieved the Overall Goal. While the O&M activities of the power facilities have been improved, the internal technical trainings and OJTs at the power facilities, which had been established by the project, have not been sustained due to the ongoing restructuring process of REG (EDCL/EUCL). As for sustainability, the improved O&M activities introduced by the project have been practiced at each power facilities. Though some internal trainings continued to be implemented, the proper technical training system designed by the project has not been established yet under the new organization of REG and no budget data is available for REG. As for efficiency, the project cost exceeded the plan due to the fact that an expert of Human Resource Development was additionally added as input in order to promote activities to setup an internal training system of EWSA.

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

### III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

[For EDCL and EUCL]

- It is necessary to ensure the organizational structure or setting to conduct the internal technical trainings or OJTs at the power facilities introduced by the project for the proper O&M activities at the distribution, transmission and generation facilities in the new EUCL and EDCL structures in the ongoing restructuring process for the coming 2018-2019 fiscal year.

Lessons Learned for JICA:

After the project, the core-engineers and core-trainers were promoted or assigned to other positions and the internal trainings and OJTs have been suspended under the new organization of REG. Therefore, it is important to mitigate impacts by the organizational structure change and to increase commitment and ownership of the implementing agency in order to consider and sustain the project achievements even after the organizational restructuring. In addition, JICA overseas offices need to discuss closely, monitor and follow-up with the implementing agencies and related ministries on how to ensure the “sustainability” of the project effects especially when a sudden institutional change has occurred after the project completion.



Ongoing utilization of GIS Distribution System Database equipped by the project



EUCL Engineers conduct regular patrol and inspections of the entire transmission system

Country Name	<b>Disaster Management Capacity Enhancement Project Adaptable to Climate Change</b>
Democratic Socialist Republic of Sri Lanka	

**I. Project Outline**

Background	<p>After the Indian Ocean Tsunami Disaster in 2004, a development study named “the Comprehensive Study on Disaster Management in Sri Lanka” (the Study) was conducted from October 2006 to March 2009 by the Government of Sri Lanka (GOSL) with the support of JICA. In parallel to the Study, the Government of Japan extended its support as a grant aid project to establish communication network to improve weather observation station and to enhance the capacity of real-time monitoring and communication for early warning (The Project for Improvement of Meteorological and Disaster Information Network) . During the Study, series of activities related to capacity development (CD) such as disaster risk reduction exercise, operation of monitoring and communication equipment were carried out. Yet the necessity of strengthening the acquired CD skills was identified by Sri Lankan side to secure sustainability of the skills developed.</p>					
Objectives of the Project	<p>By (1) enhancing leadership and coordination capacity of Disaster Management Center (DMC) through supporting development of National Emergency Operation Plan (NEOP) and development of training program for concerned parties, (2) enhancing weather analysis and monitoring capacity of Department of Meteorology (DOM) through transferring maintenance skills of Automatic Weather Station (AWS, procured under the grant aid project), and formulation of weather warning standards, (3) enhancing landslide analysis and monitoring capacity of National Building Research Organization (NBRO) through transferring techniques on sediment disaster measurement and landslide risk evaluation, (4) supporting DMC to develop warning transmission system and rules and conducts warning transmission training in the pilot areas, (5) enhancing disaster management capacities of districts, division and communities in pilot areas through supporting operation of disaster management coordination meeting and community-based disaster management activities, the project aimed that transmission speed and false report of disaster sent from disaster observation organization to pilot areas through DMC improve (project purpose level-indicator 1) and the disaster prevention activities and early warning alert are done in the pilot areas (project purpose level-indicator 2), and thereby project aimed that transmission speed and false report improve nationally and disaster prevention activities are disseminated to other districts (Overall goal level). The project objectives set forth are as follows:</p> <ol style="list-style-type: none"> <li>Overall Goal: The disaster management model is disseminated.</li> <li>Project Purpose: A model for complete communication network in disaster observation, forecasting &amp; community level activities including evacuation in the pilot areas are prepared.</li> </ol>					
Activities of the project	<ol style="list-style-type: none"> <li>Project site: (1) Colombo, (2) Pilot areas: Ratnapura, Kalutara, Nuwara Eliya, Additional pilot areas: Batticaloa and Matale (To support the revision of Prepared and Response Plan (PRP) nationally, Batticaloa and Matale were added as pilot areas in 2011 to review their existing PRP. )</li> <li>Activities: <ol style="list-style-type: none"> <li>The project enhances leadership and coordination capacity of DMC through supporting development of NEOP, development of training program for concerned parties and others.</li> <li>The project enhances weather analysis and monitoring capacity of DOM through transferring maintenance skills of AWS, formulation of weather warning standard and others.</li> <li>The project enhances landslide analysis and monitoring capacity of NBRO through transferring techniques on sediment disaster measurement and landslide risk evaluation.</li> <li>The project supports DMC to develop warning transmission system and rules and conducts warning transmission training in the pilot areas</li> <li>The project enhances disaster management capacities of districts, division and communities in pilot areas through supporting operation of disaster management coordination meeting and community-based disaster management activities.</li> </ol> </li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> <p>Japanese Side</p> <ol style="list-style-type: none"> <li>Experts: 12 persons</li> <li>Training in Japan: 9 persons</li> <li>Equipment: 42 items as planned.</li> </ol> </td> <td style="width: 50%;"> <p>Sri Lankan Side</p> <ol style="list-style-type: none"> <li>Staff allocated: Approximately 30persons</li> <li>Land and facility: Project office, utility costs</li> <li>Local cost: allowance and other operating expenses.</li> </ol> </td> </tr> </table> </li> </ol>				<p>Japanese Side</p> <ol style="list-style-type: none"> <li>Experts: 12 persons</li> <li>Training in Japan: 9 persons</li> <li>Equipment: 42 items as planned.</li> </ol>	<p>Sri Lankan Side</p> <ol style="list-style-type: none"> <li>Staff allocated: Approximately 30persons</li> <li>Land and facility: Project office, utility costs</li> <li>Local cost: allowance and other operating expenses.</li> </ol>
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Ex-Ante Evaluation	2009	Project Period	March 2010–March 2013 (3 years)	Project Cost	(ex-ante) 260 million yen (actual) 339 million yen	
Implementing Agency	Disaster Management Center (DMC), National Building Research Organization (NBRO), Department of Meteorology (DOM), Department of Irrigation (ID)					
Cooperation Agency in Japan	Ministry of Land, Infrastructure, Transport and Tourism, Japan Water Agency					

## II. Result of the Evaluation

### 1 Relevance

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

The project was consistent with development policy of Sri Lanka both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, Sri Lanka Disaster Management Act No.13 was enacted in 2005 and DMC was established accordingly. National Disaster Management Plan 2009-2013 was scheduled to be developed. At the time of project completion, the project objectives remained consistent with the development policy. In particular, the Disaster Management Act No. 13 of 2005, was in line with the Hyogo Framework for Action 2005-2015 and the disaster management remains to be a priority of GOSL.

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

The project was consistent with the needs for disaster management in Sri Lanka both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, main natural disasters in Sri Lanka are floods and landslides. Selecting three districts that were most affected by those disasters as pilot districts was appropriate. At the time of project completion, the pilot areas selected under the project remained at high risk of floods and/or landslide.

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

The project was consistent with Japan's ODA policy. Basic policy of ODA to Sri Lanka includes support for disaster management, according to ODA Country Databook 2010.

<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 as indicators set to measure the achievement of the project purpose such as "Improvement of transmission speed and decrease of false report of disaster information which has been sent from disaster observation organization to pilot areas through Disaster Management Centre" (indicator 1) and "the disaster prevention activities and early warning alert are done in the pilot areas using information which DMC transmitted" (indicator 2) were mostly attained. Compared to before the commencement of the project, the speed of information transfer from disaster observation agencies via DMC increased, and false alarm decreased. -Management capacity of the disaster management committee meetings was enhanced to a certain extent through DDMC and other meetings. Community Based Disaster Management (CBDM) activities (drawing up of hazard maps and mock drills) were carried out at 7 selected communities.

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

After the project was completed, the effects of the project have continued. Though it is difficult to quantify the speed of information, DMC and District Disaster Management Community Units (DDMCUs) in the pilot areas confirmed that the transmission speed and accuracy of disaster reports have been improved.

Outputs produced under the project have mostly continued and contributed to improvement in transmission speed and accuracy of the disaster information report: In DMC, skills on top down and bottom up approach on information sharing is practiced in other projects as well. DOM does not have data on the accuracy of forecasts. However, they have a general impression that the accuracy has improved. Moreover, by utilizing Numerical Weather Prediction (NWP) system installed by the project and AWS, the forecast period has become longer than before. Monitoring and evaluation of landslide risk is carried out by NBRO based on the Manual for Landslide Monitoring, Analysis and Countermeasure developed by the project. And the warning system proposed by the project is adopted. However, the warning standards developed by the project are not utilized as they are presently being revised by a new technical cooperation project. And the information is not transmitted based on the warning official announcement rule stipulated in Warning issuance and information sharing manual developed by the project, and Intra Government Network (ING) does not function based on the ING operation rule. The original ING system which was introduced by the project could not continue after the project, due to high cost of network usage fee. However, GOSL revived the ING by switching to a lower-cost network, and it is functioning well.

Disaster prevention activities and early warning alert have continued in the pilot areas. District Disaster Management Committees (DDMCs) are functioning in all the pilot districts. Every year, before the monsoon rainy season starts, DDMCs are held in order to discuss and confirm the emergency response plan, role of each organization, stocks of necessary items etc. In addition to such regular meetings, emergency meetings are held when actual disasters occur, to discuss and decide on any matters necessary to counter the disasters at district level. DDMCs make requests to solve the issues to the central government when necessary. Specially at the monsoon preparedness DDMC Meetings, committee discussed on existing early warning systems and if any faults of communication are found, district secretary requests the DMC representative to rectify system.

Community disaster management activities have continued in most of the pilot areas. Evacuation trainings (Mock drills) at national and district levels are held every year in December (Tsunami memorial month). In addition, the pilot areas hold mock drills periodically. After the project implementation, there were actual cases of disasters in Kalutara and Batticaloa Districts. The evacuation and other emergency response activities were conducted smoothly utilizing the items provided by the project.

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

The overall goal has been mostly achieved. Disaster management activities and information transmission system have been improved and expanded to other districts with support of other JICA technical cooperation projects as well as through the initiatives of GOSL.

According to EOC (Emergency Operation Centre) of DMC, they have an impression that the communication speed of flood and tsunami warning has increased by 20% through the project, though they do not have statistical data. EOC considers that the improvement of transmission of disaster information from Districts to DMC is an important achievement of the project.

DDMCUs have expanded the activities to other high-risk communities (GN<sup>1</sup> level), too as shown below: Community disaster

<sup>1</sup> GN stands for "Grama Niradali Division", which means an administrative village in Sri Lanka, functioning at community level.



management committees have been organized in most of the high-risk communities in the pilot districts. Development of village disaster management plan and awareness raising activities are being implemented in the high-risk communities.

Pilot District	Numbers of community-level (GN village level) disaster management committees
Matale	Community disaster management committees have been organized in 50% out of the 545 villages in the district. The rest of the villages will also have such committees gradually.
Batticaloa	Community disaster management committees have been organized in all of the 468 villages in the district.
Kalutara	Community disaster management committees have been organized in all of the 762 villages in the district.
Ratnapura	Community disaster management committees have been organized in all of the 180 high-risk villages as identified by NBRO, out of the 578 villages in the district. The rest of the villages will also have such committees gradually.
Nuwara Eliya	Community disaster management committees have been organized in all of the 92 high-risk villages as identified by NBRO, out of the 490 villages in the district. The rest of the villages will also have such committees gradually.

Matale and Batticaloa District Disaster Management Plans (DDMPs) were revised in year 2012 with the support of JICA and based on that revision, preparedness planning division of DMC revised all the other district plans for 2012-2017 (Number of districts in Sri Lanka: 25). Also, divisional disaster management plans and GN plans were revised accordingly. The status of actual practice of community disaster management activities in every district is unknown because the information needs to be obtained from each district DDMCU. However, various activities such as community planning, hazard mapping, awareness seminar, mock drills etc. have been disseminated in communities in high-risk areas such as Badulla District through other project<sup>2</sup>. Based on these achievements, GOSL has officially recognized community-based disaster management as one of the main pillars of "Sri Lanka Comprehensive Disaster Management Programme 2014-2018 (SLCDMP)", and GOSL is in the process of expanding the results of pilot project to all the high-risk GNs as a part of the national programme. The progress monitoring system of SLCDMP started operation in October 2016 with the support of UNDP, to facilitate the smooth implementation of SLCDMP.

<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 mostly achieved at the time of project completion as transmission speed and accuracy of report of disaster information improved, and the disaster prevention activities and early alert were carried out in the pilot areas. These effects somewhat have continued after the project completion. Overall goal was mostly achieved, as the disaster management model has been disseminated to areas other than the pilot areas. Therefore, the effectiveness/impact of the project is high.

#### Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) A model for complete communication network in disaster observation, forecasting & community level activities including evacuation in the pilot areas are prepared.	Indicator 1: Improvement of transmission speed and decrease of false report of disaster information sent from disaster observation organization to pilot areas through Disaster Management Centre.	<p>Status of the achievement: <u>mostly achieved (continued)</u></p> <p>(Project completion)</p> <p>Compared to before the commencement of the project, the speed of information transfer from disaster observation agencies via DMC increased, and false alarm decreased.</p> <p>(Ex-post Evaluation)</p> <p>Though it is difficult to quantify the speed of information, DMC and DDMCUs confirmed that the transmission speed and accuracy of disaster reports have been improved.</p>
	Indicator 2: The disaster prevention activities and early warning alert are done in the pilot area using information which DMC transmitted.	<p>Status of the achievement: <u>mostly achieved (continued)</u></p> <p>(Project completion)</p> <ul style="list-style-type: none"> <li>- More than one DDMC meeting was held in Nuwara Eliya district and Ratnapura district. Divisional-level disaster management committee meetings were held in Kalutara though they were not official. Thus, management capacity of the disaster management committee meetings was enhanced to a certain extent.</li> <li>- Community Based Disaster Management (CBDM) activities (drawing up of hazard maps and mock drills) were carried out at 7 selected communities. Through the implementation of community activities, the community's awareness on disaster management has been increased. This can be confirmed by the fact that the community people desired disaster management training for the leaders in the discussion of the small-scale disaster management measures. Also, the community members discussed priority measures and managed the given budget to address the facing issues. It was also confirmed that awareness in participation and ownership of the discussion were increased if their ideas lead to actual solutions.</li> </ul>

<sup>2</sup> "Comprehensive project for enhance real time landslide forecasting and early warning capacity by strengthen the automated rain gauge network and introducing manual rain gauges to vulnerable communities in landslide prone areas in Sri Lanka" Implemented by : NBRO, Funded by : GOSL, UNDP

		(Ex-post Evaluation) <b>Regular meetings of DDMCs</b>																								
		<table border="1"> <tr> <th rowspan="2">District</th> <th colspan="2">Monsoon preparedness meetings (organized Annually)</th> </tr> <tr> <th>Southwest Monsoon preparedness (Apr-May)</th> <th>Northeast Monsoon preparedness (Oct-Nov)</th> </tr> <tr> <td>Matale</td> <td>(Not affecting this area)</td> <td>1</td> </tr> <tr> <td>Batticaloa</td> <td>(Not affecting this area)</td> <td>1</td> </tr> <tr> <td>Ratnapura</td> <td>1</td> <td>1</td> </tr> <tr> <td>Kalutara</td> <td>1</td> <td>1</td> </tr> </table>	District	Monsoon preparedness meetings (organized Annually)		Southwest Monsoon preparedness (Apr-May)	Northeast Monsoon preparedness (Oct-Nov)	Matale	(Not affecting this area)	1	Batticaloa	(Not affecting this area)	1	Ratnapura	1	1	Kalutara	1	1							
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District	Mock Drills (Annually)																									
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Batticaloa	-	10	10																							
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Ratnapura	10	-	-																							
		disaster risk profile of each district. Note: Among the pilot districts, information on Nuwara Eliya could not be obtained.																								

(Overall goal) The disaster management model is disseminated.	Indicator 1: Improvement of transmission speed and decrease of false report of disaster information sent from disaster observation organization to district, divisions, and communities through DMC.	<u>Status of the achievement: mostly achieved</u> (Ex-post Evaluation) According to EOC (Emergency Operation Centre) of DMC, they have an impression that the communication speed of flood and tsunami warning has increased by 20% through the project, though they do not have a statistical data. In particular, transmission speed of information from DMC to Districts as well as from Districts to DMC have improved. They consider that the improvement of transmission of disaster information from Districts to DMC is an important achievement of the project.
	Indicator 2: The disaster prevention activities and early warning alert are done in districts, divisions, and communities using information which DMC transmitted.	<u>Status of the achievement: mostly achieved</u> (Ex-post Evaluation) Matale and Batticaloa DDMPs were revised in year 2012 with the support of JICA and based on that revision, preparedness planning division revised all the other district plans for 2012-2017 (Number of districts in Sri Lanka:25). Also divisional disaster management plans and GN were revised accordingly. GoSL formulated and has been implementing “Sri Lanka Comprehensive Disaster Management Programme 2014-2018 (SLCDMP)”, which includes “up-scaling of the community disaster management plan and activities which have been test-piloted by many agencies”, such as hazard map, risk profile, mitigation measures, early warning etc., to all the high-risk GN Divisions.

Source : SLCDMP, JICA internal documents, questionnaires and interviews with DMC, DOM and NBRO, DDMCU of Kalutara, Ratnapura and Batticaloa Districts and the communities of Kalutara, Ratnapura, Batticaloa, Matale and Nuwara Eliya Districts

### 3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 130%). The increase of cost was due to additional response to the disasters which occurred during the project period, and also due to the sharp increase in the cost of items caused by inflation regarding local procurement of equipment as well as local staff cost after the end of war in Sri Lanka during the project period. Therefore, efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

All the key policy documents to promote mainstreaming the disaster management are being established or finalized. National Disaster Management ACT is being amended, and under the amendment, it has been proposed to provide the regulation power for disaster management authorities. National Disaster Management Plan (NDMP) which covers the period of 2014–2017 was finalized in 2015. NEOP was completed in 2016 and needs to be submitted to the Cabinet of Ministers and National Council for Disaster Management for approval. NBRO establishment act has been at drafting stage.

#### <Institutional Aspect>

Each of DMC, DOM and NBRO has proper organizational structure to undertake duties of coordination of concerned parties and transmission of information, weather prediction and issuance of weather warning, and landslide measures respectively. The legislative power is provided to DMC by the Disaster Management Act no 13 of 2005, however, it provides only coordination power to DMC under National Disaster Management Coordination Committee but not the regulatory power, which are being amended to some extent. NBRO establishment act, which was expected to clarify the responsibilities of authority of NBRO, has still been at drafting stage and has not been enacted.

Vacancies in each organization have mostly been filled as planned. However, DOM and DMC require more number of staff in order to fully sustain and expand the outcomes of the project, such as community level disaster management activities, data analysis etc.

NDMP facilitates the coordination among the concerned parties by clarifying the roles and responsibilities of each party. And NEOP was being approved with the support of the project. However, practically, coordination problem remains. According to DMC, during the emergencies, being more emotional, agencies are not following activates specified under NDMP or NEOP and do not pay much attention on humanitarian aspects. Standard Operating Procedures are going to be discussed again and guideline for preparing disaster management plan mandate for all the ministries, department and semi government institution is prepared and going to be practiced in more systematic

way.

#### <Technical Aspect>

All the counterpart organizations have internal training systems, and basically have skills to fulfill their mandates. However, in order to fully sustain and develop the outcomes of the project, some more technical skills are required for DMC and DOM, including data analysis and system upgrade. Except rain gauges, most of the equipment items procured by the project to NBRO such as inclinometer, data logger, extensometer were broken at a landslides and due to the movement of the slide. Through the field survey, it was confirmed that rain gauges are mostly in good condition and utilized by the community people. However, the rain gauges need to be replaced with new ones after 3-4 years of continuous use, because the colour of plastic cylinder becomes dark, making difficult to measure the rainfalls properly.

#### <Financial Aspect>

The budget data provided by DMC and DOM shows that they have mostly obtained the applied amount of budget, or more than the applied amount. However, according to DMC and DOM, not all the necessary cost is included in the applied budget and more budget allocation is necessary. NBRO requires more budget to meet the increasing requirement for its activities. NBRO expects financial assistance from development partners such as JICA, World Bank and United Nations Development Programme to carry out landslide risk management effectively.

#### <Evaluation Result>

In light of the above, problems have been observed in terms of the, policy, 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 mostly achieved at the time of project completion, as transmission speed and accuracy of report of disaster information improved, and the disaster prevention activities and early alert were carried out in the pilot areas. These effects somewhat have continued after the project completion. Overall goal was mostly achieved. As for sustainability, there are some challenges in the policy, institutional, technical and financial aspects. For efficiency, the project cost exceeded the plan.

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

### III. Recommendations & Lessons Learned

#### Recommendations to Implementing Agency

It is recommended that the DMC, DOM and NBRO make plans for sustaining the outcomes of the project, such as community disaster management activities including the replacement system of rain gauges, data analysis skills improvement, system upgrading etc. under the guiding national programme of SLCDMP, and apply for the budget either from GOSL or other sources.

#### Lessons Learned for JICA:

- Community level disaster management activities: The villagers and relevant village/ district officers have highly appreciated the project for improving their knowledge about disaster, early warning and evacuation, saying that it enhanced disaster preparedness of the community. The Project utilized local human resources for facilitating the community disaster management activities, who could mobilize the villagers and coordinate with administrative officers at village, divisional and district levels to get their support and cooperation for the activities. Community disaster management activities involving everyone and giving knowledge to all villagers were highly effective for increasing the awareness and disaster preparedness of the people. JICA must utilize human resources who can perform such facilitating role in future project, too.
- Handover arrangements at the completion of a project: Some equipment like rain gauges need replacement after some years. JICA and consultant should have carefully facilitated detail understandings among community, DDMCU and JICA about handover arrangements after the project completion, especially the procedures when a follow-up is necessary such as replacing of rain gauges. Utilizing human resources in pilot villages in future projects by JICA could have also been considered



Community Disaster Management Committee and the rain gauge maintained by the community in Landupita pilot village, Nuwara Eliya District



Evacuation boat maintained by the community in Patakada pilot village, Kalutara District

Country Name	<b>The Project for Afforestation on the Coastal Sandy Area in Southern Central Viet Nam (phase II)</b>
Socialist Republic of Viet Nam	

**I. Project Outline**

Background	The forest area in Viet Nam substantially reduced due to the long war, urbanization and other reasons. Viet Nam has a long coastline stretching from North to South and the coast in the Southern Central part of the country is lined with a series of sandy areas. Agricultural crops and infrastructure facilities were damaged by strong winds and shifting sand caused by typhoons and monsoons, severely affecting the lives of local residents. To improve the situation, "The Project for Afforestation on the Coastal Sandy Area in Southern Central Viet Nam (PACSA)", a grant aid project of the Government of Japan was implemented in Quang Nam Province and Phu Yen Province. The Government of Viet Nam had since been promoting the creation of coastal protection forests using PACSA as the model. However, as PACSA did not plant trees at difficult planting sites (e.g. wind erosion sites and shifting sand sites) where it required advanced technical capability, many difficult planting sites remained in the Southern Central part of Viet Nam.				
Objectives of the Project	To reduce the damage caused by shifting sand, strong winds, sand movement, etc. to agricultural and fishing villages in the coastal areas of Quang Nam Province and Quang Ngai Province by creating coastal protection forests, and thereby to contribute to creation of coastal protection in coastal areas in Viet Nam using the project as a model.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site*: Quang Ngai Province, [Duc Pho District (Pho An Commune, Pho Quang Commune, Pho Vinh Commune, Pho Khanh Commune, Pho Chau Commune)] *Refer to &lt; Special perspectives considered in the ex-post evaluation &gt;.</li> <li>2. Japanese side: (1) Planting of fine seedlings (414.49ha<sup>1</sup>) (old forest areas: 322ha, coastal forest areas: 92.49ha), (2) Tending of the planted trees, (3) Construction of lookout towers, (4) Erection of project information signboards and others</li> <li>3. Vietnamese side: (1) Preparation of electric power lines and access roads, (2) Financial inputs relating to the maintenance and protection of newly created coastal protection forests and the operation and maintenance of the Project, (3) Patrolling and guarding of the coastal protection forests, primarily by local residents.</li> </ol>				
Ex-Ante Evaluation	2008	E/N Date	(Detailed Design) 20 November, 2008 (Implementation) 6 July, 2009	Completion Date	20 February, 2014
		G/A Date	(Detailed Design) NA (Implementation) 6 July 2009		
Project Cost	E/N Grant Limit: : 526 million yen, Actual Grant Amount: 385 million yen				
Executing Agency	Department of Agriculture and Rural Development (DARD), Quang Ngai Province				
Contracted Agencies	Kokusai Kogyo Co., Ltd., Oji Forest & Products Co.,Ltd.				

**II. Result of the Evaluation**

< Special perspectives considered in the ex-post evaluation >

- The project scope was revised from basic design stage twice. Originally, the project targeted Binh Dinh Province, Quang Nam Province and Quang Ngai Province. However, Binh Dinh Province was withdrawn from this project during the Implementation Review Study (2008) because of their overlapping with other development projects. After the project was commenced, Quang Nam Province was excluded from the project site in 2011 based on a mutual agreement of the related agencies due to the aforementioned reason. Therefore, this evaluation will focus only on the project site in Quang Ngai Province.
- The ex-ante evaluation sheet was revised in 2008 at the time of the implementation Review Study. Therefore, "the plan" under this evaluation report refers to the plan in the revised ex-ante evaluation sheet.

**1 Relevance**

<Consistency with the Development Policy of Viet Nam at the time of ex-ante and ex-post evaluation>

This project has been highly consistent with development policy of Viet Nam. At the time of ex-ante evaluation, the Government of Viet Nam was to implement the National Five Million Hectare Reforestation Program (5MHRP) that aimed at the reforestation of 14.3 million ha by 2010. 5MHRP was considered to be a priority program of the Ten Year Socioeconomic Development Strategy (2001–2010), the Eighth Five Year National Development Program (2006–2010) and the Forest Development Strategy 2001–2010. At the time of ex-post evaluation, several important legal documents have been issued specifying the needs of forestry development including the Vietnam Forestry Development 2006-2020.

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

The project has been also highly relevant with development needs of Viet Nam for afforestation. At the time of ex-ante evaluation,

<sup>1</sup> Planting areas of Quang Nam Province, where it was excluded from project site, was 482.81ha.

questionnaire survey to residents revealed many were suffered from the shifting sand, strong winds sand movement and they required the improvement in the environment. At the time of ex-post evaluation, the project objectives are consistent with the development needs in Quang Ngai Province. Vietnamese side confirmed that the remaining areas were still difficult planting sites.

<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 as the Country Assistance Program to Viet Nam (2004) prioritized "Environment". It particularly gave priority to forest preservation and afforestation projects.

<Appropriateness of project design/approach>

Originally Quang Nam Province was included as project sites, but excluded from the project. After the project started, it was found that Quang Nam Province was making a tourism development plan which possibly overlapped with the project site. The details of the tourism development were yet to be decided. In that situation, it was clear that it would have taken more time for the selection of alternative site and it would have led to delay in the whole progress of the project not only in Quang Nam but Quang Ngai as well. Considering the serious consequence of delay, the Vietnam side and JICA agreed to exclude Quang Nam Province from the project. After the several discussions among stakeholders including the Embassy of Japan, JICA Vietnam Office, JICA headquarters, contracting agencies, MARD and Quang Nam Province, MARD finally issued an official letter to JICA on February 25, 2011 to request the cancellation of the project implementation in Quang Nam Province. JICA accepted the request on March 23, 2011. The procedure for the scope change was taken appropriately.

<Evaluation Result>

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

## 2 Effectiveness/Impact

<Effectiveness>

A certain effect "to reduce the damage caused by shifting sand, strong winds, sand movement, etc. to agricultural and fishing villages in the coastal areas of Quang Ngai Province" was observed.

The project aimed that approximately 80% of the total coastal protection forests with a mean tree height of 1m or more is created one year after the completion of the grant aid (survival rate). At the time of ex-post evaluation<sup>2</sup>, survey of sample areas (1% of the total 414ha of developed forests by the project) reveals that the average survival rate is 48.6%<sup>3</sup>. The survey team found that the growth of planted trees on the coastal forest areas is better and they show the relatively high survival ratios (57% in average), compared to those of the old forest areas. The planted trees inside the gaps<sup>4</sup> for the old forest areas show slower growths and low survival ratios (42% in average). It is estimated that this is because (i) lack of sunlight for their growth due to being surrounded by tall trees, (ii) lack of nutrients to grow due to being surrounded by tall trees, and (iii) high temperature and less rainfall during the growing periods.

There is no recorded quantitative data on "ratio of households damaged by the strong wind", "ratio of households damaged by shifting sand" and "area damaged by the strong wind and shifting sand". However, officers of Commune People's Committees (CPC) as well as village leaders think that the number of households damaged by strong wind or shifting sand is declining. They believe that the damages have decreased because project forests grow well and forest cover is high. CPC officers view that the coastal protection forest areas have prevented the shifting sand and strong winds that affect agricultural land areas. Villagers also feel that the damages decrease since some households have planted several crops. However, due to the unavailability of the quantitative data, it is difficult to judge to what extent the targets are achieved.

After the project, people have worked on maintenance and preservation activities of the coastal prevention forests by establishing working groups. The information on working groups for the maintenance of the coastal protection forests in the 5 communes was not reported by DARD and Provincial Project Management Unit (PPMU) in Quang Ngai Province. However, at communal level, the survey team confirmed that working groups were set up in accordance with Commune Decisions and in operation.

<Impact>

At the time of ex-ante evaluation, impacts such as "application of the project as a model of coastal protection in coastal areas in Viet Nam", "increase in employment opportunities for local residents", "creation of new housing land, farmland and fisheries facilities" and "supply of firewood and organic matters", "improvement in productivity of farmland and fisheries facilities" were expected.

So far, the results of the project have not been applied as a model of coastal protection, primality due to the limited budget. There is little evidence of increase in employment opportunities for local residents in accordance with the continued forest maintenance work. No new housing land, farmland and fisheries facilities have been created near the coastal protection forests. On the other hand, DARD fully agreed that firewood and organic materials have been supplied through the continual forest maintenance work at each commune. There are two cases observed; firstly, local people collected leaves and Casuarina<sup>5</sup> fruits as fuel; and secondly, they also put dry leaves into holes and backfill to provide organic sources for plantation. With respect to the productivity of farmland, DARD stated that the agricultural productivity and crop protection forest have increased since the creation of coastal protection forest as shield can prevent strong wind and shifting sand. In addition, households' income has increased in the communities living in the project area. Respondents (CPC Staff, village's staff and local people) from the four out of five target communes stated that the productivity of the farmland and fisheries facilities near the coastal protection forests been improved.

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

<Evaluation Result>

In light of the above, a certain effect of the project has been observed qualitatively through interviews. However, the average survival rate of planting area was lower than the target value, and it is difficult to judge to what extent the targets are achieved due to the unavailability of the quantitative data. Therefore, the effectiveness/impact of the project is fair.

<sup>2</sup> For this evaluation, field survey was conducted in April 2016 for (i) Data collection from MARD and DARD, (ii) community meetings at 5 communes, and (iii) line sampling survey at plantation sites.

<sup>3</sup> A weighted average by the planting area of old forest and coastal forest.

<sup>4</sup> In Old Forest, the project planted trees in gaps where some planted trees had died.

<sup>5</sup> Casuarinas are widely planted as coastal windbreak and utilized as fuel.

## Quantitative Effects

	Before project 2006	Target figure at target year (5 years after implementation)	Actual Figure at project completion (2014)	Actual Figure (2015)	Actual Figure at the year of Ex-post evaluation (2016)
Indicator 1: Coastal protection forests with a mean tree height of 1 m or more (Quang Nam and Quang Ngai Province)	0	700ha (Quang Ngai Province:320ha) (Approximately 80% of the target area)	n.a.	n.a.	n.a. (48.6%)*
Indicator 2 The ratio of households damaged by the strong wind	88.0%	25.0% (Decrease by 70%)	n.a.	n.a.	n.a.
Indicator 3: The ratio of local households damaged by the shifting sand	59.6%	17.8% (Decrease by 70%)	n.a.	n.a.	n.a.
Indicator 4; The area damaged by the strong wind and shifting sand (Quang Nam and Quang Ngai Province)	8,689ha	2,607ha (Decrease by 70%)	n.a.	n.a.	n.a.

Source : JICA internal documents

\* The results of the sample survey conducted at 10.49ha out of 414ha (1% of the planted area in Quang Ngai Province)

## 3 Efficiency

Both the project cost and project period were within the plan (ratio against the plan: 73%, 97%).. The project cost decreased partly because of the change of the scope. Assuming that the planned project cost for Quang Ngai Province to be 215 million yen by applying the ratio of the project sites of Quang Nam and Quang Ngai Province (59%, 41%) to the planned amount, the project cost had exceeded the plan (ratio against the plan:179%). It could be said that the increase in project cost was not reasonable considering the change of scope. Therefore, the efficiency of the project is fair.

## 4 Sustainability

### <Institutional Aspect>

Operation and Maintenance (O&M) of the coastal protection forests is carried out by DARD, Quang Ngai Province with the support and guidance by the Ministry of Agriculture and Rural Development (MARD). There is a clear demarcation between DARD and MARD. MARD commands and sends plans of the management and protection of the entire area of coastal protection forest to DARD, while DARD directly commands the management and protection of the coastal protection forest to Duc Pho District and CPCs of the 5 target communes. An institutional arrangement for local people to participate in the O&M of the coastal protection forests was established. The working groups have been established in all the five communes, in accordance with the Commune Decisions, and the working tasks have been settled. However, information on working groups for the maintenance of the coastal protection forests in the 5 communes was not reported by DARD and PPMU in Quang Ngai Province. DARD and PPMU were not aware of the existence of working groups at the time of ex-post evaluation. The number of staff allocated for forestry in DARD Quang Ngai is 5, which is sufficient according to the DARD.

### <Technical Aspect>

MARD has sufficient technical capacity to undertake maintenance of the coastal protection forests because they have technical staff/officers who are trained annually and guided by technical manuals. DARD has technical capability at the moment to train courses on forest maintenance, protection, controlling and preventing forest fire and actually CPC officials take part in the training. At commune level, CPC officials, village staff and working groups in communes think they are capable for controlling and preventing forest fire and regular forest management. However, in some communes, they think they still lack skills and need training for strengthening their skills. On the part of local people, very few working groups received the training mainly due to lack of funds.

### <Financial Aspect>

Clear data on forestry related budget were not obtained. DARD Quang Ngai thinks that sufficient budget is spent on maintenance activities of coastal protection forests. However, the DARD does not have budget to apply the model.

### <Current Status of Operation and Maintenance>

According to interviews with CPC staff and working groups, it is found that the working group at each commune has carried out basic O&M activities such as (i) participating in controlling forest fire; (ii) thinning, forest protection and maintenance, no falling down young plantation; (iii) patrolling, collecting wastes in the coastal protection forest; clearing vegetation which could cause fire; (iv) encouraging local residents participating in forest protection; (v) regular checking forest areas and forest management; (vi) making a record of handling of administrative violation cases in relation to the coastal protection forest; and (vii) frequent prevention measures for forest disease. Annually, agricultural division at district level guides controlling and preventing forest fire for villagers; sensitization for the villages on forest protection and maintenance.

### <Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional, technical and financial aspects of the executing agency. Therefore, the sustainability of the project effect is fair.

## 5 Summary of the Evaluation

A certain effect “to reduce the damage caused by shifting sand, strong winds, sand movement, etc. to agricultural and fishing villages in the coastal areas of Quang Ngai Province” was observed. The average survival rate of the coastal protection forests is 48.6% which is lower than the expected 80%. Although there is no recorded quantitative data, CPC officers and village leaders think that the number of households damaged by strong wind or shifting sand has decreased. There are some positive impacts such as “supply of firewood and organic matters” and “improvement in productivity of farmland and fisheries facilities”. As for sustainability, some problems have been



observed in terms of institutional, technical and financial aspects. As to efficiency, project cost exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

### III. Recommendations & Lessons Learned

Lessons learned for JICA:

1. Utilization of local resources for maintenance and protection: Quang Ngai DARD assisted the target communes in the organization of commune working groups responsible for maintenance and protection of seedlings planted in the respective communes. The working groups have been well engaged in protection and maintenance of plantations even with limited financial support. Formation of a commune/village level group for maintenance and protection of seedlings in the post-project period contributed to the enhancement of sustainability of the project.
2. Because of the micro-climatic conditions in the gaps surrounded by tall trees in the Old Forest areas, growths and survival of the planted trees inside gaps depend on the locations of inside gaps. Especially, in some relatively small gaps, it was difficult for the Casuarina seedlings to grow well and survive, due to lack of sunlight, and nutrients. Therefore, in order for the effective planting inside gaps, it is recommended that not only Casuarina trees but also other tree species, such as shading trees, should be planted in the gaps.
3. At the field survey, it was difficult for the survey team to check the survival and growth conditions of the planted trees in the gaps surrounded by the old existing Casuarina trees. This may be because of 1) difficulties to identify the gaps themselves in the forests, 2) difficulties to estimate the numbers of trees planted inside each gap during the project implementation, even though there are some records of plantation, prepared by the contractor and/or supervisor.

In order to ensure better monitoring of the planted trees inside gaps continuously at the time of project implementation and after the completion of the project, it is recommended that the locations and sizes of all gaps should be recorded using GPS (and the numbers of seedlings to be planted would be calculated) from the stage of project implementation, so that it would be easy to monitor the planted trees inside the gaps in the Old Forest area.



Coastal forest: Newly planted forest with height more than 5m.



Coastal forest:

Overview of the planted forest from the top of the look-out tower



Country Name	<b>Project for Water Supply of Guinea Worm Eradication in the Region of Tillaberi</b>
Republic of Niger	

**I. Project Outline**

Background	More than 33,000 people were infected with guinea worm parasites in Niger in 1990s, most of whom were in the Regions of Zinder and Tillaberi. The Government of Niger started the programs for guinea worm eradication with support from donors including Japan, and as a result the number of the patients drastically decreased. No incidence of guinea worm has been confirmed in Zinder since 2006, while there were still more than 100 patients in Tillaberi Region, especially in the Departments of Tillaberi and Tera. Safe water supply was indispensable to tackle with this issue. However, the water coverage ratio in Tillaberi Region was the second worst in the country, and in particular the ratios in Tillaberi and Tera Departments were low, where safe water supply was an urgent issue.				
Objectives of the Project	To provide safe and stable water for additional 60,000 persons in Tillaberi and Tera Departments in Tillaberi Region by constructing 120 boreholes (deep wells) in 79 villages, in order to reduce water borne diseases in the target departments.				
Contents of the Project	1. Project Site: Departments of Tera and Tillaberi in the Region of Tillaberi 2. Japanese side: Construction of 120 boreholes in 87 villages and technical training for the residents of the target villages on establishment and management of the water management committee and hygiene. 3. Nigerien Side: Provision of land for well construction, etc.				
Ex-Ante Evaluation	2008	E/N Date	June 11, 2009	Completion Date	July 8, 2011
		G/A Date	June 11, 2009		
Project Cost	E/N Grant Limit: 730 million yen, Actual Grant Amount: 648 million yen				
Implementing Agency	Ministry of Water Resources				
Contracted Agencies	Eight-Japan Engineering Consultants, Inc., Water & Geo-Tech Engineers Nissaku, Tone Engineering Corporation				

**II. Result of the Evaluation**

< Special perspectives considered in the ex-post evaluation >

- In the project planning sheet, the effectiveness indicator was set as the “number of the people served with safe and stable water in the target 79 villages.” However, after the project started, they were changed to 87 villages due to the shortage of underground water and unsafe access. At the ex-post evaluation, this indicator is changed to the “number of the people served with safe and stable water in the target 87 villages” (the target figure remains same (70,000 in 2011)), because the target number of the drilled boreholes did not change (120 boreholes).

<b>1 Relevance</b>
<p>&lt;Consistency with the Development Policy of Niger at the time of ex-ante and ex-post evaluation&gt;</p> <p>The project has been consistent with the development policy of Niger, as the supply of safe water in the rural areas has been prioritized in the Strategies for Rural Development (2003-2015), National Hydraulic Program (1999-2010) and Hygiene and Sanitation Sector Program (2016-2030).</p> <p>&lt;Consistency with the Development Needs of Niger at the time of ex-ante and ex-post evaluation&gt;</p> <p>There were still patients of guinea worm infections in Tillaberi Region in 2007, while they were eradicated in other regions. Even though guinea worm was eradicated thereafter in 2013, there have been continuously great needs for safe water to sustain the situation and decrease other water borne diseases.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of ex-ante evaluation&gt;</p> <p>According to ODA Databook 2008, assistance priority areas were set forth as education, health, water supply and rural development, which the project was in accordance with.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
<b>2 Effectiveness/Impact</b>
<p>&lt;Effectiveness&gt;</p> <p>The quantitative indicator was set as the number of the people served with safe<sup>1</sup> and stable water in the target 87 villages, but it did not reach the target by 2011. Among the drilled 120 boreholes, 36 which had been planned in Tillaberi were actually drilled in Terra because of the shortage of the water volume and security matters. Since the sites in Terra are less populated than Tillaberi, the beneficiary population was less than planned. The water supply coverage ratio slightly did not reach the target by 2011 (planned year) but has exceeded it by 2015. The reason why the coverage ratio in Tillaberi in 2015 increased much from the previous year was not confirmed. Also, it was not exactly verified why the beneficiary people were increasing even though some boreholes are not functioning, either. It was possible that more water supply facilities were constructed in Tillaberi by other projects than in Terra. In 17 of the 21 interviewed villages, the villagers answered they can get a sufficient daily volume of water from the constructed borehole.</p> <p>As qualitative effects, the project training effects have been partially confirmed. First, the villagers have improved hygiene attitudes and behavior since they received training given by the project. They have improved hygiene customs to keep the water supply facility clean by not washing cloths nearby and constructing the fence to protect from the animals' entry, in 16 of the 21 interviewed villages. They have also improved hygiene customs in the house, such as keeping the house clean, washing hands with soap, constructing household toilets, etc.</p>

<sup>1</sup> In the project, boreholes were selected in the sites where the water quality satisfied the criteria set by the Ministry of Water Resources, and technical training was conducted for the villagers to maintain the water supply facility clean. In the ex-post evaluation survey, no particular water quality test was conducted to verify the water safety.

Second, 20 of the 21 interviewed water point management committees (CGPEs) answered that they understood the technical training of operation and maintenance (O&M) of the water supply facility and applied learnings from the training. On the other hand, according to CGPEs and departmental technicians, the commune officers do not have necessary knowledge and skills for O&M of the water supply facility and do not understand their management functions and other actors' (CGPE members, agents of the town council, village chiefs, etc.) roles, which is attributed to the lack of the site monitoring.

<Impact>

First, water borne diseases have decreased. There has been no guinea worm infection case since 2011 except in three cases in 2012 which was imported from Mali. The eradication was certified by WHO in 2013. The patients of cholera have increased to 4,791 in 2012 but then drastically decreased to 22 by 2015. Cases of shigellosis have been on a decreasing trend, too (205 in 2011 to 77 in 2015). Secondly, the burden of fetching water on women and children has been reduced. After the project completion, the distance to the water point decreased from 0.1-3km to 0.01-1km, and so the required time decreased from 10-300 minutes to 5-90 minutes.

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

<Evaluation Result>

In light of the above, expected effects have been partially confirmed in terms of both quantitative and qualitative aspects. The beneficiary population and water supply coverage were not achieved by the target year but has been improved, while the effects of the project training have been partially confirmed. Expected impacts have been confirmed. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicator		2008 Actual	2011 Plan	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual
Number of the people served with safe and stable water in the target villages		10,000	70,000	N.A.	46,000	47,380	48,760	50,140	51,520
<Supplementary data> Water supply coverage ratio	Tillaberi	34%	38%	34.1%	37.0%	37.6%	37.5%	43.2%	NA
	Terra			37.2%	37.6%	44.7%	43.9%	42.6%	NA

Source: Tillaberi Regional Directorate of Water and Sanitation (DRHA), Census of Population and Housing 2012

3 Efficiency

Both the project cost and period were within the plan (ratio against the plan: 89% and 81%, respectively). Therefore, the efficiency of the project is high.

4 Sustainability

<Institutional Aspect>

The responsibilities of CGPEs, communes and Tillaberi Regional Directorate of Water Resources have not basically changed since the project completion. The one change is that the contract between each CGPE and commune was once cancelled and exchanged again so that the communes could supervise the fund management of CGPEs more precisely. No personnel has been assigned to the new hydraulic service section at the commune offices as it is still new. The number of the personnel at the hydraulic section of Tillaberi Regional Directorate of Water Resources was not available, but it answered that it was not sufficient. In Tillaberi and Tera, there are 34 pump repairers, but only 18 were trained and equipped with necessary tools, which is not sufficient to perform the required responsibility. At the village level, 13 of the 21 interviewed CGPEs have necessary members (leader, secretary, accountant and hygiene worker). Other CGPEs do not assign necessary members because new members have not been selected after some left the committee, and they lacked motivation or there was no leader's appropriate management, etc.

<Technical Aspect>

According to the Tillaberi Regional Directorate of Water Resources, 18 of 34 pump repairers have sufficient techniques, as the pump type has not changed and they have repeatedly practiced repair skills. At the village level, 20 of the 21 interviewed CGPEs answered that the members have sufficient knowledge and skills for daily O&M because of good fund management from assured fee collection, village cohesion, respect for hygiene, etc. All of the interviewed CGPEs answered that the members understand the importance of having safe water for better health and well-being.

<Financial Aspect>

Among the 21 interviewed CGPEs, 16 answered that they have collected the user's fee from the villagers without difficulty and the revenue is sufficient to cover the expenses of O&M of the water supply facility. Reasons for other CGPEs for having revenue difficulties include some villagers' unwillingness to pay, lack of cash to pay, highly set fees, etc. 19 CGPEs have kept an accounting book, but only 4 CGPEs have a bank account to manage the committee fund. Most CGPEs have not opened the bank account because they did not have confidence in the bank, they worry about the drawing for the emergency repair, or the bank is far from the village, etc. The collected funds have been used exclusively for the purpose of O&M of the water supply facility. The commune offices have not secured a sufficient investment budget for awareness raising and technical support to CGPEs.

<Current Status of Operation and Maintenance>

Among the constructed 120 boreholes in the target 87 villages, the current status of 35 boreholes in 25 villages was investigated at the ex-post evaluation. It was found that 27 boreholes are being operated and 26 are providing sufficient water volume, while 8 are not functioning. Reasons for the non-use of the facility are unavailability of timely repairers for deteriorated parts, new connection to Niger's water Management Company, change of the pump type introduced by the District Water Department<sup>2</sup>, etc. Following the committee regulation, 19 of the 25 visited CGPEs answered that they perform their functions such as fee collection, conduct regular meetings, book keeping and daily check-up. 22 CGPEs answered that they can easily purchase the spare parts and repair parts when there is a pump breakdown. Only 7 CGPEs have periodic monitoring visits by the commune officers.

<sup>2</sup> Pumps have been changed in two sites by the District Water Department and development partner such as UNICEF. The District Water Department has no particular plan of changing other pumps unless they are provided by development partners.

<Evaluation Result>

In light of the above, a few problems have been observed in terms of the institutional and financial aspects of the implementing agency and in the current status of operation and maintenance. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

Water supply facilities were constructed as planned by the project, and the water supply coverage expanded in Tillaberi and Terra. The safe and stable water is provided from approximately three-quarters of the constructed boreholes. On the other hand, the beneficiary population did not reach the target due to the change of the sites which are less populated. Though this still has not reached the target at the time of ex-post evaluation, it has been on an increasing trend. Expected impacts such as the decrease of the water borne diseases and burden of fetching water were confirmed. Regarding the sustainability, most of CPGEs are functioning for O&M of the constructed water supply facility including financial management. However, more technical support such as periodical monitoring and assignment of more repairers are needed at the commune and regional level.

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

III. Recommendations & Lessons Learned

Recommendations to the implementing agency:

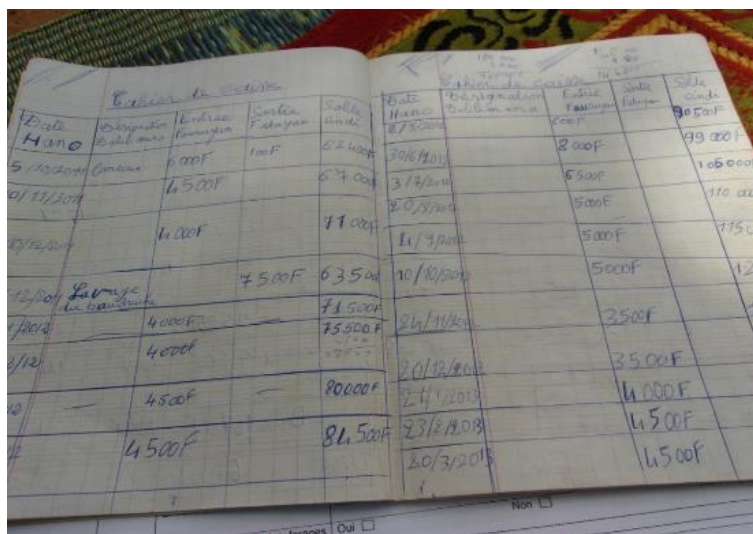
- It is recommended for the Ministry of Water Resources to give direction to the District Water Departments so that broken boreholes be immediately repaired in the village without connection to Niger’s Water Management Company. If they are abandoned because of technical problems, repairers should be sent to the villages from the commune or department offices. If some boreholes are not functioning due to non-technical reasons such as new water supply connection by Niger's Water Management Company, the installed pumps should be considered to be re-installed to other boreholes or other measures for proper functioning.
- It is recommended to the commune offices to which the target villages belong to conduct monitoring visits. While the majority of the target villages use the constructed water facility with functioning CGPEs, some do not. Through the monitoring, it is necessary to detect the reasons of malfunction in those villages and give direction for improvement by sharing successful experiences of other villages.

Lessons learned for JICA:

- It was expected that CGPEs would open a bank account to keep the collected fees so that the committee fund for O&M of the water facility would be stored in a safe way and not be used for other purposes easily. However, only a few CPGEs opened a bank account. The reasons include CGPEs’ little confidence in the bank, far distance to the bank from the village, less convenience of using the bank account, etc. Instead, some CGPEs manage the fund through the credit union, because they usually use it which requires less administrative process than the bank. When the project plans to introduce the fund management for the village committees, besides opening a bank account, some alternatives should be provided so that each committee can choose a suitable one in terms of the access, convenience and benefits.
- The ex-post evaluation survey revealed that, among the 35 visited water facilities constructed by the project, approximately one-quarters have not been used. Reasons for the non-use of the facility include inappropriate maintenance of CGPE (village level water management committee) and unavailability of timely repairers for deteriorated parts. Also, there have been factors which were out of control of CGPEs such as new connection to Niger’s water Management Company and change of the pump type introduced by the District Water Department. So that the facilities constructed by the project would be kept utilized, local or central administrative agencies need to supervise the use of the facility and members’ respect of the rules through regular monitoring, at least once a year, and give direction for repair when repairs are needed. At the project designing phase, it is necessary to carefully examine technical level of the repairers and availability of spare parts at the local market so that the installed pumps would not be easily changed by those of the different type.



(Well maintained borehole in Bagney Koira in Tillaberi Department)



(Accounting notebook of CPGE of Tondobon Sabeydo in Tillaberi Department)

Country Name	<b>The Project for Clean Energy Promotion Using Solar Photovoltaic System</b>
The Federal Democratic Republic of Nepal	

**I. Project Outline**

Background	The power supply in Nepal mostly depends on hydropower using water resources. While the power demand increased irreversibly every year, the power supply volume dropped during the dry season due to the lack of river water. This caused to fall the power supply far below the demand, resulting in a critical situation for the local people. The scheduled power cutoff was executed for 18 hours a day at the maximum level in 2009. In the country, stand-alone photovoltaic (PV) system has already been introduced for water pumping, telecommunications, airport and the solar home system has been introduced for general houses and public facilities in non-electrified areas. However, no grid-connected PV system was yet to be installed. Besides underlying needs of stable and renewable energy supply, the government of Nepal requested the government of Japan a support to gain technical knowledge and know-how through the introduction of the grid-connected PV system to Kathmandu Upatyaka Khanepani Limited (KUKL).			
Objectives of the Project	To enhance power generation capacity, diversify energy sources and increase awareness among the people of Nepal on the utilization of renewable energy by procurement and installation of grid-connected PV system as well as capacity building of engineers in KUKL, thereby contributing to demonstrating the initiatives of Japan to promote global collaborative efforts towards climate change.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Dhobighat Water Reservoir (Kathmandu)</li> <li>2. Japanese side: <ol style="list-style-type: none"> <li>(1) Provision of grant necessary for procurement and installation of PV system (680.4kW) Equipment of PV System: PV Module, Power Conditioner, Transformer, Low Voltage Switching Panel, Junction box, Connection box, Low voltage distribution boards, Distribution Panel, Switchgear Panel, Power Cables, Data Collecting System, Meteorological Monitoring System, Control House, Display panel, Spare parts, etc.</li> <li>(2) Technical Assistance (soft component of Grant Aid) Training on basic knowledge about interconnecting PV system and its operation and maintenance (O&amp;M) including daily /periodic maintenance check-ups and data logging system/data analysis</li> </ol> </li> <li>3. Nepal side: Land preparation for construction of control house for switchgear, construction work of temporary road, Construction work of power line crossing road.</li> </ol>			
Project Period	E/N Date	January 29, 2010	Completion Date	July 8, 2012
	G/A Date	January 29, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 660 million yen, Actual Grant Amount: 650 million yen			
Executing Agency	Kathmandu Valley Water Supply Management Board (KVWSMB) Kathmandu Upatyaka Khanepani Limited (KUKL)			
Contracted Agencies	Main Contractor(s): Marubeni Corporation Main Consultant(s): Nippon Koei Co., Ltd. Agent: Japan International Cooperation System			

**II. Result of the Evaluation**

## &lt;Special Perspectives Considered in the Ex-Post Evaluation&gt; &gt;

Since the target year for the ex-post evaluation is generally the 3rd years after the project completion, the target year of this project was set as the year of 2014 at the time of ex-ante evaluation. However, since the completion of the project was delayed to 2012, the target year can be the year of 2015. On the other hand, the PV system can be fully operated just after the installation. Therefore, for this ex-post evaluation, the achievement level of the project objectives was verified by the data in 2014 and 2015.

**1 Relevance**

## &lt;Consistency with the Development Policy of Nepal at the Time of Ex-Ante and Ex-Post Evaluation&gt;

The project has been consistent with Nepal's development policies highlighting promotion of renewable energy resources, including a PV system, set in policy documents such as "The Rural Energy Policy 2006", "Renewable Energy Delivery Policy 2013" and "Renewable Energy Delivery Mechanism 2013". At the time of ex-post evaluation, "the 14th Three Year National Plan 2016-2019" and the "Subsidy Policy for Renewable Energy" approved in 2016 put priorities on renewable and clean energy for sustainable development.

## &lt;Consistency with the Development Needs of Nepal at the Time of Ex-Ante and Ex-Post Evaluation &gt;

The project has been consistent with Nepal's development needs of installing a solar power system across the country to contributing generation and supply of sufficient electricity for local residents to use electricity all year round, in particular in a dry season. As there is still a necessity for mitigating a gap between the power demand and the power supply, several types of power generation systems including PV system other than hydropower generation have been promoted.

## &lt;Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation&gt;

The project was consistent with Japan's ODA policy for Nepal prioritizing social and economic infrastructure development, including transportation, electricity, water supply, and urban environment, as one of the 3 priority areas through policy dialogues between Nepal and Japan since 2006. 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 contributing to mitigation of climate change but with lack of capacity and fund to balance between their economic growth and greenhouse gas reduction."

## &lt;Evaluation Result&gt;

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



## 2 Effectiveness/Impact

### <Effectiveness>

The project mostly achieved its objectives at the time of ex-post evaluation. The annual power generation volume by the PV system installed by the project (Indicator 1) was 446,230 kWh/year in 2014 (93% of the target value) and achieved 570,310 kWh/year in 2015 (119% of the target value). It further increased to 571,581kWh/year in 2016. In terms of the amount of CO<sub>2</sub> reduction (Indicator 2), the estimated reduction of CO<sub>2</sub> by the power generation using the PV system installed by the project was 356,984 t/year in 2014 (93% of the target value), and it increased to 456,248 t/year in 2015 and 457,265 t/year in 2016. The annual reduction of electricity cost of KUKL (Indicator 3) was 1.23 million Nepal Rupees (NRP) in 2014 which was below the target amount (1.32 million NRP) but reached 1.34 million NPR in 2015 and further increased to 1.77 million NPR in 2016. Although KUKL can cover electricity cost by the electricity sales to NEA (Nepal Electricity Authority), energy demand has been also increased both in production and distribution due to the increase in the usage of pump machine. The project contributed to raising the awareness of Nepalese on the utilization of renewable energy. Since the PV system installed by the project is the pilot model to demonstrate a large-scale solar power generation in Nepal, students studying engineering and information technology visited the site of the PV system for learning purposes. Also, researchers of the National Academy of Science and Technology utilized the data collected from the PV system. Over 400 visitors have visited the sites from 2013 till 2016. Although KUKL itself does not organize learning events particularly for promotional purpose, whenever contacted for visitation on the PV system, KUKL welcomes them and explains about the system. On the other hand, the demonstration effect of the PV system to the public has been limited because the energy meter with instruments and the display panel installed by the project has not been functioning.

### <Impact>

The project has partially contributed to demonstration of the initiatives of Japan to promote global collaborative efforts towards climate change, as Japan's commitment for promoting clean energy and reduction of CO<sub>2</sub> emission has been realized through the project

Some positive impacts were observed at the time of ex-post evaluation. The PV system installed by the project contributed to an increase in the amount of electric power supplied via the electric power network in Kathmandu through the sales of the power generated by the PV system to NEA. The sales of the power to NEA also led the additional revenue of KUKL: 1.2 million NPR in 2014, 2.9 million NPR in 2015 and 2016. In addition, the sufficient supply of the power generated by the PV system to the Sundarighat Water Treatment Plant has enabled to supply water for 24 hours from the Plant to locals and partially contributed to the improvement of water treatment capacity of the Plant to 4.8 million liters covering 100,000 households since 2013 from 2.4 million liters covering 50,000 households in 2012. The contribution of the PV system to the total power supply of NEA in 2014 is 0.01%. Furthermore, the demonstration effect by the PV system installed by the project led NEA to be more active towards promotion of the PV system in the country under the supports by the other donors including the World Bank (WB) and the Asian Development Bank (ADB)<sup>1</sup>. Institutional PV systems and household PV systems have been promoted by the Alternative Energy Promotion Center (AEPC) and 106 institutional PV systems were installed in 2014. The total power generation capacity of the PV system across the whole country is expected to increase to 75MW in 2017. There was no resettlement and land acquisition caused by the project. There was 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 achieved as planned. Therefore, the effectiveness/impact of the project is high.

### Quantitative Effects

Indicators	Baseline 2010 Baseline Year	Target 2014 2Years after Completion	Actual 2013 1 Years after Completion	Actual 2014 2 Years after Completion	Actual 2015 3 Years after Completion	Actual 2016 Year of Ex-post Evaluation
Indicator 1: Total Power Generation (kWh/year)	0	479,000	612,710	446,230	570,310	571,581
Indicator 2: Amount of CO <sub>2</sub> reduction (t/year)*	0	383,000	490,168	356,984	456,248	457,265
Indicator 3: Annual Reduction of Electricity Cost of KUKL** (NPR/year)	0	1,320,000***	955,084	1,232,400	1,345,978	1,772,902

Source : Ex-Ante Evaluation Sheet (JP), Preparatory Survey Report (EN), data provided by KUKL, answers to the questionnaire surveys to and interviews with staffs of KVWSMB and KUKL,

Note 1: \* The equation of the reduced amount of CO<sub>2</sub> (e.g. 383,000 = 479,000 kWh/year X 0.800 t-CO<sub>2</sub>/MWh)

Note 2: \*\* The annual power consumption of the Sundarighat Water Treatment Plant was 203 MWh from August of 2008 to July of 2009. Since the PV system installed by the project will annually generate 479 MWh, an expected surplus power volume will be 276 MWh, which will be 1.32 million NPR.

Note 3: \*\*\* 1,320,000 NPR = 1,600,000 JPY (Applied exchange rate in 2010: NPR1.00 = JPY 1.22)

## 3 Efficiency

The output of the project was produced as planned. Although the project cost was within the plan (ratio against the plan: 98%), the project period exceeded the plan (ratio against the plan: 157%). The reason why the project period exceeded the plan was that of some technical issue for pre-commissioning and handover of the plant including some additional rectification work on data cable breakdown, delays in submission of the Pre-commissioning test report, in the finishing of civil works, and in connection to NEA's grid. Therefore, the efficiency of the project is fair.

## 4 Sustainability

### <Institutional Aspect>

KUKL has been under the control of KVWSMB and responsible for operation and maintenance (O&M) of the PV system installed by

<sup>1</sup> WB supports the Grid Solar Energy and Energy Efficiency Project (GSEEP) to establish a 25MWp Scale Grid Tied Solar Farm. Besides that, NEA is going to implement a project to install PV systems for 50MW with support by ADB and to have Power Purchase Agreements (PPAs) with private operators for 64 MW in total.

the project. There has been no institutional change in KUKL since the project completion. KUKL has 1 monitoring officer, 1 finance officer, 1 assistant manager, 1 engineer, 7 supervisors, 2 guards and 1 foreman for O&M of the PV system, and they are sufficient to accomplish their responsibilities, in that the PV system is properly operated and maintained.

<Technical Aspect>

Although KUKL has been primarily a water utility operator and has not had regular budget and resources for training on the PV system, the O&M staffs of KUKL have sustained the necessary knowledge and skills for O&M of the PV system at an intermediate level. It is often the case that whenever a staff is transferred or a new person joins, they are asked to refer to the manual and guideline for O&M of the PV system. Sometimes their predecessor provides successors brief guidance about the PV system and tasks associated with the PV system. Despite the sufficient number of staffs assigned for the system, as aftercare trainings have not been conducted in KUKL, the staffs have not had the necessary knowledge and skills for troubleshooting and repair of the PV system. Thus, there has been a risk that hampers the O&M of the PV system in a long run.

<Financial Aspect>

Although there is no available data for the budget allocated to KUKL for the PV system, according to staffs of KVWSMB interviewed at the time of the ex-post evaluation, KVWSMB has allocated a certain amount of budget for O&M of the PV system to KUKL based on KUKL's requests. The administration budget of KUKL has been also secured at the value of 1.06million NPR in 2013 and constantly increased to 1.44 million NPR in 2016, resulting in keeping the sufficient number of staffs for the O&M. KUKL has secured a small amount of the budget for spare parts and consumable equipment since the project completion. In addition to the annual budget to KVWSMB from central government that is to be allocated to KUKL, the future budget of KUKL is expected to be complemented by sales of the power generated by the PV system to NEA.

<Current Status of Operation and Maintenance>

Most of the major equipment of the PV system, including PV module, a power conditioner, a transformer panel and a 11kV distribution board, have been functioning well and there has not been any problem in the supply of spare parts and procurement of consumables. However, the energy meter with instruments, display panel, meteorological monitoring system, data collecting system had not functioned since software problems have been left due to the lack of the staff's knowledge and skills for troubleshooting. Although KVWSMB has conducted inspections for the problems, it has been intermittent because of lack of adequate human resource for monitoring at KVWSMB. In addition, although a staff at the site operates and maintains the PV system on a regular basis, there has been no systematic maintenance plan for any problem. Although previously, logging analysis of power was automatically conducted through the computer system, after the computer system was broken down, trainings on the analysis for newly assigned staffs have not been conducted and the analysis stopped. Staffs that had been trained by the project were either transferred or retired. Even some trained staffs who are still in KUKL could not identify software problems.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the technical aspect of the executing agency. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project has achieved its objective to enhance power generation capacity, diversify energy sources and increase awareness among the people of Nepal on the utilization of renewable energy. As for sustainability, there is a concern about the knowledge and skills for maintenance and troubleshooting of staffs of KUKL as a display monitor and other equipment for public relations of the PV system have not yet been repaired. However, the PV system itself has been well functioning and generating electricity without any problem. 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 Executing Agency:

- Some equipment related to data collecting system and meteorological monitoring system has not functioned. It has thus hampered data collection, data logging as well as data analysis in the accurate operation. Therefore, to sustain the self-administered PV system, the technical capacity of staff must be strengthened particularly on its troubleshooting skills. It can be realized by seeking technicians with experience and expertise in Nepal, or by seeking support of JICA to identify expert/technicians involved in the project to troubleshoot the technical problem of the equipment; and it is also important to enhance the internal knowledge transfer system among staff (esp. when they are transferred or retired) as a parallel effort of KUKL.
- Although the Project intended to spread its demonstration effect, adequate awareness raising as well as technical know-how has not been fully disseminated. The flow of visitors is decreasing and KVWSMB, as well as KUKL, does not have dissemination plan to increase awareness among people on the utilization of renewable energy by the PV system. Hence, to promote awareness among people and like-minded institutions, as per project objective, KUKL and KVWSMB need to organize dissemination programs, sharing sessions and training and KUKL and KVWSMB need to increase awareness among people on clean energy. It can be done by organizing several learning events, dissemination workshops and inviting visitors to the site. KUKL need to show demonstration effect of the project to larger mass in order to show the viability of electricity generated by the PV system. KUKL must maintain the project site clean and make all equipment and system properly function.

Lessons Learned for JICA:

- During Project formulation, some training was incorporated into the project. However, because the project was first of its kind, technical sustainability of the project was not well envisioned. Similarly, the technical and financial capacity of KUKL on operating the PV system was not adequately considered in detail. Follow-up training and OJT was not planned in the project. Even sub-contractor recruited during the project could not identify or troubleshoot the software problem. It thus reflects that novel technology was transferred without transferring comprehensive skill and knowledge to maintain the totality of the system. Hence, follow-up training should be conducted for such newly introduced technology to secure the sustainability.



PV panels at site



Solar Power Conditioner working properly



Country Name	<b>Project for Introduction of Clean Energy by Solar Electricity Generation System</b>
Belize	

## I. Project Outline

Background	In Belize, more than 50% of power supply heavily depended on import of electric power from Mexico. However, there was an accident in major power-generation facilities in Mexico in 2009, which caused a temporary suspension of power supply to Belize. The Government of Belize was seeking for alternative energy sources such as hydro, biomass, photovoltaic (PV) and wind which do not to depend on import electric power and the fossil fuel.				
Objectives of the Project	To increase power generation capacity, diversify power sources and raise Belizean citizen's awareness for renewable energy, by providing PV system and related equipment and technical assistance at the University of Belize in Belmopan, thereby contributing to publicity of Japan's initiative for promoting measures for climate change by both developed and developing countries.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: University of Belize (UB)</li> <li>2. Japanese side: <ol style="list-style-type: none"> <li>(1) Procurement and installation of PV system mounting structure, PV system (350kW), outdoor transformer (500kVA), switchgear for grid connection, load distribution board, monitoring B, data management and monitoring system, control house, etc.</li> <li>(2) Technical assistance (soft component for trainings on basic knowledge and maintenance on grid interconnected PV system, development of the educational pamphlets, etc.).</li> </ol> </li> <li>3. Belizean Side: Acquisition of land necessary for PV system, site clearance and leveling, construction of the access road to the site, extension of 11 kV distribution line and installation of the load break switch, etc.</li> </ol>				
Ex-Ante Evaluation	2009	E/N Date	December 14, 2009	Completion Date	August 24, 2012
		G/A Date	December 14, 2009		
Project Cost	E/N Grant Limit: 510 million yen, Actual Grant Amount: 510 million yen				
Executing Agency	Ministry of Works (MOW)				
Contracted Agencies	Nippon Koei Co., Ltd., Marubeni Corporation, (Procurement Agent) Japan International Cooperation System				

## II. Result of the Evaluation

< Special perspectives considered in the ex-post evaluation >

- Indicator 1 of the quantitative effects set at the ex-ante evaluation was the "power generation volume at transmission end". However, the data recording equipment was out of order at the time of the ex-post evaluation; the amount of received power was used, which can be slightly smaller than power generation volume at transmission end.
- Indicator 2 of the quantitative effects set at the ex-ante evaluation was "CO<sub>2</sub> emission reduction." However, in Belize, there was no registered unit of CO<sub>2</sub> emission reduction, therefore, the indicator of "estimated CO<sub>2</sub> emission reduction" was used at the ex-post evaluation.
- One of the indicators on qualitative effects had been set as "publicity of Japan's initiative for promoting measures for climate change" at the ex-ante evaluation. However, since this is a change to be brought by the project effects, it was used for verification of the impact.

### 1 Relevance

<Consistency with the Development Policy of Belize at the time of ex-ante and ex-post evaluation>

There was no effective energy policy at the time of the ex-ante evaluation, but renewable energy projects have been implemented since 1991. At the time of the ex-post evaluation, renewable energies are prioritized in the National Energy Policy Framework (2011-2040) and National Sustainable Energy Strategy and Action Plan (2013-2033). Thus, the project has been consistent with the development policy of Belize.

<Consistency with the Development Needs of Belize at the time of ex-ante and ex-post evaluation>

More than 50% of the power supply depended on the import from Mexico, and the Government of Belize sought for alternative energy sources including PV. The project has met Belizean development needs for energy sources which do not depend on the import electric power and fossil fuel.

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

Based on the "New Framework for Japan-CARICOM Cooperation in the 21<sup>st</sup> Century" developed in Japan-CARICOM Ministerial Meeting (2000), the priority areas were set as "poverty reduction" and "environment and disaster reduction." The project was consistent with Japan's ODA policy 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 for mitigation of climate change.

<Evaluation Result>

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

### 2 Effectiveness/Impact

<Effectiveness>

The project has partially achieved its objectives. Through the installed PV system at UB, both power output and CO<sub>2</sub> emission increased more than planned. As the data recording equipment was out of order at the time of the ex-post evaluation, the data of generated power at transmission end were not available. However, it can be judged that the power generation volume increased more than planned, considering that the amount of power received (Indicator 1) by the Belize Electricity Limited (BEL) increased from 255 MWh in 2012 to 628 MWh in 2015. Annual CO<sub>2</sub> emission reduction (Indicator 2) in 2015 is calculated as 262 tons, increasing from 79 tons in 2012 and almost doubling the target figure (142 tons). These achievements were attributed to the abundant amount of solar radiation.

As qualitative effects, it was expected that public awareness on the use of the renewable power would be increased. The technical training on environmental education and awareness raising was provided mainly for the personnel of UB. However, no public relations

(PR) activities have been conducted because UB personnel is not given access to PV system facility by MOW. In the project, another technical training on operation and maintenance (O&M) of PV system and data analysis/management was conducted, and through the training the personnel of the private company (HDC & Sons Professional Services & Solutions) acquired sufficient skills and knowledge to perform inspection and repair of PV power generation system, according to the chief engineer of MOW.

<Impact>

Based on the project experience, Japan's initiative for promoting measures against the climate change has been demonstrated. Among the efforts related to the climate change, Japan's cooperation has been appreciated as being differentiated from other donors as it has good technical training programs, according to the Energy Unit of the Ministry of Public Service. As another impact, as the government conducted an auction for new photovoltaic electricity generation because it realized the significance of renewable energies. One was selected among 11 bidders and the facility construction is being planned. There was no negative impact on the natural environment and no land acquisition and no resettlement caused by the project.

<Evaluation Result>

In light of the above, project effects such as the increase of the power output and CO<sub>2</sub> emission have been observed, but no PR activities have been conducted for the public awareness raising. Japan's initiative for promoting measures against the climate change has been demonstrated. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicators	Baseline 2012 Planned year	Target 2015 3 years after completion	Actual 2013 1 year after completion	Actual 2014 2 years after completion	Actual 2015 3 years after completion
1. Power generation volume at transmission end by PV system installed by the project (MWh/year)	255	460	581	622	628
2. Estimated reduction volume of CO <sub>2</sub> emission through power generation by PV system installed by the project (t/year)	79	142	242	259	262

Source: Ministry of Public Service.

Note: Considering the percentage of power generation and adopting the reduction unit in accordance with "CO<sub>2</sub> Emissions from Fuel Combustion -Highlights", which was published by IEA (unit in Central and South America area in 2007), the annual CO<sub>2</sub> emission reduction is estimated as follows:  
Annual CO<sub>2</sub> emission reduction = emission reduction unit x annual power output = Import Power x CO<sub>2</sub> emission reduction unit + Diesel Power x CO<sub>2</sub> emission reduction unit

3 Efficiency

The project cost was as planned, but the project period exceeded the plan (ratio against the plan: 100% and 129%, respectively). This is because it took 2 additional months for the contract modification of the additional procurement of PV module and power conditioner. However, this contributed to the increase of outcomes. In other words, quantitative effects were produced. Therefore, the efficiency of the project is high.

4 Sustainability

<Institutional Aspect>

MOW exchanges the contract with HDC & Sons Professional Services & Solutions for daily O&M and regular check-up and repair. From this company, the necessary number of the personnel has been assigned (1 engineers for management, 1 engineers for regular service and repair and 2 technicians for daily O&M). The five year contract expires in 2017, and the information on the plan after the expiration was not available. The procured equipment had been expected to be delegated to the Ministry of Energy but it has not yet at the time of the ex-post evaluation. Instead, there is possibility of the hand-over of the equipment to the Energy Unit of the Ministry of Public Service, according to this unit which is in charge of coordination with donors including Japan in the energy sector. For PR activities of PV solar system, UB was expected to be responsible. However, as mentioned earlier, it has not conducted any activity and they have no plan. At the ex-post evaluation survey, it was not confirmed who manages the educational pamphlets developed by the project and how many copies are left. It has not decided yet when the hand-over of the procured equipment will be realized, but if after it is, UB will take responsibility in PR activities in collaboration with the Energy Unit, according to the unit.

<Technical Aspect>

The engineers of the contracted company have sufficient skills and knowledge for O&M of the procured equipment including trouble-shooting of PV system, as they were training in the project, according to the Chief Engineer of MOW. On the other hand, MOW does not have a training system to transfer technical skills and knowledge of O&M of PV power generation system. MOW has not utilized the training materials and O&M manuals developed by the project. With regard to PR activities of PV solar system, UB has had no opportunity to exercised skills and knowledge acquired from the project.

<Financial Aspect>

For O&M of PV solar system, MOW has allocated 67,000 BZD<sup>1</sup> each year since the project completion, and there will be no change to be expected in the future revenue and expenditure. This is more than the planned at the preparatory survey and is sufficient, according to the Chief Engineer of MOW. It had been expected that the government would accumulate funds by selling electricity to BEL for procurement of spare parts and emergency accident, but it has not. According to MOW, there is no sale contract with BEL because it is also a government control company.

<Current Status of Operation and Maintenance>

As planned, the contracted O&M company has conducted daily inspection (cleaning of the site and array of PV system, visual checking of operating conditions), bi-monthly inspection and repair upon necessity. The procured equipment has been functioning except the data management system for one year and an air conditioner for six months. The data recording and analysis on PV system operation have not been conducted because of the breakup of the data system, and the amount of generated power has not been monitored. The

<sup>1</sup> 1 BZD = 56.32687 Japanese Yen (August 2017), according to JICA Exchange rate.

O&M company has not been able to fix it as they have no IT technician. It was not confirmed whether it has a plan to hire an IT technician. Several PV panels had been broken but they were renewed. The O&M company can purchase spare parts in most cases at the national market, except a few exceptions such as some part of the broken air conditioner made in Japan, and the air conditioner has been unrepaired. This has not directly affected operation of PV system, but if it is left un-functioning for a long time, the raised temperature in the operation room may cause other equipment broken.

<Evaluation Result>

In light of the above, several problems have been partially observed in terms of the institutional and technical aspects of the executing agency and also in the current status of operation and maintenance. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project objectives have been partially achieved. Though strict data verification was not possible, the power output and CO<sub>2</sub> emission have been increased. Whereas it is presumed that the project has not contributed to the public awareness raising on the use of the renewable power, since no PR activities have been implemented, it can be said that Japan's initiative for promoting measures against the climate change has been demonstrated to a certain degree. Regarding the sustainability, the engineers of the contracted company have sufficient skills and knowledge for O&M of the procured equipment, and they have conducted inspection works as planned. On the other hand, as UB has not been given access to PV solar facility, expected responsibilities have not been exercised, and has not exercised acquired skills and knowledge on PR activities. Among the procured equipment, due to the unrepaired data management system, data recording and analysis have not been conducted. Regarding the efficiency, the balance was used for additional procurement which resulted in the increase of outcomes, but 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 executing agency:

- It is strongly recommended to MOW to take an immediate action to assign IT personnel or contract IT firm to help the currently contracted O&M company to repair the solar generation data recording system, so that the power generation volume at transmission end can be monitored properly.
- It is recommended that the Government of Belize start procedures for the transfer the administrative jurisdiction of PV solar facility from MOW to the Ministry of Public Service or UB. The Ministry of Public Services has more know-how on energy matters and can provide more effective support for O&M company.
- It is recommended to the Government of Belize to give UB access to PV solar facility for conducting PR activities. In connection with this, it is suggested that the Power Purchase Agreement would be concluded between UB and BEL, so that UB would get fund from the sale for conducting PR activities.

Lessons learned for JICA:

- In the project, one of the quantitative indicators was set as a "power generation volume at transmission end by PV system," but the necessary data were not available. The data recording equipment has remained out of order, since the O&M company has no IT technician to repair it. In the project, technical training on data analysis and management was conducted for the management but not working-level personnel. The training dealt with how to interpret recorded data, how to download data, how to compile data, etc., but it did not cover whom to request for repair when the system becomes out of order. In the country which has no experience in operation of PV power system, the specification of the system for data analysis and management should be selected according to the technical level of IT technicians and availability of spare parts in the target country. Also, the technical training should include not only data analysis and management but also repair of the system.



Solar radiation sensor and panel array



Monitor showing zero due to the broken data system

Country Name	<b>The Project for Water Supply in Bauchi and Katsina States</b>
Federal Republic of Nigeria	

**I. Project Outline**

Background	In Nigeria, in spite of various government efforts to improve the water supply rate, the ratio of people with access to safe water had declined from 49% in 1990 to 48% in 2004 due to population increase, etc., and the ratio was especially low in rural areas at 31% compared to 68% in urban areas at the time of ex-ante evaluation (2009). In provincial rural areas especially, there was an urgent need to secure safe water supply because many people drank untreated water from rivers, marshes and puddles and water-borne diseases such as cholera and infant diarrhea, etc. were prevalent.			
Objectives of the Project	To promote ground water development in 142 villages in Bauchi and Katsina States by procuring equipment and materials for borehole construction and providing trainings, thereby contributing to improvement of water supply and sanitation conditions in these states.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Bauchi and Katsina States</li> <li>2. Japanese side: (1) Provision of grant necessary for procurement of drilling equipment (drilling rig, high pressure air compressor and cargo truck with crane), survey equipment (geophysical survey equipment, water analysis equipment and pumping test equipment) and borehole construction materials (hand pump, mechanic tools and PVC casing pipe and screen pipe), (2) Technical Assistance (soft component of Grant Aid)</li> <li>3. Nigerian side: Securing construction sites of boreholes, and promotion of community mobilization work to establish WASHCOM (Water, Sanitation and Hygiene Committee) etc.</li> </ol>			
Project Period	E/N Date	March 12, 2010	Completion Date	December 6, 2012 (handing over of procured equipment and materials)
	G/A Date	March 12, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 505 million yen, Actual Grant Amount: 392 million yen			
Executing Agency	Bauchi State Rural Water Supply and Sanitation Agency (RUWASSA) and Katsina State RUWASSA			
Contracted Agencies	Main Contractor: Nishizawa Limited inc. Main Consultant: Yachiyo Engineering Co., Ltd.			

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- The impact of this project is “to contribute to improvement of water supply and sanitation conditions in Bauchi and Katsina States”, and “the number of population who are infected with water-borne diseases in Bauchi and Katsina States” is an indicator to be used for evaluation of “improvement of sanitation condition” above. However, as it is difficult to obtain such quantitative data, alternatively, information related to this indicator was collected by interviewing 67 villagers<sup>1</sup> about “whether the number of people who are infected with water-borne diseases (such as cholera, typhoid, dysentery, infant diarrhea etc.) in their family and/or neighborhood has been reduced after project completion (2012)”.

## &lt;Special Perspectives Considered in the Ex-Post Evaluation&gt;

- Construction of 168 boreholes by Nigerian side in 142 villages: In ex-ante evaluation sheet, construction of 168 boreholes by Nigerian side in 142 villages was treated not as ‘output’ of this project but as ‘outcome’ of this project. Thus, in ex-post evaluation, construction of 168 boreholes by Nigerian side in 142 villages is treated as ‘outcome’ (effectiveness) of this project in accordance with ex-ante evaluation sheet.
- Target Year for Evaluation: In ex-ante evaluation sheet, it was stated that the target year for evaluation is 2013, which is two years after project completion (the project was planned to be completed in July 2011). However, handing over of equipment and materials procured under the project was completed in December 2012. Thus, in ex-post evaluation, the target year was changed to 2014 (two years after handing over).

**1 Relevance**

## &lt;Consistency with the Development Policy of Nigeria at the Time of Ex-Ante and Ex-Post Evaluation&gt;

This project has been consistent with Nigeria’s development policy, as increasing water supply in rural areas is set in policy documents such as “the National Water Supply and Sanitation Policy (2000)”, “the National Rural Water Supply and Sanitation Programme (2004)” and “the Partnership for Expanded Water Supply, Sanitation and Hygiene Programme (PEWASH) (2016-2030)” at the time of both ex-ante and ex-post evaluations.

## &lt;Consistency with the Development Needs of Nigeria at the Time of Ex-Ante and Ex-Post Evaluation &gt;

At the time of ex-ante evaluation, Bauchi State aimed to raise the rural water supply rate from 30% in 2008 to 62% by 2016, and Katsina State aimed to raise the rate from 50% in 2008 to 87% by 2016. On the other hand, at the time of ex-post evaluation, Bauchi State achieved the rate of 52% against the target of 62% in 2016, and Katsina State achieved the rate of 61% against the target of 87% in 2016, and there is still a need for increasing the rural water supply rate.

## &lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;

In the Overseas Economic Cooperation Policy Consultation held in October 2007, the Japanese government and Nigerian government confirmed that Japan’s assistance will continue to prioritize increasing water supply<sup>2</sup>, and thus this project was consistent with Japan’s ODA policy.

## &lt;Evaluation Result&gt;

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

**2 Effectiveness/Impact**

<sup>1</sup> Villagers interviewed included both male and female, old and young adults. Some have formal education up to secondary school level and others have only primary or below.

<sup>2</sup> Source: ODA Country Data Book (2009)

<Effectiveness>

The project has achieved its objectives, “to promote ground water development in 142 villages in Bauchi and Katsina States”. Actual figures of the number of boreholes constructed using drilling rigs procured under the project (Indicator 1) have largely exceeded target figures since project completion<sup>3</sup>. Data on the actual number of people who can have access to safe water from boreholes constructed using drilling rigs procured under the project including those in originally targeted 142 villages was unavailable (Indicator 2). However, if it is calculated based on an assumption that the average number of beneficiaries per borehole is 300 persons as set (designed) under the project, actual (estimated) figures have largely exceeded target figures since project completion. According to RUWASSA in the two states, equipment procured under the project are similar to those owned by RUWASSA in the past and easy to operate and maintain, which improved the speed and efficiency of borehole construction. Moreover, the SHAWN Project (2010-2018)<sup>4</sup>, funded by Department for International Development (DFID) and United Nations Children’s Fund (UNICEF), and its counterpart funds from the state governments have also contributed to securing necessary expenses for construction works and purchasing additional materials for constructing boreholes in villages other than the initially targeted 142 villages since project completion.

As to qualitative effects, all the 67 beneficiaries who were interviewed (33 in Bauchi State and 34 in Katsina State) answered that the quality of water taken from boreholes constructed using drilling rigs procured under the project has been improved compared to the previous sources of drinking water such as water vendors, rivers, community wells and ponds. Effects of the soft component of the project have been mostly produced and continued, as trainings for new staff on the use of equipment procured under the project have been conducted as OJT trainings in RUWASSA in both states, borehole inventories have been updated monthly, the borehole construction plan has been updated based on the one formulated under the project and mobilization activities for proper operation and maintenance (O&M) of water supply facilities by communities have been conducted at selected villages in both states.

<Impact>

Regarding the total number of boreholes constructed in both states, actual results largely exceeded the targets, as shown in the table below. In ex-ante evaluation, as targets indicating contribution of this project (to expected impact), 40 boreholes in Bauchi State and 50 boreholes in Katsina State were to be constructed (using drilling rigs procured under the project) annually over four years after construction of 168 boreholes in 142 villages. On annual average, approximately 70 boreholes were constructed from 2015 to 2016 in Bauchi State, and approximately 60 boreholes were constructed from 2015 to 2016 in Katsina State using drilling rigs procured under the project, and thus the project has achieved the targets and contributed to increasing the total number of boreholes in both states. On the other hand, despite of the largely increased number of boreholes, the targets of the water supply rate for 2016 has not been achieved (84% of the target in Bauchi State and 70% of the target in Katsina State). According to the Federal Ministry of Water Resources (FMWR), high water supply rates were set as target figures without enough budget allocation in the first place, there has been population growth and moreover, migration of internally displaced people from conflict areas in northeastern Nigeria to Bauchi State have also increased the entire population in the state, which in turn reduced the water supply rate. Regarding sanitation conditions in these states, among 33 beneficiaries interviewed in Bauchi State, 22 (67%) replied that the number of people who get infected with water-borne diseases (such as cholera, typhoid, dysentery, infant diarrhea etc.) in their family and/or neighborhood has been reduced after the installation of new boreholes, and among 34 beneficiaries interviewed in Katsina State, 25 (74%) replied that the above number has been reduced.

Regarding other impacts, no negative impact on natural environment has been observed and no land acquisition and resettlement has been occurred under the project. Some beneficiaries also commented that time to fetch water has been reduced due to the availability of the boreholes close to their home, and they now have more time to engage in other economic activities such as farming on their farmlands, trading (buying and selling goods), and rearing livestock (grazing), etc. Water from the boreholes is also used for these kinds of activities.

<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.

Table 1 Quantitative Effects

Indicators	Baseline 2009 Baseline Year	Target 2013 2 Years after Completion	Actual 2014 2 Years after Completion	Actual 2015 3 Years after Completion	Actual 2016 4 Years after Completion
Indicator 1: The number of boreholes constructed using drilling rigs procured under the project	0	168	339	494	597
Of which Bauchi State	0	76	154	250	295
Of which Katsina State	0	92	185	244	302
Indicator 2: The number of population who can access to safe water from boreholes constructed using drilling rigs procured under the project	0	50,400	101,700	148,200	179,100

<sup>3</sup> The location of 33 boreholes out of the originally targeted 76 boreholes in Bauchi State and nine boreholes out of the originally targeted 92 boreholes in Katsina State was changed to other sites/villages due to reasons that boreholes were already constructed by other donors and/or results of geophysical surveys were unsuccessful. In case that the results of geophysical surveys did not satisfy the criteria, both RUWASSAs tried to select the nearest site within or around the original target villages. The number of villages where boreholes have been constructed using the procured drilling rigs is unknown due to lack of data.

<sup>4</sup> Sanitation, Hygiene and Water in Nigeria (SHAWN) Project aims to improve access to adequate levels of water, sanitation and hygiene education for vulnerable people in rural Nigeria.



Of which the number of population in originally targeted 142 villages	0	50,400	N/A	N/A	N/A
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Source: Ex-Ante Evaluation Sheet, Bauchi state RUWASSA and Katsina state RUWASSA

Note: (1) Actual results are cumulative numbers. (2) 'Actual' (estimated) figures of Indicator 2 are calculated by 'the number of boreholes constructed using drilling rigs procured under the project' x 300 persons (the number of beneficiaries per borehole set under the project).

Table 2 Expected Impact

[The total number of boreholes constructed in Bauchi and Katsina States]

	Target in 8 years from 2009 to 2016	Actual result in 8 years from 2009 to 2016
The number of motorized boreholes constructed in Bauchi State	520	555
The number of hand pump boreholes constructed in Bauchi State	1,676	2,707
The number of motorized boreholes constructed in Katsina State	474	797
The number of hand pump boreholes constructed in Katsina State	868	2,464

Source: Basic Design Study Report, Borehole Database of RUWASSA

Note: The reason for the actual number of hand pump boreholes constructed in Katsina State is fourfold of the target is not clear, however, it is possible, as Katsina state RUWASSA has seven drilling rigs.

[Water Supply Rate in Bauchi and Katsina States]

	Before the project (2008)	Target figure at target year (2016)	Actual result (2016)
Water Supply Rate in Bauchi State (%)	30	62	52
Water Supply Rate in Katsina State (%)	50	87	61

Source: Basic Design Study Report, Federal Ministry of Water Resources

Note: Water supply rate is calculated by the number of population with access to safe water / the total number of population in the state.

### 3 Efficiency

The outputs of the project were produced as planned. While the project cost was within the plan, the project period exceeded the plan (ratio against plan: 78%, 194%, respectively). The increase in the project period is due to a delay of the tax exemption approval for all the equipment procured under the project. Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Institutional Aspect>

[Executing Agency Level] RUWASSA in Bauchi and Katsina States is responsible for construction of boreholes and O&M of equipment procured under the project. There are 45 staff members in Bauchi State RUWASSA and 55 staff members in Katsina State RUWASSA (both including non-permanent staff) assigned for construction of boreholes, and 12 staff members (including non-permanent staff) assigned in the workshop of each RUWASSA<sup>5</sup>. According to both RUWASSAs, the number of staff exceeds minimum requirements in general, however, the number of borehole construction teams is smaller than the number of drilling rigs they have (each RUWASSA has two teams, while RUWASSAs in Bauchi and Katsina States have four and seven drilling rigs including those procured under the project, respectively). In addition, the number of mechanics at the time of ex-post evaluation is much smaller than that at the time of ex-ante evaluation, and Katsina State RUWASSA is requesting the state government to increase the number. Currently staff members in other sections support mechanics as needed and thus there are no major problems in terms of lack of manpower. However, the number of staffs including mechanics should be increased in order to ensure availability of staff at all work sections and more efficient utilization of the drilling rigs they have.

[Community Level] After water supply facilities (boreholes) are constructed, they are handed over to communities to operate and maintain them by themselves. At the time of the ex-post evaluation, according to both RUWASSAs, WASHCOM has been established in every community in 142 villages targeted under the project, and checks and repairs are conducted on a needed basis by WASHCOM members. Although the number of members of WASHCOMs slightly varies depending on the size of communities, normally there are 10-11 members in a WASHCOM including a chairman/leader, a secretary, a treasurer, a public relation officer, a facility caretaker and members etc., and at least two to four female members are included.

#### <Technical Aspect>

[Executing Agency Level] It was observed that RUWASSA in both states has generally sufficient level of technical capacities. However, there is no established training system within RUWASSA to internally transfer the techniques acquired under the soft-component, mainly due to the inability to secure budget for the trainings. In both RUWASSAs, no internal training has been conducted in recent years<sup>6</sup>, and particularly, non-permanent staff members, who are mainly young workers, are not allowed to participate in official trainings organized by Nigerian government and/or donors and they can only have training opportunities at sites through OJT. The borehole construction manual prepared under the soft component of the project has been lost and the one provided under the UNICEF project is used by RUWASSA in both states. Training materials prepared under the soft component have also not been utilized, as no training has been organized by both RUWASSAs.

[Community Level] Trainings on community mobilization and facility management have been conducted for 36 communities in 2013, 37 communities in 2014 and 51 communities in 2015 (approximately 400 to 560 community members attended each time) in both states since project completion. It was observed that WASHCOMs are generally capable of conducting checks and minor repairs of water supply facilities.

<sup>5</sup> In the workshop, there are mechanics who check and repair rigs, trucks and compressors and assemble and process simple machines, electricians who conduct welding works and electricity-related repairs, operators of procured equipment, and those who manage procured materials.

<sup>6</sup> Both RUWASSAs have sent several staffs to the National Water Research Institute to attend trainings since project completion. However, there is no established calendar for such trainings and no record of participants and training contents.

#### <Financial Aspect>

[Executing Agency Level] RUWASSA in both states has certain amount of income (budget allocation from state governments and support from the counterpart fund (Nigerian side budget) for the SHAWN project) every year, though the amount is not a constant figure. Basically, construction and repair of boreholes and O&M of procured equipment are conducted based on available amount of income each year. The number of boreholes constructed has exceeded the targets as stated above, there has been no borehole, among those constructed using drilling rigs procured under the project, which was dried up even in dry seasons, and most equipment procured under the project are in good conditions in both states. Thus, it is judged that the allocated amount of funds in both states is generally sufficient for the scale of this project. However, as stated above, no internal training has been conducted in both RUWASSAs due to the inability to secure budget for the trainings. Moreover, it should be noted that the amount of income in the table includes the counterpart fund for the SHAWN project, and thus there is a possibility that the amount of income from the state government might decrease after 2018 (the completion of the SHAWN project).

#### Income and Expenditure of RUWASSA<sup>7</sup>

(Unit: 1,000 Naira)

	2014	2015	2016
<b>Bauchi State</b>			
Income	238,291	371,358	786,058
Expenditure	87,835	139,680	304,928
<b>Katsina State</b>			
Income	520,969	405,508	595,538
Expenditure	437,894	391,395	454,445

Source: RUWASSA

[Community Level] Water charges are collected on a weekly or monthly basis in a few communities, and they are most frequently collected when a borehole breaks down and needs to be repaired. The amount of water charges varies in each community ranging from approximately 20 Naira to 500 Naira, which is collected per person or per household. According to interviews with villagers, the collected amount is generally sufficient to conduct O&M of hand pump boreholes properly among WASHCOMs.

#### <Current Status of Operation and Maintenance>

[Executing Agency Level] All equipment procured under the project are in good conditions in Katsina State. However, in Bauchi State, high pressure air compressor has been under repair for one month, and geophysical survey equipment and water analysis equipment are utilized but some parts need to be replaced. RUWASSA in Bauchi State conducts regular maintenance of all the procured equipment on a monthly basis, while RUWASSA in Katsina State conducts regular maintenance of drilling rigs for every 13 to 15 boreholes construction<sup>8</sup>. The problem faced by RUWASSA in both states is that original spare parts for drilling rig, high pressure air compressor, geophysical survey equipment and water analysis equipment are not available locally, because these equipment were imported from Japan and local agents which sell such spare parts are not available. Thus, these have to be fabricated from spare parts of other equipment.

[Community Level] O&M of water supply facilities (boreholes) are conducted by WASHCOMs (communities). In Bauchi State, when a borehole breaks down and in case when it is beyond their capabilities to repair the facility, Local Area Mechanics (LAMs) hired by Local Government Area (LGA) repairs it. In Katsina State, in case when WASHCOMs cannot repair a facility, RUWASSA repairs it. However, records of O&M in WASHCOMs were not available. It was found out during the survey for the ex-post evaluation that, while Katsina State RUWASSA has handed over all mechanic tools procured under the project to WASHCOMs, Bauchi State RUWASSA has not distributed some mechanic tools to some WASHCOMs (LAMs) yet. According to Bauchi State RUWASSA, this was because necessary trainings for LAMs on borehole repairs were not completed, however, these trainings have recently been completed and thus all mechanic tools would be distributed soon.

#### <Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional, technical and financial aspects of the executing agency. Therefore, the sustainability of the project effect is fair.

#### 5 Summary of the Evaluation

The project achieved its objective of promoting ground water development in 142 villages in Bauchi and Katsina States, as the number of boreholes constructed using drilling rigs procured under the project have largely exceeded target figures. The expected impact of improving water supply and sanitation conditions in both states have also been obtained, as the total number of boreholes constructed in both states have largely exceeded the targets and the majority of interviewed beneficiaries replied that the number of people who are infected with water-borne diseases in their family and/or neighborhood has been reduced after the installation of new boreholes. Regarding the sustainability, the number of staffs at RUWASSAs should be increased, training system for staff members needs to be established in RUWASSAs, budget for internal trainings in RUWASSAs needs to be secured, and original spare parts for some equipment are not available locally, while there is no serious problem in the institutional, technical and financial aspects. As for the efficiency, the project period largely exceeded the plan.

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

### III. Recommendations & Lessons Learned

#### Recommendations to Executing Agency:

- (For FMWR and state governments) Technical trainings for young staff (including non-permanent members) of RUWASSAs must be conducted before the senior officers, who attended several trainings organized by the Nigerian government and several donors, are retired, and the know-how must be transferred to the young technicians in order to ensure the sustainability of the project and the technical level of RUWASSAs.
- (For RUWASSA) RUWASSA in Bauchi State needs to distribute all mechanic tools to WASHCOMs (LAMs) promptly.

<sup>7</sup> In Bauchi State RUWASSA, among the income in the above table, the amount of budget allocation from the state government was 182,091 thousand Naira in 2014, 274,798 thousand Naira in 2015, and 508,167 thousand Naira in 2016 (the rest was the support from the SHAWN project). Among the expenditure in the above table, construction cost of boreholes and O&M cost of procured equipment was 31,635 thousand Naira in 2014, 43,121 thousand Naira in 2015, and 27,038 thousand Naira in 2016 (the rest was hardware and soft components of the SHAWN project). On the other hand, the breakdown of income and expenditure at Katsina State RUWASSA was not available.

<sup>8</sup> Information on frequency of regular maintenance of other equipment was unavailable in Katsina.



Lessons Learned for JICA:

- As stated above, the borehole construction manual developed under the soft component of the project has been lost and thus not being used at RUWASSA. In case that manuals and/or materials are developed under a project, it must be ensured to distribute soft copies of the manuals to executing agencies, to upload them on website of executing agencies or any other governmental website, and/ or to keep the close communication channels between executing agencies and JICA so that they can request support from JICA anytime they need (re-distribute the manuals or send the soft copies etc.). In addition, in case that other donors have developed similar types of manuals in the country and there are no problem in the quality of such manuals, it should be considered to utilize them or harmonize the manuals.
- As stated above, original spare parts for some equipment are not available locally. JICA should thoroughly examine the specifications of equipment to be procured under a project after checking availability of spare parts in the local market in the preparatory survey, and inform an executing agency of the procurement procedure or information of local agents which sell such spare parts after the handing-over.
- As stated above, data on the actual number of people who can have access to safe water from boreholes constructed using drilling rigs procured under the project including those in originally targeted 142 villages was unavailable. JICA should set target indicators that can be obtained at the time of ex-post evaluation.



People fetching water at a borehole drilled using the rig procured under the project in Katsina



Children fetching water at a borehole drilled using the rig procured under the project in Bauchi

Country Name	<b>Project for Rural Water Supply III</b>
Republic of the Gambia	

**I. Project Outline**

Background	In Gambia, more than 30% of the people in the rural area did not have access to safe water (2010) and were exposed to risk of water-borne diseases. The Government of Japan has supported for construction of the water supply facilities through two grant aid projects (in 1991-1993 and 2004-2008). To meet the demands for safe water in other priority areas, the project for construction of solar-powered water supply facilities and rehabilitation of some existing water supply facilities was requested by the government of Gambia to the government of Japan.			
Objectives of the Project	To provide safe water in 18 sites in 4 Regions (Western Region, North Bank, Lower River and Central River) by constructing water supply facilities and rehabilitating existing water supply facilities, thereby contributing to improvement of the access to safe water in the whole country.			
Contents of the Project	1. Project Site: 18 sites in 4 Regions (Western Region, North Bank, Lower River and Central River) 2. Japanese side: i) Construction of solar-powered piped water supply facilities in 15 sites and rehabilitation of existing water supply facilities in 3 sites, and ii) technical assistance for the residents in the target sites on operation and maintenance of the water supply facilities and health/sanitation. 3. Gambian Side: Provision of land for the facility construction, etc.			
Project Period	E/N Date	March 18, 2010	Completion	July 31, 2012
	G/A Date	March 18, 2010	Date	
Project Cost	E/N Grant Limit: 897 million yen, Actual Grant Amount: 565 million yen			
Executing Agency	Ministry of Fisheries, Water Resources and National Assembly Matters			
Contracted Agencies	Main Contractor: Ebara Corporation Main Consultant: Nihon Techno Co., Ltd.			

**II. Result of the Evaluation**

< Special Perspectives Considered in the Ex-Post Evaluation >

- At the ex-ante evaluation, “decreased water borne diseases” and “decreased labor burden of water fetching of women and children” were considered as qualitative effects. These are effects as results of improvement of water supply in the target sites, and therefore they were verified as impacts of the project at the ex-post evaluation.

**1 Relevance**

<Consistency with the Development Policy of Gambia at the Time of Ex-Ante and Ex-Post Evaluation>

The project was relevant with the development policies of Gambia, as safe water supply has been prioritized in the “Poverty Reduction Strategy Paper (PRSP) II” (2007-2011) and “National Development Plan” (2018-2021).

<Consistency with the Development Needs of Gambia at the Time of Ex-Ante and Ex-Post Evaluation >

The ratio of population with access to safe water was approximately 75% (2010). The situation was more severe in the rural areas (ratio: less than 70%), where people took water from rivers and ponds and were exposed to risks of water-borne diseases. They still have needs for safe drinking water at the ex-post evaluation survey, as recognized by the Department of Water Resources (DWR) of the Ministry of Fisheries, Water Resources and National Assembly Matters.

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

As priority areas in the Japan’s ODA to Gambia<sup>1</sup> included basic livelihood such as water supply and agriculture/fishery for food security in accordance with PRSP II, the project was consistent with Japan’s ODA policy at the time of ex-ante evaluation.

<Evaluation Result>

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

**2 Effectiveness/Impact**

<Effectiveness>

The project aimed at providing safe water in the target 18 sites in 4 Regions, and it is judged that the objective was achieved. Furthermore, 10 sites<sup>2</sup> were visited for this ex-post evaluation, and it was confirmed that the water supply facility constructed by the project have been used. They are used to their maximum capacity, 35L per person per day. In the 18 target sites, safe water has been provided to more than 43,200 people since the project completion. The accurate data after 2013 were not available, but according to DWR, the beneficiary population has been increasing because more people have come to reside in the target sites in pursuit of the available safe water.

As a result of the training given by the project, the village water committees (VWCs) of the surveyed sites have maintained and respected the documents for operation and maintenance (O&M) such as the internal regulation of VWC, O&M Operation Plan, and regulation on the water use. It can be said that the base of collaboration has been established among VWC, O&M company (a private company which undertakes O&M under contract with VWCs), DWR and local government. In particular, VWCs are in high contact with O&M company. For example, whenever problems occur with the facilities, VWCs communicate with O&M company and get support on the same day. VWCs understand whom they should contact in the local government when they have a problem. So far, there has never been such need because VWCs can solve the problem with O&M company and DWR. Villagers have sustained learnings from

<sup>1</sup> Ministry of Foreign Affairs (2011). “ODA Databook 2010.”

<sup>2</sup> The following sites were visited: Jissadi Complex, Sotokoi, Kerewang Samba Sira, Fula Bantang and Sinchu Bora, Fass (Central River Region), Toniataba, Bureng, Barrow Kunda (Lower River Region), Kabocorr and Tampopo and Killy (Western Region) and Ker Katim Wollof and Fulam (North Bank Region).

the training on hygiene, such as keeping clean the water supply facility including the public faucet and water storage tank, having the latrine far from the water point, washing hands after toilet and before eating, and so on.

<Impact>

Firstly, no prevalence of cholera, ameba dysentery or diarrhea has been reported in the 18 target sites since the project completion. According to the DWR officers, the decrease in water borne diseases has been attributed to the available safe water from the constructed and converted water supply facilities and improved hygiene practices. Secondly, the burden of fetching water has been greatly reduced. In the 10 visited sites, it took 30 to 40 minutes before the project, but now it takes 5 minutes on the average, because the facility was constructed nearer the residences. According to approximately 130 villagers (VWC members and families) in the visited 10 sites who were asked about the change after the project completion, the burden of fetching water was reduced, and then children have more time to go to school and women have more time for home matters and also income generating activities. Thirdly, as more water is available than before the project, quarrels and violence have been reduced among women, according to the interviewed villagers though they had often fights about the volume of water fetching before 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

Indicator	Baseline 2009	Target 2012 Completion year	Actual 2012 Completion year	Actual 2013 1 year after completion	Actual 2014 2 year after completion	Actual 2015 3 year after completion	Actual 2016 4 year after completion
Number of the people served with safe water in the target 18 sites (person)	8,100	43,200	43,200	n.a.	n.a.	n.a.	n.a.
<Supplementary information> Water provided per person per day (litter/day/person) in the target 18 sites	n.a.	35L	35L	35L	35L	35L	35L

Source: DWR.

3 Efficiency

Outputs were produced as planned. The project cost was within the plan, but the project period exceeded the plan (ratio against the plan: 63% and 117%, respectively). The reason of the delayed project completion is that one target site had been replaced by another because the water quality did not comply with WHO guidelines and also construction method was changed in three sites. Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

Main stakeholders related to O&M of the constructed and rehabilitated water supply facilities are VWC (villagers), O&M company and DWR. VWCs are responsible for O&M of the facility. In each of the surveyed sites, VWC has been organized, which includes an operator, tap attendant and guard. The number of the members of VWC varies among the sites (11-31), which is sufficient for daily O&M, according to the villagers. Moreover, in each site a Village Health Worker (VHW) identified by each VWC and trained by the project has conducted activities for villagers' awareness raising on the environmental cleanliness and hygiene. DWR undertakes monitoring of the water facilities and assigns 1-2 motivators in each of the target Regions. According to the interviewed local government officers, the number of the motivators is sufficient because they have time to visit the target sites in turn. They are given a mobile phone and motorcycle to facilitate their communication with the villagers. On the other hand, a request to increase motivators was raised by some villagers for emergent breakdown cases. Information on the breakdowns is verbally exchanged among VWCs, O&M company, motivators and DWR when there is any kind of emergency.

<Technical Aspect>

VWC members have sufficient techniques for O&M of the facility, as they have conducted minor repair of water pipes and faucets, according to DWR officers. VWC's O&M is monitored and supported by the motivators who follow the Motivator's Manual developed by the project. When the breakdown is beyond VWC's capacity, they call for support of O&M company. DWR officers answered that also O&M company has sufficient techniques for repair water facilities including the solar pumping system. VHW have sufficient knowledge on hygiene as they received pre-service trainings from the Ministry of Health and Social Welfare and conduct the activities based on the manual on the participatory hygiene education, which was developed by the preceding project and modified by the project.

<Financial Aspect>

As shown in the table as an example, all VWCs opened a bank account and keep the accounting book to manage its fund, which is monitored by the ledger. All of the surveyed VWCs have kept the balance positive since 2013. All VWCs have collected user fees (5.0 GMD per m<sup>3</sup> which is higher than the government price, 2.3 GMD)<sup>3</sup> from the villagers without problem and the revenue has been sufficient for repair and honorarium of the guard. DWR has collected the joint maintenance fund from VWCs through O&M company. The fund is added for DWR's works to monitor and support VWCs. Although the budget allocation from the government to DWR is not abundant, it is sufficient to conduct field visit for monitoring VWCs, according to DWR.

Table: Revenue and expenditure of VWC (Barrow Kunda)

	2013	2014	2015	2016
Revenue	97,306	116,430	138,287	NA
Expenditure	51,521	78,033	88,125	NA
Balance	45,785	38,397	50,152	NA

Source: VWC of Barrow Kunda.

<Current Status of Operation and Maintenance>

O&M company conducts visits for inspection and repair works including adjustment of the solar pumping system when needs arise.

<sup>3</sup> It was recommended by the Preparatory Survey Team that user fees would need to be increased to cover the facility update in 20 years.

It is also in charge of quarterly reading meters and reporting to DWR on O&M of the water facilities. VWCs are responsible for recording the maintenance inventory quarterly and reporting to DWR when necessary. The guard employed by VWC takes care of the facility every night and cleans the solar modules nearby twice a month. Water facilities have had small problems such as water leakage and breakdown in the water meter, but they were solved within 72 hours. Necessary spare parts and consumables are procured and managed by VWCs and O&M company. DWR monitors O&M company's works based on the monitoring plan and upon necessity.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the institutional, technical, financial aspects of the executing agency. Therefore, the sustainability of the project effect is high.

#### 5 Summary of the Evaluation

The project objectives have been achieved. Through the constructed and rehabilitated water supply facilities, the number of the people served with safe and stable water has increased in the 18 sites as planned. Through technical trainings of the project, VWCs have operated and maintained the facilities in collaboration with O&M company and DWR, and have become conscious of safe and efficient use of the water. As a result, there has been no prevalence of water-borne diseases and the burden of fetching water has been reduced. Regarding the sustainability, responsibilities of VWCs, O&M company and DWR are clearly demarked, which has been properly functioning for O&M of the facilities. There is no major concern in the technical and financial aspect. As for the 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 Executing Agency:

- All VWCs have kept the fund balance positive so far. As it is necessary to update the facility in 20 years, it is recommended to DWR to show the update cost and give direction to VWCs so that they could save the fund for renewal of the water facility.
- Current information sharing on the breakdown of the water supply facilities is done among VWCs, DWR, motivators and O&M company in a verbal manner or with a quarter report. In order to institutionalize this information sharing, it is recommended to DWR to establish an appropriate database or information sharing system on the water supply facilities and breakdowns.

Lessons Learned for JICA:

- Since the project completion, water facilities have been appropriately maintained and operated for safe and stable water in the target sites. This success has three factors. First, a clear demarcation on repair between VWCs and O&M company. The contract between the two and VWC regulations clearly state what kind of breakdowns should be fixed by VWCs and what kind of breakdowns should be reported to O&M company for repair. Second, O&M fund is co-managed by VWCs, DWR and O&M company, to enable fee collection as planned with transparency and to secure financing funds for the repair requiring large amount of budget. Third, regular monitoring and communication are conducted by DWR and VWC. In projects of water facility construction where villages are responsible for O&M, it is important to involve a private O&M company and make agreements with clearly stated documents on the monitoring, repair, fund management and communication.



Solar panel of the water facility



Water tank of the water facility



Public faucet

Country Name	<b>Project for Construction of the Center for Conservation and Investigation of the Cultural Heritage in the Tikal National Park</b>
Republic of Guatemala	

**I. Project Outline**

Background	The Tikal National Park (PANAT) not only represents the cultural heritage of Mayan Culture but is also one of the major nature protected areas in Guatemala. The park was inscribed as a World Heritage site in 1979. Annually, more than 200,000 foreign and domestic tourists visit the park. The government of Guatemala included a program of conservation of the cultural heritage in the Master Plan (2004-2008) for protection and utilization of PANAT. However, since there was no storage facility for conserving and restoring the excavated movable cultural properties, many were left at a temporary space. There was no facility for exhibiting the restored cultural property and introducing it to the tourists.				
Objectives of the Project	To promote restoration and preservation of the movable cultural property of Mayan civilization at Tikal National Park in the department of Petén, investigation and educational activities for the tourists, by constructing the Center for Conservation and Investigation of Tikal (CCIT) and procuring equipment, thereby contributing to increase the tourists to PANAT and deepen the public understanding on the Mayan civilization.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Tikal National Park in the department of Petén, Guatemala.</li> <li>2. Japanese side: Construction of the center for conservation and investigation of the cultural heritage, procurement of the equipment (vehicle, surveying equipment, equipment for conservation/restoration and investigation, PC, etc.</li> <li>3. Guatemalan Side: Exterior and planting work, procurement of the office equipment, water and sewage lead-in, installation of a parabola antenna, tax exemption, etc.</li> </ol>				
Ex-Ante Evaluation	2009	E/N Date	March 16, 2010	Completion Date	July 18, 2012
		G/A Date	March 16, 2010		
Project Cost	E/N Grant Limit: 548 million yen, Actual Grant Amount: 546 million yen				
Executing Agency	Ministry of Culture and Sports, (MICUDE) General Directorate of Culture and Natural Heritage (DGPCN))				
Contracted Agencies	Yamashita Sekkei Inc., Tokura Corporation				

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Guatemala at the time of ex-ante and ex-post evaluation&gt;</p> <p>Economic development is one of the five pillars in the General Policies of the Government (2016-2020). In this policy, tourism is a priority theme and the importance of the protection of the cultural heritage is mentioned. The Master Plan for PANAT (2004-2008) included a program of conservation of the cultural heritage. Though it had been expected to be revised in order to clearly describe the significance and functions of CCIT for the infrastructure development of PANAT, the revision has not been realized. Thus, the project has been partially consistent with the development policy of Guatemala.</p> <p>&lt;Consistency with the Development Needs of Guatemala at the time of ex-ante and ex-post evaluation&gt;</p> <p>In PANAT, there was no storage facility for conserving and restoring the excavated movable cultural property. There was no facility, either, for exhibiting the restored cultural property and introducing it to the tourists. Also, the amount of the pieces of the property which need to be stored have been increasing. Therefore, there have been great needs for the storage facility.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of ex-ante evaluation&gt;</p> <p>The project was consistent with Japan's ODA policy at the time of ex-ante evaluation, as one of the priority areas for the regional assistance was stated as "tourism" in the regional ODA Taskforce meeting in 2008.</p> <p>&lt;Appropriateness of the Project Approach&gt;</p> <p>For restoration activities, it had been expected that four archeologists would be assigned for CCIT. However, after the project completion, there were administrative changes which lead to the change of the top management of DGPCN. Since then, neither archeologist nor sufficient budget has been allocated for CCIT, due to DGPCN's lower priority given to CCIT, in spite of the government priority given to the tourism sector. As a result, restoration activities have not been conducted with the procured equipment. However, it was impossible to foresee the change of DGPCN's commitment before the project completion, and therefore the project approach itself for promoting CCIT's functions for restoration and preservation of the movable cultural property was appropriate. At the project planning stage, it was expected that PANAT Office's revenues from the collected entrance fees and CCIT's own income from its activities would be used for operation and maintenance (O&amp;M) and personnel expenses of CCIT. However, this was not realized since there were two administrative changes after the project completion. At the time of the ex-post evaluation, only minimum expenses for O&amp;M of CCIT are covered by the budget of PANAT Office which is allocated from MICUDE. It is judged that it was difficult to foresee the change of the revenue system before the project completion.</p> <p>&lt;Evaluation Result&gt;</p> <p>Regarding the development policy at the time of the ex-post evaluation, CCIT's positioning and priority is not clear, the tourism sector, however, is still the government's priority. The project has been relevant with the development needs and Japan's assistance policy. Moreover, it was difficult to foresee the change of the budgetary system before the project completion, so the project approach cannot be judged to be inappropriate. Therefore, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Effectiveness&gt;</p> <p>The project has partially achieved its objectives. As quantitative effects, first, with regard to the storage function of CCIT, the number of the collections of the movable cultural heritages which were officially registered in the database increased much more than planned (Indicator 1). This increase was attributed to the necessity to accommodate the movable cultural heritages which had been at the other</p>



museum and severely damaged by rain and remained unmaintained due to the fund shortage. However, no movable cultural heritages have been preserved or restored because no expert specialized in restoration of archaeological properties has been assigned due to no budget allocation (Indicator 2). Second, as for the research and educational activities, a total of 27 national and foreign researchers utilized CCIT to conduct studies in archeology and biology since 2013 (Indicator 3). On the other hand, less educational activities have been undertaken since CCIT has had much less visitors than planned (Indicator 4). The number of the visitors to CCIT has been slightly increasing but is far below the target, although CCIT has no explanation for these reasons.

As qualitative effects, first, the quality of the exhibited cultural properties has been improved. As CCIT was built with thermal insulation materials and equipped with solar lightening, the illumination and ventilation have been improved, which provides a good condition for keeping the property quality. Second, the quality of the research activities has been improved, through the total station with 3D scanner, GPS receiver, etc. for topographic measurement and drawing of excavated structures. The university students' study on the forest species have been facilitated by the procured equipment such as the microscope and digital cameras. Third, the constructed facility has contributed to the educational activities. The activity contents have not changed much compared to the ones before the project, but in 2015 a total of 864 persons participated in 41 training, workshops, meetings, exhibitions, etc. held at the constructed lecture hall. However, these include activities which did not necessarily have relation with archeology or Mayan civilization.

<Impact>  
As an impact of the project, the increase of the tourists to PANAT had been expected, but no data was available from CCIT. Another expected impact was a deepened understanding of the public on the Mayan civilization. CCIT has projected documentary programs on the cultural and natural themes of Tikal and other archaeological sites and also presented the information in the leaflets, but concrete examples of the brought changes could not be confirmed.

The facility was constructed with a solar lightening system which helps to mitigate electricity consumption. No negative impact on the natural environment has been observed except an odor caused by the septic tank. This problem was solved immediately with the redesigned drainage facility. There was no land acquisition and no resettlement.

<Evaluation Result>  
In light of the above, the project effects have been limited; CCIT has improved functions of research and educational activities but functions of preservation and restoration have not been fulfilled. Expected impacts have not been confirmed. Therefore, the effectiveness/impact of the project is low.

#### Quantitative Effects

Indicator	Baseline 2010	Target 2015	Actual 2013	Actual 2014	Actual 2015
1. Number of the collections of movable cultural heritages officially registered in the database	N.A.	1,000	1,182	2,816	3,776
2. Number of the preserved and restored movable cultural heritages	0	20	0	0	0
3. Number of the national and international researchers who utilized the Center	0	2-3	8	11	8
4. Number of the visitors to the Center	N.A.	20,000	3,319	3,242	3,629

Source: CCIT.

#### 3 Efficiency

The project cost was within the plan (ratio against the plan: 100%), but the project period exceeded the plan, because the procurement of some equipment from Japan was delayed due to the Great East Japan Earthquake in March 2011, which was an inevitable force for the project and also because some import arrangement was delayed. Excluding the inevitable delay, the exceeded period was calculated 2.5 month (ratio against the plan: 109 %). Therefore, the efficiency of the project is fair.

#### 4 Sustainability

##### <Institutional Aspect>

The PANAT Office under DGPCN is responsible for O&M of CCIT. As mentioned in the Relevance section, the significance and functions of CCIT for the infrastructure development of PANAT has not been clear, which hinders allocation of sufficient number of the personnel and budget, as mentioned later on. CCIT has a total of 12 staff against the planned 18, lacking the staff for the Planning Section, specialists for archeology, pottery restoration and biology, and security guards due to the budget deficit. There is no staff with knowledge in the Wi-Fi connection for diffusion of the Mayan civilization through the internet.

##### <Technical Aspect>

The staff of CCIT has sufficient knowledge and skills for researches, as they have much experience in the research works in the major structures such as Temple I and Temple V and ceramics in the cellars. For conducting educational activities, CCIT staff has sufficient knowledge and skills, as they function as guides on the history, culture and nature of the Tikal ruins. However, CCIT has no staff specialized in restoration, as no staff has been transferred from DGPCN or newly hired as expected at the ex-ante evaluation. CCIT is requesting MICUDE to give the staff courses on restoration, storage and package of the goods, which have not been accepted as of August 2016. With regard to O&M of the procured equipment, the manuals in Spanish are available, but the current staff face difficulty in maintenance of some laboratory equipment, since the current staff did not receive O&M training from the supplier.

##### <Financial Aspect>

No Financial data were available from DGPCN, but DGPCN answered that the budget has been on a decreasing trend for the last three years due to the lower priority on the tourism sector than other sectors such as education and health. Minimum expenses for the fuel for the generator, internet connection, and maintenance of the facility and equipment have been covered by the PANAT Office, but they have not been sufficient to fully perform CCIT's principal functions of restoration and to assign necessary personnel. Another reason for the insufficient budget allocation to CCIT is that the facility and vehicle have not been registered as its own property; no budget can be allocated to unregistered facility or equipment. The collected entrance fees go to the national treasury to be allocated to MICUDE, but they are not used by CCIT on its own for O&M, unlike the assumption at the time of the ex-ante evaluation.

##### <Current Status of Operation and Maintenance>

All rooms in the constructed building facility have been in good condition and being used. They are maintained under the supervision of the Director of CCIT twice a year. As for the procured equipment, most of them have been in good condition. Equipment for restoration has not been used since there is no staff that can operate it. Some special equipment such as the total station and generator was checked up by the contractor in 2013, and since then no maintenance plan has been made due to unsecured budget allocation. When some equipment is broken or spare parts are needed, CCIT makes a management effort and asks private companies for donation, as it does not have a sufficient budget for O&M.

<Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, technical and financial aspects of the executing agency and also in the current status of O&M. In particular, institutional and financial problems have hindered CCIT's performance. Therefore, the sustainability of the project effect is low.

5 Summary of the Evaluation

Achievement of the project objectives has been partial. The project aimed at promoting CCIT's functions of preservation and restoration of the movable cultural heritages and research and educational activities. While educational and research functions have been performed, functions of preservation and restoration have not been fulfilled, since no staff specialized in archaeology has not been appointed to CCIT. As for verification of the impact, no data or concrete examples have been confirmed. Regarding the sustainability, the significance and responsibilities of CCIT have not been clearly defined, which affects insufficient allocation of the budget and personnel. The budget shortage has caused various difficulties such as the personnel assignment, especially archaeologists, and equipment maintenance. With regard to the efficiency, the project period exceeded the plan.

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

### III. Recommendations & Lessons Learned

Recommendations to executing agency:

- It is recommended for DGPCN to explain the significance and importance of CCIT's functions to the higher-ups of MICUDE so that a necessary number of the staff would be assigned: (i) who is specialized in restoration so that CCIT could fulfill its primary responsibility, and (ii) who has knowledge on the internet connection to widely disseminate the information on the Mayan civilization, not only through material exhibitions at CCIT.
- It is recommended for CCIT to develop the plan for maintenance of the procured equipment and appointment of the staff in charge, and make a budget request based on the plan. As a premise for securing the budget, it is necessary for MICUDE to immediately finish the registry process of the constructed facility and procured equipment.

Lessons learned for JICA:

- During the project formulation and implementation stages, it is necessary to have several meetings with the authorities, to make sure they will use the facilities and equipment, and assign the employees accorded to the plan. In this project, since the project completion, necessary budget and personnel have not been assigned for CCIT for O&M of the constructed facility and procured equipment and therefore restoration of the cultural heritages has not been conducted as expected. This has been caused by DGPCN's low priority given to CCIT since the top management of DGPCN was changed after the administrative changes. In cases when it is very probably expected the administrative change would cause a drastic change of the related personnel including the top management of the executing agency after the project completion, it is necessary (i) to prepare takeover matters including necessary personnel and budget measures for O&M of the procured equipment, (ii) to discuss with the authorities of the executing agency to obtain the written agreement on the continuous use of the facility and equipment and takeover of them in case of the personnel change from them before the project completion.



(Lecture hall of the constructed CCIT)



(Procured forklift to convey the heavy cultural properties)



Country Name	<b>Project for Introduction of Clean Energy by Solar Electricity Generation System</b>
Kingdom of Cambodia	

**I. Project Outline**

Background	Power demand in Cambodia rapidly increased year by year from early 2000. During 5-year period from 2008, the power demand increased by 21% yearly, and the installed capacity increased by 2.1 times from 187 MW to 385 MW. The gross generation amount was 1,484 GWh against 1,664 GWh of power consumption amount in 2008. The shortage was imported from neighboring countries. Besides, in power generations, renewable energy was 51 GWh accounted for merely 3%. In Phnom Penh city, the peak demand in 2008 was estimated to be 240 MW, and for that the main power sources were thermal power generation plants in Cambodia and in Vietnam. With regard to rural household electrification, 20% of households could access to electricity in 2009. The government of Cambodia set an electrification target as 70% by the year 2030 through the grid-connection and introduction of renewable energy technologies using solar power, biomass and mini-hydro.			
Objectives of the Project	To enhance power generation capacity, diversify energy sources and increase awareness among the people and policy makers of Cambodia on utilization of renewable energy by procuring equipment for solar power generation and training for technical experts at the Phum Prek Water Treatment Plant in Phnom Penh, thereby contributing to demonstration of Japan's initiatives to promote efforts among both developed and developing countries against climate change.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Phum Prek Water Treatment Plant, Phnom Penh</li> <li>2. Japanese side: 1) procurement and installation of grid-connected photovoltaic (PV) system for 488 kWp (PV modules, power connection boxes, power collection boxes, power conditioners, transformers, external lightning strike protection facilities, data management and monitoring systems, power generation display devices, switchboards, etc.), 2) technical assistance (soft component of grant aid) for training on basic knowledge about interconnecting PV generating system and its operation and maintenance (O&amp;M) including preventive inspection and emergency response and revisions of the O&amp;M manuals)</li> <li>3. Cambodian side: site for installation of PV system, logistical arrangements and clearances</li> </ol>			
Project Period	E/N Date	March 18, 2010	Completion Date	June 20, 2013 (Delivery date of procured equipment)
	G/A Date	March 18, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 720 million yen, Actual Grant Amount: 717 million yen			
Executing Agency	Phnom Penh Water Supply Authority (PPWSA) <sup>1</sup>			
Contracted Agencies	Main Contractor: Marubeni Corporation Main Consultant: NEWJEC Inc. Agent: Japan International Cooperation System			

**II. Result of the Evaluation**

< Special Perspectives Considered in the Ex-Post Evaluation >

- The ex-ante evaluation set the target of the increase in power generation and reduction of electricity cost in 2015, three years after the project completion in 2012. However, since the project completed with two years delay in 2014, the target year was postponed for two years to be 2017. Therefore, this ex-post evaluation verified the achievement of the project objectives between 2014 and 2017.
- The ex-ante evaluation set the rising of Cambodian people's awareness of utilization of renewable energy as one of the qualitative effects by the project. However, in order to specifically verify the contribution of the project, the ex-post evaluation assessed how the PV power generation system installed by the project in PPWSA contributed to awareness raising of the people who utilize the PV power.

**1 Relevance**

<Consistency with the Development Policy of Cambodia at the Time of Ex-Ante and Ex-Post Evaluation>

The project has been consistent with Cambodian development policies, as promoting the introduction of renewable clean energy has been prioritized in the "National Strategic Development Plan 2006-2010" at the time of ex-ante evaluation and the "National Strategic Development Plan 2014-2018" at the time of ex-post evaluation. The "National Strategic Development Plan 2014-2018" also places a priority on further expansion of the capacity of low-cost and hi-tech electricity production, especially from new and clean energy sources.

<Consistency with the Development Needs of Cambodia at the Time of Ex-Ante and Ex-Post Evaluation>

While the major power source of electricity in Cambodia is hydro which is renewable energy, dependency on thermal generation which emits CO<sub>2</sub> by burning coal is increasing in recent years. Therefore, the project has been consistent with the needs of Cambodia for increasing power generation and diversifying energy sources by introducing renewable clean energy.

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

The project was consistent with the Japan's ODA policy for Cambodia at the time of ex-ante evaluation. In the "Country Assistance Program for Cambodia 2002", support for development of economic infrastructure and countermeasures against global issues were prioritized in order to realize sustainable economic growth and stable society in the country. In addition, the project was implemented under the 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 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.

<sup>1</sup> A state treatment and business unit under the supervision of the Ministry of Industry, Mines and Energy (MIME), responsible for water treatment and supply to satisfy the demand of the population in Phnom Penh (Source: website of PPWSA, 2017; the sub-decree No.14 ANKr.BK, 2004).

## 2 Effectiveness/Impact

### <Effectiveness>

The project has achieved its objectives by enhancing power generation capacity and diversifying energy sources through the installation and operation of solar power generation system in Phum Prek Water Treatment Plant. The power generation amount at transmission end (Indicator 1) largely exceeded the target value of 652 MWh/year because the number of PV modules procured by the project was 3,624 sets (777kWp) which was larger than the original plan of 2,328 sets (488kWp) due to lower cost of the modules compared to the original budget. As a result, CO<sub>2</sub> reduction (Indicator 2) and electricity cost savings (Indicator 3) have been achieved by largely exceeding the targets.

Two technical staff of PPWSA, who participated in the soft component training programs, are currently engaged in operation and maintenance (O&M) of the PV system installed by the project. The total number of the training participants was 13, because the project invited technical staff not only from PPWSA but also from EDC<sup>2</sup> and MIME in order to further ensure the transfer of O&M techniques for solar system.

Awareness raising on renewable energy was limited to the officials and staff of PPWSA, EDC and MIME involved in the project since the power generated by the PV system has been used only in Phum Prek Water Treatment Plant.

### <Impact>

Along with the Japanese government's actions of the Joint Crediting Mechanism (JCM)<sup>3</sup> widely applied in Cambodia, by introducing the first grid-connected PV system over 500 kW in Phnom Penh, the project shows the Japan's contribution to promote efforts among developed and developing countries against climate change. There was no resettlement and land acquisition caused by the project. No negative impact on natural environment has been observed.

### <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.

Table 1: Quantitative Effects of the Project

Indicators	Year	Baseline 2012 baseline year	Target 2015 3 years after completion	Actual 2014 completion year	Actual 2015 1 year after completion	Actual 2016 2 years after completion
Indicator 1: Power generation at sending end (MWh/year)		0	652	1,091	1,132	1,087
Indicator 2: CO <sub>2</sub> reduction amount (ton/year) <sup>1)</sup>		0	402	974	1,662	1,115
Indicator 3: Annual savings of electricity cost of PPWSA by the PV power generation (million Riel/year) <sup>2)</sup>		0	507	786	815	783
Supplemental information 1: Number of PV modules working		0	2,328	3,624	3,624	3,624
Supplemental information 2: Power generation capacity (kWp)		0	488 <sup>3)</sup>	777	777	777

Source: Preparatory Survey Report (2011), data provided by PPWSA at the time of ex-post evaluation (2017)

1): CO<sub>2</sub> reduction by power generation by PV system is calculated by the following formula: (generation amount) x (estimated CO<sub>2</sub> emission by fuel burning + estimated CO<sub>2</sub> emission by plant operation)

2): The annual savings of electricity cost is calculated by the following formula: (power generation amount at sending end) x (average electricity tariff charged by EDC). The average electricity tariff used in the calculation is 776.8 Riel/kWh for the target value of 2015, and 720 Riel/kWh for the actual value in 3 years of 2014, 2015 and 2016.

3): 210 Wp x 2,328 PV panels = 488 kWp

## 3 Efficiency

Outputs (the number of PV modules) were produced exceeding the plan (the ratio against the plan: 155%). Although the project cost was within the plan (the ratio against the plan: 99%), the project period exceeded the plan (the ratio against the plan: 171%) since the additional time was required for the procurement of additional PV panels. Therefore, efficiency of the project is fair.

## 4 Sustainability

### <Institutional Aspect>

A solar power generation maintenance team was organized in PPWSA during the project, and there was no significant institutional change since then. The number of team members has been five including two staff members attended the soft component training of the project and other three members assigned after the project. According to the questionnaire survey and interviews with PPWSA, the number of team members is sufficient for proper operation and maintenance of the system. There is no prospect of changing the institutional structure of PPWSA in the near future.

Table 2. Number of Staff of PPWSA

Year	2014	2015	2016
Total number of staff of PPWSA	851	920	1,030
Number of staff in charge of O&M of the PV system installed by the project	5	5	5

Source: PPWSA

### <Technical Aspect>

The internal annual training program on SOP (Standard Operation Procedures) of the PV generation system was conducted for

<sup>2</sup> EDC: Electricite du Cambodge

<sup>3</sup> A system to cooperate with developing countries for reducing greenhouse gas emissions, in which the result of reduction is assessed as contribution by both partner countries and Japan. (Source: website of the Ministry of Foreign Affairs of Japan)

PPWSA's technical staff in 2015 and 2016. The training was a 4-day program invited 18 electrical engineers and technicians and 2 operators of the system. Trainer of the program was the chief of Electrical Section of PPWSA. Although he was not involved in the project, the trainer received the comprehensive training on PV system in India. Materials for the training were prepared based on the training materials and manuals provided by the project. The O&M manuals prepared by the project has been the main documents and fully utilized by the maintenance team for their daily works and occasional trouble shootings.

<Financial Aspect>

PPWSA has prepared sufficient annual operational budget for O&M of the system. The major part of the budget has been for equipment and spare parts susceptible to damage. However, after the project completion in 2014, no parts and modules has been replaced or repaired. Therefore, apart from the staff salary, no other expense has been paid for the system since then. In case a reasonably large damage and/or parts replacement takes place, the other budget category could be devoted for repair works by getting an approval of the Director General of PPWSA.

<Current Status of Operation and Maintenance>

According to the interview with the technical staff of PPWSA, they have been strictly following the daily, weekly, monthly and annually maintenance plans prepared by the project. As for the annual maintenance plan, PPWSA has made some modifications by adding a few items to be checked such as electric cables and protection relays.

<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. Therefore, the sustainability of the project effect is high.

5 Summary of the Evaluation

The project has achieved its objectives by enhancing power generation capacity, diversifying energy sources through the procurement and installation of solar power generation system and technical training for O&M staff of the system. However, awareness raising on renewable energy was limited to the officials directly involved in the project. The PV system installed has been well functioning and generating electricity without any problems. 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 Executing Agency:

- Although the project was highly successful, awareness raising on renewable energy was limited within the project related agencies namely PPWSA, EDC and Ministry of Mines and Energy (MME) (former MIME). In order to disseminate the project demonstration effects wider, it is recommended EDC and PPWSA to publicize the social and technical effects of the solar generation system in the Phum Prek Water Treatment Plant, and organize seminars, workshops and visitors' tours to the site for learning.
- Dissemination of the PV generation model introduced by the project in other provincial waterworks or water treatment plants of PPWSA has not been observed. It is recommended for the Ministry of Industry and Handicraft (MIH) (former MIME) and PPWSA to introduce the benefits of PV system including cost saving of electricity, and to promote the dissemination of PV system to other provincial waterworks and development partners.

Lessons Learned for JICA:

- The Phum Prek Water Treatment Plant where the solar power generation system was installed by this project has being renovated to improve water supply capacity by JICA's grant aid. Also, the institutional capacity of the executing agency of this project was strengthened by the technical cooperation project. PPWSA has enhanced operation capacity of water supply service through JICA's cooperation, which has been attributing to the steady implementation of this project. In addition, the project has been successful in installing solar power generation system at water treatment plant managed by PPWSA that can be appropriately and effectively utilized. The appropriate selection leads to strengthening of power generation capacity and diversification of energy sources, contributing to efficient management and the sustainable operation and management even after project implementation. In light of the above, it is important to select the executing agency and the installation site relevant to the project along with referring to past support results when formulating similar projects.



Solar panels on the roof of Phum Prek Water Treatment Plant



Computer Management System

# Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Papua New Guinea Office (Solomon Representative Office): January 2018

Country Name	<b>Project for Strengthening of Malaria System Phase II</b>
Solomon Islands	

## I. Project Outline

Background	<p>Malaria was endemic in Solomon Islands. Due to the ethnic conflict in 1998, malaria control activities were suspended. From 1999 to 2001, the malaria incidence rate per a population of 1,000 increased from 149 to 169 in Guadalcanal Province (GP) and Honiara City (HC)*. With the donor's assistance since 2004, the rate was dropped down to 74.8 in 2009. However, there was a wide regional gap in malaria morbidity. Upon the request from the Ministry of Health and Medical Services (MHMS) of Solomon Islands, JICA implemented "The Project for Strengthening of Malaria Control" (hereafter "the preceding project") from January 2007 to January 2010 to control malaria incidence by strengthening the health system of malaria control. With the successful implementation of the project, malaria morbidity was reduced and severe cases were decreased. It was also identified that the Community Based Malaria Prevention model developed and introduced by the project was effective in that it promoted behavior change of the people at community level, one of preventive measures for malaria control. Having found it difficult to carry out such health promotion activities by itself due to the lack of finance and human resources, the MHMS requested Japan to extend the assistance to further strengthen the health system of malaria control in both national and provincial levels with community involvement.</p> <p><small>*Source: WHO World Malaria Report 2005</small></p>											
Objectives of the Project	<p>In collaboration and coordination with other development partners, the project aimed at strengthening the health system for malaria control focusing on community involvement by strengthening the central and provincial capacity to implement "Malaria Action Plan (MAP)" and by facilitating community-based health promotion as well as strengthening the functions of secondary level health facilities in GP, HC and Malaita Province (MP), and thereby transferring the strategy of health system strengthening for malaria control to wider areas of Solomon Islands.</p> <ol style="list-style-type: none"> <li>Overall Goal: Strategy of Strengthening of health system, effective for malaria control (including community-based health promotion), is transferred to wider areas in Solomon Islands.</li> <li>Project Purpose: Health system, effective for malaria control (including community-based health promotion), is strengthened in MHMS, GP, HC and MP.</li> </ol>											
Activities of the Project	<ol style="list-style-type: none"> <li>Project site: Guadalcanal Province (GP), Honiara City (HC), Malaita Province (MP) <small>*MP was involved in activities under Output 3 only.</small></li> <li>Main activities: (1) enhance the operations of the National Vector Borne Disease Control Program (NVBDCP), Health Promotion Department (HPD), and other related bodies in the implementation of MAP; (2) strengthen the Solomon Islands Malaria Information System (SIMIS) and the Supervisory Visit (SV) program, which requires cooperation at the national and provincial and local health facility level; (3) establish a Healthy Village model of effective malaria control in target communities; and (4) improve the medical services at health facilities (Area Health Centres (AHCs), Rural Health Clinics (RHCs), and Nurse Aid Posts (NAPs) for malaria patients.</li> <li>Inputs (to carry out above activities) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"><u>Japanese Side</u></td> <td style="width: 50%; vertical-align: top;"><u>Solomon's Side</u></td> </tr> <tr> <td>1) Experts: 7 persons</td> <td>1) Staff allocated: 45 persons</td> </tr> <tr> <td>2) Trainees received: none</td> <td>2) Provision of Facilities and Equipment</td> </tr> <tr> <td>3) Equipment: vehicles, PCs, copiers, portable generators, and other office equipment</td> <td>3) Operating expenses</td> </tr> <tr> <td>4) Operational Expenses</td> <td></td> </tr> </table> </li> </ol>		<u>Japanese Side</u>	<u>Solomon's Side</u>	1) Experts: 7 persons	1) Staff allocated: 45 persons	2) Trainees received: none	2) Provision of Facilities and Equipment	3) Equipment: vehicles, PCs, copiers, portable generators, and other office equipment	3) Operating expenses	4) Operational Expenses	
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Project Period	February 2011 - February 2014	Project Cost (ex-ante) 280 million yen, (actual) 253 million yen										
Implementing Agency	<p>Central level: National Vector Borne Disease Control Program (NVBDCP), Health Promotion Department (HPD) under the Ministry of Health and Medical Services (MHMS)</p> <p>Provincial level: Guadalcanal Province Health Office (GPHO), Honiara City Council (HCC), Malaita Province Health Office (MPHO)</p>											
Cooperation Agency in Japan	IC Net Limited											

## II. Result of the Evaluation

### <Constraints on Evaluation>

It should be well noted that the outcome of the project studied under this ex-post evaluation is the combined effects by this project, assistance from other development partners and subsequent JICA project named "Health Promoting Village Project" (2016-2020) (hereafter "the subsequent project"). It is not possible to assess the effect of this project by itself because of the nature of issues (health system strengthening) and large scale of assistance by other development partners.

Unavailability of provincial level data has made it difficult to examine the achievement of the Overall Goal.

### <Special Perspectives Considered in the Ex-Post Evaluation>

Evaluating Continuation Status of Project Effect(Continuation status of achievement for the Project Purpose)

Regarding Indicator 1 of the Project Purpose ("MAP planning, implementation, monitoring and evaluation system is improved at national, provincial and

health facilities level”), to verify its continuation status requires to review the continuation status of Output 1, 2 and 4 that were referred to as the basis for judgment of the achievement status of the Project Purpose at the terminal evaluation. Therefore, indicators representing the continuation status of Output 1, 2 and 4 are used as the supplemental information.

How to deal with source documents for indicators

Regarding Indicator 1 of the Overall Goal (“MAP related activities are accomplished in Solomon Islands”), the source of the target values of this indicator is MAP (2008-2014). However, this document does not cover the period up to the time of ex-post evaluation as it was renewed and replaced by “Solomon Islands Malaria Control and Elimination Strategic Plan (SIMCESP) (2015-2020)” It is, therefore, from 2015 up to the time of ex-post evaluation, SIMCESP is used as the source document.

Regarding Indicator 3 of the Overall Goal (“Malaria morbidity and mortality fall below the targeted provincial/municipal and governmental goal.”), the target year is not set. According to the general framework of internal evaluation, it is decided that the target year should be the latest year of its data obtainable. Therefore, SIMCESP (2015-2020) serves as the source document for this indicator as well.

## 1 Relevance

<Consistency with the Development Policy of Solomon Islands at the Time of Ex-Ante Evaluation and Project Completion>

At the time of ex-ante evaluation, this project was consistent with development plans such as “National Health Strategic Plan (2006-2010)” which focused on strengthening the medical services in both provincial and community levels and MAP (2008-2014) which was a practical action plan to carry out the national level malaria program, namely “National Malaria Program”. At the time of project completion, the project was also consistent with the development plans such as “National Health Strategic Plan (2011-2015)” which sets the priority in health promotion and MAP (2008-2014).

<Consistency with the Development Needs of Solomon Islands at the Time of Ex-Ante Evaluation and Project Completion >

At the time of ex-ante evaluation, this project was consistent with Solomon Island’s development needs to implement MAP, especially in terms of malaria related health promotion activities. In that, the Community Based Malaria Prevention model developed and introduced under the preceding project was proven to be effective, and there was a need to further strengthen the health systems with community-based health promotion. At the time of project completion, the capacity building of those health staff in NVBDCP, HPD, HCC, GPHO and MPHO was still necessary to implement MAP.

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

The Fifth Pacific Islands Leaders Meeting (PALM) in 2009 pledged that “overcoming vulnerabilities and promoting human security” was one of three pillars of the Japanese assistance. The Sixth PALM in 2012 continued to address the “sustainable development and human security” as one of five priority areas underlining the importance of health service delivery with a view to achieve the Millennium Development Goals. Based on the economic cooperation policy dialogue with Solomon Islands in June 2009, Japan’s ODA policy to Solomon Islands in 2009 included the improvement of the social services as one of the priority areas which highlighting the assistance for the material control.

<Appropriateness of Project Design/Approach>

Upon the request from the MHMS based on “Health Promotion Policy (2008-2013)” which stipulates that the community participation and community empowerment should be carried out through the Healthy Setting Approach, the project modified the Community-Based Malaria Prevention to the Healthy Village model accordingly in 2012. As is described below, it is judged that the effectiveness/impact and the sustainability of the project are low. However, it is mainly due to the integrated approach taken by the side of Solomon Island after the project completion. The approach taken by the project itself is considered as appropriate.

<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>

By the project completion, the Project Purpose, “Health system, effective for malaria control, (including community-based health promotion) is strengthened in MHMS, GP, HC and MP” was achieved.

For indicator 1 “MAP planning, implementation, monitoring and evaluation system is improved at national, provincial and health facilities level”, related Outputs, namely, the national-level MAP implementation capacities (Output 1), SIMIS and SV through cooperation among national, provincial and health facility level (Output 2), and medical service provision at health facilities (Output 4) were improved/strengthened mostly as planned. For indicator 2, “Guidelines, tools and formats for the Healthy Village model developed by the project are reviewed by the National Healthy Setting Committee /MHMS for authorization”, the subject documents (Guidelines and 12 tools and formats for the Healthy Village model) were developed, reviewed and revised and were finally endorsed at the endorsement meeting on January 31, 2014.

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

The project effects have not continued since the project completion. This is partly due to that the programs of malaria control has been integrated with other components such as tuberculosis (TB), HIV, reproductive health and immunization under the Health Sector Support Program which started after the project completion in 2016. And this change has made it difficult to continue malaria related activities in the previously established manner. For indicator 1, the MAP planning, monitoring and implementation have been done with involvement of other components than those related to malaria control alone. Accordingly, the utilization status of the aforementioned Outputs (i.e. project effects) are limited to some medical service activities at health facilities. For indicator 2, under the integrated program, the subsequent JICA project has been working to develop the new guidelines on the Healthy Village model which may supersede the subject documents (guidelines and 12 tools and formats) developed by the project. Therefore, the utilization of those documents has been discontinued except some villages involved by NGOs in MP and GP.

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

The Overall Goal “Strategy of Strengthening of health system, effective for malaria control (including community-based health promotion), is transferred to wider areas in Solomon Islands.” has not achieved by the time of ex-post evaluation. No data is available to examine the progress of MAP related activities. However, considering the fact that integrated program has made it difficult to continue malaria related activities in the previously established manner, it is unlikely that MAP related activities have been progressed. (Indicator 1). The Healthy Village model effective for malaria control has been introduced to 142 villages of 10 provinces (including HCC) of the country,

which accounts for only 2.3% of total number of villages and which constitutes only 4.0% of total population and 18.6% of beneficiary population (140,000) of the project estimated at the ex-ante evaluation. According to the interview with MHMS, they have not had the sufficient budget to implement activities for healthy village settings, especially for provincial level. (Indicator 2) As for the malaria morbidity, although it is difficult to judge the achievement of Annual Parasite Incidence (API) as of 2016 against the target under SIMCESP 2020, it is confirmed that the periodical change of API from 2013 to 2016 have shown negative trends except Choiseul province. (The reason of this trends is not obtained.) As for malaria mortality, four provinces such as HC, Isabel, Rennell Bellona and Temotu have achieved the target of “0” mortality set for the year 2035 as of 2016. And GP, MP and Makira Ulawa have shown the steady progress from 2014 to 2016. However, in Western, Central and Choiseul provinces, the situations have got worse during the same period. Considering the fact that the effect of the project has not continued, it is unlikely that the positive progress of mortality has been contributed by the project. (Indicator 3).

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

It was observed that there is a reduction of breeding sites for mosquitos, increased community participation to clean environment. No negative impact has been observed.

<Evaluation Result>

In light of the above, the project achieved the Project Purpose at the time of project completion. However, the effect of the project has not continued after the project completion partly due to the integration of health programs. Thus, the Overall Goal has not been achieved.

Therefore, the effectiveness/impact of the project is low.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Health system, effective for malaria control, (including community-based health promotion), is strengthened in MHMS, GP, HC and MP.	Indicator 1: MAP planning, implementation, monitoring and evaluation system is improved at national, provincial and health facilities level.	Status of the Achievement: achieved (not continued) (Project Completion) Overall, the system was improved in both national and provincial and health facilities levels. As for MAP planning, the Annual Malaria Conference (AMC) functioned more systematically by reflecting the relevant information to fulfill its purpose in a timely manner. As for monitoring, several ideas and measures were proposed to improve supervisory visits and to utilize the Online Information Management System. Outputs which contributed the system were almost achieved as follows. - Output 1: The national-level comprehensive human resource development plan was developed, but trainings based on it were not conducted. The management tools for MAP operation were developed (e.g., organization chart, monitoring sheet). - Output 2: The existing SV system was reviewed and how to improve it was discussed. The actual implementation of the improved SV was to be done after project completion. - Output 4: The Standard Operating Procedure (SOP) for malaria-related medical service provision was introduced to the target facilities in HC and GP. Based on the result of the SOP monitoring, the SOP and related tools were approved by the NVBDCP. (Ex-post Evaluation) According to the interviews with NVBDCP and HPD, the system has not been improved after the project completion. Planning meeting was not held. Planned implementation of at least 3 new healthy setting communities per year was not achieved. Monitoring and evaluation has not been done regularly, thus no annual report about MAP was prepared. Implementation of MAP was only done ad hoc bases in health facility level. - Output 1: Trainings based on the comprehensive human resources development plan such as one-week HPD/MHMS Healthy Setting (training of trainers) have not been conducted due to the unavailability of funds, the management tools have not been utilized among counterparts as planned due to the lack of leadership and understandings.(Supplemental Information 1) - Output 2: In HC, SV was conducted once in 2014 and 2015, and twice in 2016. No SV was conducted in other provinces during that period due to that the financial resources were limited and that counterparts were busy with other numerous activities. No information on whether the conducted SVs were the improved ones based on the review by the field study. (Supplemental Information 2) - Output 4: Some activities such as case management, vector control and monitoring and evaluation have been carried out according to the SOP, while others such as site visits and village services have not been carried out due to a lack of logistic support and financial support. (Supplemental Information 3)
	Indicator 2: Guidelines, tools and formats for Healthy Village model developed by the Project are reviewed by the National Healthy Setting Committee /MHMS for authorization.	Status of the Achievement: achieved (not continued) (Project Completion) Guidelines and 12 tools and formats for the Healthy Village model were developed, reviewed and revised and were finally endorsed by Under Secretary at the endorsement meeting on January 31, 2014. (Ex-post Evaluation) HPD admitted not to use the guideline developed by the project because there was no budget obtained from MHMS and donors. The utilization of those documents has been discontinued except some villages involved by NGOs in MP and GP. According to the interviews, the guideline was developed for general users. Thus, it was not practical for some users. Therefore, subsequent JICA project is now setting a new guideline targeting for the specific users as health promoters.



<p>(Overall Goal) The strategy of strengthening of health systems, effective for malaria control (including community-based health promotion), have been transferred to wider areas in Solomon Islands</p>	<p>Indicator 1: MAP related activities are accomplished in Solomon Islands</p>	<p>(Ex-post Evaluation) Unable to verify the situation as of 2017 as Information on MAP related activities is not available from the year 2013 up to the time of ex-post evaluation.</p>																																																																																																																																																															
	<p>Indicator 2: Healthy Village model effective for malaria control is introduced to all provinces of the country.</p>	<p>(Ex-post Evaluation) not achieved.</p> <table border="1"> <thead> <tr> <th>Name of Province</th> <th>Number of villages to which Healthy Village was introduced As of 2017</th> <th>Total number of villages in province As of 2017</th> <th>%</th> <th>Current population of villages to which Healthy Village was introduced As of 2017</th> <th>Total number of population in province (Projected for 2017)</th> <th>%</th> </tr> </thead> <tbody> <tr><td>Honiara City</td><td>9</td><td>150</td><td>6.0</td><td>4,350</td><td>84,522</td><td>5.1</td></tr> <tr><td>Guadalcanal</td><td>26</td><td>924</td><td>2.8</td><td>5,334</td><td>139,164</td><td>3.8</td></tr> <tr><td>Malaita</td><td>41</td><td>2,158</td><td>1.9</td><td>9,885</td><td>156,787</td><td>6.3</td></tr> <tr><td>Isabel</td><td>12</td><td>291</td><td>4.1</td><td>1,560</td><td>33,139</td><td>4.7</td></tr> <tr><td>Choiseul</td><td>9</td><td>504</td><td>1.8</td><td>536</td><td>34,197</td><td>1.6</td></tr> <tr><td>Central</td><td>7</td><td>289</td><td>2.4</td><td>234</td><td>31,289</td><td>0.7</td></tr> <tr><td>Western</td><td>11</td><td>770</td><td>1.4</td><td>2,798</td><td>93,953</td><td>3.0</td></tr> <tr><td>Makira Ulawa</td><td>9</td><td>722</td><td>1.2</td><td>246</td><td>51,755</td><td>0.5</td></tr> <tr><td>Rennell Bellona</td><td>9</td><td>109</td><td>8.3</td><td>170</td><td>3,923</td><td>4.3</td></tr> <tr><td>Temotu</td><td>9</td><td>335</td><td>2.7</td><td>973</td><td>24,520</td><td>4.0</td></tr> <tr><td><b>Solomon Island</b></td><td><b>142</b></td><td><b>6,252</b></td><td><b>2.3</b></td><td><b>26,106</b></td><td><b>653,249</b></td><td><b>4.0</b></td></tr> </tbody> </table>					Name of Province	Number of villages to which Healthy Village was introduced As of 2017	Total number of villages in province As of 2017	%	Current population of villages to which Healthy Village was introduced As of 2017	Total number of population in province (Projected for 2017)	%	Honiara City	9	150	6.0	4,350	84,522	5.1	Guadalcanal	26	924	2.8	5,334	139,164	3.8	Malaita	41	2,158	1.9	9,885	156,787	6.3	Isabel	12	291	4.1	1,560	33,139	4.7	Choiseul	9	504	1.8	536	34,197	1.6	Central	7	289	2.4	234	31,289	0.7	Western	11	770	1.4	2,798	93,953	3.0	Makira Ulawa	9	722	1.2	246	51,755	0.5	Rennell Bellona	9	109	8.3	170	3,923	4.3	Temotu	9	335	2.7	973	24,520	4.0	<b>Solomon Island</b>	<b>142</b>	<b>6,252</b>	<b>2.3</b>	<b>26,106</b>	<b>653,249</b>	<b>4.0</b>																																																																							
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<p>Indicator 3: Malaria morbidity and mortality fall below the targeted provincial/municipal and governmental goal.</p>	<p>(Ex-post Evaluation), not achieved</p> <p>Malaria morbidity (Annual Parasitic Incidence (A.P.I.)=confirmed cases during 1 year/population under surveillance) x 1000)</p> <table border="1"> <thead> <tr> <th>Name of Province</th> <th>Actual 2011</th> <th>Actual 2012</th> <th>Actual 2013</th> <th>Target under MAP 2008-2014</th> <th>Actual 2016</th> <th>Target under SIMCESP (2015-2020)</th> </tr> </thead> <tbody> <tr><td>Honiara City</td><td>102.9</td><td>96.4</td><td>65</td><td>NA</td><td>87</td><td>Maintain and intensify high coverage of interventions to further reduce API</td></tr> <tr><td>Guadalcanal</td><td>96.8</td><td>64</td><td>80</td><td>NA</td><td>105</td><td></td></tr> <tr><td>Malaita</td><td>33.0</td><td>34.5</td><td>26</td><td>NA</td><td>87</td><td>&lt;20</td></tr> <tr><td>Isabel</td><td>1.6</td><td>1.2</td><td>3</td><td>NA</td><td>6</td><td>0</td></tr> <tr><td>Choiseul</td><td>49.9</td><td>40.5</td><td>40</td><td>NA</td><td>17</td><td>&lt;20</td></tr> <tr><td>Central</td><td>54.1</td><td>46.1</td><td>46</td><td>NA</td><td>281</td><td>&lt;20</td></tr> <tr><td>Western</td><td>20.6</td><td>11.7</td><td>8</td><td>NA</td><td>23</td><td>&lt;1</td></tr> <tr><td>Makira Ulawa</td><td>49.1</td><td>78</td><td>66</td><td>NA</td><td>93</td><td>&lt;50</td></tr> <tr><td>Rennell Bellona</td><td>NA</td><td>0.3</td><td>NA</td><td>NA</td><td>0</td><td>NA</td></tr> <tr><td>Temotu</td><td>6.5</td><td>10.8</td><td>10</td><td>Elimination</td><td>43</td><td>0</td></tr> <tr><td><b>Solomon Island</b></td><td><b>49.1</b></td><td><b>44</b></td><td><b>NA</b></td><td><b>9</b></td><td><b>81</b></td><td><b>25</b></td></tr> </tbody> </table> <p>Malaria mortality (Unit: deaths per 100,000 population)</p> <table border="1"> <thead> <tr> <th>Name of Province</th> <th>Actual 2012</th> <th>Actual 2014</th> <th>Target under MAP 2008-2014</th> <th>Actual 2016</th> <th>Target under SIMCESP (2015-2020)</th> </tr> </thead> <tbody> <tr><td>Honiara City</td><td>0</td><td>0</td><td>NA</td><td>0</td><td>NA</td></tr> <tr><td>Guadalcanal</td><td>3.7</td><td>2.9</td><td>NA</td><td>1.82</td><td>NA</td></tr> <tr><td>Malaita</td><td>2.4</td><td>5.3</td><td>NA</td><td>3.71</td><td>NA</td></tr> <tr><td>Isabel</td><td>3.6</td><td>3.3</td><td>NA</td><td>0.0</td><td>NA</td></tr> <tr><td>Choiseul</td><td>6.9</td><td>0.0</td><td>NA</td><td>3.23</td><td>NA</td></tr> <tr><td>Central</td><td>10.3</td><td>0.0</td><td>NA</td><td>6.54</td><td>NA</td></tr> <tr><td>Western</td><td>1.2</td><td>1.2</td><td>NA</td><td>5.55</td><td>NA</td></tr> <tr><td>Makira Ulawa</td><td>7.1</td><td>9.0</td><td>NA</td><td>8.42</td><td>NA</td></tr> <tr><td>Rennell Bellona</td><td>0</td><td>30.0</td><td>NA</td><td>0</td><td>NA</td></tr> <tr><td>Temotu</td><td>0</td><td>4.3</td><td>NA</td><td>0</td><td>NA</td></tr> <tr><td><b>Solomon Island</b></td><td><b>3.2</b></td><td><b>3.2</b></td><td><b>&lt;1</b></td><td><b>3.0</b></td><td><b>0 by 2035</b></td></tr> </tbody> </table>					Name of Province	Actual 2011	Actual 2012	Actual 2013	Target under MAP 2008-2014	Actual 2016	Target under SIMCESP (2015-2020)	Honiara City	102.9	96.4	65	NA	87	Maintain and intensify high coverage of interventions to further reduce API	Guadalcanal	96.8	64	80	NA	105		Malaita	33.0	34.5	26	NA	87	<20	Isabel	1.6	1.2	3	NA	6	0	Choiseul	49.9	40.5	40	NA	17	<20	Central	54.1	46.1	46	NA	281	<20	Western	20.6	11.7	8	NA	23	<1	Makira Ulawa	49.1	78	66	NA	93	<50	Rennell Bellona	NA	0.3	NA	NA	0	NA	Temotu	6.5	10.8	10	Elimination	43	0	<b>Solomon Island</b>	<b>49.1</b>	<b>44</b>	<b>NA</b>	<b>9</b>	<b>81</b>	<b>25</b>	Name of Province	Actual 2012	Actual 2014	Target under MAP 2008-2014	Actual 2016	Target under SIMCESP (2015-2020)	Honiara City	0	0	NA	0	NA	Guadalcanal	3.7	2.9	NA	1.82	NA	Malaita	2.4	5.3	NA	3.71	NA	Isabel	3.6	3.3	NA	0.0	NA	Choiseul	6.9	0.0	NA	3.23	NA	Central	10.3	0.0	NA	6.54	NA	Western	1.2	1.2	NA	5.55	NA	Makira Ulawa	7.1	9.0	NA	8.42	NA	Rennell Bellona	0	30.0	NA	0	NA	Temotu	0	4.3	NA	0	NA	<b>Solomon Island</b>	<b>3.2</b>	<b>3.2</b>	<b>&lt;1</b>	<b>3.0</b>	<b>0 by 2035</b>
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Source : Project Completion Report, Questionnaire and interviews with NVBDPC, HPD, MP, GP and HCC.

Province Settings under report Health Promotion -2017, Solomon Islands, National Statistic Office Website, Interview with MHMS,

[http://www.wpro.who.int/world\\_health\\_day/2014/progressinmalariacontrolSOLVAN.pdf](http://www.wpro.who.int/world_health_day/2014/progressinmalariacontrolSOLVAN.pdf)

Statistical health core indicator report Solomon islands 2016

### 3 Efficiency

Both of the project period and the project cost were within the plan (ratio against plan: 100%, 90%). Therefore, efficiency of the project is high.



#### 4 Sustainability

##### <Policy Aspect>

According to "National Health Strategic Plan (2016-2020)", malaria control is the one of priority interventions to be done by MHMS in the integrated approach.

##### <Institutional Aspect>

Malaria program has been integrated with other programs such as TB and HIV at both central and provincial levels. Accordingly, the organizational structure of MHMS has been modified for smooth operation of the integrated program in which more responsibilities have been delegated to the provincial levels. According to the questionnaire and interviews with MHMS and provincial levels, the number of staff assigned in each level is sufficient enough to carry out activities. At the central level, 17 staff is allocated to NVBDCP and 10 for HPD. At the provincial level, 6 staff is allocated in GPHP, 4 for HCC and 19 for MPHP. (Reasons why it is considered sufficient were not provided). Donor coordination has functioned not in the form of the Malaria Steering Committee established for malaria control alone, but in the form of monthly meeting among relevant development partners for health field to effectively coordinate their assistances to generate the synergy effects.

##### <Technical Aspect>

Many of Counterparts have left the organization and it has affected the continuation of the effect by the project. There have been no refresher trainings conducted for staff of health facilities (AHC, RHC and NAP) on operation of malaria control according to SOP. Furthermore, management tools developed by the project have not been used because the roll-out of the healthy village model has never happened after the project. It was observed during the field study that some equipment provided by the project were broken and were left unused in HPD. It is identified through the interview with NVBDCP that the procurement of malaria diagnostic equipment has often been delayed due to the internal problems of the National Medical Store.

##### <Financial Aspect>

Partly due to the integration of programme implementation and the organizational reform of MHMS, the total amount of budget for MHMS has been decreasing since 2013 and the designated budget for malaria control has also been decreasing. According to the interview with Health Promotion Department of MHMS, they have not had the sufficient budget to implement activities for healthy village settings, especially for provincial level. In HCC, they depend on donor's assistance for the malaria related activities. Under these circumstances, many of malaria related activities have been discontinued.

##### <Evaluation Result>

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

#### 5 Summary of the Evaluation

The project achieved the Project Purpose for strengthening of health system, effective for malaria control in MHMS, GP, HC and MP. The effect by the project has not continued since the project completion, partly due to the program integration and organizational reform of health sector. Consequently, the Overall Goal to expand the effective health system for malaria control to wider areas in Solomon Islands has not been achieved. As for sustainability, major problems have been observed in terms of technical and financial aspects of the implementing agency.

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

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

The evaluation study revealed that the effect of the project has not been continued after the project completion. This is partly due to that the MHMS has failed to effectively coordinate the work among related departments and provincial level health offices under the integrated health program which is being planned after the project completion. Thus, it made it difficult for those related health departments and offices to carry out the malaria related activities in the previously established manner.

It is recommended, therefore, that the MHMS should carefully examine key factors that have made the coordination between MHMS and provincial department difficult and take possible measures to remedy the situation, so that they can take an initiative to manage the integrated program by involving all departments and health offices concerned and by gradually delegating their responsibilities.

#### Lessons Learned for JICA:

The subsequent JICA project has been working to develop the guidelines for the new model which would be used for currently implemented "integration of health program" that covers not only Malaria but also wider health related issues and this new guideline may result in superseding the guidelines and related documents developed by this project. However, when JICA discussed with MHMS at the time of ex-post evaluation, it was revealed that MHMS wanted JICA to focus more on this project rather than developing a new model.

JICA should take the possible measures to sustain the effect generated by the project, by discussing with the implementing agency before the end of the project. Or JICA should formulate the subsequent project by carefully examining the effective way for the implementing agency to benefit from the previous project, so that any duplication of activities should be avoided.



One of the targeted communities to which Healthy Village model was introduced and where Health Promoting Activity didn't continue, Naro in GP



Provided Video Camera which were broken and were left unused in HPD

Country Name	<b>Project for Institutional Capacity Development of the Civil Service Training Centre in Ghana</b>
Republic of Ghana	

**I. Project Outline**

Background	<p>The Civil Service Training Centre (CSTC) had provided training for middle and lower level civil servants in Ghana under the Office of the Head of the Civil Service (OHCS). Since the trainees targeted by CSTC played core roles in the formulation and implementation of policies in government, their capacity building was crucial to improve quality and productivity of the service delivery. However, practical training of leadership, work ethics as well as quality and productivity improvement had not been carried out due to the lack of capacity of OHCS/CSTC. In response to those needs and the request from OHCS, JICA implemented the technical cooperation project named the “Capacity Development of Government Administration (“the 1st Phase Project”) from 2007 until 2010. Though the basic training management capacity was enhanced, in accordance with the increasing demand for the training, further capacity development was needed, specifically, in terms of the capacity of trainers in delivering lectures and capacity in developing training curriculum and materials. Also, through the 1st Phase Project, OHCS/CSTC realized the need to deliver its training services to English-speaking countries in West African sub-region.</p>																				
Objectives of the Project	<p>Through (1) developing capacity of OHCS/CSTC personnel to conduct training needs assessment (TNA) and developing training curricula and materials for Ghana and the sub-region<sup>1</sup>, (2) Strengthening training delivery capacity of the CSTC trainers for Ghana and the sub-region, (3) developing capacity of CSTC to plan and deliver regular training for participants from Ghana and the sub-region, and (4) establishment and implementation of a monitoring and evaluation (M&amp;E) system to ensure quality training at CSTC, the project aimed at strengthening institutional capacity of CSTC, and thereby contributing to CSTC’s provision of training and advices to civil servants and institutions in Ghana and the sub-region and replicating EL/QPI training in Sierra Leone and Liberia.</p> <ol style="list-style-type: none"> <li>Overall Goal: Civil servants and Institutions in Ghana and the sub-region benefit from the services of CSTC as the 'Centre of Excellence* in civil service training</li> <li>Project Purpose: Institutional capacity of CSTC strengthened towards its functioning as the 'Centre of Excellence' in civil service training in Ghana and the sub-region.</li> </ol> <p>* 'Centre of Excellence' in this document refers to a civil service training institution with state of the art facilities, techniques, methodologies and approaches for equipping civil servants in Ghana and the sub-region with knowledge and skills in cutting-edge courses towards quality service delivery.</p>																				
Activities of the project	<ol style="list-style-type: none"> <li>Project site: CSTC in Accra</li> <li>Main activities: (1) Development of training materials and training curriculum, (2) Implementation of training of trainers (TOT), (3) Implementation of newly developed training courses, (4) Strengthening of M&amp;E system</li> <li>Inputs (to carry out above activities)</li> </ol> <table border="0"> <tr> <td>Japanese Side</td> <td></td> <td>Ghanaian Side</td> </tr> <tr> <td>1) Experts: 4 persons</td> <td></td> <td>1) Staff allocated: 33 persons</td> </tr> <tr> <td>2) Trainees received: 16 persons</td> <td></td> <td>2) Land and Facilities: Provision of Project offices and part of training expenses</td> </tr> <tr> <td>3) Third Country Training (Singapore):</td> <td></td> <td>3) Local Expense (Japanese Counter-value Fund): Construction of the new training building</td> </tr> <tr> <td>4) Equipment: generator, vehicle, office equipment others</td> <td></td> <td></td> </tr> <tr> <td>5) Local Expenses: local experts and training expenses</td> <td></td> <td></td> </tr> </table>			Japanese Side		Ghanaian Side	1) Experts: 4 persons		1) Staff allocated: 33 persons	2) Trainees received: 16 persons		2) Land and Facilities: Provision of Project offices and part of training expenses	3) Third Country Training (Singapore):		3) Local Expense (Japanese Counter-value Fund): Construction of the new training building	4) Equipment: generator, vehicle, office equipment others			5) Local Expenses: local experts and training expenses		
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Project Period	March 1, 2011-February 28, 2014	Project Cost	(ex-ante) Approximately 300million yen, (actual) 309 million yen																		
Implementing Agency	Office of the Head of the Civil Service (OHCS), Civil Service Training Centre (CSTC)																				
Cooperation Agency in Japan	PADECO Co., Ltd.																				

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- Achievement of the Overall Goal is somewhat constrained by the Ebola epidemic that hit the sub-region since Sierra Leonean and Liberian Government could not direct financial resources to these activities and funding organizations such as Development Partners were not ready to undertake any activities for fear of being infected by the Ebola.

**1 Relevance**

## &lt;Consistency with the Development Policy of Ghana at the Time of Ex-Ante Evaluation and Project Completion&gt;

The project was consistent with Ghana’s development policy. At the time of ex-ante evaluation, there was no policy related to governance for the time being after the end of the “Ghana Poverty Reduction Strategy II (2006–2009)”. However, the policy named “the Training and Development Policy of the Ghana Civil Service and Guidelines for Implementation”, which emphasized importance of training for civil services, was proposed in 2008 and being implemented. As to sub-regional cooperation, the project was consistent with Conference of African Ministers on Public/Civil Service (CAMPS) at which Ghana was expected to play a key role. At the time of project

<sup>1</sup> The sub-region in the project related documents including Project Design Matrix means Sierra Leone and Liberia.

completion, the “OHCS Medium Term Development Plan of 2013-2017” intended to create highly capacitated Civil Servants to deliver effective and efficient service. At the same time, “CSTC’s Strategic Plan 2013-2017” included building of staff capacity to deliver training in Ghana and the sub-region.

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

The project was consistent with Ghana’s development needs for capacity development of civil servants. At the time of ex-ante evaluation, although the technical cooperation project for capacity development of OHCS was implemented from 2007-2010, in order to become COE in civil service training in the sub-region, CSTC further needed to strengthen its institutional capacity. At the project completion, Scheme of Service Training which makes up 40 hours per annum of training mandatory for promotion had come to effect since January 2013. Therefore, CSTC needed to expand its capacity for delivering more training courses to respond to the national demand.

In Sierra Leone, the capacity building in the context of governance and public sector reform was set as the area of priority in its national development plan, “the Agenda for Prosperity (2013-2018)”. Civil Service College (CSC) targeting the middle level civil servants had been re-established. CSC was in need of developing the capacity of trainers. In Liberia, the capacity building and training were also set as the essential areas under its national development agenda, “the Agenda for Transformation for 2012-2017”. In the Agenda, weak human and institutional capacity in the civil service was identified as one of the challenges.

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

The project was consistent with Japan’s ODA Policy to Ghana at the time of ex-ante evaluation. The “Country Assistance Program to Ghana 2006” prioritized capacity development of public service and institutional improvement.

<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 all indicators set to measure the level of achievement of the Project Purpose such as “CSTC increases its training resources, in terms of number of trainers and facilities by at least 50%” (indicator 1), “Trainers' average performance scoring by the end of each course” (indicator 2), “A training cycle management plan for training delivery for Ghanaian and sub-regional participants established” (indicator 3), and “Host institutions of the participants indicate interest in further collaboration with CSTC in capacity development” (indicator 4) 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 mostly continued. The number of trainers has expanded even after the project completion. CTSC has not continued the International Ethical Leadership/Quality and Productivity Improvement (EL/QPI) courses after the project completion due to the financial challenges on the part of international participants as well as the Ebola epidemic that hit the countries. However, CTSC has continued ADDIE<sup>2</sup> process as well as Minimum Steps Approach which were introduced by the project when CTSC develops contents for training. For example, CSTC applied the ADDIE process in developing content for training of “Local Government Service Staff” across the country. It also applied the Minimum Step Approach for courses titled “the Evidence Informed Policy Making and Public Private Partnership Training”.

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

After the project was completed, more civil servants in Ghana benefitted from the services of CSTC as the number of participants in CTSC have witnessed an increase. Beneficiary institutions include the Local Government Service, the Energy Commission, the Ghana Ports and Harbours Authority and Ghana Health Service amongst other numerous institutions. However, other sub-regional institutions and civil servants from Sierra Leone and Liberia have not benefitted much from the training offered by CSTC mainly due to budget constraints. The Human Resource Management Office (HRMO) in Sierra Leone and the Civil Service Agency (CSA) in Liberia are unable to support training and as such have had to solicit funding from other Development Partners (DPs) most of whom were not ready to support due to the Ebola crisis that hit the countries. Ex-participants from Sierra Leone and Liberia however implemented training activities either as groups or as individuals for their respective offices and HRMO and CSA supervised the sessions respectively.

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

According to CSTC, a good number of women who came for the training were promoted on their return. CSTC took a management decision at the earlier stages that efforts should be made to include considerable number of women for the programme. It came out that these women showed great interest in resolving challenges in the public service delivery and they were eager to use their learning to influence change in their respective institutions. Therefore, they succeeded in implementing their action plans developed during the training.

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

<Evaluation Result>

In light of the above, the project achieved the Project Purpose at the time of project completion, the effects of the project have mostly continued, and the Overall Goal was mostly achieved at 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) Institutional capacity of CSTC strengthened towards its functioning as the 'Centre of Excellence' in civil service training in Ghana and the sub-region.	Indicator 1: CSTC increases its training resources, in terms of number of trainers and facilities (eg. Lecture rooms) by at least 50%.	Status of the Achievement: Achieved (continued) (Project Completion) -The number of permanent trainers at CSTC increased from 4 to 11, and the number of adjunct trainers from 22 to 29. Therefore, the total number of trainers has increased from 26 to 40. (Increase by 54%) -The number of classrooms increased from 3 to 12 when the new building started in use in June 2013. (increase by 300%)

<sup>2</sup> ADDIE stands for Analysis, Design, Development, Implementation and Evaluation.

	<p>Indicator 2: Trainers' average performance (EL/QPI and TOT courses for Sierra Leone/Liberia as well as newly developed courses referred in Activity 1.5 and 1.6) scoring by the end of each course evaluation by participants averaged at least 60%.</p> <p>Indicator 3: A training cycle management plan for training delivery for Ghanaian and sub-regional participants established.</p> <p>Indicator 4: Host institutions of the participants indicate interest in further collaboration with CSTC in capacity development.</p>	<p>(Ex-post Evaluation) <b>The number of staff at CSTC</b></p> <table border="1"> <tr> <th>Position</th> <th>Number of staff</th> </tr> <tr> <td>Permanent trainers (including principal)</td> <td>14</td> </tr> <tr> <td>Adjunct trainers</td> <td>37</td> </tr> <tr> <td>Others (Administrative staff)</td> <td>34</td> </tr> </table> <p>Status of the Achievement: achieved (not continued) (Project Completion) Satisfaction rates on trainers' performance received at the end of course evaluation are as follows:</p> <table border="1"> <tr> <td>1<sup>st</sup> international EL/QPI course</td> <td>95%</td> </tr> <tr> <td>2<sup>nd</sup> international EL/QPI course</td> <td>100%</td> </tr> <tr> <td>3<sup>rd</sup> international EL/QPI course</td> <td>100%</td> </tr> <tr> <td>4<sup>th</sup> international EL/QPI course</td> <td>100%</td> </tr> <tr> <td>1<sup>st</sup> international TOT course</td> <td>75%</td> </tr> <tr> <td>2<sup>nd</sup> international TOT course</td> <td>88%</td> </tr> <tr> <td>3<sup>rd</sup> international TOT course</td> <td>100%</td> </tr> <tr> <td>1<sup>st</sup> Customer Care course</td> <td>94%</td> </tr> <tr> <td>2<sup>nd</sup> Customer Care course</td> <td>100%</td> </tr> <tr> <td>1<sup>st</sup> Monitoring and Evaluation course</td> <td>81%</td> </tr> </table> <p>(Ex-post Evaluation) There were no international EL/QPI courses organised after the end of the project partly because of funding challenges on the part of participants and partly because the Ebola epidemic. Therefore, there is no data on the satisfaction rate.</p> <p>Status of the Achievement: achieved (continued) (Project Completion) -TNA guideline, Training Administration Manual and M&amp;E guideline were compiled. -International and domestic training courses were conducted following the ADDIE cycle. -In the third project year, the project team made the effort to establish a simplified standard ADDIE cycle for CSTC as a "Minimum Steps Approach." The "Minimum Steps Approach" summarized work instructions and check points focusing on must know contents for acquiring targeted skills.</p> <p>(Ex-post Evaluation) CSTC has continued ADDIE and the Minimum Steps Approach to develop contents to Ghanaian trainees.</p> <p>Status of the Achievement: achieved (Project Completion) - Both Human Resource Management Office (HRMO) in Sierra Leone and Civil Service Agency (CSA) in Liberia expressed their interests. However, it was not materialized due to financial constraint. -Domestic Customer Care Course was requested an additional batch from the host organization in the 1st Batch and the schedule was under negotiation.</p> <p>(Ex-post Evaluation) See Indicator 1 of the Overall Goal below.</p>	Position	Number of staff	Permanent trainers (including principal)	14	Adjunct trainers	37	Others (Administrative staff)	34	1 <sup>st</sup> international EL/QPI course	95%	2 <sup>nd</sup> international EL/QPI course	100%	3 <sup>rd</sup> international EL/QPI course	100%	4 <sup>th</sup> international EL/QPI course	100%	1 <sup>st</sup> international TOT course	75%	2 <sup>nd</sup> international TOT course	88%	3 <sup>rd</sup> international TOT course	100%	1 <sup>st</sup> Customer Care course	94%	2 <sup>nd</sup> Customer Care course	100%	1 <sup>st</sup> Monitoring and Evaluation course	81%					
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<p>(Overall Goal) Civil servants and Institutions in Ghana and the sub-region benefit from the services of CSTC as the 'Centre of Excellence in civil service training</p>	<p>Indicator 1: CSTC provides training and/or advice to the national and sub-regional counterpart institutions at their request.</p>	<p>(Ex-post Evaluation) partially achieved <b>(1) Number of training courses provided to staff of national counterpart institutions and trainees</b></p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">No. of participants</th> <th rowspan="2">No. of Training</th> </tr> <tr> <th>Civil Servant</th> <th>Others</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>2012</td> <td>1,419</td> <td>21</td> <td>1,440</td> <td>48</td> </tr> <tr> <td>2013 (as of the end of September)</td> <td>289</td> <td>833</td> <td>1,112</td> <td>32</td> </tr> <tr> <td>2014</td> <td>2,063</td> <td>57</td> <td>2,120</td> <td>32</td> </tr> <tr> <td>2015</td> <td>2,744</td> <td>645</td> <td>3,389</td> <td>28</td> </tr> <tr> <td>2016</td> <td>3,601</td> <td>299</td> <td>3,900</td> <td>28</td> </tr> </tbody> </table> <p><b>(2) Training for the sub-regional counterpart institutions</b> The training courses were not conducted due to the Ebola crisis that hit the countries.</p> <p><b>(3) Advice to the national and sub-regional counterpart institutions</b> - In Ghana, CSTC offered partial consultancy to the Local Government Service in the development of their HR manual in 2014. In 2015, CSTC offered consultancy service by conducting a survey on training requirement for HR manual using the minimum step approach. In 2016 the CSTC offered consultancy service through a customized training for the Local Government</p>		No. of participants			No. of Training	Civil Servant	Others	Total	2012	1,419	21	1,440	48	2013 (as of the end of September)	289	833	1,112	32	2014	2,063	57	2,120	32	2015	2,744	645	3,389	28	2016	3,601	299	3,900	28
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Service and carried out training needs assessment for the Ministry of Power and Petroleum.  
 - CSTC was assisting Liberia to develop an abridged form of EL/QPI for training “Civil Service Staff at the Counties”. Unfortunately, this could not come on because of the Ebola crisis. However, some of the Ex-participants were assisted to develop training for their colleagues at the office for example the case of Ministry of Post.  
 - In the case of Sierra Leone, CSTC started some discussions with the Sierra Leone Civil Service Training College for the latter to develop training courses. A delegation from the College visited CSTC in Ghana and agreements were reached to start the collaboration. Same as Liberia, the Ebola truncated to continuation of the plan.

Indicator 2: Sierra Leone and Liberia replicate EL/QPI training in their respective countries.

(Ex-post Evaluation) achieved

**The number of EL/QPI training**

	Sierra Leone		Liberia	
	No. of training	No. of staff trained	No. of training	No. of staff trained
2014	2	56	9	113
2015	5	104	6	87
2016	N/A	N/A	N/A	N/A

Source : JICA internal documents, questionnaire and interviews with CSTC, HRMO and CSA (through CSTC).

### 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: 103%). Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

There are established supports from the government’s policy direction with appropriate policy documents such as “the Ghana Public Service Human Resource Policy, (2014)” which emphasizes importance of human resource development and career management of civil servants. There is also governments’ directive on Scheme of Service Training to be incorporated into the promotional interviews of civil servants, an indication of CSTC’s invaluable contribution to the capacity building of Ghana’s civil servants and strategic position for human resource development in Ghana.

#### <Institutional Aspect>

Training section of CSTC is responsible for training, and each of the Administration, the Accounts, and the Audit supports the Training section. Thus, an appropriate organizational structure capable of sustaining the gains of the project is in place. The future prospects of the institution are positive with a process initiated for the development of three additional units, namely “the Curriculum and Research Unit”, “the Material Development Unit”, and “the Publicity and Communication Unit” to strengthen the training centre. As mentioned above (the indicator 1 of the project purpose), CSTC also has the adequate number of staff to deliver on its mandate.

#### <Technical Aspect>

To a large extent, CSTC has the required technical levels to sustain project effects in terms of basic skills, utilization and update of technical guidelines and EL/QPI training manuals. However, CSTC lack technical expertise in the development of content for specialised courses such as Public Service Delivery Improvement (PSDI) and the development of presentation materials for trainees. Considering the new direction of CSTC coupled with the over reliance on consultants even after the capacity development of staff under the project, additional capacity building for staff is required to enable them become subject matter experts in content development in order to reduce the over dependence on consultants.

#### <Financial Aspect>

The financial condition is not firmly secured. CSTC’s budget from the Government of Ghana<sup>3</sup> has seen gradual reduction in the amount of money approved for its activities though its financial request has seen increased in the last three years. The Government of Ghana over the past few years have made financial cuts to public institutions including CSTC due to slowed economic growth. In order to improve better economic management, the government has taken steps that will see further cuts to institutions that have the potential of self-sustenance, as a result CSTC is likely to experience further budget cuts. Apart from JICA support, there are no other DPs’ supports as at yet. However, there is potential at CSTC for sustainability. CSTC continues to witness increase in participation in its Scheme of Service training courses with the directive from Government of Ghana for Scheme of Service training as a pre-requisite for promotion. Some of these public institutions have budget allocation for such trainings though not adequate. However, as mentioned above, HRMO and CSA do not have the required budget to embark on the training by themselves.

#### Budget of CSTC

(Unit: GHC)

	2014	2015	2016
Applied budget	1,047,646.00	1,395,764.00	1,567,134.00
Approved budget	798,860.00	727,245.86	674,221.00

#### <Evaluation Result>

In light of the above, though slight problems have been observed in terms of the technical and financial aspects of the implementing agency, such as lack of technical expertise and insufficient budget, there are opportunities to sustain the gains of the project. Therefore, the sustainability of the effects through the project is fair.

<sup>3</sup> The budget includes tuition fee for participants. Participants only pay for meals, snacks and cost of utilities.



## 5 Summary of the Evaluation

The project achieved its Project Purpose at the project completion, as indicators such as “increase in training resources”, “trainer’s performance”, “establishment of the training cycle management plan”, and “interests from host institutions of the participants” were achieved. The project effects have mostly continued after the project completion, and the Overall Goal was mostly achieved as the training cycle management plan introduced by the project have continued, and the number of participants in CSTC training increased. As for the sustainability, slight problems have been observed in terms of the technical and financial aspects of the implementing agency, such as lack of technical expertise and insufficient budget. However, no problem was observed in terms of the policy and institutional aspect. 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:

- CSTC lack technical expertise in the development of content for specialised courses such as Public Service Delivery Improvement (PSDI) and the development of presentation materials for trainees. This had led to the over reliance on consultants, putting pressure on scarce resources of the institution. OHCS will need to identify champions such as Development Partners and dedicated staff within CSTC and invest in developing core technical and specialised expertise needed by CSTC.
- The Heads of HRMO and CSA need to re-engage Development Partners in funding discussion in order to get adequate support to fund its training activities for civil servants in Liberia and Sierra Leone since Ebola is now over.



Lead trainer delivery training on Public Service Improvement(PSDI)



Participants listening attentively to a presentation by the lead trainer

Country Name	<b>The Project for the Study on Comprehensive Urban Development Plan for Greater Kumasi</b>
Republic of Ghana	

**I. Project Outline**

Background	<p>Kumasi is the capital city of Ashanti Region and the Kumasi Metropolitan Area is the 2nd largest city in Ghana. Kumasi has played not only a key role in the regional economy as a center of agriculture, agro-processing, timber and mining but also a role of transport and logistics center in the international distribution networks connecting the surrounding landlocked countries, such as Burkina Faso, Mali and Niger. On the other hand, the rapid population growth in Kumasi and surrounding areas brought about deterioration of the urban environment such as serious congestions in the central area in Kumasi, urban sprawl, and shortage of public service. The population of Kumasi City increased from 1.17 million in 2000 to 1.91 million in 2009 and the Greater Kumasi covering the Kumasi City and the six surrounding districts had the estimated population of 2.46 million in 2010. Therefore, the urban infrastructure development, including road networks, water supply and sanitation system as well as water management system, became an urgent issue. Under those situation, the Government of Ghana requested to the Government of Japan to cooperate the preparation of mid and long term comprehensive strategic plan as well as sectoral development plans.</p>										
Objectives of the Project	<p>Through preparing a development strategy and spatial planning for the Greater Kumasi by 2025 as well as land use plan and sectoral plans, selection of priority projects and preparation of outlined project implementation plans and capacity development of the Town and Country Planning Department (TCPD) on urban development planning, the project aimed at promotion of efficient and effective urban development in the Greater Kumasi for improvement of urban function, thereby contributing to improvement of accessibility and quality of public service and efficient and effective urban development of social infrastructure in the Greater Kumasi.</p> <ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>1</sup>: 1) Accessibility and quality of public service is improved based on the Master Plan prepared by the project. 2) Social infrastructure in the Greater Kumasi are developed efficiently and effectively based on the Master Plan prepared by the project.</li> <li>Expected utilization of the proposed plan by the project: 1) Efficient and effective urban development for better urban function is promoted in the Greater Kumasi by the comprehensive urban plan based on the new Land Use and Planning Law. 2) Through technical transfer to TCPD by the project, improvement of capacity for urban planning and implementation of urban development in the Greater Kumasi and autonomous management of TCPD are promoted.</li> </ol>										
Activities of the Project	<ol style="list-style-type: none"> <li>Project site: Kumasi Metropolitan Assembly and 7 districts (Afigya-Kwabre, Kwabre East, Ejisu-Juaben Municipality, Bosomtwe, Atwima-Kwanwoma, Asokore Mampong (created in 2012) and Atwima-Nwabiagya)</li> <li>Main activities: 1) Analysis on development issues in the Greater Kumasi, 2) Preparation of future development vision and strategy for the Greater Kumasi, 3) Preparation of spatial plan, 4) Preparation of comprehensive master plan and sectoral plans, 5) Strategic environment assessment, 6) Outlined implementation plans for prioritized projects, 7) Preparation of capacity development plan for TCPD, etc.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Ghana Side</td> </tr> <tr> <td>1) Mission members: 16 persons</td> <td>1) Staff allocated: 6</td> </tr> <tr> <td>2) Training in Japan: 53 persons</td> <td>2) Land and facility: Office space.</td> </tr> <tr> <td>3) Equipment: PC, Printer, Photocopier, Scanner, Router, UPS and other accessories.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Ghana Side	1) Mission members: 16 persons	1) Staff allocated: 6	2) Training in Japan: 53 persons	2) Land and facility: Office space.	3) Equipment: PC, Printer, Photocopier, Scanner, Router, UPS and other accessories.	
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Project Period	December, 2011 to September, 2013	Project Cost	(ex-ante) 340 million yen, (actual) 310 million yen								
Implementing Agency	Town and Country Planning Department (TCPD which has been transformed to the Land Use and Spatial Planning and Authority (LUPSA) in 2016)), Ministry of Environment, Science and Technology (MESTI)										
Cooperation Agency in Japan	Oriental Consultants Co., Ltd., CTI Engineering International Co., Ltd., ALMEC Corporation										

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Ghana at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>The project was consistent with Ghana's development policy of "the National Urban Policy" and "the National Urban Policy Action Plan" which was published in May 2012 as a five-year action plan to achieve 12 objectives, including to promote a spatially integrated hierarchy of urban centers, to ensure effective planning and management of urban growth and sprawl, and to ensure efficient urban infrastructure and service delivery at both the time of ex-ante evaluation and project completion. The project was also consistent with the subsisting medium term plan, the "Ghana Shared Growth and Development Agenda (GSGDA)" (2010 - 2013), especially Goals 3, 5 and</p>

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

6 which focused on agriculture modernization, infrastructure, human settlements development and human development as well as productivity respectively.

*<Consistency with the Development Needs of Ghana at the Time of Ex-Ante Evaluation and Project Completion >*

The project was consistent with the Ghana's development needs of effective administrative framework and urban plan at higher regional level than municipal level to provide comprehensive solutions of the urban problems, in particular in the Kumasi Metropolitan Area, which is the second largest city in the country, with the rapid economic and population growth causing the shortage of urban infrastructure and services at the time of ex-ante evaluation and there was no change in the development needs at the time of project completion.

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

The project was consistent with "the Country Assistance Plan for Ghana" (2006), a Japan's ODA policy for Ghana, prioritizing 4 areas including capacity development of administration and institutional development, at the time of ex-ante evaluation.

*<Evaluation Result>*

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

**2 Effectiveness/Impact**

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

The study on the comprehensive urban development plan for Greater Kumasi was completed by the project as planned. The final report of the study was composed of the following three main components as planned : i) Sub-regional strategies for socio-economic and spatial development in the Greater Kumasi Sub-Region and sub-regional strategies for infrastructure sectors; ii) Sub-regional Land Use Plan for the Greater Kumasi Sub-Region and infrastructure sector plans for the Greater Kumasi covering the sectors of Transportation, Water Resources, Water Supply, Liquid Waste Treatment, Solid Waste Management, Drainage, and Electricity; iii) Selection of priority projects and high priority projects for each sector and the Greater Kumasi Sub-Regional Spatial Development Framework (SDF) and the Greater Kumasi Conurbation Structure Plan as well as priority strategic program for urban and industrial development. In addition, the project developed a capacity development program for TCPD for spatial planning and implementation based on the institutional analysis of TCPD conducted by the project.

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

The plans proposed by the project have been utilized for the implementation of the master plan prepared by the project to some extent. The priority projects proposed by the project (Indicator 1), the programs based on the infrastructure sector plans proposed by the project have been implemented for the Transportation Sector, the Water Supply Sector and the Solid Waste Management Sector but not implemented in the sectors of Liquid Waste Treatment/Drainage and Electricity because of lack of funds and it takes longer time to secure funding. For Water Resource Development, in addition to the lack of budget, issues of encroachers on the Owabi Dam catchment area constrained against implementation of the project. Five priority projects listed by the project have been under preparation at the time of the ex-post evaluation. Besides that, under the Land Administration Project II (LAP II) funded by the World Bank, the Ashanti Regional SDF was prepared by TCPD/LUSPA in collaboration with the Metropolitan Municipal District Assemblies (MMDAs) based on the proposed SDF by the project which was approved by the Ashanti Regional Coordinating Council (ARCC) in July 2017. In addition, at the municipal level, the Ejisu-Juaben Municipality has prepared a local plan for Asotwe community based on the implementation plan proposed by the project as well.

For Institutional development for the implementation of urban plan for the Greater Kumasi (Indicator 2), the TCPD Head Office has been transformed to LUSPA by the Land Use and Spatial Planning Act approved in 2016. The National Board of LUSPA was established and inaugurated in August, 2017 but the Regional and District level boards have not been established yet<sup>2</sup> as at the time of ex-post evaluation. The TCPD staffs with technical transfer by the project improved their capacity to prepare regional SDFs based on the SDF proposed by the project and to implement the programs based on the infrastructure sector plans proposed by the project.

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

The Expected Goal 1 was not verified at the time of ex-post evaluation because of no survey or evaluation on improvement of accessibility to public services through implementation of the projects proposed by the project but the Expected Goal 2 has been achieved by the project completion. For the Expected Goal 2, 6 projects in the programs based on the infrastructure sector plans proposed by the project were completed by the time of ex-post evaluation and 7 projects have been under construction at the time of ex-post evaluation.

*<Other Impact at the time of Ex-post Evaluation>*

A positive impact by implementation of the projects proposed by the project has been observed at the time of ex-post evaluation. The disability friendly design was applied for the construction of the Eastern section of 2<sup>nd</sup> middle ring road (Anloga Junction to Asokwa interchange) under the transport infrastructure sector plan proposed by the project. No negative impact on natural environment was observed. Gender equality component was considered under each project while poverty reduction was the focus of each project. For example, some female workers were employed during the construction work of projects. Although resettlements were implemented for Asokwa and Sofoline interchanges projects, the people who had been affected by the resettlement were duly compensated.

*<Evaluation Result>*

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

<sup>2</sup> As at February 2018, when the evaluator met the Regional Director of LUSPA, the Ashanti Regional Spatial Committee (RSPC) was inaugurated in January while the District Spatial Planning Committee (DSPC) and Technical Sub-Committee were inaugurated in February 2018.

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

Aim	Indicators	Results
(Utilization Status of the Proposed Plan) 1. Efficient and effective urban development for better urban function is promoted in the Greater Kumasi by the comprehensive urban plan based on the new Land Use and Planning Law.	Indicator 1. Implementation of the master plan prepared by the project and the priority projects proposed by the project	Status of achievement: Partially achieved. (Ex-post Evaluation) - The programs based on the infrastructure sector plans proposed by the project, about 10 projects have been implemented for the Transportation Sector, Water Supply Sector and Solid Waste Management Sector but not for the sectors of Liquid Water Treatment, Drainage and Electricity. - For the Water Resource sector, the Regional Coordinating Council (RCC) in collaboration with the MMDAs has recently made efforts to stop encroachers on the Owabi Dam catchment area. At the time of ex-post evaluation, though no physical water infrastructure project was being undertaken due to lack of budget, the RCC made efforts to protect the water catchment area. - Five priority projects listed by the project were under preparation. - The Ashanti Regional SDF based on the SDF proposed by the project was prepared and approved by ARCC in July 2017.
2. Through technical transfer to TCPD by the project, improvement of capacity for urban planning and implementation of urban development in the Greater Kumasi and autonomous management of TCPD are promoted.	Indicator 2. Institutional development for implementation of urban plan for the Greater Kumasi as recommended.	Status of achievement: Achieved. (Ex-post Evaluation) - The TCPD head office has been transformed to LUSPA in 2016 and the National Board was inaugurated in August 2017 but the regional and district level offices have not been inaugurated yet. - Though, TCPD has an insufficient staff, they had capacity to prepare the Ashanti Regional SDFs and to implement the programs based on the infrastructure sector plans proposed by the project.
(Expected Goals through the Proposed Plan) (Not to be evaluation) 1. Accessibility and quality of public service is improved based on the Master Plan prepared by the project.	1. Improvement of accessibility to public services, such as mitigation of traffic congestions (reduction of transport time), increases in population with water supply, and so on	Status of achievement: Not verified. (Ex-post Evaluation) - No survey or evaluation on improvement of accessibility to public service at the time of ex-post evaluation.
2. Social infrastructure in the Greater Kumasi are developed efficiently and effectively based on the Master Plan prepared by the project.	2. The number of projects implemented among the ones proposed by the project.	Status of achievement: Achieved. (Ex-post Evaluation) The following projects have been implemented: - Transportation: 4 projects completed and 4 under preparation - Water Resource: 1 project completed. - Water Supply: 1 project completed and 2 under construction - Solid Waste Management: 1 project under construction

(Source) Field Interview Respondents from LUSPA

### 3 Efficiency

Although the outputs were produced as planned and the project cost was within the plan (ratio against the plan: 91%), the project period exceeded the plan (ratio against the plan: 110%). Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

The Land Use and Spatial Planning Act, 2016, Act 925 was passed and assented to by the President in 2016. The National Board for LUSPA has been appointed and inaugurated on August 11, 2017. The succeeding legislative instrument (LI) is being reviewed by the Attorney General prior to being passed by the Parliament of Ghana. The implementation structure proposed by the Greater Kumasi Master Plan has been adopted by LUSPA Act especially the composition of membership at the Regional level. Also, in order to give a legal backing to the Greater Kumasi Master Plan, TCPD decided to prepare Ashanti Region SDF which is mandatory under the LUSPA Act.

#### <Institutional Aspect>

For the implementation of the SDF and the infrastructure sector plans proposed by the project, LUSPA is responsible for spatial plan, including preparation of land use plans and implementation. For the infrastructure sector plans, the Ministry of Roads and Highways together with its Agencies is responsible for development and maintenance of road infrastructure while the Ghana Water Company Limited develops and operates water supply facilities. MMDAs and the Ministry of Water and Sanitation are responsible for the liquid and solid waste management. For electric power facilities, Electricity Company of Ghana is responsible for development and operation of the Distribution facilities. Although each of the responsible ministry or government office has carried out their duty, a platform for coordination and information sharing for more effective and efficient implementation of the plans has not been functioning.

For implementation of spatial plans, LUSPA and MMDAs have not deployed sufficient number of staffs. LUSPA has currently assigned 18 staffs but 20 staff are required to conduct their work at the Head Office and the TCPD Ashanti Region has deployed 20 staff but the number of staffs has not been sufficient because one officer needs to cover more than 3 districts. For 8 MMDAs in Greater Kumasi, only 10 staffs have been deployed.

#### <Technical Aspect>

At the national level, LUSPA has sufficient capacity to prepare and implement regional SDFs. However, at the district level, almost all the TCPD District Officers have been transferred either within Greater Kumasi Area or outside while the development planning officers and other key staffs at MMDAs are newly assigned. Therefore, they do not have sufficient knowledge to implement the priority projects proposed by the project.

#### <Financial Aspect>

Although the approved budget for LUSPA increased from 6.64 million Ghana Cedi (GHC) in 2013 to 14.8 million GHC in 2017, the budget allocation for LUSPA has not been sufficient for the last 5 years from 2013 since the actual budget allocated to LUSPA has been only around half amount of the approved budget. Namely, the limited allocation of budget has constrained on implementation of the programs based on the infrastructure sector plans and the priority projects proposed by the project.

#### <Evaluation Result>

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

#### 5 Summary of the Evaluation

In the project, the SDF and the infrastructure sector plans proposed by the project have been utilized through implementation of the programs based on the infrastructure plans proposed by the project. As for sustainability, LUSPA has sufficient capacity to prepare and implement regional SDFs. However, the implementation of the priority projects proposed by the project have been hampered because of the insufficient knowledge to implement the priority project at the TCPD district level and the MMDAs and the limited budget execution to implement the priority projects. 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 for Implementing Agency:

1. The National Development Planning Commission (NDPC) and the Ministry of Local Government and Rural Development should instruct MMDAs from the area to prepare their medium-term and annual plans based on the Master Plan proposed by the project.
2. NDPC should include the Master plan as part of national document in their monitoring and evaluation (M & E) assessment.
3. The Regional Coordinating Council (RCC) should instruct participating MMDAs to use the Master Plan proposed by the project for their annual plans and medium term plans.
4. RCC leads the regional platform and ensure budget to be allocated for its activities
5. MMDAs ensure their budget to be prepared is based on the Master Plan proposed by the project.
6. TCPD/LUSPA ensure that all local plans are prepared based on the Master Plan proposed by the project.
7. TCPD/LUSPA take pragmatic steps in collaboration with other Ministries, Departments and Agencies (MDAs), MMDAs and RCC to ensure the right of way for the priority projects proposed by the project are secured.
8. The Ministry of Finance and the Ministry of Environment, Science and Technology should increase and improve budget allocation to LUSPA for them to carry out their mandate.
9. The Government of Ghana (National level) thus TCPD/LUSPA Head Office ensure the final report by the project to be accessible to all especially the MMDAs. MMDAs are encouraged to download the final report from TCPD website and host the copies on their websites.
10. The Ministry of Roads and Highways, Department of Urban Roads and MMDAs ensure that the right of way of road projects is secured immediately before sources of funding for construction are concluded.

#### Lessons Learned for JICA:

- The active involvement and participation of the counterpart staff was very good as it built the capacity of them to prepare the master plan. The counterpart staff attested that they were given immense opportunity to practice the preparation of the Master plan. They were also able to run some models in the Excel sheet which broaden their horizon. They utilized some of the skills during the preparation of the Ashanti Region SDF. Therefore, transfer of appropriate and necessary skills to the counterpart staffs through the active participation of the counterpart staffs is essential to ensure utilization of the Master Plan.
- Implementation of a pilot project in the master plan study or implementation of selected priority projects in the Master Plan on a pilot basis is important for attracting investors and other development partners.
- A concise summary report and audio or video versions of the Master Plan proposed by the project could attract policy makers, high-level officials and investors/development partners for funding



Construction of Regional Hospital, Sewua in the Bosomtwe District



Construction of Kejetia Terminal Complex, Kumasi





Asotwe Local Plan based on the Greater Kumasi Master Plan, Ejisu-Juaben Municipality



Asokwa Interchange linking the Middle Ring Road, Kumasi



Country Name	<b>Project for Tirana Thematic Urban Planning</b>
Republic of Albania	

**I. Project Outline**

Background	Along with democratization which started in 1991, urbanization had progressed in the capital city, Tirana, which had accommodated a rapid increase in migrants from rural and mountainous areas. In 2008, the population of Tirana reached 640,000, from 250,000 in 1989, or an increase of almost 270% in just nine years. Such an acute urbanization resulted in serious urban problems such as shortages in infrastructure. Many rural migrants illegally settled in the surrounding areas of the urban center or in protected green areas where no sufficient water and power supply systems are provided, and where solid waste was managed poorly, resulting in significant degradation of the urban environment. Urbanization was still in progress, and it was predicted that the city's population would reach one million by 2025. It was thus urgent for urban developments in the transportation, water/sewerage, and solid waste management sectors, in particular, to keep up with the burgeoning urban population.										
Objectives of the Project	<ol style="list-style-type: none"> <li>Expected Goals to be achieved by Utilization of Proposed Plan: Infrastructure in Tirana is developed effectively and efficiently.</li> <li>Expected Utilization of Proposed Plan by the project: The thematic urban infrastructure plans ("Master Plan") developed by the project are adopted as Tirana's urban infrastructure development plans and Municipality of Tirana (MOT) implements action plans.</li> <li>Project Purpose: The thematic urban infrastructure plans (Master Plan) in Tirana are developed.</li> </ol>										
Activities of the project	<ol style="list-style-type: none"> <li>Project site: Tirana Metropolitan Area</li> <li>Activities: (1) The study team reviews the current situation of urban development in Tirana, (2) The study team develops thematic urban plans for short-term (5 years) and medium term (10 years) for Road and urban transportation, Solid Waste Management, Water Supply System Development, and Sewage and Drainage system Development, (3) The study team selects priority projects (for short-term), (4) The study team formulates implementation plans for the priority projects, and (5) The study team formulates action plans for Tirana thematic urban planning</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Albanian Side</td> </tr> <tr> <td>1) Members of mission: 12 persons</td> <td>1. Staff allocated: Participation in steering committee</td> </tr> <tr> <td></td> <td>2. Land and facility: Project office</td> </tr> </table> </li> </ol>					Japanese Side	Albanian Side	1) Members of mission: 12 persons	1. Staff allocated: Participation in steering committee		2. Land and facility: Project office
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Ex-Ante Evaluation	2010	Project Period	June 2011 - January 2013	Project Cost	(ex-ante) 210 million yen (actual) 203 million yen						
Executing Agency	Municipality of Tirana (MOT)										
Cooperation Agency in Japan	Value Planning International Inc., NJS Consultants Co., Ltd.										

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Albania at the time of ex-ante evaluation and project completion&gt;</p> <p>The project was consistent with development policy of Albania both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, National Strategy for Development and Integration (NSDI) (2007-2013) aimed at achieving 6% economic growth and reduction of poverty ratio to less than 10%. The project was in line with NSDI as it contributes to economic growth and poverty reduction through effective infrastructure development in the capital of the country. At the time of project completion, NSDI II, which presents national vision for the social and economic development of Albania over the period 2015 to 2020, emphasizes "An efficient and integrated transport system that promotes the economic development and improves the life quality of the citizens", "Expansion and improvement of the quality of services of water supply and sewerage", "Increase of the effectiveness and efficiency of the water services in urban and rural areas", "Securing inclusive and strategic management for the Integrated Solid Waste Management", "Improvement of the general performance of the solid waste management until 2020" and "Improvement of the reporting system related to waste management".</p> <p>&lt;Consistency with the Development Needs of Albania at the time of ex-ante evaluation and project completion &gt;</p> <p>The project was consistent with the needs for infrastructure development in Albania both at the time of ex-ante evaluation and project completion. At the time of ex-ante evaluation, there were urgent needs for urban development in the capital city to keep up with the burgeoning urban population. At the time of project completion, demand for infrastructure development was high because of the population growth in association with expected territorial expansion of Tirana city<sup>1</sup>.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of ex-ante evaluation&gt;</p> <p>The project was consistent with Japan's ODA policy. Infrastructure development is one of the priority areas under the Country Rolling Plan to Albania 2009.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>

<sup>1</sup> At the time of project development, Municipality of Tirana was smaller territory and Tirana Metropolitan Area included also territories, that in that time did not belong to Municipality. After territorial reform in 2015, the Tirana Municipality of today, includes all the Tirana Metropolitan Area.

## 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 because the draft Master Plan was developed and submitted to the Government of Albania by the end of the project period.

According to MOT, the planning and coordinating capacity of the Tirana municipal government personnel was enhanced by the technical transfer, especially in Transport and Mobility Department and Waste Management Department. Enhancement of planning and coordinating capacity for water supply and sewerage was limited mostly because Tirana Water Supply and Sewerage Company (UKT) was not included in the target of the technical transfer, although these sectors were covered by UKT, the local utility which was at the time a separate management entity from the Municipality (UKT was managed under the central government until 2012. Although decision to transfer UKT from the central government to the Municipality was made in 2010, MOT was reluctant to take over UKT's dividend due to the huge utility debt and non-clear status of UKT. It took 2 years before MOT became the main shareholder in 2012). Consequently, the technical transfer during the project period was not achieved at the expected level.

### <Status of the Expected Utilization of Proposed Plan by the project at the time of Ex-post Evaluation>

The Master Plan is well utilized by MOT. MOT confirmed that the Master Plan has met their needs. The Master Plan is in consistency with policy and vision of MOT and this master plan development project is recognized as a base project to develop the Tirana city. General Regulatory Plan of Tirana Municipality was approved on December 26, 2016. The Master Plan which is in line with the new Regulatory Plan was adopted as Tirana's urban infrastructure development plan accordingly (delay was caused due to the change of the local government).

The biggest progress is observed in the road and urban transport sector where the following action plans under the Master Plan are under implementation: (1) Inner/Middle Ring Missing Links Development, (2) Dedicated Bus Lanes Development, (3) Removal of On-street Parking and Supply of Parking Facilities along with establishment of Parking Fee, and (4) The Outer Ring Road (North Section) is at the planning stage.

Most of the priority projects suggested in the master plan for solid waste management sector are still the priority of MOT and used as a base of the activities in waste management sector and are in preparation stage, The Illegal Dump Site Clean-up Project has been already in implementation in the peripheral area especially along the river banks of the Tirana River and upstream and downstream of the Lana River.

As for the water supply and sewerage and drainage system development, the Master Plan developed by the project is relevant with long-term vision and mission of UKT. They comply fully with the UKT objectives for continuing the service in the future for the Tirana region<sup>2</sup>. UKT has fulfilled to some extent the plans provided by the project such as reduction of non-revenue water as well as plan to introduce pipe mapping system, while the other action plans are the goal for the following years.

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

As the plans are still under planning except for a few that have been initiated, the expected goals set as 'Infrastructure in Tirana is developed effectively and efficiently' are yet to be achieved. However, the expected goals were not assessed as they are expected to be achieved in a medium- or long-term.

### <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 Master Plan for Tirana was developed so the project purpose was mostly achieved. The Master Plan was then authorized in 2016 and is judged to be utilized as the action plans are in progress at the time of ex-post evaluation to implement the Master Plan. Therefore, the effectiveness/impact of the project is high.

## 3 Efficiency

Although the project cost was within the plan (ratio against the plan: 97%), the project period exceeded the plan (ratio against the plan: 118%). Therefore, efficiency of the project is fair.

## 4 Sustainability

### <Policy Aspect>

There is established support from government's policy/system as referred in the Governmental Program 2013-2017 and NSDI II at the time of ex-post evaluation so that the effects achieved by the project continue after the project completion. Under the Government Program, the central government encourages the local governments to take over the leadership of land development by protecting natural, historical and agricultural areas and help them to forge public-private partnership to fund infrastructure and services and manage a proper distribution of the right to development.

### <Institutional Aspect>

The institutional set-up (Cross-functional Task Forces and others) proposed by the project is not adopted since MOT has just obtained approval of the Master Plan developed by the project to become part of Tirana's urban infrastructure development plan (December, 2016). As for the meetings with stakeholders, MOT has a practice to obtain advice from line ministries for major project and issues, and to make public consultations for projects that affect important industries for the city or considerable part of population.

Roles and responsibility of each directorate and demarcation among directorates in MOT is clear. The number of staff is not sufficient to implement the action plans established by the Master Plan due to the budget constraint.

### <Technical Aspect>

According to the Transport and Mobility Department's opinion, its staff have enough capacity to undertake its duties to plan and implement the priority projects. Part of ex-staff members of the JICA study team of this project is working at leadership positions in the department, which assures its sufficient capacities to undertake its duties and responsibilities for planning and implementing priority projects. The opinion of the Solid Waste Management Department and UKT is that they need more capacity enhancement to undertake its duties to plan and implement the priority projects.

<sup>2</sup> Tirana Region is consisted of 4 Municipalities including Tirana.

<Financial Aspect>

MOT has partially secured the budget to implement the action plans. The biggest improvement is in urban road and transport sector where most of the projects have been financed from the MOT's budget. The other action plans in solid waste management sector and water supply and sewerage and drainage system have a budget issue to implement the action plans but they are finding the financial support from other available sources and donors including support from Verona municipality under MOU, and loan from Government of Italy. In addition, MOT's budget has been increasing, which is a positive tendency for the future priority project implementation. The Municipal Council approved in March 2016 the new scheme of local taxes and fees and their way of collection, which is expected to give a considerable improvement on the budget of Municipality, which can then enable MOT to finance some of priority projects.

UKT, a self-sustaining company, realizes revenue to cover the operation and maintenance cost. The need for investment is enormous, so UKT receives contribution from State Budget and other development partners.

<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 mostly achieved as the Master Plan was developed, and it was submitted to the Albania government when the project was completed. The Master Plan is well utilized as the Master Plan was adopted as Tirana's urban infrastructure development plan in 2016 and its action plans are in progress for its implementation. As for sustainability, there are some challenges in institutional, technical and financial aspects. 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 Executing Agency:**

1. Municipality of Tirana is advised to follow the recommendation by the project to establish the Cross-functional Task Forces as well as Technical Advisory Groups and Steering Committee that should be in charge for the preparation of the implementation plan of the projects proposed in the Master Plan.
2. Municipality of Tirana is advised to constantly pursue/offer the training opportunities for its staff in the respective departments for their capacity enhancement.

**Lessons learned for JICA:**

1. It took long for the Master Plan to be adopted as Tirana's urban infrastructure development plan due to change of local government. JICA could have obtained a commitment by the executing agency to adopt the Master Plan as a Tirana's urban infrastructure development plan by signing the agreement document with JICA. Signing of the agreement before the completion of master plan development project is expected to facilitate the approval process faster and prevent delay in planning and implementation of action plans.
2. Coordination among UKT and MOT was lacking during the implementation phase of the project, which was caused by unsolved management issues of UKT. MOT was reluctant to show ownership of the activities designed for UKT for 2 years (from 2010 to 2012), which overlaps with the project implementation, and the vision for the utility management was not in line with the plans and visions of the MOT during that period. JICA could have carefully considered complicated circumstances and issues that occurred in the management of UKT in the planning and implementation stage and could have proposed countermeasure to foster the coordination among UKT and MOT.



Dedicated Bus and Bicycle Lanes at the Dritan Hoxha Street



Newly Constructed Parking Facility in Tirana

Internal Ex-Post Evaluation for Technical Assistance under Finance and Investment Account  
conducted by Indonesia Office: March 2018

Country Name Republic of Indonesia	<b>Project for Capacity Development of Jakarta Comprehensive Flood Management</b>
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### I. Project Outline

Background	<p>In JABODETABEK, the metropolitan area consisting of Jakarta and surrounding cities, frequency of flood disaster was increasing due to the delays of flood control measures based on the flood management master plan and unregulated development causing increase of run-off water. Big flood had occurred almost every five years in 1997, 2002, 2007 and 2013 paralyzing the metropolitan functions and creating massive confusion in the country. Under this circumstance, the JICA technical cooperation project “Institutional Revitalization Project for Flood Management in JABODETABEK” (2006-2010) was carried out, and the technical and organizational capacity of flood management agencies regarding non-structural measures was developed for better maintenance and operation of river facilities, and collection/analysis of flood control information. However, further improvements were needed for developing the specific run-off control measures in the river basin and for the capacity development on the coordination and role sharing between river management and basin management.</p>				
Objectives of the Project	<p>The project aimed at implementing the Comprehensive Flood Management (CFM) measures based on the Comprehensive Flood Management Plan (CFMP) by developing technical and organizational capacities related to policy planning and implementation mechanisms of implementing agencies in target areas, and thereby the CFM measures are implemented based on CFMP in Jakarta area.</p>				
	<ol style="list-style-type: none"> <li>1. Overall Goal: The Comprehensive Flood Management (CFM) measures are implemented in Jakarta based on the legalized Comprehensive Flood Management Plan (CFMP).</li> <li>2. Project Purpose: CFM measures are implemented in the project area based on CFMP.</li> </ol>				
Activities of the Project	<ol style="list-style-type: none"> <li>1. Project site: Ciliwung River Basin</li> <li>2. Main activities: (1) Clarification of roles of organization related to CFM, (2) Formulation of Comprehensive Flood Management Action Plan (CFMAP), (3) Establishment of practical monitoring mechanism of CFMP through pilot project and (4) Establishment of coordination and collaboration mechanism of all stakeholders (national and local governments, NGO and communities)</li> <li>3. Inputs (to carry out above activities) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <u>Japanese Side</u> <ol style="list-style-type: none"> <li>1. Experts: 16 persons</li> <li>2. Trainees received: 26 persons</li> <li>3. Equipment: PCs for run-off analysis, printers Portable generators, and other office equipment</li> <li>4. Operational Expenses</li> </ol> </td> <td style="width: 50%; vertical-align: top;"> <u>Indonesian Side</u> <ol style="list-style-type: none"> <li>1. Staff allocated: 52 persons</li> <li>2. Provision of Facilities and Equipment</li> <li>3. Operating expenses</li> </ol> </td> </tr> </table> </li> </ol>			<u>Japanese Side</u> <ol style="list-style-type: none"> <li>1. Experts: 16 persons</li> <li>2. Trainees received: 26 persons</li> <li>3. Equipment: PCs for run-off analysis, printers Portable generators, and other office equipment</li> <li>4. Operational Expenses</li> </ol>	<u>Indonesian Side</u> <ol style="list-style-type: none"> <li>1. Staff allocated: 52 persons</li> <li>2. Provision of Facilities and Equipment</li> <li>3. Operating expenses</li> </ol>
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Project Period	November 2010 – October 2013	Project Cost	(ex-ante) 340 million yen, (actual) 371 million yen		
Implementing Agency	<p>National level: Directorate General of Water Resources (DGWR), Directorate General of Spatial Planning (DGSP) and Directorate General of Human Settlements (DGHS) of the Ministry of Public Works and Housing (PUPR: <i>Kementerian Pekerjaan Umum dan Perumahan Rakyat</i>)</p> <p>Provincial level: Government of DKI Jakarta, Provincial Government of West Java (including Bogor Regency, Bogor City, Depok Regency and Depok City)</p>				
Cooperation Agency in Japan	<p>Ministry of Land, Infrastructure, Transport and Tourism, Yachiyo Engineering Co. Ltd.,</p>				

### II. Result of the Evaluation

1 Relevance	<p>&lt;Consistency with the Development Policy of Indonesia at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>At the time of ex-ante evaluation, this project was highly relevant with development plans such as “National Medium-Term Development Plan (2010-2014)” which focused on the poverty alleviation for those disaster affected areas, mitigation of floods and development of basin with consideration of spatial planning, development of non-structural measures and capacity development of disaster management for both governmental staff and communities. This development plan was still effective as a key policy in the country’s flood management at the time of project completion.</p> <p>&lt;Consistency with the Development Needs of Indonesia at the Time of Ex-Ante Evaluation and Project Completion &gt;</p> <p>This project has been consistent with Indonesian development needs of flood control management at the time of ex-ante evaluation as described in “Background” above. At the time of project completion, the need for effective flood control measures was strongly voiced by various decision-makers after the massive flood in Jakarta in January 2013 as well as the floods in 2002 and 2007.</p> <p>&lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;</p> <p>The Country Assistance Program for the Republic of Indonesia as of November 2004 put one of its priorities on the assistance toward democratic and equitable social development. As for the assistance toward public services, it made practical reference to that Japan assists the measure to cope with natural disasters, such as flood management.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact	<p>&lt;Status of Achievement for the Project Purpose at the time of Project Completion&gt;</p> <p>By the project completion, the Project Purpose, “CFM measures are implemented in the project area based on CFMP” was achieved.</p>

The CFMP was developed through project activities and approved by the related organizations on September 19, 2013 at the Joint Meeting of Joint Coordinating Committee (JCC) and the Comprehensive Flood Management Committee for Ciliwung River Basin (CFMC) (Indicator 1). Based on the CFMP, as runoff control measure, the rainwater storage and infiltration facility was installed in the area of BBWS Ciliwung-Cisadane Office during the implementation of project in 2013 and through the process of implementation the capacity development of relevant organization staffs was greatly enhanced from technical perspective under the guidance of Japanese experts. In order to mitigate the increase of runoff volume due to land use change, the land classification from flood control viewpoint was examined. In addition, the improvement of situ (pond) and storage-at-park were planned but not adopted and thus not implemented due to that that there was settlement development in the conservation area of river and Situ to classify the land area is not legally determined. (Indicator 2). The CFMC functioned as the decision-making body, and outcomes of what was discussed at the CFMC were reflected on the CFMP (Indicator 3). During the project duration, monitoring system was established, and it was agreed at the joint meeting of the JCC and the CFMC that both the CFMP and the function of the CFMC were to be included in the water resources management policy (POLA) and the water resources management plan (Rencana), which is a fundamental framework of water resources, including flood management for Ciliwung Cisadane River Basin Office (BBWSSC: *Balai Besar Wilayah Sungai Ciliwung Cisadane*). POLA and Rencana which are mandated at Government Regulation No 42 Year 2008 about Water Resources Management are to be reviewed in every five years according to legal requirement. The feedback of monitoring results to the CFMP was to be made in every five years (Indicator 4).

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

POLA on which the content of the CFMP has been effectively reflected now serves as the guideline for the flood management implementation. After project completion, the function of the CFMC has been merged into that of TKPSDA, which is a Coordination Team on Water Resource Management, and regular meetings are organized by BBWSSC. As for monitoring, the hydrological data and operation quality for river infrastructure, reservoir dam, irrigation etc., are continuously monitored. And the monitoring results are used to analyze necessary activities regarding water resources including flood control management, which then be reflected on the content of Rencana.

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

It is observed that the Overall Goal, “CFM measures have been implemented in Jakarta based on the legalized comprehensive flood management plan.” has been achieved. Eleven structural measures and eight non-structural measures have been implemented by BBWSSC, Depok Local Government, Bogor Local Government, and DKI Local Government in the project area since project completion. Examples of structural measures include the construction of dry dam at Ciliwung river and Cisukabirus river and infiltration facilities in Bogor Regency, and those of non-structural measures include the improvement of telemetry system in BBWSSC and a flood map with regular update function in DKI Jakarta, etc. (Indicator 1). The function of coordination mechanism, equivalent to the CFMC, has been established in the areas other than the project area, such as the TKPSDA Citarum for the TKPSDA1 Citarum river basin and the TKPSDA Cidanau-Ciujung-Cidurian for the TKPSDA3 Cidanau-Ciujung-Cidurian river basin (Indicator 2). Interviews with related organizations have revealed that the outcome of discussion at the TKPSDA has been reflected on POLA and Rencana (Indicator 3). It is observed that the CFM approach for urban flood management has been reflected in the form of POLA and Rencana (Indicator 4).

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

Some land acquisition and resettlement issue occurred during construction of tunnel, shortcut, and river improvement. This is a common issue in DKI Jakarta, where many illegal squatters living near the river banks. Government of DKI Jakarta and PUPR has been negotiating the resettlement for the riverside communities to the multi-stories building since 2014. While some accept the offer, some simply reject due to long history with the land and existing livelihood-

<Evaluation Result>

In light of the above, the project achieved the Project Purpose at the time of project completion. The effect of the project has been continued after the project completion. Thus, 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
(Project Purpose) CFM measures are implemented <u>in the project area</u> based on CFMP.	Indicator 1: CFMP is approved by the related organizations.	Status of the Achievement : achieved (continued) (Project Completion) In the Joint meeting of the JCC and the CFMC on 19 September 2013, the acceleration of the CFM implementation in the Ciliwung River Basin was discussed and the CFMP was approved by all participants from organizations related to the CFM. (Ex-post Evaluation) After the project completion the CFMP has not been utilized as it is, however, the content of the CFMP is reflected on POLA, which is a fundamental framework regarding harmonization of management, development, and conservation of water resources, including flood management for BBWSSC. In POLA, the chapter 13 of the CFMP in which stipulates the urgency to determine role allocation, and coordination mechanism is mentioned. In Rencana, the chapter 3 of the CFMP in which stipulates the flood control measures in Ciliwung River is mentioned. The CFMP is used as a reference for BBWS in flood control management.

	<p>Indicator 2: Structural measures (e.g. construction of flood storage facility) and non-structural measures (e.g. development control in the river basin) are implemented more than one (1) area in the project area based on the CFMP</p>	<p>Status of the Achievement: Mostly achieved (continued) (Project Completion) As runoff control measure, the rainwater storage and infiltration facility was installed in the area of BBWS Ciliwung-Cisadane Office during the implementation of project in 2013. As for the improvement of situ (pond) and storage-at-park, they were planned but not adopted and thus not implemented due to that there was settlement development in the conservation area of river and Situ to classify the land area is not legally determined.</p> <table border="1"> <thead> <tr> <th>Time period</th> <th colspan="2">November 2010 – October 2013</th> </tr> <tr> <th>Subject</th> <th>Number of structural measures</th> <th>Number of non-structural measures</th> </tr> </thead> <tbody> <tr> <td>Flood Control</td> <td>0</td> <td>0</td> </tr> <tr> <td>Runoff Control</td> <td>1</td> <td>0</td> </tr> <tr> <td>Land Use Regulation</td> <td>0</td> <td>0</td> </tr> <tr> <td>Disaster Mitigation</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>(Ex-post Evaluation)</p> <table border="1"> <thead> <tr> <th>Time period</th> <th colspan="2">October 2013 – August 2017</th> </tr> <tr> <th>Subject</th> <th>Number of structural measures</th> <th>Number of non-structural measures</th> </tr> </thead> <tbody> <tr> <td>Flood Control</td> <td>6</td> <td>1</td> </tr> <tr> <td>Runoff Control</td> <td>2</td> <td>2</td> </tr> <tr> <td>Land Use Regulation</td> <td>0</td> <td>1</td> </tr> <tr> <td>Disaster Mitigation</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	Time period	November 2010 – October 2013		Subject	Number of structural measures	Number of non-structural measures	Flood Control	0	0	Runoff Control	1	0	Land Use Regulation	0	0	Disaster Mitigation	0	0	Time period	October 2013 – August 2017		Subject	Number of structural measures	Number of non-structural measures	Flood Control	6	1	Runoff Control	2	2	Land Use Regulation	0	1	Disaster Mitigation	0	1
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Flood Control	6	1																																				
Runoff Control	2	2																																				
Land Use Regulation	0	1																																				
Disaster Mitigation	0	1																																				
	<p>Indicator 3: Outcomes from the CFMC in the project area are reflected to the CFMP.</p>	<p>Status of the Achievement: achieved (continued) (Project Completion) The opinions and propositions on flood control measures (dam construction) and runoff control measures raised at the CFMC meetings were feedback to the CFMP. (Ex-post Evaluation) The CFMC does not exist in the targeted area as it had been. But the coordination mechanism itself has been sustained in the different form which is through TKPSDA since project completion. And it is confirmed by the interviews with related organizations that the outcome of discussion at the TKPSDA has been reflected on POLA and Rencana. ※The content of the CFMP has been incorporated into POLA and Rencana since project completion as explained in Indicator 1.</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Meeting Frequency</th> <th>Purpose</th> <th>Member organization</th> </tr> </thead> <tbody> <tr> <td>Flood Control</td> <td rowspan="2">Quarterly</td> <td>Discuss flood control program</td> <td>BBWSCC and Water Resources Agency</td> </tr> <tr> <td>Runoff Control, Land Use Regulation, Disaster Mitigation</td> <td>Coordination</td> <td>Members of TKPSDA</td> </tr> </tbody> </table>	Subject	Meeting Frequency	Purpose	Member organization	Flood Control	Quarterly	Discuss flood control program	BBWSCC and Water Resources Agency	Runoff Control, Land Use Regulation, Disaster Mitigation	Coordination	Members of TKPSDA																									
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Runoff Control, Land Use Regulation, Disaster Mitigation		Coordination	Members of TKPSDA																																			
	<p>Indicator 4: Monitoring results are reflected to the CFMP.</p>	<p>Status of the Achievement : achieved (continued) (Project Completion) It was agreed at the joint meeting of the JCC and the CFMC on Sept. 19, 2013, that the CFMP and the function of CFMAP are included in Rencana and POLA that are reviewed and revised in every 5 years according to the legal requirement. Under this procedure, the feedback of monitoring results to the CFMP was to be made in every five years. (Ex-post Evaluation) As for monitoring, the hydrological data of river area (ex. river discharge and rainfall) and operation quality for river infrastructure, reservoir dam, irrigation, raw water and beach are continuously monitored. And the monitoring results is used to analyze necessary activities regarding water resources including flood control management, reflecting the content of Rencana formally reviewed annually and POLA every five years.</p>																																				
<p>(Overall Goal) CFM measures are implemented in <u>Jakarta</u> based on the legalized CFMP.</p>	<p>Indicator 1: Structural measures (e.g. construction of flood storage facility) and non-structural measures (e.g. development control in the river basin) are implemented based on the legalized CFMP.)</p>	<p>(Ex-post Evaluation) : achieved Some structural and non-structural measures have been implemented based on POLA and Rencana, the equivalent framework for comprehensive flood management plan (CFMP). A number of measures implemented in Jakarta since project completion (2013) up to the time of ex-post evaluation (2017) are as follows.</p> <table border="1"> <thead> <tr> <th>Time period</th> <th colspan="2">October 2013 – August 2017</th> </tr> <tr> <th>Subject</th> <th>Number of structural measures</th> <th>Number of non-structural measures</th> </tr> </thead> <tbody> <tr> <td>Flood Control</td> <td>6</td> <td>2</td> </tr> <tr> <td>Runoff Control</td> <td>4</td> <td>4</td> </tr> <tr> <td>Land Use Regulation</td> <td>0</td> <td>1</td> </tr> <tr> <td>Disaster Mitigation</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	Time period	October 2013 – August 2017		Subject	Number of structural measures	Number of non-structural measures	Flood Control	6	2	Runoff Control	4	4	Land Use Regulation	0	1	Disaster Mitigation	0	1																		
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Indicator 2: Comprehensive Flood Management Committee (CFMC) are established in areas other than a project area.	(Ex-post Evaluation) : achieved		
	River Basin	Established committee name	Member organizations
	TKPSDA1 Citarum	TKPSDA Citarum	Bappeda (Regional Development Planning Agency), Provincial Agency of Water Resources, Agency of Spatial Planning, Agency of Public Works, representative of local community, NGO, and so on.
	TKPSDA3-Cidanau-Ciujung-Cidurian	TKPSDA Cidanau-Ciujung-Cidurian	Bappeda (Regional Development Planning Agency), Provincial Agency of Water Resources, Agency of Spatial Planning, Agency of Public Works, representative of local community, NGO, and so on.
Indicator 3: Outcomes of the discussion forums are reflected to the CFMP.	(Ex-post Evaluation) : achieved In the TKPSDA Citarum, flood control measures have been discussed. In the TKPSDA Cidanau-Ciujung-Cidurian, the run-off control, situ revitalization and dam construction have been discussed. Outcomes of these discussions were reflected to the POLA under the section of Flood Control Measures as the river improvement.		
Indicator 4: CFM approach for urban flood management is legalized.	(Ex-post Evaluation) : achieved CFM approach for urban flood management was not legalized as a form of the CFMP, but is in the form of POLA and Rencana which reflect the content of CFM approach. TKPSDA members are responsible to provide inputs in preparing and reviewing POLA and Rencana.		

Source : Project Completion Report and interviews with and response to the questionnaire by the implementing agency and related organizations.

### 3 Efficiency

While the project period was within the plan, the project cost slightly exceeded the plan (ratio against plan: 100%, 109%). Therefore, efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

Two policy documents, “National Medium-Term Development Plan (2015-2019)” and “Five Year’s Plan of the Ministry of Public Works (2015-2019)”, state the importance of flood management to achieve water security. Both documents constitute the basis for all ministries and government agencies (including Ministry of Public Works and Housing) in formulating their respective strategic plans.

#### <Institutional Aspect>

Some changes have been made to organizational structures since project completion with more focus on the function to manage water resources. As for the central level, in DGWR, the Dam Centre which in charge of dam construction was created in the similar level with Directorate of River and Coastal in 2015 and the DGSP has become the part of National Land Agency maintaining its original function. As for the provincial level, in DKI Jakarta, the Public Works Agency was split into Highways Agency and Water Management Agency in 2014. These changes are considered as appropriate in terms of being more specific for water resources management including flood control management. No significant changes have made to the city and regency levels. Interviews with those concerned of each organization have revealed that the numbers of organizations in each level are sufficient for current flood control management under the circumstances that staff recruitment for governmental offices has been suspended during 2015 to 2019. Those member organizations have already maximized their current staffs to implement the tasks. Furthermore, there is no need for staff increment since there is no urgency and priority to scale up the flood management task.

The coordination mechanisms which manage the urban flood control within related organizations have functioned well. In order to make a better coordination for water resources sector, the DKI Jakarta Government has redefined the water resources sector to include the flood control, water and wastewater while the environment sector to include the sanitation. The coordination mechanism has been sustained through the TKPSDA and regular meetings are organized by the BBWSCC. In terms of Ciliwung Cisadane river basin, there have been no significant changes to the role allocation of BBWSCC since project completion. For other TKPSDA other than Ciliwung Cisadane, two TKPSDAs were established, including TKPSDA Cidanau, Ciujung, and Cidurian and TKPSDA Citarum. This was to provide a better coordination among related stakeholders within a more limited river basin.

#### <Technical Aspect>

While some counterparts have moved to other divisions due to the promotion or rotation, many of counterparts have still been working and they can transfer their skills acquired to their colleagues or other staffs especially through the on-the-job training during the pilot project towards the regular activities. There are no refresher trainings, but Human Resources Development Agency of PUPR hold annual training about flood management, in the aspect of causes and action plan for flood control to approximately 30 staffs per year to maintain the staff’s skill level. Furthermore, according to the interview with representative from DGWR and BBWS Ciliwung Cisadane, legalized POLA and Rencana have served as the implementation guideline for those in charge to refresh their knowledge and skills.

#### <Financial Aspect>

According to the interview with organizations concerned, the central government level organizations can secure budget allocation consistently in both structural and non-structural measures. It was confirmed that there should be no change expected to the budget allocation in the future. The budget data of solely for comprehensive flood management for DGWR is shown below. The reasons for fluctuation are changes on yearly focus and priority program on water resources management. As for the DKI Jakarta, according to the representative of DKI Jakarta, it can secure budget allocation consistently in both structural and non-structural measures and there should be no major change expected to the budget allocation in the future.

Organization	Budget data for comprehensive flood management					
	Year	2013	2014	2015	2016	2017
DGWR	Amount in billion Rupiah	1,156	978	1,393	1,001	831
LG DKI Jakarta	Amount in billion Rupiah	NA	NA	NA	3,317	2,756

<Source> interviews with and response to the questionnaire from DGWR and Bappeda DKI Jakarta.

With respect to the financial aspect at the local level other than the DKI Jakarta, the budget data of CFM alone is hard to be collected as it is often mixed up with other function, such as maintenance cost of water resource facility, irrigation, dam and capacity building. As for the budget allocation of organizations of West Java, Bogor Regency, and Bogor City, it may be fluctuating due to yearly priority, so that budget can often cover the only limited area of flood control. (According to DGWR, the budget amount for flood management by each local government is secured, but the data itself was not available during this evaluation study.)

<Evaluation Result>

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

### 5 Summary of the Evaluation

The project achieved the Project Purpose for implementing CFM measures in the project area based on the CFMP. The effect by the project has continued since the project completion. The Overall Goal has also been achieved since the CFM measures have been implemented in Jakarta based on the legalized form of currently effective comprehensive flood management policy and plan such as POLA and Rencana. As for sustainability, slight problem has been observed in terms of financial aspect due to uncertain budget especially in local government level. As for efficiency, the project cost slightly exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

## III. Recommendations & Lessons Learned

### Recommendations for Implementing Agency:

It was identified by the study that budget allocation to the flood control management for West Java Province and its city and regency levels are fluctuating because their activities are not strongly considered in their priorities. In order to ensure their commitment to implement POLA and Rencana, the Central Government might encourage the Local Government through the provision of incentives system by increasing the Special Allocation Fund amount (*Dana Alokasi Khusus*) for Local Government which consistently implements Rencana. Hence, the Local Government can secure their funds for flood control management project, or execute more activities related to flood control management through the state budget.

### Lessons Learned for JICA:

The project focused more on the “learning process” which was directly linked to the project purpose of “Capacity Development” rather than on the project outcome. The pilot project in Sugutamu sub basin had provided the good opportunity for the relevant organization staffs to experience all aspects of flood management under the guidance of Japanese experts. By this mean, they could acquire and enhance their technical skill. This approach has resulted in sustaining the effect of the project, especially in terms of technical sustainability. Aside from that, it also results on their contribution towards the achievement of project purpose and project output. The relevant staffs become more ready with necessary skills to manage the flood management activities during and after the project completed.



Additional gate at Manggarai Water Gate Point to increase the river flow capacity from 330 m<sup>3</sup>/ sec to 570 m<sup>3</sup>/s.



Diversion tunnel from Ciliwung to East Floodway to reduce flood peak discharge by diverting 60 m<sup>3</sup>/s.

Country Name	<b>The Project for Public Private Partnership Network Enhancement</b>
Republic of Indonesia	

**I. Project Outline**

Background	The Government of Indonesia (GOI) estimated that USD143 billion of infrastructure development was required over the 5-year period from 2010 to 2014, of which USD51 billion was expected to be covered by public sector and the rest by the private sector. To promote private investment, the GOI developed and revised Public Private Partnership (PPP) related laws and regulations and established institutions to finance and guarantee PPP projects. The major issues were lack of appropriate government direct support mechanism for private investors to consider PPP projects as “bankable” and lack of clear mechanisms and capacity to prepare “bankable” PPP projects. Coordination and consistent decision making among PPP related institutions was missing, too. (Figures at the time of ex-ante evaluation)										
Objectives of the Project	<p>The project aimed at operationalization of PPP network<sup>1</sup> in Indonesia to realize continuous flow of bankable PPP project through establishment and operationalization of direct support mechanism, strengthening capacity of PPP network players and improvement of project preparation process, and agreement of master plan and roadmap to speed up PPP implementation among PPP network players, thereby having PPP project implemented to promote necessary infrastructure development for continuous economic development of Indonesia.</p> <ol style="list-style-type: none"> <li>Overall Goal: PPP project implementation will promote necessary infrastructure development for continuous economic development of Indonesia.</li> <li>Project Purpose: PPP network will be operationalized to realize continuous flow of bankable PPP projects.</li> </ol>										
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Indonesia</li> <li>Main Activities: (i) to establish new mechanism on PPP direct support into government operations, to propose incentive mechanisms for GCA and improve GCA's project screening and preparation, to support appraisal of direct support by MOF for 2012; (ii) to support preparation of model projects<sup>2</sup> under Project Development Facility (PDF) Japan Window and to strengthen PPP network mechanism; and (iii) to support joint working team between BAPPENAS, MOF, BKPM, and key GCAs to develop and implement a master plan and road map, etc.</li> <li>Inputs (to carry out above activities) *As of Terminal Evaluation in November 2013</li> </ol> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Indonesian Side</td> </tr> <tr> <td>1) Experts: 20 persons</td> <td>1) Staff Allocated: BAPPENAS, MOF RMU, BKPM, IIF, IIGF, PIP, PT.SMI, Indonesia State Electricity Company, Ministry of Energy and Mining Resources</td> </tr> <tr> <td>2) Local cost: 20 local consultants, etc.</td> <td>2) Facilities: office space</td> </tr> <tr> <td></td> <td>3) Local cost: office management cost</td> </tr> </table>			Japanese Side	Indonesian Side	1) Experts: 20 persons	1) Staff Allocated: BAPPENAS, MOF RMU, BKPM, IIF, IIGF, PIP, PT.SMI, Indonesia State Electricity Company, Ministry of Energy and Mining Resources	2) Local cost: 20 local consultants, etc.	2) Facilities: office space		3) Local cost: office management cost
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	3) Local cost: office management cost										
Project Period	March 2011 - March 2014 (Extended period) September 2013 - March 2014	Project Cost	(ex-ante) 513 million yen, (actual) 604 million yen								
Implementing Agency	National Development Planning Agency (BAPPENAS), Risk Management Unit of Ministry of Finance (MOF RMU), Modal Indonesia Investment Coordination Board (BKPM), PT. Indonesia Infrastructure Finance (IIF), Indonesia Infrastructure Guarantee Fund (IIGF), Government Investment Agency (PIP), Indonesia Infrastructure Finance Company (PT.SMI)										
Cooperation Agency in Japan	PricewaterhouseCoopers Co., Ltd., MAXEED., LLC., KRI International Corp.										

**II. Result of the Evaluation**

## &lt; Constraints on Evaluation &gt;

- 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.

## &lt; Special Perspectives Considered in the Ex-Post Evaluation &gt;

- The Overall Goal consists of two levels: means (promotion of necessary infrastructure development by implementation of PPP projects) and effects (continuous economic development of Indonesia). In the ex-post evaluation, the former shall be regarded as the “Overall Goal” and the latter shall be treated as the “Super Goal”. This evaluation shall cover the former only.

-Data for Indicator 2 for the Overall Goal (number of projects whose concession was agreed) was not available. As an alternative, the number of projects that reached financial close was collected.

**1 Relevance**

## &lt;Consistency with the Development Policy of Indonesia at the Time of Ex-Ante Evaluation and Project Completion&gt;

The project was consistent with the development policy of infrastructure development as set forth in the Indonesia's “Medium-Term

<sup>1</sup> PPP network institutions are as follows: (i) National Development Planning Agency (BAPPENAS) Directorate of Public Private Partnership Development, (ii) Ministry of Finance (MOF) Risk Management Unit (RMU), (iii) Modal Indonesia Investment Coordination Board (BKPM), (iv) National Land Agency, (v) Indonesia Infrastructure Guarantee Fund (IIGF), (vi) Indonesia Infrastructure Finance Company (PT. SMI) and (vii) Government Contracting Agency (GCA) (PPP divisions of related ministries, local governments, and state-owned enterprises (SOEs)). According to the Project Design Matrix (PDM) of this project, operationalization means that PPP stakeholders make decision and implement project consistently.

<sup>2</sup> The model projects are as follows: (i) West Semarang Water Supply Project, (ii) South Sumatra Mine Mouth Coal Fired Power Project (Sumsel 9&10) and (iii) Geothermal Fund Implementation Support.

Development Plan (RPJMN)” (2010-2014) at the time of ex-ante evaluation and project completion. In addition, the project was consistent with “the Master-plan of Acceleration and Expansion of Indonesia Economic Development (MP3EI)” (2011-2025) at the time of project completion, which envisions acceleration of the private sector investments and infrastructure delivery throughout the country.

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

At the time of ex-ante evaluation, the project’s necessity was high considering the high demand for infrastructure development, part of which had to be covered by the private sector, in Indonesia. At the time of project completion, Indonesia was still behind in building infrastructure, compared to neighboring countries such as Thailand and Malaysia. Therefore, improving the environment surrounding PPP to attract private investment activities was still urgently needed.

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

The project was consistent with the Country Assistance Program for the Republic of Indonesia (2004), which includes improvement of comprehensive skills in operating economic infrastructure, including human resources training in formulating policy and working out plans as assistance to be considered to realize “Sustainable Growth Driven by Private Sector”.

<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. At the time of ex-post evaluation, PPP network stakeholders shared a common understanding of bankable projects, but the network was partially operationalized. Although they shared knowledge about the measures to make PPP projects bankable, they were not able to make decisions and implement the projects consistently since necessary regulations to enable the government to provide fiscal/non-fiscal support for PPP projects were not in place (Indicator 1). The annual number of the ready-for-tender projects was not constant enough to realize continuous flow of PPP projects. Out of three model projects, Sumsel 9 &10 (coal fired power project) became ready for tender in 2012 and West Semarang Water Supply Project (WSWSP) in 2013, but Geothermal Fund was not operationalized because of the GCA’s concern over the financial viability. In addition, the tender process of WSWSP was suspended in 2013 due to political intervention and unavailability of the necessary regulations. (Indicator 2).

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

The project effects have been partially continued since the project completion. Revitalization of the National Committee for the Acceleration of Infrastructure Provision (KKPPI), which the project had undertaken and recommended to continue after its completion, led to establishment of the Committee for Acceleration of Priority Infrastructure Delivery (KPPIP) in 2014 through a Presidential Regulation. The PPP network stakeholders continue to share the common understanding of bankable projects, but the network is not fully operationalized. Now that some necessary regulations to enable the government to provide fiscal/non-fiscal support for PPP projects are in place, the finance-related stakeholders such as IIGF, IIF, and PT. SMI make decisions of and implement the PPP projects consistently. However, GCAs sometimes have faced difficulty to do so due to political intervention. Further, the annual number of ready-for-tender projects has been decreased<sup>3</sup>. According to MOF, the number of ready-for tender projects is limited because of insufficient capacity of GCAs for preparation of PPP projects.

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

The Overall Goal is partially achieved at the time of ex-post evaluation. The number of PPP projects put into tender was increased (Indicator 1). The number of PPP projects that reached financial close, however, did not increase (alternative indicator to Indicator 2). In fact, it decreased. According to MOF, the number is limited due to insufficient project preparation activities by GCAs and lack of skills and experiences of GCAs for implementation of PPP projects. Whether the number of the completed project was increased or not could not be confirmed due to lack of exhaustive data (Indicator 3).

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

The project has not had negative impacts on the natural and social environments.

<Evaluation Result>

In light of the above, through the project, the Project Purpose was partially achieved at the time of project completion, the project effect was partially continued, and the Overall Goal was partially achieved 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) PPP network will be operationalized to realize continuous flow of bankable PPP projects.	1. PPP network stakeholders share a common understanding of bankable projects and network is operationalized	Status of the Achievement: partially achieved (partially continued) (Project Completion) -PPP network stakeholders shared a common understanding of bankable projects -The stakeholders could not make decisions and implement the PPP projects consistently due to lack of the necessary regulations (Ex-post Evaluation) -The stakeholders continue to share the common understanding of bankable projects. -Finance-related players make decisions and implement project consistently but GCAs are sometimes exposed to political intervention.
	2. Constant number of annual bankable PPP projects that are ready for tender.	Status of the Achievement: partially achieved (partially continued) (Project Completion) <Annual number of bankable PPP projects that are ready for tender>

<sup>3</sup> As for the model projects, WSWSP is yet to be ready for tender but there is a prospect because Semarang City (GCA) is currently revamping it and has secured financial support (PDF support) from MOF. Geothermal Fund is yet to be ready for tender but there is a prospect because MOF refined the regulations (PMK) in 2017 to have more elements of risk taking on the public-sector side (compared to the previous structure where the private sector side would take most of risks for test-drilling) and PT.SMI (GCA) has already secured budget. The tender process for Sumsel 9 & 10, however, has been stopped since 2015 due to policy changes and a delay in a project to construct connecting transmission lines, etc..

	* A bankable PPP project is considered to be 'ready for tender' after the commencement of pre-qualification (PQ) stage.		2011	2012	2013	
		Model projects	0	1	1 (*suspended)	
		Other projects	N.A.	4	3	
		(Ex-post Evaluation) <Annual number of bankable PPP projects that are ready for tender>				
			2014	2015	2016	
		Model projects	0	0	0	
		Other projects	N.A.	7	1	
(Overall Goal) PPP project implementation will promote necessary infrastructure development.  * See Special Perspectives Considered in the Ex-Post Evaluation.	1. Increase the number of PPP projects put into tender.	(Ex-post Evaluation) achieved <Annual number of PPP projects put into tender>				
			Baseline (2013)	2014	2015	2016
		Model projects	0	0	0	0
		Others	0	N.A.	22	17
	2. Increase the number of PPP projects whose concession is agreed  (Alternative Indicator) Increase the number of PPP projects that reached financial close.	(Ex-post Evaluation) not achieved <Annual number of PPP projects that reached financial close>				
			Baseline (2013)	2014	2015	2016
		Model projects	0	0	0	0
		Others	4	3	2	3
	3. Increase the number of PPP projects that completed the construction	(Ex-post Evaluation) Unverifiable. -No exhaustive data was available.				

Source : Project Completion Report, questionnaire survey and interview to BAPPENAS, MOF and other related organizations, PPP Book 2013-2016 (BAPPENAS)

### 3 Efficiency

The project period and cost exceeded the plan (ratio against the plan: 118% and 123%). The project period was extended mainly because of addition of PDF activities for model projects requested by the Indonesian side. Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

Infrastructure development continues to be one of the most important development agenda of the government as set forth in RPJMN (2015-2019). Policy environment for promotion of PPP has been strengthened since the project completion. For example, National Strategic Project (PSN) policy was issued in 2016 to speed up government procedures for designated PSN projects.

#### <Institutional Aspect>

Organizational framework for promotion of PPP has been strengthened since the project completion. As stated in "Effectiveness/Impact", KKPII was evolved to KPPIP and, as its supporting function, Project Management Office (PMO) was established to provide technical assistance to line ministries for improvement of outline business case (OBC). At MOF, RMU, which had been involved in the project, was evolved to create PPP Unit in 2015. PPP is to evaluate the financial risks involved in PPP projects, help project preparation using the PDF and appraise the eligibility of proposed projects to receive direct support, guarantees and other types of financing. Organizational roles of other institutions remain unchanged. BAPPENAS Directorate of PPP Development continuously coordinates the plans related to PPP and promotes project preparation. BKPM provides information related to PPP projects to investors. IIGF provides government guarantees for PPP projects. IIF and PT.SMI, which integrated PIP in (2015), provides investment and loan services and transaction advisory (TA) services for PPP projects. According to KPPIP-PMO, the number of staff engaged in promotion of PPP at the key institutions is as follows: 30-50 at KPPIP (PMO), 15-30 at BAPPENAS (Directorate of PPP Development), 50-100 at MOF (PPP Unit), 15-30 at BKPM, 50-100 at IIGF, and 100-200 at PT.SMI. Neither the quota nor the exact number of staff actually allocated could not be confirmed, but KPPIP-PMO considers that the number is sufficient to promote PPP since the technical/detailed expert work can be outsourced to the third party, such as SOEs and consultants.

#### <Technical Aspect>

According to KPPIP-PMO, most of the C/Ps remain in the Implementing Agencies. The skill level of the finance-related institutions is sufficient to promote PPP because their staff are hired from the private sector and many of them have previous work experiences in private financial institutions, private infrastructure engineering, etc.. The C/Ps of the government institutions basically maintain the skills and knowledge acquired in the project. For KPPIP and MOF PPP Unit, which were created after the project completion, capacity development has been supported by JICA, through a technical assistance project related to ODA loan "KPPIP Support Facility" (2014-2019). KPPIP-PMO also commented that it is necessary to further enhance the capacity of GCAs for project preparation (OBC, final business case (FBC) and TA) because the number of the PPP projects that became ready for tender/reached financial close is still limited (as shown in "Effectiveness/Impact") despite growing pipeline of PPP project candidates year after year. It is noted that KPPIP, BAPPENAS, and MOF (PPP Unit) have just started the process to establish a structured and sustainable methodology to enhance the capacity of GCAs to deploy experts for project preparation. The PDF toolkits for water supply and mine mouth power plant, developed by the project, have been utilized by GCAs under the PDF toolkit of BAPPENAS.

#### <Financial Aspect>

Detailed data on the budget and expenditure of the Implementing Agencies could not be confirmed. Nevertheless, it seems that the Implementing Agencies have sufficient budget to promote PPP for the following reasons. For example, the finance-related institutions have received equity injection by MOF to enhance their catalytic role in PPP. BAPPENAS received PPP support from Asian Development Bank in 2014 and 2015, and MOF from the World Bank and Canada. The GCA of the Geothermal Fund, PT.SMI, has also secured budget to implement the fund. Meanwhile, KPPIP has secured its own budget from Coordinating Ministry of Economic Affairs, and 50-80 billion rupiah was annually allocated and spent in 2015 and 2016. It is considered that the budget amount for above institutions are likely to increase because the current government relies heavily on PPP funding and thereby needs to enhance the budget for PPP project

preparation and implementation.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of technical aspects of the Implementing Agencies. In addition, sufficient information to judge financial aspects of the PPP network stakeholders is not available. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose (i.e. operationalization of PPP network to realize continuous flow of bankable PPP projects) due to lack of necessary regulations for the network stakeholders provide fiscal/non-fiscal support for PPP projects. The effect of the project has been partially continued, including establishment of KPPIP, and the Overall Goal (i.e. promotion of necessary infrastructure development by implementation of PPP projects) has been partially achieved mainly due to insufficient project preparation activities. Regarding the sustainability, slight problems have been observed in terms of technical aspects and sufficient information to judge financial aspects could not be obtained. As for the efficiency, both the project period and the cost exceeded the plan. Considering all of the above points, this project is evaluated to be partially satisfactory.

### III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

-It is recommended that KPPIP, BAPPENAS, and MOF (PPP Unit) keep promoting their current efforts to establish a structured and sustainable methodology to enhance their capacity for OBC, FBC and TA by taking the following approach by mid 2018: (i) to calculate the number of project pipeline by sector, the amount of necessary funding for OBC, FBC and TA, and amount of funding to be allocated from national budget/state budget, SOEs and international agencies; and (ii) to design sustainable fund and consultant pool mechanism in detail, such as the core process on how the OBC handover (handover of a project from BAPPENAS for the OBC stage to MOF for the FBC stage), FBC assignment and agreement, consultant selection, and funding arrangements that will work in practice, and test it in pilot phases.

Lessons learned for JICA:

-All of the PPP model projects faced preparation/implementation bottlenecks during and after the completion of the project due to political intervention, regulatory changes, policy changes and organization changes. While PPP project preparation is typically an intense study (6-8 months), implementation tends to have a long tail involving various permits, approvals and organizational coordination. Therefore, JICA should consider ways to provide longer-term follow-ups than the implementation period of a single technical cooperation project so that PPP model projects could have a flexible supporting mechanism to follow up on implementation. The following characteristics should be considered: follow up until successful tender results are achieved, lean and long follow up period to cope with political interventions and unforeseen bottlenecks, and provision of short/intense debottlenecking support of implementation as needed.



Country Name	<b>Project for Strengthening Environmental Management in Petroleum Industry in Persian Gulf and its Coastal Area</b>
The Islamic Republic of Iran	

**I. Project Outline**

Background	<p>In Iran, most natural resources are available in the Persian Gulf where is abundant in oil and gas deposits, and have been actively developed in this area. However, environmental protection measures have not necessarily been sufficiently taken, and various environmental problems, such as oil spill from oil wells, sea pollution by oil-containing wastewater from oil production facilities, and air pollution by sulfur oxide, nitrogen oxide and soot dust associated with gas flaring process<sup>1</sup>, have occurred. There have been concerns that not only the affluent biological diversity but also the fishery resources of the Persian Gulf might be irredeemably damaged in case of no measure to be taken. In particular, oil spill caused by an accident, which could be a serious cause of environmental pollution, was deeply concerned. While preventive measures and accident response frameworks were required to be developed in order to cope with this situation, they had not been well prepared. Under these circumstances, there was a need for formulating a contingency plan for oil and gas disasters and an environmental management plan.</p>				
Objectives of the Project	<ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>2</sup>: (1) Emergency response system for accidents relating to petroleum in the pilot areas is developed for the Ministry of Petroleum (MOP). (2) MOP's environmental management activities are implemented in the pilot areas. (3) Development of contingency plan and system is diffused in other areas of Iran.</li> <li>Expected utilization of the proposed plan: The formulated Master Plan is adopted and used effectively by MOP and related national oil companies.</li> </ol>				
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Tehran and the three pilot areas (Assaluyeh, Mahshahr, Khark Island)</li> <li>Main Activities: (1) confirmation of the current situation of disasters relating to oil and gas and environmental pollution in the Persian Gulf and the three pilot areas, (2) formulation of emergency response master plans for disasters relating to oil and gas and environmental management in the pilot areas, (3) formulation of an emergency response master plan of MOP for disasters relating to oil and gas and environmental management, (4) conducting master plan dissemination seminars</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>Japanese Side</b>  (1) Mission members: 11 persons  (2) Trainees received: 8 persons  (3) Equipment: PCs for computer simulations, etc. </td> <td style="width: 50%; vertical-align: top;"> <b>Iranian Side</b>  (1) Staff allocated: 16 persons  (2) Land and facilities: Japanese experts' office in the Health, Safety and Environment (HSE) Department, MOP  (3) Operation cost: cost for workshops and seminars, travelling cost for Iranian counterparts' surveys in pilot areas, etc. </td> </tr> </table> </li> </ol>			<b>Japanese Side</b> (1) Mission members: 11 persons (2) Trainees received: 8 persons (3) Equipment: PCs for computer simulations, etc.	<b>Iranian Side</b> (1) Staff allocated: 16 persons (2) Land and facilities: Japanese experts' office in the Health, Safety and Environment (HSE) Department, MOP (3) Operation cost: cost for workshops and seminars, travelling cost for Iranian counterparts' surveys in pilot areas, etc.
<b>Japanese Side</b> (1) Mission members: 11 persons (2) Trainees received: 8 persons (3) Equipment: PCs for computer simulations, etc.	<b>Iranian Side</b> (1) Staff allocated: 16 persons (2) Land and facilities: Japanese experts' office in the Health, Safety and Environment (HSE) Department, MOP (3) Operation cost: cost for workshops and seminars, travelling cost for Iranian counterparts' surveys in pilot areas, etc.				
Project Period	Oct. 2011 - Mar. 2014 (28 months)	Project Cost	(ex-ante) 280 million yen, (actual) 278 million yen		
Implementing Agency	HSE Department of MOP and national oil companies in pilot areas				
Cooperation Agency in Japan	Japan Oil Engineering Co., Ltd., Yachiyo Engineering Co., Ltd.				

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Iran at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>At the time of ex-ante evaluation and project completion, the project was consistent with the Iran's development policies, such as the "Fifth Five-Year National Development Plan" (2010-2015), which called for; the enhancement of supervision from the viewpoints of HSE; the establishment of environmental standards; the construction of environmental information systems at the national and provincial levels; and the promotion of private sector's environment considerations. Also, as a member country of the "International Convention for the Prevention of Pollution from Ships (MARPOL)" and the "International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)," in line with these conventions, the Port and Maritime Organization (PMO) of Iran has formulated a master plan or the "Iranian OPRC National Plan," and defined mandates and responsibilities of related organizations in it. The plan was approved by the cabinet in June 2012.</p> <p>&lt;Consistency with the Development Needs of Iran at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>At the time of ex-ante evaluation, technical and institutional preventive measures and emergency response plans for oil-related disasters such as oil spill accidents was insufficient in Iran. Therefore, sea pollution in the Persian Gulf was serious, and a huge damage on biodiversity and fishery resources was concerned. However, environment considerations were relied on individual company, and MOP did not have an overall plan for environmental management. At the time of project completion, some new system such as modeling software for sea pollution distribution has been introduced, and training for oil pollution control including the operation of those software and</p>

<sup>1</sup> Burning off process of natural gas released by pressure relief valves in oil fields and gas fields.

<sup>2</sup> The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan ("output" of the project).

implementation of environ management activities by MOP has been required.

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

The project was consistent with Japan's ODA policy for Iran, since the local ODA taskforce adopted environmental conservation including environmental pollution control as one of the five priority areas of cooperation based on the Economic Cooperation Policy Dialogue in July 1999<sup>3</sup>.

<Evaluation Result>

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

## 2 Effectiveness/Impact

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

The objectives of the project were mostly achieved by the time of project completion. Review and analysis were conducted on the development plans of oil industries, institutional and managerial situations of HSE, conditions and issues of three pilot areas, and emergency response system and procedures against oil spill disasters (Output 1). Based on the results of review and analysis, the Master Plans for emergency response system and procedures against oil spill disasters and environment management for MOP and three pilot areas have been compiled respectively (Output 2 and 3). However, according to the interview with the Director of the Environment Department of MOP, formulation of the Master Plan in other areas other than pilot areas was not progressing, because the situations of other areas are different from the three pilot areas<sup>4</sup>. Therefore, it could not be verified whether MOP became able to formulate plans alike for other areas based on the experience of the pilot areas or not (Output 4).

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

After the project completion, based on the Master Plans prepared by the project, the action plan of the Environmental Management in Petroleum Industry (EMPI)<sup>5</sup> was formulated in July 2014 under the initiative of the Minister of Petroleum. The action plan was circulated in MOP and in other related Ministries, and requested to be implemented. In national oil companies (NIPC, NIOC, NIGC, NIOPDC<sup>6</sup>) in the pilot areas, departments in charge of integrated environmental management were established in 2015 in accordance with the concept of "One Zone One Management Principle"<sup>7</sup> proposed by the project. Regarding institutional strengthening, due to the limit of the number of public employees stipulated by the President's Office, it has been hard to secure the sufficient number of staff. Out of basic policies and strategies recommended by the Mater Plan, some of them have been carried out such as activation of the monitoring system in each zone, investigations of waste water treatment plants, preparation of emission inventories, improvement of solid waste management, enhancement of reporting system, and so on. Regarding the action plans prioritized in the Master Plan, a number of actions have been executed such as the sharing of the existing guidelines and procedures of oil industries among organizations concerned, constructions of industrial wastewater treatment facilities and gas treatment plants, preparation of oil recovery equipment, strengthening of supervision system, compilation of hazardous waste inventories, and so on. According to the Director of the Environment Department of MOP, other action plans have been underway by priorities.

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

Based on the basic policies, strategies and action plans proposed by the Master Plan, regarding the improvement of the emergency response for oil-related disasters in the pilot areas (Indicator 1), PMO and local governments in collaboration have formulated an environmental accident reporting system and emergency response plans, and those were approved by the Minister of Petroleum and have been currently under implementation. In order to fully enforce "One Zone One Management Principle," zone managers in the three pilot areas were appointed by the Minister of Petroleum. Regarding the environmental management operations of national oil companies and national oil operation companies in the pilot areas (Indicator 2), a letter notifying EMPI was sent from the Minister of Petroleum to the Vice-ministers, the Director Generals of related departments, and the Executive Managers of national oil companies, and the letter requested prompt implementation of plans introducing specific execution methods for environment improvement, contaminated soil washing, improvement of environment monitoring system, oil spill prevention, and so on. After that, in 2015, MOP prepared the budget for EMPI, and EMPI has been put in execution. Regarding the dissemination of the Master Plan to other areas (Indicator 3), accident response plans alike have not been drafted in other areas since there are no similar area to the pilot areas. Only in the oil fields in west bank of the Kārun River, the basic policies and strategies proposed by the Master Plan were adopted for formulation of the environment management plans.

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

In accordance with EMPI, local programs for improving the local environment have been prepared, and targets and operating procedures for zone managers have been defined. No resettlement and land acquisition, and no negative impact on natural environment has been caused by the implementation of the Master Plans.

<Evaluation Result>

In light of the above, through the project, the objectives of the project were achieved at the time of project completion; and adoption of proposed plans and implementation of prioritized plans of the project have partially been done. Some positive impacts by the project such as formulation of local programs could be observed. Therefore, the effectiveness/impact of the project is high.

<sup>3</sup> Source: ODA Data Book 2012.

<sup>4</sup> While there are a variety of oil related facilities in the three pilot areas and emergency response systems for oil related accidents are highly required, other areas are not necessary so.

<sup>5</sup> The action plan is also called as "Environment Management of Oil Establishments in Persian Gulf and its Coastal Areas" in English.

<sup>6</sup> The National Iranian Petrochemical Company (NIPC), the National Iranian Oil Company (NIOC), the National Iranian Gas Company (NIGC) and the National Iranian Oil Products Distribution Company (NIOPDC) are sector-wide national oil companies under MOP, which supervise national oil operation companies. There are departments and officers in charge of HSE and emergency response in MOP, national oil companies and national oil operation companies.

<sup>7</sup> Iran is divided into several petrochemical production zones, and the production of petrochemicals and its HSE of each zone is supervised by a zone company. The Master Plan drafted by the project suggested the concept of "One Zone One Management Principle" and recommended to strengthen the authority of zone companies in order to realize an integrated environment management of a zone by a zone company. (Source: Final Report, 2014, p.7-26)

Table 1: Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

Aim	Indicators	Results
Utilization Status of the Proposed Plan	Indicator: Implementation status of the proposals and recommendations made in the Master Plans.	(Ex-post Evaluation) Achieved. After the project completion, under the initiative of the Minister of Petroleum, the action plan of EMPI was formulated based on the Master Plans, and circulated in MOP and in other Ministries concerned requesting them to implement.
Expected Goals through the Proposed Plan	Indicator 1: Preparation status of the emergency response for oil-related disasters in pilot areas (institutions, contact and reporting system, emergency response procedures, equipment, post-emergency monitoring, etc.).	(Ex-post Evaluation) Achieved. PMO and local governments in collaboration have formulated an environmental accident reporting system and emergency response plans. In Assaluyeh, short-term programs for promoting HSE were commenced, in which environment management system was studied based on the action plans prepared by the Master Plan. These systems and plans were approved by the Minister of Petroleum and have been currently under implementation.
	Indicator 2: Status of environmental management operations of national oil companies and national oil operation companies in pilot areas.	(Ex-post Evaluation) Achieved. A letter notifying EMPI was sent from the Minister of Petroleum to the high-level officials of MOP and the Executive Managers of NIOC, NIGC, NPC, NIOPDC. The letter requested them to take prompt actions for plans for environment improvement, contaminated soil washing, improvement of environment monitoring system, oil spill prevention, and so on. The budget for EMPI was prepared by MOP, and those plans have been implemented.
	Indicator 3: Status of dissemination of the Mater Plans to other areas such as the drafting of accident response plans.	(Ex-post Evaluation) Partially achieved. Because there are no other areas similar to the pilot areas in the country, there are few movements of drafting master plans alike in other areas. But the basic policies and strategies proposed by the Master Plan were referred to for formulation of the environment management plans in west bank of the Kārun River.

Source: Final Report (2014), questionnaire survey to and interviews with the Director General of Environment Department of MOP in the ex-post evaluation (2017)

### 3 Efficiency

Although the project cost was within the plan (the ratio against the plan: 99%), the project period slightly exceeded the plan (the ratio against the plan: 104%). Therefore, efficiency of the project was fair.

### 4 Sustainability

#### <Policy Aspect>

Aiming at an expansion of the national production of petrochemical products to be 100 million tons, the “Sixth Five-Year National Development Plan” (2016-2021) places emphasis on the coordination of the Ministry of Industries and Business, the Ministry of Industry, Mine and Trade, and MOP, especially on the coordination with MOP for environmental problem prevention. It also requests governmental and non-governmental organizations to properly treat solid waste, sewage and waste water, and to prepare environment management plans. Policy environment, therefore, keeps encouraging the adoption of the Master Plans and the action plans proposed by the project.

#### <Institutional Aspect>

The institutional structure for environment conservation consisting of MOP, national oil companies, zone companies and national oil operation companies has been unchanged since the time before the project. The letter of EMPI was issued by the Minister of Petroleum in July 2014 as stated above, requesting institutions concerned to formulate and implement a range of environment conservation plans. At that time, a steering committee was created in MOP with the membership of the Directors of related Departments of MOP and four national oil companies. The committee regularly monitors the progress of formulation and implementation of environment conservation plans, and report it to the Minister of Petroleum. Besides, the sub-committees have been set up in the three pilot areas for promoting execution of decisions of the committee. Regarding the staffing, MOP has newly assigned officials in charge of HSE in the three pilot areas based on the “One Zone One Management Principle” suggested by the project (Table 2). However, according to the Director General of the Environment Department of MOP, the number of staff is insufficient, especially the officials with specialist’s knowledge and experience is in short. Due partly to the regulations for public employees stipulated by the President Office, the shortage of staff has been a persistent problem.

#### <Technical Aspect>

According to the questionnaire to and the interview with the Director General of the Environment Department of MOP, the technologies for air pollution control, solid waste management and environment assessment have been learned and made contributions for the improvement of a variety of operations. However, eyeing the rapid progress of technologies, the improvement of expertise is still in need, and more training and capacity building is required for further technical capability upgrading.

#### <Financial Aspect>

While the specific figures of the budget for implementing the Master Plans and action plans prepared by the project were not obtained in the ex-post evaluation, according to the Director General of the Environment Department of MOP, institutions concerned formulated plans and implemented them in compliance with the letter from the Minister of Petroleum, and MOP and institutions have prepared the budget for them. And, as far as the questionnaire and interviews conducted in this ex-post evaluation concerns, no issues relating to the financial aspect have been observed in any organization.

#### <Evaluation Result>

In light of the above, slight 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.

Table 2: The number of staff in charge of HSE

(unit: persons)

year	2011	2014	2017*
Assaluyeh	0	6	6
Mahshahr	0	12	12
Khark Island	0	6	6
PSEEZ**	0	0	3

\* as of August 2017

\*\* Pars Special Economic/Energy Zone  
(a zone management company in Khark Island)

## 5 Summary of the Evaluation

The objectives of the project were achieved by the time of project completion, and it was confirmed that the Master Plans have been referred to and the prioritized action plans have been partially implemented after the project completion. As for sustainability, based on the Master Plan prepared by the project, some system improvements such as the preparation of oil accident response procedures have been authorized by the Minister of Petroleum and in progress. However, personnel shortage and insufficient technical expertise have been persistent problems. Thus, slight problems there are in terms of the institutional and technical aspects of sustainability. Regarding efficiency, the project period slightly exceeded the plan.

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

## III. Recommendations & Lessons Learned

### Recommendations for Implementing Agency:

- The persistent problem of personnel shortage was reported from MOP, national oil companies and national oil operation companies. Since it is difficult to employ staff over the limitation of public official's regulations stipulated by the President Office, it would be necessary to mobilize and outsource to private sectors for sustainable implementation of the Master Plans and action plans prepared by the project. Besides, because further improvement of technical competencies of staff is required, training on HSE for MOP, national oil companies and national oil operation companies is expected to be realized by making use of education facilities such as colleges, universities and private institutions.

### Lessons Learned for JICA:

- The project was executed in some different areas with different institutions of MOP in central, national oil companies and oil operation companies in the three different pilot areas. And the trial conducted in one area with one institution was thought to be applicable to other areas and other institutions. However, in reality, different areas and different institutions had different rules, regulations, organizations and systems. Therefore, it was not realistic to apply one method to all other areas and institutions, and that resulted in non-achievements of some objectives and low utilization of the proposed plans of the project. When a project is implemented in some areas and/or with some organizations, it is recommended to conduct sufficient survey before the commencement of the project, and to accurately understand rules, regulations, organizations and systems in different areas, thus eventually to plan and execute a project considering those differences.

Country Name	<b>The Project for Freshwater Resources and Nature Conservation</b>
Mongolia	

**I. Project Outline**

Background	<p>The protected freshwater resource areas in Mongolia was 25 million ha in total which accounted for one seventh of the total national land. Since environmental destruction, including pollutions caused by mining exploration, rapidly expanded in lakes and rivers, which accounted for approximately 40% of the protected area, establishment of environment protection measures based on freshwater resource ecosystem management in those areas was an urgent issue. In addition, there was no base to manage nature conservation activities for fauna and flora endangered by the unregulated developments.</p> <p>In 2010, although about 700 rangers and 1,200 volunteer rangers formed small-scale organizations across the country and implemented activities for ecosystems management and natural environment conservation, trainings for them as well as awareness building and dissemination activities for natural environment conservation to the public were not effectively conducted due to lack of facilities and human resources. Therefore, it was needed to establish a base to train human resource to be engaged in natural environment conservation activities, to provide services of public relations and awareness building for the public and foreign tourists, to conduct researches on natural environment conservation and to support organizations related to the issues.</p>				
Objectives of the Project	<p>Through new construction of the Center for Freshwater Resources and Nature Conservation (referred to the Center) and provision of equipment to the Center as well as technical assistance for trainings, exhibition and public relations(PR), the project aimed at enabling the activities, such as trainings, exhibition, PR and researches on conservation of natural environment and ecosystems, in the Center and thereby contributing to establishment of a base for conservation of natural environment and ecosystems in Mongolia.</p>				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Khan Uul district in Ulaanbaatar city (within the Special Protected Zone of the Bogdo Khan National Park)</li> <li>2. Japanese side <ol style="list-style-type: none"> <li>(1) Construction of the Center for Freshwater Resources and Nature Conservation <ul style="list-style-type: none"> <li>➢ Reinforced concrete structure (three-storied for above ground and one-storied basement)</li> <li>➢ Total floor area: 2,440 m<sup>2</sup></li> <li>➢ Exhibition room, seminar room, storage room, laboratory for practical training, office, meeting room and so on.</li> </ul> </li> <li>(2) Equipment <ul style="list-style-type: none"> <li>➢ Equipment for trainings, exhibition, public relations, information management and laboratory for practical training.</li> </ul> </li> <li>(3) Technical Assistance (Soft Component) <ul style="list-style-type: none"> <li>➢ Assistance for preparation of inventory of audio-visual material, preparation of cinematograph show plan, development of visual materials for trainings and so on.</li> </ul> </li> </ol> </li> <li>3. Mongolian side: <ol style="list-style-type: none"> <li>(1) Preparation of basic infrastructure, including land preparation in the planned site</li> <li>(2) Securing necessary personnel and budget for activities of the Center</li> <li>(3) Planning of training program and implementation of trainings</li> <li>(4) Design of a necessary program for exhibition and implementation of exhibition and displays</li> </ol> </li> </ol>				
Ex-Ante Evaluation	2010	E/N Date	May 4, 2010	Completion Date	July 24, 2012
		G/A Date	May 4, 2010		
Project Cost	E/N Grant Limit/ G/N Grant Limit: 756 million yen, Actual Grant Amount: 719 million yen				
Executing Agency	Ministry of Nature, Environment and Tourism				
Contracted Agencies	Yamashita Sekkei Inc., Echo Corporation.				

**II. Result of the Evaluation**

<b>I Relevance</b>
<p>&lt;Consistency with the Development Policy of Mongolia at the time of ex-ante and ex-post evaluation&gt;</p> <p>The project has been consistent with the Mongolia's development policy of "Economic Growth Support and Poverty Reduction (EGSPR) (2003)" and "Mongolia's 2030 Sustainable Development Vision" approved by the parliament in 2016, which aim at preservation of natural landscape, biodiversity and ensuring sustainability of and the ecosystem services.</p> <p>&lt;Consistency with the Development Needs of Mongolia at the time of ex-ante and ex-post evaluation&gt;</p> <p>The project has been consistent with Mongolia's development needs of trainings for rangers and awareness building for the public towards formulation of environment conservation measures through management of freshwater resources ecosystems in the protected areas where environmental destruction, such as pollutions by mining development and others, has been expanding. Those needs were confirmed both at the time of ex-ante evaluation and at the time of ex-post evaluation.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of ex-ante evaluation&gt;</p> <p>The project was consistent with the Japan's County Assistance Plan towards Mongolia (2004) which was to support environment conservation in the 4 priority areas.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>

## 2 Effectiveness/Impact

### <Effectiveness>

The project partially achieved its objectives in the target year (2013) but mostly achieved them at the time of the ex-post evaluation. Trainings for staffs at the Ministry of Nature, Environment and Tourism, rangers for the protected areas, NGO and others (Indicator 1) has been continuously conducted in the center. Although the number of trainings on natural environment and ecosystems reached only 30 in the target year 2013 against the target value of 100, it considerably exceeded the target value in 2014 (180 trainings) and in 2015 (250 trainings). The reason why the number of the trainings was below the target value in 2013 was insufficient capacity of the center staffs to implement trainings since the center had just opened. Also, it was considered that the target value was too high for their training capacity, taking into account new training courses were planned to be started. On the other hand, the number of new trainings started after the opening of the center reached the target value of 30 in 2013, and has significantly increased. In 2016, administrative officials to be engaged in tasks to conserve natural environment and ecosystems in 21 districts and 760 rangers participated in trainings on sustainable development, green development and sustainable education. Besides them, trainings for environment conservation rangers have been regularly conducted every year. The number of trainings on environmental information reached 60 times in 2013, which was much more than the target value of 24, and increased to 120 in 2014 to 153 in 2015. Awareness building and dissemination on nature conservation to the public and foreign tourists (Indicator 2) had been continuously conducted. Trainings on appropriate use of resources, reforestation, soil contamination, waste management, environment conservation, rare species in Mongolia and others were conducted 30 times in 2013 which exceeded the target value of 18, and the number of trainings had considerably increased to 180 in 2014 and 250 in 2015. The number of seminars and events was limited to only 2 in 2014 and 3 in 2015 against the target value of 7. The annual number of visitors for the Environment Information Center was 11,700 in 2013, which was below the target value of 25,000, but came to overweigh the target value after 2014. The annual number of visitors for the Natural Environment Information Center, an internal facility of the center, reached 11,700, which far exceeded the target value of 500. The considerable number of visitors utilized the Natural Environment Information Center: 26,000 visitors in 2014 and 30,000 in 2015. In terms of survey and research for the trainings to be conducted by the center (Indicator 3), the number of practical laboratory trainings was 20 in 2013 exceeding the target value of 9 and 110 trainings were delivered in 2015. The annual number of users of the laboratory excluding the users participating in the practical laboratory trainings was 60 in 2013 which was below the target value of 100, but the laboratory was used by 1,512 persons in 2015 and 967 persons in 2016. It was because the activities of the center have become well-known among high schools and universities for the recent years.

In the center, trainings on ecosystem conservation, environmental pollutions and their countermeasures and awareness building have been regularly delivered through implementation of lectures, seminars, experiments covering a wide range of topics about environment systems and ecosystems under cooperation with mass media, administrative organizations and NGOs. Also, the seminars, events, exhibitions held in the Center have contributed to awareness building activities on freshwater resources and environment preservation in Mongolia. Comments from general visitors written in feedback notes in the Center were mainly positive opinions about the exhibitions and trainings. Since environment education facilities for the general public have not been sufficiently developed in Mongolia, there were comments mentioning necessity to increase facilities like the center. On the other hand, the visitors commented that the number and types of fish in aquarium was too limited to know about lives of freshwater species in the country, the Center took actions to increase types of species for breeding. The center has regularly conducted ecological education activities for primary and secondary school students. Those students visiting the center have opportunities to make their deeper understanding on freshwater resource conservation through activities of research and reforestation.

### <Impact>

While the center has delivered ecosystems education trainings to appeal importance of individual participation in activities for preservation of natural environment and ecosystems, the general public and students have increased their knowledge on environmental conservation through participation in those trainings by group. The center has played a role as a hub for natural environment and ecosystem conservation through seminars aiming at deepening expertise of staffs of the Ministry of Nature, Environment and Tourism under the cooperation with administrative organizations and NGOs engaged in nature conservation. The center also has played an important role to contribute to capacity development of administrative officers and ranges to be engaged in tasks for natural environment and ecosystem conservation. As a result of the efforts on awareness building and dissemination on nature conservation under the collaborations with administrative organizations, mass media, NGOs and so on, children and students collectively visit to the center and participate in study sessions about environment and ecosystems. Based on learnings in the study sessions, there are cases that "Eco Club" was established and operated in secondary education schools<sup>1</sup> and universities, thereby increasing students' knowledge on environmental conservation. Those facts indicated that awareness of nature conservation among the general public and tourists and their dissemination have been promoted. No negative impact of this project was observed at the time of the ex-post evaluation.

### <Evaluation Result>

In light of the above, the positive effect of the project has been observed mostly as planned. Therefore, the effectiveness/impact of the project is high.

### Quantitative Effects

Indicator	Base-line (2007)	Target Value (2013) 1 year after project completion	Actual Value (2013) 1 year after project completion	Actual Value (2014) 2 years after project completion	Actual Value (2015) Ex-post evaluation year
1. Trainings for staffs of the Ministry of Nature, Environment and Tourism, the rangers for the protected areas, and NGO staffs					
a) Number of trainings to be continuously implemented in the newly constructed center which were implemented in 2007 (per year)	80	100 (20)	30	180	250

<sup>1</sup> In Mongolia, there are some cases that primary, secondary and high schools are integrated within the same site, and those schools are called "Secondary Education Schools"



b) Number of new trainings (per year)	20	30 (5)	30	180	250
c) Number of trainings on environmental information (per year)	15	24 (4)	60	120	153
2. Awareness building and Dissemination on nature conservation to the general public and foreign tourists					
a) Number of trainings to be continuously implemented in the newly constructed center for the general public and foreign tourists which were implemented in 2007 (per year)	13	18 (3)	30	180	250
b) Number of new seminars/events for the general public and foreign tourists (per year)	2	7		2	3
c) Number of visitors for exhibition room (per year)	-	25,000	11,700	25,000	29,000
d) Number of users for the natural environment information center (per year)	-	500	11,700	26,000	30,000
3. Survey and Research to achieve the above 1 and 2					
a) Number of practical laboratory trainings. (per year)	3	9 (3)	20	-	110*
b) Number of users in of practical laboratory. (except for trainings) (per year)	-	100	60	1,512	967

Source : The Center for Freshwater Resources and Nature Conservation Operation Reports

\*Basic survey was implemented

\*\*The figure in brackets" shows the number of trainings to be implemented at other training facilities

### 3 Efficiency

Although the project cost was within the plan (ratio against the plan: 95%), the project period exceeded the plan (ratio against the plan: 117%) because of delay in transportation of the procured construction materials by the supplier contracted with the contractor for the project which resulted delay in completion of the construction works. Therefore, efficiency of the project is fair.

### 4 Sustainability

#### <Institutional Aspect>

The Center is consisted of three divisions of Management and External Relations, Training and Research, and Information Technology. The Management and External Relations Division takes a responsibility for organizational structure and external relations. The Training and Research Division is in charge of trainings on environment conservation and researches. The Information Technology Division is engaged in management and use of equipment. The personnel are deployed as follows: 10 staffs for the Management and External Relations Division, 9 staffs for the Training and Research Division and 6 staffs for the Information Technology Division. The task of each division can be implemented by the current number of staffs deployed. According to the project completion report on the technical assistance implemented by the project, it was expected to allocate appropriate human resource for the position of the Marketing Officer (the Deputy Director of the center) who is a key person for the training and public relations activities. At the time of ex-post evaluation, the General Manager was assigned to the position of the Marketing Officer.

#### <Technical Aspect>

##### (Exhibition activities)

Since there was no other facility to breed freshwater species in fish tanks in Mongolia before the completion of the project, it cannot be denied that the staffs of the center to be engaged in breeding freshwater fish have had lack of experience. However, they made efforts to improve environment in the fish tanks after the project completion and have conducted monitoring over oxygen supply, temperature and nutrition status of the species in the tank. Also, they have improved their capacity for breeding and exhibition through increasing the number of fresh fish (5 species), flogs and turtles based on observation of species bread in the tank and explaining about the freshwater species exhibited for the visitors.

##### (Trainings and Public Relations)

Staffs in charge of trainings in the Center hold bachelor or master degree on ecosystem. They have developed contents suitable to characteristics of each target, such as general citizens and students, and have delivered trainings. They have delivered trainings for 760 staffs of the Offices of Nature, Environment and Tourism in all 21 districts of Mongolia on sustainable development and made efforts to improve their capacity for training planning. In addition, skills of staffs in charge of breeding fish in fish tanks have significantly improved. They improved their knowledge on freshwater fish through researches under cooperation by fish researchers in Mongolia and observation and monitoring for fish bread in the tank. In accordance with the operation and management plan of the center, the training staffs of the center have delivered the environment education trainings on the topics such as ecosystem conservation for the students and the general public. Also, seminars and trainings have been jointly held with government agencies and NGOs. The operation and management plan of the center was approved by the National Asset Committee.

##### (Operation and Management of facilities and equipment)

The equipment management staffs and the facility management staffs have been deployed for the center and they have necessary knowledge and skills to maintenance of relevant facilities, including water tanks, water supply and sewage pipes, and hot water pipes.

#### <Financial Aspect>

The annual budget for the center increased from 125,000 MNT in 2012 to 364,900 MNT in 2013 and reached to 328,500 MNT in 2015. Because the allocated amount has been larger than the planned budget since 2012, it can be considered that there will not be any problems in operation of the center if the budget is sustained at the current level. On the other hand, all the revenues of the center such as rental fee of meeting rooms have been transferred to the administration fund and those revenues cannot be directly allocated for the operation cost of the center under the situation with shrinking the national budget of the country by the tight fiscal policy in the fiscal year of 2016 and 2017. In addition, the center has faced shortage of feeds for fish due to the insufficient budget to purchase the feeds in despite of no available products in the market of Mongolia. Since the budget shortage for purchasing the fish feeds may affect daily operation of the center, appropriate solutions have been under consideration.

<Current Status of Operation and Management>

The equipment installed by the project have been mostly in good conditions and even some equipment which are partly damaged or partly malfunctioning have been sustained in good conditions as well. While the equipment have been already registered, the budget for procurement of spare parts has not been secured. For the fish tanks with circulation, water supply pump was repaired but the fan has remained broken yet. As spare parts for the fan are not available in Mongolia, it is needed to order them from Japan. However, the budget for the procurement has not been secured. For the other equipment, the budget for procurement for spare parts has not been secured even though they can be repaired when troubles and failures happened during utilization of them.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the financial aspect of the executing agency and the current status of operation and maintenance. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project partially achieved its objective in the target year but mostly achieved by the time of the ex-post evaluation. Since the center has implemented trainings on natural environment and ecosystems for the staffs of the Ministry of Nature, Environment and Tourism, the rangers of the protected area, NGOs and the general public, the public relation activities on freshwater resources as well as the survey and research activities, it plays a role as a base for preservation of natural environment and ecosystems in Mongolia. As for sustainability, although there is no problem with staffs' skills and equipment installed by the project has been sustained in good conditions, some problems were observed in the financial aspects and the current status of operation and maintenance of the equipment due to the issues of repair of equipment and procurement for spare parts. As for efficiency, the project period exceeded the plan.

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

**III. Recommendations & Lessons Learned**

Recommendations for Executing Agency.

(Secure of budget for repair of equipment and smooth procurement for spare parts)

In 2015 when the ex-post evaluation started, the national budget of Mongolia was reduced because of the economic recession and the tight fiscal policy. Under the such situation, the center has faced a difficulty to secure a budget to purchase fish feed, to repair equipment and to procure for spare parts. On the other hand, since the budget to cover those costs can negatively affect the activities of the Center, it is expected to solve the budget problems as soon as possible. For example, by stipulating the use of revenues generated by the Center, such as rental fees of meeting rooms for the operation and maintenance costs of the Center, including purchase of fish feed, repair of equipment and procurement of spare parts, the Center may be able to secure a certain amount of the budget even in the situation with limited budget allocation from the national budget.



The Center for Freshwater Resource and Nature Conservation



Exhibitions in the center

Country Name	<b>The Project for Construction of Plant for Small Fisheries in Tombali Region</b>
Republic of Guinea-Bissau	

**I. Project Outline**

Background	<p>The fishing industry in Guinea-Bissau had been centered on small-scale artisanal fisheries except for those by foreign fishing boats aiming at exports of fish. The southern region of the country lagged behind other regions in developing basic social infrastructures, and many fishery products, apart from being consumed in the area of unloading, were merchandised after being smoked and/or dried-salted at most. Particularly in Cacine sector, which is a fishery base in the southern region, the number of fishing boats was 216 (except for foreign boats), the number of people engaged in the fishing industry was 3,035, and the volume of landings was 1,162 tons per year (all the figures are as of 2009). However, there was no ice making facility that enables distribution of fresh fish and the foreshore of Cacine was shoaling tideland, which prevented efficient preparation for fishing and landing of fish. Moreover, there was no facility to handle fishery products hygienically. Furthermore, in Cacine village, basic social infrastructures were not available.</p>				
Objectives of the Project	<p>To achieve stable supply of fishery products in terms of both quantity and quality and improve living environment of residents by developing fishing facilities and basic social infrastructures in Cacine sector in Tombali Region, thereby contributing to improvement of living standards of fishing people in Cacine village and health conditions of residents in Cacine sector.</p>				
Contents of the Project	<ol style="list-style-type: none"> <li>Project site: Cacine sector in Tombali Region (Cacine village)</li> <li>Implementations of the Japanese side: (1) Provision of grant for construction of an administration building of small-scale fisheries (including ice making facility, storage for fresh fish, freight handling space and multipurpose room etc.), a supplementary building for day nursery, a fish processing building, a workshop, a public toilet, an equipment storage, a generator house, a water reservoir on tower, a water processing room, access way on tideland, and a facility for unloading boats etc. and procurement of generators and transportation equipment etc., (2) Technical Assistance for operation and maintenance (O&amp;M) of facilities and equipment (soft component of Grant Aid) (Note) Among the above, facilities that are social infrastructures are multipurpose room (adult education facility) in the administration building, supplementary building for day nursery, water distribution pipes from water reservoir on tower to a hospital and schools, and a generator installed in the hospital.</li> <li>Implementations of Guinea-Bissau's side: Dismantlement and removal of block building and debris of construction machinery in the planned construction site, securing of construction site, completion of procedures for environmental and social considerations, procurement of office equipment, telephone, furniture, and desks, chairs, blackboard, television, and video etc. for trainings/seminars, and construction of community road in Cacine village etc. (Note) Among the above, construction of community road was partially completed.</li> </ol>				
Ex-Ante Evaluation	2010	E/N Date	June 9, 2010	Completion Date	February 10, 2012
		G/A Date	June 9, 2010		
Project Cost	E/N Grant Limit / G/A Grant Limit: 856 million yen, Actual Grant Amount: 741 million yen				
Implementing Agency	General Direction of Fisheries, State Secretary of Fisheries (DGPA)				
Contracted Agencies	Overseas Agri-Fisheries Consultants Co., Ltd. (OAFIC), Toa Corporation				

**II. Result of the Evaluation**

<Special perspectives considered in the ex-post evaluation>

[Supplementary Information for Effectiveness and Impact]

- While not defined as an indicator before project implementation, "improvement of hygiene in handling fishery products" was set and checked as supplementary information for effectiveness to check whether construction of fishing facilities has contributed to stable supply of fishery products in terms of quality (through interview with ten households of fishing people in Cacine village).
- While also not defined as indicators before project implementation, the followings were checked as supplementary information for effectiveness: whether construction of supplementary building for day nursery and adult education facility has contributed to "activation of processing and distribution of fishery products by women and women's union activities"; whether installation of a generator in a public hospital in Cacine village has contributed to "realization of night time medical care"; whether construction of water distribution pipes to the hospital has contributed to "realization of medical treatment in a hygiene environment"; and whether construction of water distribution pipes to two primary schools in Cacine village has contributed to "provision of safe drinking water to children" (through interview with ten fishing women, the public hospital and two primary schools in Cacine village).
- As quantitative indicator to evaluate the impact of the project, "contribution to improvement of living standards of fishing people in Cacine village and health conditions of residents in Cacine sector" was not set before project implementation, "increase of income among fishing people in Cacine village" and "improvement of health conditions of residents in the village" were checked as supplementary information for impact (through interview with ten households of fishing people in Cacine village).

**1 Relevance**

<Consistency with the Development Policy of Guinea-Bissau at the time of ex-ante and ex-post evaluation>

This project has been consistent with Guinea-Bissau's development policy, as 'securing food for nationals by increasing supply and diversification of fishery products', 'promotion of fishing activity development' and 'development of fishing base in the southern region that is underdeveloped' are set in policy documents such as "the Recovery Plan of Small-Scale Artisanal Fisheries (2005-2007)" and

“National Fishery Development Plan (2015-2020)”.

<Consistency with the Development Needs of Guinea-Bissau at the time of ex-ante and ex-post evaluation>

At the time of ex-ante evaluation, Cacine village was composed of communities where fishery was the basis of livelihood of residents. However, the village had problems that construction of fishery related infrastructures and basic social infrastructures lagged behind, and the village was selected as an important southern base for an action plan to support fishery workers in accordance with “the Recovery Plan of Small-Scale Artisanal Fisheries”. At the time of ex-post evaluation, the number of fishing boats increased by approximately 60% compared with that of ex-ante evaluation, the number of people engaged in the fishing industry was almost doubled. Thus, the importance of fishery remains unchanged, and the needs for construction of fishing facilities in the village are still confirmed.

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

The project was highly consistent with Japan’s ODA policy as Japan emphasized assistance for the areas related to basic living and livelihood stability in bilateral assistance to Guinea-Bissau<sup>1</sup>, and the project was to construct basic living infrastructures by constructing a fishery base in the southern region of the country where development of social infrastructures lagged behind.

<Evaluation Result>

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

## 2 Effectiveness/Impact

<Effectiveness>

The project has partially achieved its objectives, “to achieve stable supply of fishery products in terms of both quantity and quality and improve living environment of residents”. Regarding “the amount of supply of ice in Cacine village for distribution of fresh fish to outside the region” (Indicator 1), which was set as an indicator of quantitative effect of the project before project implementation, actual figures are approximately 20% of the target. The reasons include the fact that there are problems in budget allocation for purchase of gasoline for ice making, and a competing company called CONAPESCA (a South Korean fishery exporting company equipped with its own ice-making function) has started operation since 2014.<sup>2</sup> On the other hand, regarding “the distribution amount of fresh fish from Cacine village to other regions (outside of Cacine sector)” (Indicator 2), while actual figures from 2013 to 2015 are estimated ones, actual figures have achieved over 80% of the target since project completion. Moreover, actual figures of “waiting time for tidal shift for fishing and unloading in the offshore of Cacine village” (Indicator 3) have also achieved the target due to construction of access road on the tideland under the project.

As qualitative effects, in interviews with ten households of fishing people in Cacine village, all respondents replied that hygiene in handling fishery products has been improved in the village as a result of construction of fishing facilities, and its reasons are that fishery products have become able to be unloaded avoiding mud areas as a result of construction of a pier, fish have become able to be washed as a result of construction of water supply and drainage facility, and fish have become able to be kept fresh using ice, etc. Moreover, according to the director of the Cacine public hospital, night time medical care has become possible as a result of installation of a generator in the hospital under the project, and approximately 15 people on average per day receive night time medical care. Hospital facilities and medical equipment have also become able to be cleaned, bed sheets have become able to be washed, patients’ toilets and hygienic conditions of nurses have become able to be kept clean, and medical treatment has become able to be provided in a hygiene environment, as a result of construction of water distribution pipes to the hospital. Furthermore, water distribution pipes were also constructed at two primary schools in the village under the project, which materialized securing safe drinking water. On the other hand, according to interviews with ten fishing women in the village, while supplementary building for day nursery and adult education facility were constructed under the project, the volume of fish catches has been small and thus the amount of processing and distribution of fishery products by women has not increased, and there are not many activities in fishing facilities, and consequently day nursery and adult education facilities have not been fully utilized and women’s union activities utilizing these facilities have neither been activated.

While soft component for O&M of facilities was also conducted under the project, according to the implementing agency and O&M organization, techniques transferred by the soft component have not been shared within DGPA and the O&M organization smoothly, and budget and expertise are also not sufficient. Consequently, capacity required for O&M of the project facilities have not been acquired. In order to improve the situation, O&M budget needs to be allocated for the project facilities and trainings for utilization of infrastructures and equipment need to be conducted. Nonetheless, project facilities and equipment are used without major problems.

In light of the above, the effect of the project has been observed partially.

<Impact>

As for the expected impact, “contributing to improvement of living standards of fishing people and health conditions of residents in Cacine sector”, certain impacts are considered to have been obtained. In interviews with ten households of fishing people in Cacine village, all respondents replied that their income has increased after project implementation, and its reasons are that conditions of fish have been improved by an use of ice, losses after unloading have decreased, and sales prices of fish have increased (fish have become able to be sold for twice as much as the price before project implementation). Moreover, 60% of these ten households replied that health conditions of their family members have improved after project implementation, and its reasons are that services and hygiene conditions of the public hospital in the village have improved as a result of provision of a generator and water distribution pipes to the hospital.

No negative impact on natural environment has been observed under the project. On the other hand, resettlement of two households residing in the project target areas has occurred (seven people in one household and four in the other household). While one of these households has resettled to a residence constructed by the government in other area in Cacine village, there is a problem in quality of the residence, and while this household had conducted plantation farming before resettlement, it has not received compensation for this yet.<sup>3</sup> The other household has resettled to a different village receiving compensation from the government, while data on the amount of compensation is not available.

<Evaluation Result>

Construction of fishing facilities under the project has led to an increase of distribution of fresh fish, reduction of waiting time for tidal

<sup>1</sup> “ODA Country Data Book” (2009), Ministry of Foreign Affairs

<sup>2</sup> Sufficient information was not available to fully verify the issues such as whether the budget for gasoline as much as anticipated was secured, whether the plan on utilization of the facility was too optimistic, and whether it was possible to foresee an advance of a competitor, at the time of planning.

<sup>3</sup> Information was not available on whether and how this issue was handled.

shift for fishing and unloading in the offshore, and improvement of hygiene in handling fishery products, all of which materialized an income increase of fishing people. Moreover, provision of a generator and water distribution pipes to the public hospital in the village has led to improvement of services and hygiene environment of the hospital, which resulted in improvement of health conditions of fishing people, and provision of water distribution pipes to primary schools has led to securing safe drinking water for children. On the other hand, the actual amount of supply of ice for distribution of fresh fish to outside the region has remained approximately 20% of the target, supplementary building for day nursery and adult education facility constructed under the project have not been fully utilized, effects of the soft component have not been observed sufficiently, and complaints from one of resettled households have been reported.

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

#### Quantitative Effects

Indicators	Baseline 2009 Baseline 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: Amount of supply of ice in Cacine village for distribution of fresh fish to outside the region (ton/year)	Approximately 21	Approximately 193	45	49	51	36
Indicator 2: Distribution amount of fresh fish from Cacine village to other regions (outside of Cacine sector) (ton/year)	Approximately 23	Approximately 111	95	Approximately 100	Approximately 100	Approximately 100
Indicator 3: Waiting time for tidal shift for fishing and unloading in the offshore of Cacine village (hour)	Approximately 3	0	0	0	0	0

Source: Ex-Ante Evaluation Sheet, Preparatory Survey Report, interview with the head of the fishing facility

Note: (1) The target of Indicator 1 is calculated as the amount of distribution of fresh fish to other regions (raw fish conversion) (111,015kg/year) x 1.74 = 193,167kg/year = 193ton/year. This formula is based on the assumption that the weight of ice needed is approximately 1.74 times that of fish.

(2) The data for Indicator 2 does not include distribution of fish by the foreign company. Actual figures of 2013 to 2015 are estimated based on results of survey to fishermen's union and women's union by the head of the fishing facility.

#### 3 Efficiency

Both the project cost and project period were within the plan (ratio against the plan: 87% and 95%, respectively). Therefore, the efficiency of the project is high.

#### 4 Sustainability

##### <Institutional Aspect>

An O&M organization for project facilities has been established under DGPA, and while assignment of 14 staff in total was planned at the time of ex-ante evaluation, 16 staff in total are actually assigned at the time of ex-post evaluation. However, positions in charge of accounting/finance and power generation/electricity are vacant, which is partially a problem in sustaining project effects. While financial source is needed for assigning necessary number of staff, the functions of the government have been stagnant since the recall of the prime minister in August 2015, and it is difficult to assign new staff at the time of ex-post evaluation.

##### <Technical Aspect>

As explained above, the implementing agency and O&M organization do not consider that their O&M capacity has been improved through the soft component. Moreover, trainings for improving O&M capacity are not conducted due to lack of budget, and a draft regulation on use and operation of project facilities, a draft manual for collecting facility charge and accounting, an accounting book, and a maintenance plan of water supply, fuel supply, power generation and ice making, all of which were produced under the soft component, are not utilized, as they have not been approved by the Ministry of Fisheries. On the other hand, a maintenance record of water supply, fuel supply, power generation and ice making is utilized and data has been recorded.

##### <Financial Aspect>

Sufficient amount of income/budget required for O&M of facilities and equipment constructed and procured under the project are not secured. A prospect of O&M budget allocation is very limited, as the Center Management Plan (2012-2025) has not been formulated. The amount of expenditure required for O&M of the project facilities from 2013 to 2015 was 19,840 thousand FCFA to 74,710 thousand FCFA, on the other hand, the amount of income such as sales of ice and usage fees of facilities and equipment etc. was 3,790 thousand FCFA to 7,270 thousand FCFA only. Sales of ice, which was expected as a large source of income at the time of planning, is smaller in scale than anticipated, and sales of gasoline to fishing boats has not started yet. In addition, the amount of income from the operation of the project facilities is very limited, as Cacine village is far from arterial roads to create new demand, and there is a competing foreign company, etc. In order to improve the situation, it is required to start selling gasoline to fishing boats soon, to rehabilitate roads connected to the main arterial roads to secure means of transportation in the village, and to prepare rules on the use of the project facilities by fishing people such as through prohibiting landing of fish directly to foreign companies. While these have been promoted by a JICA expert for "Fisheries plant management/marketing promotion" (2012-2017)<sup>4</sup> who were dispatched to the village at the time ex-post evaluation, the Center Management Plan needs to be formulated as early as possible and O&M budget needs to be allocated.

##### <Current Status of Operation and Maintenance>

Facilities and equipment constructed and procured under the project are maintained in mostly good conditions. The project facilities and equipment are inspected on an irregular base, and when a problem such as breakdown occurs, it is dealt with properly. On the other hand, there are issues that some consumables and spare parts cannot be purchased locally, and there is no local professional who can replace consumables and spare parts etc. In this case, support is requested to the Ministry of Fisheries to dispatch an expert, and if a problem is not solved, a supplier is contacted, or support is requested to development partners etc.

<sup>4</sup> The activity was commenced in 2016 due to the coup.



#### <Evaluation Result>

In light of the above, major problems have been observed in terms of institutional, technical and financial aspects of the implementing agency as well as operation and maintenance status. Therefore, the sustainability of the project effect is low.

#### 5 Summary of the Evaluation

Through the project, the project objectives have been partially achieved: the actual amount of supply of ice for distribution of fresh fish to outside the region has been overly lower than the target, and part of the project facilities are not utilized, however, the distribution amount of fresh fish from Cacine village to other regions has increased, waiting time for tidal shift for fishing and unloading in the offshore has been reduced, and hygiene in handling fishery products has been improved. Regarding impact, the project is considered to have contributed to the increase of fishing people's income and improvement of health conditions to a certain extent. While there has been no negative impact on natural environment, a problem was observed in resettlement of residents. As for sustainability, the number of staff, technical skills and budget are not sufficient for conducting O&M of project facilities and equipment.

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

### III. Recommendations & Lessons Learned

#### Recommendations to implementing agency:

1. DGPA should formulate and approve the Center Management Plan (2012-2025) urgently, and needs to allocate O&M budget for the project facilities.
2. DGPA should make further efforts such as obtaining fishing boats for increasing fish catches, rehabilitating roads to secure means of transportation and preparing rules on the use of the project facilities by fishing people etc., in order to promote the use of the fishing facilities (including the building for day nursery and the adult education facility which are not adequately utilized).
3. DGPA should take necessary measures such as payment of appropriate amount of compensation, as there is a complaint from a household which was resettled.

#### Lessons learned for JICA:

1. As explained above, a long time is required for a repair, as there is no technician who can repair or replace parts, and a long time is required to purchase some consumables and spare parts as they are not available locally. Although procurement of some parts and technicians from abroad was anticipated at the time of planning, it is not clear from existing documents whether details were planned for the procurement. Selection of equipment should be proceeded by a process of checking sufficiently whether there are technicians and agents that have stocks of consumables and spare parts locally before procurement of equipment, and explaining sufficiently to the implementing agency about the necessity of conclusion of an after-purchase servicing contract with such agents, in order to ensure that equipment can be fully operated at any time.
2. Despite the finding that the sales price of fish increased by use of ice and it resulted in higher income of individuals, the amount of supply of ice is limited. Therefore, measures should be taken such as inviting the private sector to production and sales of ice and constructing affiliated facilities such as a nursery and adult education rooms based on adequate demand forecast.
3. At least one of the two households that were resettled from the project site is not satisfied with the contents of the compensation it received. Therefore, the preparatory survey of a project should make sure the implementing agency monitors the status of payment of the compensation and reports the monitoring result to JICA.



Administration Building in Cacine



Water Reservoir on Tower in Cacine



Country Name	<b>Project for the Installation of X-ray Scanning Equipment at the Check Points of Uzbekistan Borders with the Neighboring Countries (Phase I) (Phase II)</b>
Republic of Uzbekistan	

**I. Project Outline**

Background	<p>As Uzbekistan is a landlocked county in Central Asia, the county was subject to inflow of various illegal goods and materials that enter from or via neighboring countries. The government of Uzbekistan designated a number of border customs check points as high-risk points, and adopted policy measures to control traffic in drugs and arms.</p> <p>On the other hand, in keeping with the increasing flows of goods accelerated by improvement of the transport network within the Central Asia Region, the importance of rapid customs clearance at border crossings had risen. Differences in custom clearance system and insufficient border infrastructure in the neighboring countries caused congestion of trucks carrying freight accumulation of rail freights at customs check points. With regard to the customs in Uzbekistan, the issues with highest priority were unification of the relevant laws and regulations, greater transparency of customs procedures, reduction of the time needed for customs clearance of freights, detection of illegal and smuggling goods, and improvement of the rate of duty collection.</p> <p>In March 2008, the World Customs Organization (WCO) recommended to the State Custom Committee (SCC) of Uzbekistan that in order to improve the nonintrusive inspection arrangements by installation of X-ray scanning equipment at the border check points with high risk to inflow illegal goods. Under those situations, SCC planned to install larger scale X-ray scanning equipment at 16 major border check points in the country in order to conduct efficient and effective custom inspections as well as to strengthen detection of illegal goods and materials, such as drugs and arms flowing from the neighboring regions.,</p>				
Objectives of the Project	To speed up customs procedures and improve the X-ray inspection rate by installation of large-sized X-ray equipment for inspection of freight and vehicles at high-risk border check points near the neighboring countries and provision of technical training for customs officers, thereby contribute to establishment of efficient transport networks.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Ayritom Customs Complex (Road) (Surkhandarya Region), Galaba Railway Check Point (Railway) (Surkhandarya Region), Oybek Customs Check Point (Road) (Tashkent Region)</li> <li>2. Japanese side <ol style="list-style-type: none"> <li>(1) Procurement and installation of equipment <ul style="list-style-type: none"> <li>➢ Large-sized X-ray Scanning Unit (mobile type) x 2 units</li> <li>➢ Large-sized X-ray Scanning Unit (for rail cargo) x 1 unit</li> </ul> </li> <li>(2) Technical Assistance (soft component of Grant Aid) <ul style="list-style-type: none"> <li>➢ Technical training for customs officers on operation of X-ray scanning equipment</li> </ul> </li> </ol> </li> <li>3. Uzbekistan side: <ol style="list-style-type: none"> <li>(1) Groundwork for installation of large size X-ray scanning equipment for rail freights</li> <li>(2) Embankment and land preparation at the project sites</li> <li>(3) Registration of vehicle for mobile large size X-ray</li> </ol> </li> </ol>				
Ex-Ante Evaluation	2010	E/N Date	(Phase I) March 1, 2010 (Phase II) September 16, 2010	Completion Date	October 22, 2012
		G/A Date	(Phase I) N.A. (Phase II) September 16, 2010		
Project Cost	(Phase I) E/N Grant Limit / G/A Grand Limit: 467 million yen, Actual Grant Amount: 329 million yen (Phase II) E/N Grant Limit / G/A Grand Limit: 360 million yen, Actual Grant Amount: 293 million yen				
Executing Agency	The State Custom Committee (SCC)				
Contracted Agencies	Consultant: UNICO International Corporation Contractor: Marubeni Corporation, Sojitz Aerospace Corporation				

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- In order to verify effects of the X-ray scanning equipment installed by the project, the ex-post evaluation attempted to collect supplementary quantitative data such as the number of cases that illegal goods detected including smuggled machines and narcotics and the number of containers/truck cargos for customs clearance procedures could be reasonable. However, confidentiality of those data, SCC did not provided such quantitative data. Therefore, the project effect on improvement in detection of illegal goods was mainly verified based on the qualitative information through interviews with the SCC officers.

## &lt;Special perspectives considered in the ex-post evaluation&gt;

- In the ex-ante evaluation, the two project impacts such as (i) contribution to social stability and (ii) establishment of efficient transport networks were mentioned. However, as a notion of “social stability” is vague, difficult to measure “social stability”, and there are many social and economic factors related to “social stability”, this ex-post evaluation exclude the impact of (i) contribution to social stability.

**1 Relevance**

## &lt;Consistency with the Development Policy of Uzbekistan at the time of ex-ante and ex-post evaluation&gt;

This project was consistent with Uzbekistan’s development policy of “to modernize customs system in Uzbekistan” as set forth in the policy documents including “Business Strategy of the State Customs Committee of the Republic of Uzbekistan (2007-2010)” and “the Investment Programs of Uzbekistan Government (2010-2016)”.

## &lt;Consistency with the Development Needs of Uzbekistan at the time of ex-ante and ex-post evaluation&gt;

This project met the development needs of Uzbekistan to improve the nonintrusive inspection arrangements at border check points by

introduction of X-ray scanning equipment since it was recommended by WCO at the time of both ex-ante and ex-post evaluation.

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

This project was consistent with Japan's Country Assistance Program for Uzbekistan (established in September 2006) to prioritize (i) support for human resource development and institutional building to facilitate a market economy and develop economy and industry, and (ii) promotion of intra-regional cooperation.

<Evaluation Result>

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

## 2 Effectiveness/Impact

<Effectiveness>

The project has partially achieved its objectives at the time of ex-post evaluation. The radiographic (X-ray) inspection rate of truck cargo including transit freights at the Ayritom Customs Complex reached to 76.4% in 2015 and 100% in 2016, and the rate of railway containers at the Galaba Railway Check Point reached 100% in 2015 and 72.3% in 2016. These two customs check points either fully met the target value (100%) in 2015 or 2016. However, the X-ray scanning equipment installed at the Ayritom Customs Complex has not been operated since October 2016 due to breakdown of accelerator. It was repaired by own funds of SCC and started operating by February 7, 2017. On the other hand, the radiographic inspection rate at the Oybek Customs Check Point was low as it was 36% in 2015 and 0% in 2016 because the equipment has been in non-operable condition since July 16, 2015 due to a problem of accelerator which may have been caused by normal wearing off (see Table 1). According to the interview with SCC, the inspection time per truck cargo (or container) was 7-10 minutes at all three target customs check points to truck cargo and freight train. According to the interviews with the customs officers of the Oybek Customs Check Point, the illegal (non-declared) goods for the amount of Uzbek Soum 146 million<sup>1</sup> were revealed in 2015 by using the X-ray scanners installed by the project. Other 2 check points also confirmed that illegal goods were frequently detected by using X-ray scanners. Although no quantitative data was available due to their confidentiality, it can be reasonably assumed that the project has brought about a positive effect on increase in the number of cases of illegal goods detected at the target customs check points.

Table 1: Operational Status of X-ray Equipment

Equipment	Location	Status of Operation
Large-sized X-ray Scanning Unit (mobile type)	Ayritom Customs Complex (Surkhandarya Region)	<ul style="list-style-type: none"> <li>Start of operation: August 1, 2011.</li> <li>2014: Partially operational</li> <li>2015: Mostly operational</li> <li>2016: Fully operational until October 3, 2016 (microcircuit powering accelerator was burnt out).</li> <li>2017: Resumed full operation on February 7.</li> </ul>
Large-sized X-ray Scanning Unit (mobile type)	Oybek Customs Check Point (Tashkent Region)	<ul style="list-style-type: none"> <li>Start of operation: April 1, 2011.</li> <li>2014: Partially operational</li> <li>2015: Partially operational (The equipment has been in non-operable condition since July 16, 2015 due to a problem of accelerator).</li> <li>2016: Non-operational</li> </ul>
Large-sized X-ray Scanning Unit (for rail cargo)	Galaba Railway Check Point (Surkhandarya Region)	<ul style="list-style-type: none"> <li>Start of operation: November 13, 2012.</li> <li>2014: Partially operational</li> <li>2015: Fully operational</li> <li>2016: Fully operational.</li> </ul>

Source: The State Custom Committee (SCC).

In addition to provision of X-ray equipment, the project conducted a technical training for customs officers on operation of X-ray equipment and supported to establish a database on X-ray inspection images as a soft component of the project. It was expected that the database would have been shared by other customs offices. However, at the time of ex-post evaluation, the database on X-ray inspection images currently were stored separately at each customs check point and they are not shared by other customs office since no unified database system has been created yet. Currently, SCC has been working on establishment of unified database system.

<Impact>

The project has a positive impact on increase in flow of goods. For example, 100-150 containers (2-3 freight trains) used to pass through the Galaba railway station in a day before the project, but currently 200-250 containers (4-5 freight trains) pass through the station in a day due to reduction in the time required for customs inspection after installation of X-ray scanners by the project.

No negative impact on the natural environment was observed and no land acquisition and resettlement of people were taken place.

<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

Indicator	Baseline 2009 Baseline 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	Actual 2016** Ex-post evaluation
<b>Indicator 1: Radiographic inspection rate of large scale container/truck cargo including transit freight (%)</b>							
a) Ayritom Customs Complex	0	100	N.A.	N.A.	43.9	76.4	100
b) Oybek Customs Check Point	0	100	N.A.	N.A.	13.2	36.0	0
c) Galaba Railway Check Point	0	100	N.A.	N.A.	44.8	100	72.3
<b>Indicator 2: Time for custom clearance per track cargo (minutes)</b>							
a) Ayritom Customs Complex	180-300****	20-30	N.A.	N.A.	N.A.	N.A.	7-10*****
b) Oybek Customs Check Point	180-300****	20-30	N.A.	N.A.	N.A.	N.A.	7-10*****
(Reference)							
c) Galaba Railway Check Point***	-	-	N.A.	N.A.	N.A.	N.A.	7-10*****

Source: SCC

Note 1: \*The actual date for 2014 was for four months from September to December 2014.

Note 2: \*\*The actual data for 2016 was for six months from January to June 2016.

Note 3: \*\*\* Before the project, since there was insufficiency of personnel, inspections for containers from Afghanistan and Tajikistan were conducted on a random basis.

<sup>1</sup> JPY 6.57 million converted by JICA's foreign currency translation rate in December 2015 (UZS1=¥0.045).

Note 4: \*\*\*\* The time for custom clearance, including time for manual opening door inspection.

Note 5: \*\*\*\*\* The inspection time per cargo truck or railway container by using X-ray scanner.

### 3 Efficiency

The outputs were produced as planned and both the project cost and project period were within the plan (ration against plan were 75% and 89% respectively). Therefore, the efficiency of the project is high.

### 4 Sustainability

#### <Institutional Aspect>

SCC of Uzbekistan is responsible for operation and maintenance (O&M) of the equipment installed by the project. While, the customs offices at each check point are in charge of operation and daily maintenance of the X-ray scanners and management of the image database, the IT Department of SCC conducts periodic maintenance of the X-ray scanners together with the authorized personnel of the manufacturer. Each of the three target customs check points has deployed four customs officers for the O&M of the X-ray scanners and the number of staff has been sufficient for the required assignment. Among three units of large-sized X-ray scanners procured by the project, two units of mobile type were manufactured by the German company and the one unit for railway was manufactured by the UK company. SCC has a maintenance contract on another X-ray scanner installed near Galaba Railway Check Point funded by the US government for the years of 2016 and 2017. If necessary, SCC is supposed to ask for technical assistance under this contract to X-ray scanner installed by the project. On the other hand, SCC has no maintenance contract with any German manufacturer, and calls their assistance in case where SCC is not able to fix breakdowns and problems. These two manufacturers also supplied number of small and medium-sized X-ray scanners in Uzbekistan. Therefore, their branch office in Uzbekistan has been providing the maintenance services for their products.

#### <Technical Aspect>

The customs officers who operate the X-ray scanners have sufficient skills for daily operation and maintenance with using the manuals, however they lack skills for diagnostics and repair of the equipment. In such case, they ask for technical assistance of the branch office of manufacturers. However, they have not been able to repair non-operational two units of X-ray scanners at Ayritom Customs Complex and Oybek Customs Check Point (manufactured by German company) for a while because no qualified technical experts specialized in diagnostics and repair of large-sized X-ray scanning units are allocated in their branch office in Uzbekistan as the number of the existing large X-ray scanners of their products in Uzbekistan is limited. This posed an impediment for prompt recovery of non-operational two X-ray scanners. One of them (namely in Ayritom) was repaired only after 5 months after it was broken, while another in Oybek is still in the process of repairing. The SCC has been negotiating with the manufacturer on this issue. SCC has some training on radiation security and also general basic trainings on operation of X-ray scanners provided by other donors.

#### <Financial Aspect>

The detailed financial information was not provided by SCC including annual O&M budget for X-ray scanners installed by the project due to the high confidentiality of SCC operation. However, during the interview, SCC recognized that the sufficient amount of budget has been allocated to daily proper operation and maintenance of the inspection equipment including the equipment installed by the project. Own funds of SCC were used to repair of the X-ray Scanner in Ayritom and currently SCC is in process of repairing the second X-Ray Scanner in Oybek.

#### <Current Status of Operation and Maintenance>

As mentioned above, out of three large-sized X-ray scanning units equipment one was repaired and one is in process of repair. SCC and the staff in charge at the target customs check points confirmed that spare parts and consumables were procured on timely basis. However, SCC could not purchase genuine parts made by the manufacturer which is not easily available in the country.

#### <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 executing agency. Therefore, the sustainability of the project effect is fair.

### 5 Summary of the Evaluation

The project has partially achieved its objectives. The target value for the radiographic inspection rate was met by two customs check points. Also the inspection time per truck cargo was considerably shortened. On the other hand, no unified database system for X-ray inspection images has been established so far, hence the database was only utilized separately at each customs check points.

As for sustainability, some problems have been observed in terms of the technical and current status of operation and maintenance aspects due to limited maintenance service by the manufacturer. At the time of ex-post evaluation, one out of three X-ray equipment was not operational. On the other hand, the sufficient number of customs officers were assigned for O&M of each X-ray equipment and they have been conducted their expected O&M activities under the limited circumstances.

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

## III. Recommendations & Lessons Learned

#### Recommendations to executing agency:

- In order to continue the project effects as well as to improve their sustainability, SCC should consider a possibility of making a maintenance contract of large-sized X-ray equipment with the manufacturer to avoid delays in repairing of broken equipment. For this purpose, SCC also needs to discuss the additional budget with the Ministry of Finance for the above mentioned maintenance contract. Or SCC shall be advised to preserve an emergency repair fund to cover such kind of repair and maintenance expenses.
- In order avoiding the problems with the diagnostics and repair of equipment, SCC shall consider unification of specification for the hi-tech equipment throughout the country, which provides sufficient economic interest for the original equipment manufacturer (OEM) to deploy necessary staff in Uzbekistan for rendering diagnostics and repair services.

#### Lessons learned for JICA:

- Some statistics related with the SCC's operations are categorized as confidential/internal use only. In the case where it is assumed that such data with high confidentiality will be necessary to verify project effects at ex-post evaluation, it is required to discuss with relevant agencies about possibility to provide data with high confidentiality and to agree upon provision of the data in the Record of Discussions (R/D) at the time of project preparation. Or, in the case where agreement of the data provision cannot be concluded with the relevant

agencies, it is necessary to consider alternative data/ information at the time of project preparation.

- Before supply of the highly sophisticated technological equipment, the commitments shall be received from manufacturer on accessibility of the diagnostics and repair in case of troubles.



Large truck-mounted X ray Scanner at Oybek, at Uzbek-Tajik border  
(Out of operation)



X-Ray scanner at the Galaba Station, near Uzbek-Afghan border.  
(Fully operational)



Large truck-mounted X-ray Scanner at Ayritom, at Uzbek-Afghan border.  
(was out of operation from October 3, 2016 to February 7, 2017.  
Currently fully in operation.)

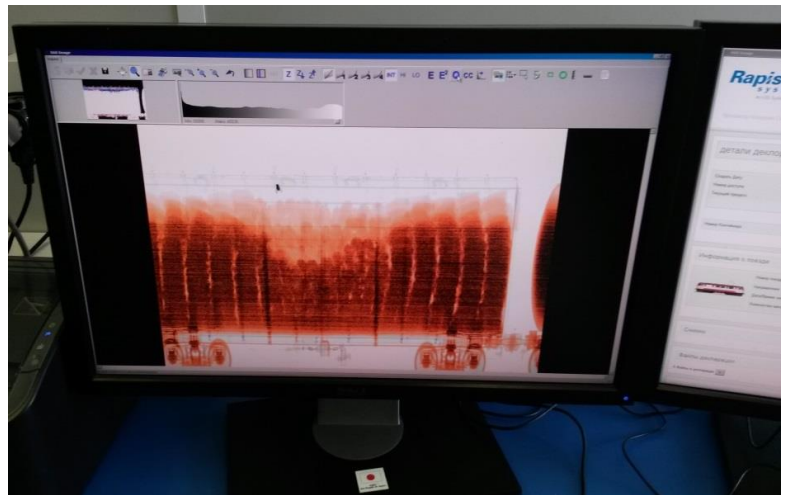


Image of agricultural products in the rail car scanned by the X-ray scanner at the Galaba Station

Country Name	<b>(I) The Project for Renovation of Viana Vocational Training Center</b>
Republic of Angola	<b>(II) The Project for Equipment Renovation of Viana Vocational Training Center <sup>1</sup></b>

## I. Project Outline

Background	As the peace agreement in 2002 notably added momentum, stable economic growth was a challenge to the development of Angola. The Government of Angola needed to redress its negative legacy and continued its socio-economic development. Revitalization of domestic industries and strengthening of technical vocational education and training (TVET) were urgently needed for the stable economic growth. However, a shortage of skilled workers was a chronic problem in the private sector. Especially, the indispensable skills for public works in the field of civil, mechanical, electrical, and telecommunication engineering were considered to be strengthened urgently as more than 7,000 foreign workers said to get domestically engaged. Under this circumstance, the Government of Angola addressed the need to promote knowledge and skills of the above mentioned engineering fields through enhancement of the vocational training service meeting to the Angolan market needs through the Viana Vocational Training Center (CENFOC: Centro Formação Profissional de Construção Civil de Viana).				
Objectives of the Project	To improve the quality of engineering education and training to meet the demand for labor market and industrial sector development by constructing facilities and procuring equipment for 3 newly opened training courses in CENFOC, thereby contributing to development of the skilled professionals for the industry of Angola.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: The Viana Vocational Training Center (CENFOC), Viana, Province of Luanda</li> <li>2. Japanese side <ul style="list-style-type: none"> <li>• Construction and provision of facilities and equipment for 3 newly opened training courses (Topography course, Building Construction course, and Metallic Structure course)</li> </ul> </li> <li>3. Angolan side: <ul style="list-style-type: none"> <li>• Removal of any obstacles on construction sites</li> <li>• Installation of fence around the construction site</li> <li>• Provision of electricity, water supply lines and other necessary utilities to the Project</li> <li>• Disposal of construction and demolition waste according to legal compliance</li> </ul> </li> </ol>				
Ex-Ante Evaluation	(I) 2010 (II) 2011	E/N Date G/A Date	(I) August 30, 2010 (II) December 1, 2011 (I) August 30, 2010 (II) December 5, 2011	Completion Date	(I) March 1, 2013 (II) August 30, 2013
Project Cost	(I) E/N Grant Limit/ G/N Grant Limit: 844 million yen, Actual Grant Amount: 778.4 million yen (II) E/N Grant Limit/ G/N Grant Limit: 220 million yen, Actual Grant Amount: 187.5 million yen				
Executing Agency	National Institute for Employment and Vocational Training (INEFOP)				
Contracted Agencies	(I) (Consultant) Fukunaga Architects-Engineers and Overseas Vocational Training Association, (Contractor) Dai Nippon Construction (II) (Consultant) Fukunaga Architects-Engineers and Overseas Vocational Training Association, (Supplier) Ogawa Seiki Co. Ltd.				

## II. Result of the Evaluation

*Field survey conducted in Jul/2016*

< Special perspectives considered in the ex-post evaluation >

- Two grant aid projects: (i) Project for Renovation of Viana Vocational Training Center and (ii) Project for Equipment Renovation of Viana Vocational Training Center were implemented for capacity development of CENFOC in terms of improvement of training facilities and equipment. As the two projects had a common project objective and same counterpart agency, this ex-post evaluation evaluated two grant aid projects jointly as one packaged project.
- The target year of effect indicators was set as 2016 in the ex-ante evaluation of the target projects. However, this ex-post evaluation made a judgment for degree of achievement of the effect indicators based on the available actual figures in 2015.

### 1 Relevance

<Consistency with the Development Policy of Angola at the time of ex-ante and ex-post evaluation>

This project was consistent with Angolan development policy of “to develop the technical vocational education and training (TVET) in the construction sector” as set forth in the policy documents including the Vocational Training Plan for Socio-Economic Development (2011) and the National Plan for Training in Angola (2013-2020).

<Consistency with the Development Needs of Angola at the time of ex-ante and ex-post evaluation>

This project met the development needs of Angola to educate and train the skilled works for the construction sector meeting the needs of the industry of Angola by improving the training facilities and equipment of CENFOC. At the time of ex-post evaluation, CENFOC has played an important role as an exclusive vocational training center in Angola which, the above mentioned development needs was still confirmed.

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

This project was consistent with Japan’s ODA policy for Angola (2010) to take the vocational training as one of priority areas.

<Evaluation Result>

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

<sup>1</sup> There are two target projects for this ex-post evaluation: (i) Project for Renovation of Viana Vocational Training Center and (ii) Project for Equipment Renovation of Viana Vocational Training Center.

## 2 Effectiveness/Impact

### <Effectiveness>

The project partially achieved its objective. After the project completion, the three courses such as (i) Metal Structure Course, (ii) Building Construction Course, and (iii) Topography Course were established in CENFOC in 2015. For the preparation of establishment of three courses, JICA dispatched Japanese expert to CENFOC from 2012 to 2014 under the technical cooperation scheme to support CENFOC to develop the training curriculum and training materials, to guide the operation and maintenance of the courses, etc. in addition to improvement of training facilities and equipment by this project. In 2015, CENFOC had their first graduates of the three courses. Regarding number of trainees who completed each course in 2015, they were 21 in the Metal Structure Course (target achievement rate 88%), 37 in the Building Construction Course (target achievement rate 154%), and 15 in the Topography Course (target achievement rate 31%). The training facilities and equipment provided by the project were utilized for the implementation of training programs in the three courses.

The main reason for low achievement in annual number of trainees who completed the Topography Course was that the needs of the Topography Course were less than expected. Due to the recent economic deterioration in Angola caused by collapse in oil prices, a large number of private companies in construction sector have evacuated form Angolan market. Under such situation, the demand for human resources related to the topography area became smaller. Also, it may be because the Topography Course of CENFOC has not been well-known among the universities.

In addition, some trainees gave up attending the course due to lack of means of transportation to CENFOC. Also, unstable power supply condition affected the implementation of the Metal Structure Course. CENFOC frequently generates the power by their in-house power generators, particularly for the Metal Structure Course that consumes the electricity the most in order to supplement the unstable power supply from the electricity company. However, as the in-house power generation requires high running cost, the training hours for the Metal Structure Course are regulated sometimes. Regarding the electricity issue, INEFOP entered negotiations with ENDE Viana (National Enterprise for Distribution of Electricity in Viana) to resolve a power supply shortage in CENFOC, and it is expected that a power supply condition in CENFOC will be resolved by August 2016. While CENFOC doesn't have any effective measures to cope with the challenges such as lack of means of transportation and high tuition fees so far.

On the other hand, after the implementation of the project, CENFOC was able to improve its quality of engineering education and training to meet the demand for labor market and industrial sector development. CENFOC was able to provide a full scale of new 3 training courses for one year period since 2015, and organized approximately 900 hours training per course on Building Construction Course and Metal Structure Course as well as 110 hours for Topography Course using the facilities and equipment provided by the project. According to the interviewed three major private construction companies, they recognized that the contents, level of knowledge and skills provided in the newly opened 3 courses meet to some extent the demand for labor market and industrial sector in Angola. Some of the interviewed private construction companies had a positive impression on the graduates of 3 courses for their knowledge and skills.

### <Impact>

The project has a positive impact on creating the employment opportunities for trainees of CENFOC but it is quite limited due to the fluctuating economic situation in Angola since 2014, in particular a sharp decline in 2016<sup>2</sup>. According to INEFOP and CENFOC, in 2015, 16 out of 73 graduates from the 3 target courses participated in internship programs and all of them got employment either in the private or the public sector after their internship. Namely, 21.9% of the graduates from the 3 target courses have been employed more than the number of graduates with employment from all the 20 courses of CENFOC of 15%<sup>3</sup>. The contributing factor for this success is that CENFOC has been making great efforts to have a close relationship with private companies for the opportunity of internship. On the other hand, according to CENFOC, only one graduate from the Building Construction Course has participated in the internship program due to the current stagnant economy adversely affecting the labor demand in the country and the limited employment opportunities for the graduated in the labor market dominated by Chinese construction companies preferably seeking Chinese workers.

After the project completion in 2013, CENFOC organized special training programs and seminars such as survey and design course and management course designed for private construction companies for seven sessions and total 131 persons from private companies participated to the above training sessions by using the training facilities and equipment provided by the project. This is also a positive impact of the project.

No negative impact on the natural environment was observed and no land acquisition and resettlement of people was associated with the project.

### <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.

Table 1: Employment Opportunities for Graduates of Target 3 Courses (2015)

Course	Total number of graduates(a)	No. of graduates with Internship	No. of graduates employed. (b) (b/a%)
Metal structure	21	10	10 (47.6%)
Building Construction	37	1	1 (2.7%)
Topography	15	5	5 (33.3%)
Total	73	16	16 (21.9%)

Source: CENFOC

Table 2: Training for Private Sectors by CENFOC

	2013	2014	2015
Number of special training programs and seminars designed for private construction companies at CENFOC	3	2	2
Number of CENFOC trainees from private companies	49	44	38

Source: CENFOC

<sup>2</sup> In 2016, the GDP growth rate declined to -7.8% in the 2<sup>nd</sup> quarter and slightly recovered to -4.9% in the 3<sup>rd</sup> quarter.

<sup>3</sup> For the period from 2009 to 2015, the total number of graduates from the 20 training courses of CENFOC was 907 and the total number of graduated who were employed was 138.



## Quantitative Effects

Course	Baseline 2009 Baseline year	Target 2016 (3 Year After Completion) Target value	Actual 2013 Completion Year	Actual 2014 1 Year After Completion	Actual 2015 2 Year After Completion
<b>Indicator 1</b> Number of training course	0	3	N.A.	N.A.	3
<b>Indicator 2</b> Annual number of trainees who completed each course					
(i) Metal Structure Course	0	24 (24 x 1 batch/year)	N.A.	N.A.	21
(ii) Building Construction Course	0	24 (24 x 1 batch/year)	N.A.	N.A.	37
(iii) Topography Course	0	48 (24 x 2 batch/year)	N.A.	N.A.	15

Source: CENFOC

Note 1: The target 3 courses are composed of 2 semesters. 1st semester starts in February and ends in May/June, and 2nd semester starts in July and ends in November.

Note 2: The data for 2016 were unable to be obtained in July 2016 at the survey of ex-post evaluation.

Note 3: N.A. means that three courses were not formally established in 2013 and 2014.

## 3 Efficiency

### <(i) Project for Renovation of Viana Vocational Training Center>

The project cost was within the plan (ratio against the plan: 92%), the project period was longer than the plan (ratio against the plan 152%) because it required long time for the import and tax-exempt procedure in implementation with agencies concerned. Therefore, the efficiency of the project is fair.

### <(ii) Project for Equipment Renovation of Viana Vocational Training Center>

The project cost was within the plan (ratio against the plan: 85%), the project period was longer than the plan (ratio against the plan 150%) because it required long time for the import and tax-exempt procedure in implementation with agencies concerned. The efficiency of the project is fair.

## 4 Sustainability

### <Institutional Aspect>

CENFOC under INEFOP is a responsible agency for the operation and maintenance (O&M) of the facilities and equipment provided by the project. In particular, Properties and Pedagogical Coordination Section of CENFOC is directly in charge of O&M of the project facilities. The number of staff in Properties and Pedagogical Coordination Section is sufficient. However, due to a limited budget, CENFOC has a problem in shortage of instructors for the target 3 courses. In order to cope with this issue, INEFOP has been making an endeavor to allocate sufficient number of trained staff through enhancing the capacity of human resources with some training programs coordinated by INEFOP. There are 20 instructors in CENFOC, in which 5 instructors were assigned for the target 3 courses (2 for the Metal Structure Course, 2 for the Building Construction Course, and 1 for the Topography Course). According to CENFOC, although the current number of instructors allocated for the target 3 courses was not sufficient, CENFOC can manage to conduct the 3 courses under the limited number of instructors.

### <Technical Aspect>

CENFOC has a periodic training program for the staff in order to maintain and update their technical knowledge and skills on academic subjects including how to use the machines as well as O&M of the project facilities and equipment. This training program was planned by INEFOP, and implemented by CENFFOR (Public Training Center for TOT). Considering a merit of trainings to obtain skills and knowledge in Portuguese language, the instructors of CENFOC received the technical transfer by the Brazilian experts on the related areas through participation in the training program in Brazil, which is a Portuguese speaking country as Angola, under the JICA's technical cooperation program (dispatch of expert). CENFOC recognizes that there are some shortcomings in academic and teaching skills and knowledge of instructors such as how to use welding machine or resistance as well as the guillotine and the lathe in the course of metal structure course, and in O&M skills and knowledge of staff such as including daily check-up, preventive and periodic maintenance, etc. However, they expect that the above challenges will be overcome through continuous training and gaining experiences.

### <Financial Aspect>

CENFOC received about 76-78 million Angola kwanzas (AOA) per year in 2013 and 2014 for the O&M budget, but it dropped to 36 million AOA in 2015. CENFOC has not received sufficient budget allocation for proper O&M of the project facilities and equipment because of shortage of financial resources in the country in general. After the economic crises in Angola in 2014, the annual budget to CENFOC was reduced by half. In 2015, although the original budget was 76.5 million AOA, the actual budget allocated was 36.3 million AOA which was lower than the actual expenditure of 36.5 million AOA. On the other hand, CENFOC has been developing activities by its own efforts to gain external revenue such as implementation of training courses for private companies, sales of products developed by CENFOC as well as technical consulting services and it appears positive results on financial condition in despite of unavailable data of their own revenue.

### <Current Status of Operation and Maintenance>

In general, the project facilities and equipment have been utilized and maintained in good condition by monthly regular maintenance. However, the office room and 2nd class room are not always utilized due to noise caused by the training course without sound insulation such as soundproof door, window, and walls and artificial ventilation system in the training rooms which leads to opening windows and doors. Countermeasures against those issues had not been considered at the time of the Basic Design Study for the project. In addition, there is an issue on shortage of spare parts and consumables due to limited budget.

#### <Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, technical, financial, and current status of operation and maintenance aspects of the executing agency. Therefore, the sustainability of the project effect is fair.

#### 5 Summary of the Evaluation

The project objectives were partially achieved. After the project completion, the three courses such as (i) Metal Structure Course, (ii) Building Construction Course, and (iii) Topography Course were established in CENFOC in 2015. The annual number of trainees who completed each target course fully or mostly met their respective target values except for the Topography Course. The reason for its non-achievement was decrease in demand for the engineers in this field caused by the recent economic deterioration in Angola. Also, it may be because the Topography Course of CENFOC has not been well-known among the universities. On the other hand, the project has positive impacts on creating the employment opportunities for trainees of CENFOC to some extent. In addition, private companies were benefited by the project in terms of receiving special training programs and seminars organized by CENFOC. For sustainability, problems have been observed in terms of the institutional, technical, financial, and current status of operation and maintenance aspects of the executing agency due to shortage of staff, spare parts and consumables which were caused by shortage of budget. Regarding efficiency, the project period was longer than the plan because it required long time for the import and tax-exempt procedure in implementation with agencies concerned.

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

### III. Recommendations & Lessons Learned

Recommendations to executing agency:

[For CENFOC]

#### (1) Diversification of revenues:

- Projects could not fully reach target value of “Annual number of trainees who completed each course” set for the project effect indicator due to principally lack of the budget allocation from the central government to CENFOC. In order to guarantee sufficient number of training courses as well as the effectiveness of 3 newly opened courses and its sustainability, it is indispensable for INEFOP and CENFOC to diversify and to increase their own revenue sources.

#### (2) Employment of trainees

- As it was shown in the ex-post evaluation result that participating to the internship program led to high rate of employment, CENFOC should make continued efforts to create a large number of internship opportunities in cooperation with private companies in construction/industrial sector in Angola in order to promote more employment opportunities for trainees of 3 newly opened courses.
- Marketing (publicity work) of these 3 new courses targeting for young people should be greatly increased and expanded through appealing that these courses (trainers and curriculum content) have been supported by Japan and Brazil in order to increase their interest in enrolling.

Lessons learned for JICA:

- Since Angola is a Portuguese speaking country and the equipment are labeled in Japanese or English, operation itself is a challenge. It is considered that these would be overcome with user manuals in Portuguese language. In addition, there have been still a room to improve the technical capacity of the CENFOC’s instructors, in particular, techniques and skills of metal structure, such as how to use welding machine. Therefore, users’ manual in Portuguese is essential and it may be preferable to assess technical level of the persons in charge of utilize equipment installed by the project and to consider a follow-up cooperation in accordance with necessity in order to ensure the expected project effects and their sustainability.
- As it required long time for the import and tax-exempt procedure in implementation with agencies concerned, JICA had to coordinate with relevant Ministries with time to spare and clarify up-dated import/tax-exempt procedure.



Viana Vocational Training Center



Equipment

Country Name	<b>The Project for Groundwater Development in Mwanza and Neno</b>
Republic of Malawi	

**I. Project Outline**

Background	In Malawi, the access rate to safe water was estimated to be 72% (as of 2006), and it was targeted to increase the rate to 80% by 2011 in Malawi Growth and Development Strategy (MGDS) (2006/07-2010/11). However, 'Joint Sector Review 2008' reports that 30% of water supply facilities in rural areas was dysfunctional and under this scenario the realistic estimation of access rates was 65% in urban and 46% in rural areas respectively in 2008, whereby rural water supply remained an important challenge. In particular, the access rate to safe water was lower than the national average in the project targeted areas, Mwanza and Neno Districts (41.6%), at the time of ex-ante evaluation (2010).			
Objectives of the Project	The project aimed to improve the access rate to safe and stable water in Mwanza and Neno Districts by constructing water supply facilities and procuring necessary equipment, thereby contributing to improvement of living environment and/or conditions of local residents in these districts.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Mwanza and Neno Districts (120 boreholes in 120 villages)</li> <li>2. Japanese side: (1) Provision of grant necessary for construction of boreholes, installation of hand pumps, and procurement of equipment (vehicles for operation and maintenance (O&amp;M) and Global Positioning System (GPS)), (2) Technical Assistance (soft component of Grant Aid)</li> <li>3. Malawian side: Preparation of borehole drilling sites, access routes for works, fences and drainage, land preparation for field office, warehouses and stock yard, lending of machinery owned by Ministry of Agriculture, Irrigation and Water Development (MOAIWD), and securing project personnel and budget etc.</li> </ol>			
Project Period	E/N Date	January 26, 2011	Completion Date	July 25, 2013 (completion of construction works)
	G/A Date	January 26, 2011		
Project Cost	E/N Grant Limit / G/A Grant Limit: 426 million yen, Actual Grant Amount: 300 million yen			
Executing Agency	Ministry of Agriculture, Irrigation and Water Development (MOAIWD) <sup>1</sup>			
Contracted Agencies	Main Contractor: Okuyama Boring Co., Ltd. Main Consultant: CTI Engineering International Co., Ltd.			

**II. Result of the Evaluation**

## &lt;Special Perspectives Considered in the Ex-Post Evaluation&gt;

- [Target Year for Evaluation] In ex-ante evaluation sheet, it is stated that the target year for evaluation is 2015, which is three years after project completion (The project was planned to be completed in February 2013). However, construction of boreholes under the project was completed in July 2013. Thus, in ex-post evaluation, the target year should be changed to 2016 (three years after completion of construction works).
- [Target Figure of Indicator 2] Target figure of Indicator 2 is calculated using the population data in 2015 which was estimated based on the population in 2010 (According to the calculation in Preparatory Survey Report, the annual population growth rate used is 3.487% in Mwanza and 3.8% in Neno). As the target year is changed to 2016 as stated above, the target figure of Indicator 2 should be recalculated based on the population in 2016 which is estimated using these growth rates, which becomes 45.6% in 2016.

**1 Relevance**

## &lt;Consistency with the Development Policy of Malawi at the Time of Ex-Ante and Ex-Post Evaluation&gt;

This project has been consistent with Malawi's development policy, as improving the access rate to safe water in rural areas is aimed in policy documents such as "Malawi Growth and Development Strategy (MGDS) (2006/07-2010/11)", "National Water Policy (2005)", "National Water Policy second edition (2007)", "National Sanitation Policy (2008)" and "MGDS III (2017/18-2021/22) (draft)"<sup>2</sup> at the time of both ex-ante and ex-post evaluations.

## &lt;Consistency with the Development Needs of Malawi at the Time of Ex-Ante and Ex-Post Evaluation&gt;

At the time of ex-ante evaluation, the target areas of the project had existing boreholes in communities. However, due to a large increase of population and far distances between communities and boreholes, other traditional water sources such as small streams, spring water and dug wells were also used as their primary water sources without any treatment; therefore, water quality was problematic for people's health. At the time of ex-post evaluation, according to the District Water Development Offices (WDOs) in Mwanza and Neno Districts, while the target access rates to safe water in these districts are 100% and 90% the current access rates are 83% and 45%, respectively. Thus, both districts still have pressing needs for construction of boreholes.

## &lt;Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation&gt;

According to the assistance policy dialogue in June 2009, social development was stated as one of priority areas of assistance to Malawi, in which water resource development was included<sup>3</sup>. Thus, the project was consistent with Japan's ODA policy.

## &lt;Evaluation Result&gt;

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

**2 Effectiveness/Impact**

## &lt;Effectiveness&gt;

The project has achieved its objectives, "to improve the access rate to safe and stable water in Mwanza and Neno Districts". Actual figures of the number of population with access to safe and stable water in both districts (Indicator 1) have largely exceeded target figures

<sup>1</sup> The executing agency was originally Ministry of Irrigation and Water Development (MoIWD), which was reorganized to Ministry of Agriculture, Irrigation and Water Development in 2011, then to Ministry of Water Development and Irrigation in 2012, and then to Ministry of Agriculture, Irrigation and Water Development in 2014.

<sup>2</sup> MGDS III (2017/18-2021/22) (draft) is being finalized. It is expected to be published in early 2018.

<sup>3</sup> Source: ODA Country Data Book (2009)

since the project completion. While the population increase has largely contributed to this achievement, according to interviews with 7 Village Health Water Committees (VHWCs) and 18 Water Point Committees (WPCs)<sup>4</sup> in 25 water points (boreholes constructed under the project) (12 in Mwanza and 13 in Neno) visited for ex-post evaluation, the distance from beneficiaries' households to the nearest water points has been reduced to an average of 300 m against the target of within 500 m set in ex-ante evaluation, and the actual water supply volume per capita at the time of ex-post evaluation is 60 litter/person/day against the target of 27 litter/person/day in these 25 water points. Actual figures of the proportion of population with access to safe and stable water (the access rate to safe and stable water) in both districts (Indicator 2) have also largely exceeded target figures since the project completion. However, it should be noted that there are also boreholes in these areas that were constructed by NGOs such as World Vision and other governments, which would have also contributed to the achievement of the targets (according to 7 VHWCs and 18 WPCs interviewed, the percentage of households using the boreholes constructed under the JICA project in these 25 water points is 72% on average).

As for the qualitative effects, effects of the soft component of the project have been well produced but partially continued. In both districts VHWCs and WPCs were established in all of the 120 villages through the soft component (59 in Mwanza and 61 in Neno). However, technical assistance services for O&M activities provided by District WDOs including extension workers, which were improved through the soft component, have not been provided to all the VHWCs and WPCs sufficiently, due to the inadequate financial resources of District WDOs. According to District WDOs, only 45 (20 in Mwanza and 25 in Neno) out of 120 VHWCs and WPCs in total have received technical assistance on O&M from District WDOs.

<Impact>  
Regarding the consciousness on public health and sanitation among village people, it has been improved through the soft component in the project area. The interview survey confirmed that 330 households in 25 water points, where interviews were conducted, utilize at least two sanitation facilities including pit latrine, refuse pit and dish racks, which shows the improvement on the consciousness on public health and sanitation. In addition, time required to fetch water, particularly among women and children, has been reduced in 21 water points among these 25 water points after project completion (on average, hours to fetch water have been reduced from 3.76 hours to 1.07 hours in these villages), owing to availability of boreholes constructed under the project.

Regarding the number of population who are infected with water-borne diseases in Mwanza and Neno Districts, comparing data before the project implementation (2010) with after the project completion (2016), the number of its population has been reduced in both districts. According to the villagers interviewed, the number has been reduced due to the availability of safe drinking water from boreholes constructed under the project and it improved sanitation.

Regarding other impacts, no negative impact on natural environment has been observed under the project. According to the interviews with villagers in 25 water points, one household in Mwanza District was affected by resettlement, which was required due to construction of a borehole. The affected household was resettled to another area within the same village with no compensation, as they agreed with the benefits of the project. In addition, according to interviews with villagers, approximately 240 women in 25 water points have been engaged in income generating activities and able to earn more cash due to reduction of the labor of fetching water. There were also comments from villagers that study hours of their children have also increased due to the same reason.

<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 2016 3 Years after Completion	Actual 2014 1 Year after Completion	Actual 2015 2 Years after Completion	Actual 2016 3 Years after Completion
Indicator 1: The number of population with access to safe and stable water in Mwanza and Neno	80,087	108,787	124,014	143,598	162,147
Of which Mwanza	42,445	N/A	69,477	78,115	86,320
Of which Neno	37,642	N/A	54,537	65,483	75,827
(For reference) Total population in Mwanza and Neno	192,435	238,564	234,721	255,311	271,743
Of which Mwanza	94,891	116,557	96,497	98,880	104,000
Of which Neno	97,544	122,007	138,224	156,431	167,743
Indicator 2: The proportion of population with access to safe and stable water in Mwanza and Neno (%)	41.6	45.6	52.8	56.2	59.7

Source: Ex-Ante Evaluation Sheet, Preparatory Survey Report, and questionnaire survey to District WDOs in Mwanza and Neno

Note: Actual results are cumulative numbers.

<sup>4</sup> Village Health Water Committees (VHWCs) are community organizations responsible for operation and maintenance (O&M) of water supply facilities. In addition, in villages where there are more than two water points, a Water Point Committee (WPC) is established at each water point for O&M of the facilities. In the site survey for this ex-post evaluation, interviews were conducted with 7 VHWCs and 18 WPCs that have the direct O&M responsibility of 25 water points (boreholes).

## Expected Impact

[The number of population who are infected with water-borne diseases in Mwanza and Neno Districts]

	Before the project (2010)	After the project (2016)
The number of people infected with cholera in Mwanza	5	0
The number of people infected with typhoid in Mwanza	65	6
The number of people infected with dysentery in Mwanza	34	18
The number of people infected with infant diarrhea in Mwanza	677	483
The number of people infected with cholera in Neno	2	0
The number of people infected with typhoid in Neno	58	21
The number of people infected with dysentery in Neno	27	11
The number of people infected with infant diarrhea in Neno	640	470

Source: District Health Office (Mwanza) and District Council (Neno)

## 3 Efficiency

The outputs of the project were produced mostly as planned<sup>5</sup>. While the project cost was within the plan, the project period exceeded the plan (ratio against plan: 70%, 129%, respectively). The main reason was the high ratio of unsuccessful boreholes. Therefore, the efficiency of the project is fair.

## 4 Sustainability

### <Institutional Aspect>

[Executing Agency Level] (Central level) The Ministry of Agriculture, Irrigation and Water Development (MOAIWD) is responsible for overall monitoring of water supply projects in the country and providing technical guidance for regional and district staff on O&M management. According to the Deputy Director for the Department of Water Supply in MOAIWD, while the necessary number of staff in the Department is 15, the current number of staff is nine and insufficient to provide technical supports for regional and district staff properly, as the government of Malawi has restricted new recruitment due to lack of financial resources. (Regional level) WDO in Southern Region is responsible for monitoring of water supply projects in the region and providing district staff with technical guidance on O&M management. According to the Regional WDO, while the expected number of technical staff is 13, only three staffs are assigned. Therefore, it is difficult for the Regional WDO to provide District WDOs with technical support properly due to the lack of manpower. (District level) District WDOs in Mwanza and Neno Districts are responsible for monitoring of water supply projects in the districts, providing VHWCs and WPCs with technical guidance on O&M of water supply facilities and conducting repair of major breakdowns of the facilities. According to District WDOs, while the expected number of technical staff is eleven and seven in Mwanza and Neno respectively, only three staffs each are assigned. The lack of manpower slightly affects their operation such as monitoring of water supply projects in these districts and providing technical guidance for VHWCs and WPCs on O&M management. Within District WDOs, there are extension workers who provide technical guidance to train area mechanics (AMs) and hand pump caretakers of VHWCs and WPCs. The number of extension workers is almost the same before and after project implementation (there are three extension workers each in both districts at the time of ex-post evaluation). AMs are local technicians responsible for extending maintenance services to VHWCs and WPCs based on the agreement made between them. The number of AMs has increased by one in Mwanza and nine in Neno since the time of ex-ante evaluation. The number of extension workers and AMs are still not sufficient to provide technical guidance and assistance to VHWCs and WPCs properly. Nonetheless, the mechanism of providing technical support from the central level (MOAIWD) to the community level (VHWCs and WPCs) is in place, though not sufficient.

[Community Level] VHWCs and WPCs are responsible for O&M (periodical inspection and simple repair) of water supply facilities, collection of water charges and communication with their higher organizations (VHWCs communicate with District WDOs and WPCs communicate with VHWCs) for requesting repair of the facilities and provision of spare parts etc. The site survey for ex-post evaluation to 7 VHWCs and 18 WPCs confirmed that the number of committee members is generally sufficient with an average of nine members per committee, which include a chairman, vice chairman, accountant, secretary and hand pump caretakers etc. These VHWCs and WPCs explained that there is a good coordination among committee members and all the duties required by committees are performed adequately.

### <Technical Aspect>

[Executing Agency Level]. Most of the project counterparts (C/Ps) still work at MOAIWD, WDO in Southern Region and District WDOs in Mwanza and Neno Districts at the time of ex-post evaluation. Staffs of the Department of Water Supply in MOAIWD and WDO in Southern Region were trained under JICA's technical cooperation project, "the Project for Enhancement of Operation and Maintenance for Rural Water Supply (2011-2015)", and their skill level is sufficient to monitor water supply projects and provide technical guidance on O&M management. The skill level of staff of District WDOs including extension workers and AMs is also sufficient, as they received trainings on management of VHWCs and WPCs and O&M of water supply facilities under the project, and have been technically able to deal with problems faced by VHWCs and WPCs including major repairs of boreholes. In addition, a Water Resources Advisor, who has been dispatched by JICA since 2016, has supported all District Water Development Officers in the country with refresher training courses to maintain their O&M management skills. According to MOAIWD and District WDOs, the training manual and manual for water and sanitation etc. prepared under the soft component are still utilized.

[Community Level] According to the interviews with 7 VHWCs and 18 WPCs, the skill level of these VHWCs and WPCs is generally sufficient to conduct minor repairs of hand pump boreholes and to collect water charges. However, monitoring of O&M situations in project targeted 120 villages and provision of trainings to VHWCs and WPCs are not sufficiently conducted by District WDOs due to lack of budget.

<sup>5</sup> Changes in major planned outputs: (1) one target village was changed to another village (as a new borehole was constructed by UNICEF), (2) The grouping within project targeted villages was changed (as changes were observed in terms of population, beneficiaries' needs and existence of new boreholes etc.) and (3) the structure of infiltration inlet was changed to fit with slope ground etc.

<Financial Aspect>

Revenue and Expenditure of WDO in Mwanza

[Executing Agency Level] Revenue and expenditure of District WDO in Mwanza are shown in the right. Those of WDO in Neno are unavailable. The amount of revenues of WDOs in these districts is not sufficient to provide all VHWCs and WPCs with technical supports, due to the limited budget allocation from the central government. Thus, monitoring and trainings for VHWCs and WPCs are not conducted sufficiently as stated above, and major repairs of boreholes cannot be conducted promptly in some villages, in which case VHWCs and WPCs collect contributions from community members and call extension workers and/or AMs for repair. However, District WDOs plan to utilize other financial resources such as financial assistance from NGOs working in the areas for trainings for VHWCs and WPCs.

(Unit: Malawi Kwacha)

	2014	2015	2016
<b>Revenue</b>			
Budget allocation from the central government	3,708,992	4,642,036	5,795,301
<b>Expenditure</b>			
Actual cost of extension workers	576,000	630,000	720,000
Actual cost of AMs	296,800	158,500	240,000
Actual cost of major repairs of water supply facilities	252,850	394,700	416,200
Other (utilities, stationeries, consumables, building and vehicle maintenance etc.)	2,583,342	3,458,836	4,419,101
Total Expenditure	3,708,992	4,642,036	5,795,301

Source: WDO in Mwanza

[Community Level] Among 25 water points visited, 21 committees (11 in Mwanza and 10 in Neno) collect water charges for O&M of hand pump boreholes, and the amount of water charges collected per household per month ranges from 100 to 300 Malawi Kwacha. According to 21 committees, the collected amount of water charges is generally sufficient to conduct O&M of hand pump boreholes.

Source: WDO in Mwanza

<Current Status of Operation and Maintenance>

[Executing Agency Level] Maintenance of vehicles for O&M procured under the project has been required due to bad road conditions, however, maintenance of these vehicles has currently been not conducted as scheduled and spare parts for them have not been procured appropriately due to lack of budget in WDOs in both districts. As a result, these vehicles were out of order in both districts at the time of ex-post evaluation. WDO in Mwanza has consulted a Japanese auto dealer in the country to repair the vehicle. WDO in Neno has been aiming to identify a technician to fix the problem.

[Community Level] All the hand pump boreholes in the 25 water points visited for the site survey are well maintained and functional. However, in some water points, it was observed that some spare parts were damaged or lost due to inappropriate storage. Extension workers and AMs advise VHWCs and WPCs to store spare parts properly and keep records on the number of stocks.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the institutional and financial aspects of the executing agency. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project achieved its objective of improving the access rate to safe and stable water in Mwanza and Neno Districts, as the number of population with access to safe and stable water in both districts have largely exceeded target figures. The expected impact of improving living environment and/or conditions of local residents in these districts have also been obtained, as the number of population who are infected with water-borne diseases has been reduced, and many women have been engaged in income generating activities and able to earn more cash due to the reduction of the labor of fetching water in both districts. Regarding the sustainability, the number of staffs is insufficient at MOAIWD, WDO in Southern Region and District WDOs in Mwanza and Neno Districts, and the amount of revenues of WDOs in both districts is not sufficient to provide technical supports for all VHWCs and WPCs, while there is no major problem in the technical aspect. As for the efficiency, the project period exceeded the plan.

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

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- Technical assistance on O&M activities including monitoring of O&M situations and trainings to VHWCs and WPCs have not been sufficiently conducted by District WDOs due to the lack of budget, as stated above. Development partners other than governmental agencies such as NGOs should be utilized in providing trainings to VHWCs and WPCs on O&M of water supply facilities and the importance of sanitation, so that all VHWCs and WPCs can have sufficient trainings.

Lessons Learned for JICA:

- When a similar type of project is to be implemented in Malawi, all the community organizations responsible for O&M in project sites need to be trained by the use of soft component, in order to ensure sustainability of project effects, as executing agencies in the country face difficulties to secure budget for such trainings.
- In this project, the high ratio of unsuccessful boreholes caused the project period to exceed the plan. There was a gap between the ratio of successful boreholes calculated from a geophysical exploration and its actual figure. The contractors with lump-sum contracts, therefore, needed to continue drilling boreholes until they reached the contracted number, which caused the extension of the construction period. As a lesson learnt, it is necessary to draw more probable ratio of successful boreholes at the time of basic design and to consider adopting performance based payment contract instead of lump-sum contract when it becomes evident that the target area have a harsh condition during project implementation. It is also essential to consider risks which might affect the project period such as the uncertain identified ratio of successful boreholes and the seasonal difficulty to access to the target area at the project planning stage.





Fetching water at Kaligwenjere Water Point



A lady in Kaligwenjere WPC engaged in income generating activity due to reduction of the labor of fetching water



Procured spare parts for their borehole in Silota WPC



Source of drinking water before project (on left) and after project (on right) in Donda Water Point

Country Name	<b>The Provision of Equipment for Rural Water Supply Project In the Central Dry Zone</b>
Republic of the Union of Myanmar	

**I. Project Outline**

Background	In the central dry zone in Myanmar, residents mainly rely on shallow wells or small reservoirs fed from rainwater for their domestic water needs. Despite the efforts of the Department of Development Affairs (DDA), Ministry of Progress of Border Areas and National Races and Development Affairs, to develop groundwater, their drilling equipment that were aged and deteriorated could only drill around 180m deep wells against the evidence that in the central dry zone, many villages would require wells that exceed 181 m in depth. Also, DDA could test only some of the water quality standard parameters, and the accuracy and precision of the results were not high due to insufficient equipment for analysis and poor training.			
Objectives of the Project	To supply water through the entire year in 87 villages in the central dry zone, by procuring equipment and materials for groundwater development and implementation of technical assistance to develop the structure of DDA for water quality analysis, thereby contributing to elevation of the living environment in these villages.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: 87 villages in Mandalay Region, Magway Region and Sagaing Region</li> <li>2. Japanese side: <ol style="list-style-type: none"> <li>(1) Provision of grant necessary for procurement of (a) drilling equipment (drilling rigs mounted on trucks for 300m and 400m deep drilling, drilling agents, equipment for air lift pumping and pumping test, air compressor, cargo truck with crane), (b) well construction equipment and materials (casing pipes, screen pipes and bottom plugs, submersible motor pumps and diesel engine generators), and (c) water quality analysis equipment (spectrophotometer, water still)</li> <li>(2) Technical Assistance (soft component of Grant Aid) for strengthening the structure and improving accuracy of water quality analysis</li> </ol> </li> <li>3. Myanmar side: Inland transportation for equipment, etc.</li> </ol>			
Project Period	E/N Date	September 28, 2011	Completion Date	January 10, 2014 (Completion of the soft component)
	G/A Date	February 13, 2012		
Project Cost	E/N Grant Limit / G/A Grant Limit: 629 million yen, Actual Grant Amount: 384 million yen			
Executing Agency	Department of Rural Development (DRD), Ministry of Agriculture, Livestock and Irrigation (Department of Development Affairs (DDA), Ministry of Progress of Border Areas and National Races and Development Affairs at the time of ex-ante evaluation)			
Contracted Agencies	Main Contractor(s): Mitsubishi Corporation; Ogawa Seiki Co., Ltd. Main Consultant(s): Kokusai Kogyo Co., Ltd.			

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- Since the targeted villages are widely spread, the evaluator could visit the limited number of villages for detailed data collection and site observation.

## &lt;Special Perspectives Considered in the Ex-Post Evaluation &gt;

- [Construction of deep wells by Myanmar side] Following the ex-ante evaluation, this ex-post evaluation regards the deep well construction by the Myanmar side as “outcome” of this project, not “output”, and thus this was assessed in “effectiveness”.
- [Target Year for Evaluation] In ex-ante evaluation sheet, it is stated that the target year for evaluation is 2015 or three years after project completion. However, considering the planned implementation schedule, i.e., March 2012 to August 2013, the year 2015 should have been “two years after project completion.” Since the project was actually completed in 2014, the target year is adjusted to 2016.
- [Use of Supplementary Information] In addition to the two indicators set at ex-ante evaluation (Indicator 1: Number of newly constructed wells; Indicator 2: Water supply population), this evaluation used the following supplementary information to incorporate effects of the water quality analysis equipment and soft component in evaluation of effectiveness. For evaluation judgment, less weights are given to the supplementary information than the original two indicators. Supplementary Information: The number of water quality parameters analyzed at the DDA laboratory (from 10 parameters with low accuracy before the project to 18 parameters after the project, based on the baseline and planned values mentioned in Preparatory Survey Report).

**I Relevance**

## &lt;Consistency with the Development Policy of Myanmar at the Time of Ex-Ante and Ex-Post Evaluation&gt;

At the time of the ex-ante evaluation, this project was consistent with development plans such as “Ten-year Project for Rural Water Supply” (FY2000-FY2010) that aimed at developing at least one water resource in every village, and “A Five-year Project for Rural Water Supply” (FY2011-FY2016) in which DRD planned construction of 826 deep wells including the ones those planned for this project. At the time of the ex-post evaluation, “Twenty-year Development Plan” (FY2011-FY2031) continuously aims at improving rural water supply, and “Second Five-year Development Plan” (FY2016-FY2021) plans to construct 1,598 deep wells in the three regions targeted under this project. Also, “The Water, Sanitation and Hygiene Strategy (WASH Strategy)” (FY2016-FY2030) testifies Government of Myanmar’s strong commitment for improving water supply, sanitation and hygiene for rural community, school and rural health care center including the central dry zone.

## &lt;Consistency with the Development Needs of Myanmar at the Time of Ex-Ante and Ex-Post Evaluation &gt;

This project has been consistent with Myanmar’s development needs for groundwater development in the central dry zone as described in “Background” above and as planned in the above-mentioned development plans and strategies at the times of both ex-ante and ex-post evaluations.

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

One of the priority areas of Japanese Assistance for Myanmar in 2011 was "emergent and humanitarian assistance"<sup>1</sup>.

<Evaluation Result>

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

2 Effectiveness/Impact

<Effectiveness>

The project objective of supplying water through the entire year in 87 villages in the central dry zone has been mostly achieved. For quantitative effects, deep tube wells were successfully constructed in the targeted 87 villages with use of the procured equipment/materials as scheduled (Indicator 1). Also, the number of beneficiaries is almost equivalent to the target (Indicator 2). While the number of water quality parameters analyzed at the DRD laboratory is below the target figure, DRD follows the domestic guideline which was supported by UNICEF<sup>2</sup> (Supplementary Information) and has a capacity to conduct water quality analysis from the soft component during the project. Additionally, as a result of interviews to people in the target villages, it is confirmed that they are generally satisfied with the quality and taste of the water drawn from the wells constructed. Therefore, although testing results by laboratory on water quality of the constructed wells were not available, it is observed that DRD supplies portable quality of water.

As to qualitative effects, through interviews to DRD and 20 or more residents of the 7 targeted villages, it was confirmed that water is available throughout the year in the target villages after project completion, and the amount of water is sufficient. It was also confirmed that DRD had constructed necessary facilities such as water tanks and pump houses for each well by itself.

<Impact>

As shown by the table below, it is obvious that there was a positive impact for reducing people's workload for fetching water. During the field survey, it was confirmed that the saved time enabled people to devote themselves for social and economic activities. Furthermore, the village people pointed out that before the project, farmland (paddy and vegetable field) were located near natural ponds where people used to fetch water; after the project, village people can have small-scale farmlands near their house since people can supply water for such farmlands from tube wells; consequently, people can now have more time to stay and work with family members. Also, people said that they expanded livestock activities since people can feed water easily from the tube well after the project.

As for impacts on gender, according to interviews to village people, it was mainly the role of women to fetch water. Now that women can fetch water within their village, it is observed that the project contributes to reduction of women's workload. Also, people pointed out that children who have also assisted in water fetching have now more time to study since they do not have to go water fetching site located in long distance.

No negative impacts were found on environment. From interviews with DRD and village people, it was confirmed that DRD followed a proper procedure in digging deep tube well (i.e., testing) and that village people did not give any complaints in this regard. DRD did not make any land acquisition and no resettlement is reported in 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 2011 Baseline Year	Target 2016 2 Years after Completion	Actual 2013 1 Year before Completion	Actual 2014 Completion Year	Actual 2015 1 Year after Completion	Actual 2016 2 Years after Completion
Indicator 1: Number of newly constructed wells (using the equipment procured under this project)	0	87 (7 in Year 1 and 20 each in Years 2-5)	40 (40 in FY2013)	60 (20 in FY2014)	80 (20 in FY2015)	87 (7 in FY2016)
Indicator 2: Water supply population (corresponding to Indicator 1)	0	98,000 (cumulative)	46,169	69,414	92,952	97,893
Supplementary Information: Number of water quality parameters analyzed at the DRD laboratory	10 (not high accuracy)	18	15	15	15	15

Source: Preparatory Survey Report, Ex-Ante Evaluation Sheet, Interview to DRD.

Expected Impact

Region	Ratio of water-related household expenditure (%)		Average distance to water (km); Average time (minutes)			
	Before the project	Ex-post evaluation	Before the project		Ex-post evaluation	
			Rainy season	Dry season	Rainy season	Dry season
Mandalay	3.5% - 9.2%	1.7% - 6.6%	0.6km; 40 min	1.1km; 60 min	0.5km; 15 min	0.5km; 15 min
Magway	5.0% - 10.1%	2.0% - 6.0%	1.1km; 60 min	1.6km; 90 min	0.5km; 15 min	0.5km; 15 min
Sagaing	2.5% - 9.0%	3.0% - 6.0%	1.2km; 40 min	1.3km; 50 min	0.4km; 15 min	0.4km; 15 min

<sup>1</sup> Ministry of Foreign Affairs, ODA Country Data Book 2011.

<sup>2</sup> The Government of Myanmar set National Drinking Water Guideline in 2014 with support from UNICEF and the number of water quality parameters is suggested as 15 in the guideline. Positive effects of the soft component were observed for Supplementary Information 1; however, not clearly observed for Supplementary Information 2 since the information on this regard was not available.

### 3 Efficiency

The outputs of the project were produced as planned. While the project cost was within the plan, the project period exceeded the plan (ratio against plan: 61%, 141%). The increase in the project period is due to longer time taken for mobilization of consultants, preparation of bidding documents, and arrival of equipment/materials at Myanmar.

Therefore, efficiency of the project is fair. Nevertheless, it should be noted that DRD completed the construction of the 87 tube wells in time, and these wells have supplied water to the local people since immediately after the completion as mentioned above.

### 4 Sustainability

#### <Institutional Aspect>

[Executing Agency Level] DRD is responsible for operation and maintenance (O&M) of the equipment, including drilling of tube wells, water quality analysis and maintenance of the procured equipment. There are 50 staff members assigned for construction of deep tube wells including drilling teams using the project equipment, 5 staff members assigned for maintenance of the procured equipment, and 5 staff members assigned for water quality analysis of the wells and O&M of laboratory equipment. DRD considers that the assigned number of staff is appropriate to carry out respective activities including O&M related to this project sufficiently. There is no negative impact of the restructuring of DDA to DRD in 2012 (DDA was split into (a) DRD in charge of rural development and (b) Township Development Committees in charge of urban development) on O&M of the procured equipment since responsible staff have been clearly nominated.

[Village Level] After DRD drills wells and the water supply facilities are handed over to the villagers, the villagers operate and maintain them by themselves as planned in the ex-ante evaluation. At the time of the ex-post evaluation, there is a Village Water Committee (VWC) in each village. Although the number of members of the VWC varies depending of the size of villages, normally there are 7-15 members in a VWC including a chairman, a secretary, an accountant, an auditor, 3-5 O&M personnel, and sales personnel. The seven VWCs interviewed for this evaluation and DRD observe that the number of VWC members for O&M is sufficient.

#### <Technical Aspect>

[Executing Agency Level] It was observed that DRD has sufficient level of technical standards. Based on various experience and achievement including this Grant Aid project and a JICA technical cooperation project, "The Project on Rural Water Supply Technology in the Central Dry Zone" (2006-2009), DDA/DRD has been developing ground water on their own with drilling teams consisting of members with more than 3-year experience of working under the aforementioned technical cooperation project as planned in the ex-ante evaluation of this project. The laboratory staff who received training under this project are still working. From interview to DRD and the visit to one of its maintenance workshop for the procured equipment, it was confirmed that DRD has been updating its technical instruction/manual and regularly providing trainings to O&M staff in drilling and rehabilitation/maintenance workshop as well as VWCs in water quality testing and daily O&M of the water supply facilities, both before and after DDA was restructured to DRD.

[Village Level] From interview to DRD and the site visit, it is generally observed that VWCs are capable of doing daily O&M based on the training from DRD. In case of major problem of tube well which cannot be solved by the VWC itself, DRD staff can provide support for the VWC. Also, under the WASH Strategy, DRD expects other donors would provide technical supports for VWC.

Maintenance budget allocated by DRD to  
Nyaung U maintenance workshop

Unit: million MMK

	FY2012	FY2013	FY2014	FY2015	FY2016
Provision of spare parts for drilling rigs (bits, etc.)	122.5	126.889	891	572	295
Maintenance of drilling rigs	215	160	80	80	80
The Grant Aid Project drilling rigs repair works	5.12	5.12	5.12	5.12	1.792
The Grant Aid Project bit repair works	5	5	5	5	1.75

Source: Interview to DRD

Note: 1MMK=0.09 yen (2017). Among DRD workshops, Nyaung U workshop is the only one for the equipment provided by this Grant Aid project.

#### <Financial Aspect>

[Executing Agency Level] While DRD is likely to have some financial resources for doing O&M based on the available information on maintenance of drilling rigs (see the table), we could not judge whether the amount for O&M is enough or not since they could not provide sufficient information on other budget for O&M such as survey, transportation, drilling work, maintenance of equipment other than rigs, etc.

[Village Level] According to DRD and village people, water fees have been collected in most of the targeted 87 villages, although there is a village which did not officially launch water fee collecting system. On average, 500-750 MMK is collected per 1 cubic meter of water. Also, most of VWCs have saving money (approx. in a range of 3-5 million MMK) for renewal of capital, for example, pump. From such information, it is generally observed that VWCs have sufficient water fee. In case of necessary for large expenditure, VWCs can also request support for DRD.

#### <Current Status of Operation and Maintenance>

[Executing Agency Level] From interview to DRD and site visit, it was confirmed that most of the equipment procured under this project is in good condition and necessary spare parts and consumables are properly managed at the time of the ex-post evaluation. DRD stores drilling bits, rods and pipes and accessories in a warehouse to supply to the detected tube wells in a short time. While there are some minor issues on O&M, e.g., it takes long time to procure some spare parts, DRD has a financial and technical capacity to solve the issues<sup>3</sup>.

[Village Level] It was observed from interview to DRD and the site visit that O&M of the wells/related facilities have been conducted by VWCs, and there is a written record. As mentioned above, this has been made possible by VWCs' sufficient technical capacity through training etc. from DRD and collection of water fees.

#### <Evaluation Result>

In light of the above, sufficient information could not be obtained in terms of the financial aspect of the executing agency. Therefore, the

<sup>3</sup> One of the hydro pumps has been non-functional since 2015. Since then, DRD has used its own hydro pump for constructing tube wells under the project. DRD has proposed budget for repairing the hydro pump. In addition, it is observed that DRD does not have timely access to spare parts manufactured in foreign countries. Therefore, in case of problem to machineries and equipment, it sometimes takes time for DRD to procure parts/materials and to resolve the issue.



sustainability of the project effect is fair.

### 5 Summary of the Evaluation

The project mostly achieved its objective of supplying water all year round in 87 villages in the central dry zone with the number of wells constructed as planned and the beneficiary population that almost reached the expected level. Consequently, the expected impact of reducing cost and workload to fetch water and improving their livelihood has been obtained. Regarding the sustainability, with the available information, it is not certain whether the executing agency allocates adequate O&M budget for the equipment procured under this project was not collected. As for the efficiency, the project period exceeded the plan.

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

### III. Recommendations & Lessons Learned

#### Recommendations to Executing Agency:

- [Timely availability of spare parts] In order to address the issue of spare parts availability and thus to enhance impact and sustainability, DRD should regularly explore a shop/dealer which can provide spare parts manufactured in both foreign and domestic country in a timely manner and grasp the cost estimate for such spare parts. If DRD observes that such spare parts are not easy to access in time, DRD may need to allocate adequate budget and to procure them in advance and store in their workshop so that DRD can promptly use the spare parts when needed.

#### Lessons Learned for JICA:

- [Good O&M capacity] In a project such as this project that targeted to support 87 deep tube wells in 87 villages, it is quite challenging for JICA to have information on each village after project completion, especially on O&M of tube wells, but it is realistic that executing agency (i.e. DRD) and beneficiaries (i.e. village water committee) owe large parts of responsibility for O&M. In this connection, it was effective that both of DRD and village water committee had a sufficient capacity to fulfill responsibility for O&M from the preceding technical assistance. The significant achievements of the project in this regard have been maintained by the factors that (a) members of village water committee are quite good at doing O&M and (b) DRD is ready to technically and financially support for O&M to be done by village water committees. That was made possible due to the fact that before the implementation of the project, JICA had supported both DRD and some village water committees through a technical cooperation project, "The Project on Rural Water Supply Technology in the Central Dry Zone" (2006-2009) in enhancing capacity for O&M. Therefore, it would be important for a project when procuring equipment for a number of sites scattered in wide areas (1) to identify demarcation of responsibilities for O&M before project implementation, and (2) to provide technical support and other capacity development, if the project does not accompany any, through soft component under grant aid project and/or technical cooperation for not only Executing Agency but also for village/community which will have to fulfill O&M on ground. It should also be noted that soft components (technical assistance) provided by Grant Aid' tends to be focused on technical assistance on equipment/materials (e.g. how to use the equipment, etc.). However, for similar projects like this project, 'soft components (technical assistance) provided by Grant Aid' should also focus on sustainable realization of the benefits (outcome of the project) by utilizing the equipment.



After completion of the project, a VWC by itself installed water distribution pipe from the tube well which was supported by JICA, so that every household in the village can draw water in their house (Magway Region).



It was observed that, in the evening time, many village people come to the tube well to fetch the water. According to the village people, time to fetch the water was reduced from 40-60 minutes to only 15 minutes on average (Mandalay Region).

Country Name	<b>The Project for Rural Water Supply in Southern Djibouti</b>
Republic of Djibouti	

**I. Project Outline**

Background	<p>In Djibouti, under environment vulnerable to climate change, people mainly use groundwater as a source of drinking water, and the coverage ratio of safe water of the urban areas reached 92%. However, it was still 54% in rural areas (2006) due to the harsh natural environment. In agriculture, irrigation and cultivation were carried out by utilizing the groundwater source of relatively shallow aquifer (depth of about 10 m). People living in rural areas were forced to spend a great deal of time and effort to secure water, which led to the further poverty.</p>			
Objectives of the Project	<p>To increase the population of people who can access safe water and its rate (water supply rate), the population that can obtain water for domestic use and for livelihood improvement by constructing water supply facilities including wells in the Al-Sabie, Dikil and Alta provinces in the southern part of Djibouti, and providing materials/equipment for well construction/water exploration and maintenance</p>			
Contents of the Project	<p>1. Project Site: 13 villages in Dikhil, Ali-Sabie, Arta prefectures (Construction of water supply facilities in eight villages including four villages with facilities for drinking water and four villages with facilities only for daily use. Procurement of just equipment and materials for five villages*1)</p> <p>2. Japanese side:</p> <p>(1) Installation of pumps and construction of solar power water supply facilities for eight villages*2 (Drilling works were carried out during the preparatory survey by JICA). Drilling works were carried out under this project at three villages (Zinamale, Sek Sabir and Afka Arraba) because of declining quality of water i.e. iron briquettes and declining capacity of pump.</p> <p>(2) Procurement of materials/equipment for well construction/water resource exploration (for 17 wells*1), vehicles, vehicles for well maintenance works, equipment for water, well maintenance and groundwater exploration</p> <p>* 1 In the beginning, construction of 20 wells in 20 villages by Djibouti side was planned by using the procurement of equipment and materials, but it was changed to 17 wells at the time of detailed design. At the time of the ex-post evaluation, it was found that the construction by the Djibouti side was limited to five villages as described later (Refer to II. Result of the Evaluation, 2 Effectiveness/Impact)..</p> <p>* 2 At the time of planning, nine sites were planed, however, the National Office for Water and Sanitation of Djibouti requested the Water Department, Ministry of Agriculture, Livestock and Fisheries in charge of Water Resources (MAEM-RH) to use the site of Hamboucta to be used for drinking water supply to one of the five local cities, named Ali-Sabieh, and the Government of Djibouti decided to exclude the Hamboucta site from the project.</p> <p>(3) Consulting service and technical assistance (soft component): Detailed design, construction supervision, establishment of water management committees, capacity development of staff on groundwater exploration and maintenance</p> <p>3. Djibouti side:</p> <ul style="list-style-type: none"> <li>· Maintenance of drilled wells until the start of the construction of water supply facilities</li> <li>· Ensuring the appropriate use and maintenance of procured equipment and materials, and constructed facilities developed by the project</li> <li>· Installation of net fence for the facilities for security.</li> </ul>			
Project Period	E/N Date	March 28, 2011	Completion Date	January 16, 2014
	G/A Date	March 28, 2011		
Project Cost	E/N Grant Limit / G/A Grant Limit : 489 million yen, Actual Grant Amount: 487 million yen			
Executing Agency	The Water Department, Ministry of Agriculture, Livestock and Fisheries in charge of Water Resources (MAEM-RH)			
Contracted Agencies	Main Contractor(s): Tone Engineering Corporation Main Consultant(s): ORIENTAL CONSULTANTS Co.,Ltd.			

**II. Result of the Evaluation**

## &lt; Special Perspectives Considered in the Ex-Post Evaluation &gt;

- In this ex-post evaluation, effectiveness of the project was verified by expected project effects of increases in population with safe water and coverage of water supply by facilities constructed or rehabilitated by using the equipment procured by the project. Also, sustainability of the project effects was assessed by not only operation and maintenance of the equipment procured by the project but also operation and maintenance of the water supply facilities constructed by using the equipment procured by the project.
- Under this ex-post evaluation, (1) prevention of water-borne diseases, (2) increase in job opportunities for women and children as a result of decrease in time required for water fetching, (3) increase in opportunities for education for women and children as a result of decrease in time required for water fetching, and (4) improvement in livelihood through agriculture and livestock raising are evaluated as Impacts.

**1 Relevance**

## &lt;Consistency with the Development Policy of Djibouti at the Time of Ex-Ante and Ex-Post Evaluation&gt;

This project has been highly consistent with development policy of Djibouti at the both times of ex-ante evaluation and the ex-post evaluation. At the time of ex-ante evaluation, “the National Initiative for Social Development” (Initiative Nationale pour le Développement Social; INDS) prioritized “universal access to basic social welfare and human resource development” and “promotion of environmental protection and harmonized and equal regional development” under four pillars of INDS. Based on INDS, MAEM-RH implemented “the



National Programme for Food Security" (Programme National de Sécurité Alimentaire; PNSA). Under PNSA, MAEM-RH prepared a national program to rehabilitate/construct wells. This program aimed at constructing deep wells where the access to water supply was limited, and ensuring all population have access to safe drinking water. At the time of ex-post evaluation, "the Vision 2035" (2013-2035), the succeeding policy of INDS lists "promotion of economy focusing on the mobility, competency and variety of the private sector" as one of its five pillars, and states that access to the safe drinking water is an important infrastructure for the economic growth. Also, "the Strategy for Economic Acceleration and Employment Promotion" (SCAPE) (2015-2019), the succeeding program of PNSA, states the importance of access of the safe drinking water to sustain the economic growth under the first pillar of the program "Economic growth, the role of mobility of the public sector and its competence".

<Consistency with the Development Needs of Djibouti at the Time of Ex-Ante and Ex-Post Evaluation >

The project has been also highly relevant with development needs of Djibouti for water supply. At the time of ex-ante evaluation, compared to the national water supply rate of 92%, water supply rate in rural areas was only 54% (2006). At the time of ex-post evaluation, accurate data is not available as no census was conducted since 2009, however, "the Joint Monitoring Programme for Water Supply and Sanitation" (WHO/UNICEF) (2015) estimated the water supply coverage of 90% for urban areas and 65% for rural areas. Thus, the demand for the construction of water supply facilities is still high in the target prefectures.

<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. An economic cooperation study mission was dispatched in April 2009 which confirmed "water" was one of the priority areas<sup>1</sup>.

<Evaluation Result>

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

## 2 Effectiveness/Impact

<Effectiveness>

The project partially achieved its objective, "To increase the population of people who can access safe water and its rate (water supply rate), the population that can obtain water for domestic use and for livelihood improvement". Some improvement was observed for population who has access to safe water and water supply rate (Indicators 1-1 and 1-2). On the other hand, the effect was limited with respect to the increase in population that can obtain water for domestic use and livelihood improvement (indicators 2 and 3).

The water supply facilities developed by this project in eight sites have operated well<sup>2</sup>. According to officials of the Water Department and committee members of each water management committee, which is organized by the residents as water users at each site, sufficient volume of drinking water is secured by each drinking water supply facility, in particular, and there is no problem with quality of drinking water. Equipment and materials for well drilling by the Djibouti side is also in operation, and five water supply facilities have been under development at the time of ex-post evaluation. Originally, it was planned to develop water facilities at 17 sites by using the equipment procured under the project and the project procured 1,496 meter pipes for 17 wells. However, according to the interview with the Water Department, those pipes were utilized for construction of wells of 300 meters in depth in five villages where water supply was urgently needed. Therefore, the planned construction of water facilities for the remaining 12 villages were not be able to be carried out. The remaining facilities to be constructed are planned to be implemented as soon as the necessary equipment is procured. The Water Department calls for development partners to support procurement of equipment/materials.

As census has not been conducted since 2009, it is difficult to obtain actual population with access to safe water. On the other hand, according to the interviews with officials of the Water Department and committee members of the water management committees in the four target sites, there were no declines in the number of water users there. Therefore, the fact might indicate that the population with access water increases as originally planned.

On the other hand, although there is an increase in the population with easy access to water for daily use and for improving living standards by development of the water supply facilities under this project, the number of target sites to construct the water supply facilities changed to five wells of 300 meter class from the original plan of 17 wells of 150 meter class. When the required pipes were estimated, the water supply facility development plan of MAEM-RH was referred in which 150 meter class wells are major part. However, five wells of 300 meter class in villages where the water supply was urgently needed were constructed under the project in the end. It is a decision based on the necessity of the Djibouti side, and although the procured pipe was effectively used, the effect has been limited in terms of achieving targets of increase in the benefited population.

Implementation of the soft-component improved the maintenance capacity of the executing agency for underground water development and management. After implementing the soft-component, the Water Department became able to select excavation sites independently by using the electric exploration device and analysis software. Likewise, the Water Department staffs became capable to plan the casing using the physical logging equipment and analysis software.

<Impact>

According to water users (committee members of a water management committee) in Mindil (one of the target villages), after the wells were constructed by this project, the water-borne diseases ceased due to the fact that the residents no longer uses wells several kilometers away<sup>3</sup>. According to the water management committees (the four sites), representatives of water users, and the MAEM-RH personnel, even though they did not know the concrete data, there was a reduction in the number of hours for fetching water as a result of this project as they did not have to go to wells approximately 5 km away from their community.

As another impact, according to interviews with the water management committees, because of the reduction in the time for fetching water, children became able to spend more time for study in all the four sites, and women have more time to support their children's learning. Also, the water management committees, the representatives of residents reported that because people were able to get enough water, the agricultural population increased, leading to improvements in health and income by selling cultivated products in their farms, and increase in the number of livestock.

<sup>1</sup> Source: ODA Databook 2010

<sup>2</sup> In Saballou, which is one of the four sites of drinking facilities, after the completion of the facility, the solar panel was changed to diesel power generation so as to pump the water at this facility to another site. The diesel generation was also used for water supply in Saballou. It was confirmed that the solar generator and submersible pump, which are no longer used in Saballou, are being used at another site (Koussour Koussour).

<sup>3</sup> There were no reports of water-borne diseases in the other 3 sites from the beginning.

Furthermore, the introduction of the water management committee by this project has also influenced other projects funded by other donors as a good practice<sup>4</sup>.

Negative impact on the natural environment by this project has not been observed and land acquisition has not occurred either.

#### <Evaluation Result>

In light of the above, a certain effect of the project has been observed in terms of improving access to drinking water. Various positive impacts have been also observed. However, clear data was not obtained and the number of people benefiting from the construction of wells and water supply facilities by Djibouti side was limited. Therefore, the effectiveness/impact of the project is fair.

#### Quantitative Effects

Indicators	Baseline 2009 Baseline year	Target 2017	Actual Year of completion 2014	Actual Target year 2017
Indicator 1-1 (Drinking water): Population that uses water supply facility for drinking in the target areas (three prefectures in the south)	80,101*1	86,410*2	85,735*3	85,735
Indicator 1-2 (Drinking water): Water supply ratio (%) in the target areas (three prefectures in the south)	56.3 (estimated value)	68.0	64.6%	67.5%
Indicator 2: Population that uses water supply facility for domestic use and for livelihood improvement *4	-	3,169	3,170	3,170
Indicator 3: Population with access to water for drinking, domestic use and livelihood improvement by the construction of water supply facilities by the Djibouti side	-	16,000*5	0	4,000*6

Source : JICA internal documents, questionnaires and interviews with the Water Department, interviews with water management committees (Approximately 3 committee members at each of 4 sites)

\* 1 The total population of the three southern prefectures in the 2009 census was 142,192. The water supply population was calculated by multiplying the estimated water supply rate of 54% in the survey conducted by the World Bank and the Ministry of Agriculture in 2006 to the estimated population of 148,335 in 2006. Following to the calculation at the time of ex-ante evaluation, the actual figure of indicator 1-2 is a ratio of an estimated population of the target villages relative to an estimated population of the three prefectures in the south (annual growth rate: -1.4%).

\* 2 The target value of the increment is the population of 5 villages (6,309 people) where wells producing safe drinking water are secured and water supply facilities for drinking water are built.

\* 3 The actual value is the estimated value of the population of 4 villages calculated at the time of the ex-ante evaluation (5,634 people).

\* 4 The estimated population of the four villages where water supply facilities for domestic use and livelihood improvement are built.

\*5 This figure is a population of 20 villages where the Djibouti side was expected to construct water supply facilities by using equipment procured under the project (calculated based on the average population of villages in the target area), and therefore, the figure does not reflect the changes in the number of villages (changed to 17 villages) made at the time of detailed design.

\*6 The estimated value based on the average population of villages in the target area (average population of 800 multiplied by annual growth rate of -1.4%)

#### 3 Efficiency

Although the project cost was as planned (ratio against the plan: 100%), the project period exceeded the plan (ratio against the plan: 144%) because the technical design change occurred such as re-drilling of wells (including changes of pipes to PVC) as measures to the declining quality of water i.e. iron briquettes and declining capacity of pump. Regarding the outputs, nine sites were planned for construction of water supply facilities at the time of planning. However, the National Office for Water and Sanitation of Djibouti requested the Water Department to use the well of Hamboucta for water supply to Ali-Sabieh, through transmission of the water utilizing a diesel power generator, and the Government of Djibouti decided to exclude the Hamboucta site from the project.

Therefore, efficiency is fair.

#### 4 Sustainability

##### <Institutional Aspect>

The Water Department of MAEM-RH is responsible for Operation and maintenance (O&M) of the facilities and equipment developed/procured under this project, and daily maintenance of the water supply facilities is carried out by the water management committee established at each site.

The organizational structure of the Water Department is unchanged from the time of the ex-ante evaluation. Within the Water Department, the water resources section for water resource survey, the engineering and construction section for well construction and maintenance, the water decentralization management support section for establishment and guidance of the water management committee which is the resident's organization, and the sanitary section for sanitary policy exist. Thus, the Water Department can maintain and manage water supply facilities, and instruct the water management committee, and therefore, the organizational structure is appropriate. In addition, the number of personnel of the Water Department is 100 at the time of ex-post evaluation, and the Water Department is working to strengthen its function by increasing the number of personnel from the time of the ex-ante evaluation (79).

At each site, the water management committee has continued its activities such as appointment of committee members, holding of regular meetings, cleaning, basic maintenance, collection of fees, etc. It does not necessarily conduct all the intended activities; however, it was observed that it works well in line with the custom of the community.

<sup>4</sup> The way the project established institutional set up through a time-consuming step and consensus building is referred. Training by developing teaching materials with many pictures and photographs, etc. are also referred.

A system in which support personnel of the Water Department respond when large scale failures is functioning.

<Technical Aspect>

As human resources that have undergone technology transfer with soft component remain in the Water Department, the technical capabilities are maintained. Regarding maintenance and repair of the water supply facilities, although large-scale repair has not occurred up to now, proper technical response is available when inquiries are received from the water management committee via the prefectural support branch. Also, the Water Department uses manuals. The water management committees are able to repair simple troubles.

<Financial Aspect>

Although the budget of the Water Department increases every year, the amount is limited, and it is difficult for the Water Department to conduct excavation work and well maintenance which are necessary when the system failures happen or the pump capacity decreases by its budget alone. However, MAEM-RH absorbs new technologies and idea by working with international organizations. Water management committees secure expenses necessary for day-to-day O&M such as purchasing spare parts with the water usage fee collected and repairing simple breakdowns.

**Table : Budget of the Water Department**

(Unit: million FDJ)

	2014	2015	2016
Budget of the Water Department, MAEM-RH	57	57	57

We estimate the budget of the water Department around 57 Millions Francs Djibouti per year. This budget is not enough to operate and maintain all borehole of the republic of Djibouti.

<Current Status of Operation and Maintenance>

The water supply facilities constructed/procured equipment are in good condition. Although maintenance activities by the Water Department are limited, at the time of ex-post evaluation, the Water Department is introducing this project as a good practice to other donors to apply this project nationally. For example, the Water Department plans to implement a project with UNICEF to strengthen the institutional capacity of communities on water management.

The spare parts are packed in one section in the site surrounded by the high walls. The Water Department manages inventory using management slips.

<Evaluation Result>

In light of the above, there are no problems in terms of the institutional and technical aspects, however, problems have been observed in terms of the financial aspect of the executing agency, as budget of the Water Department is limited for repair and update of facilities which were deteriorated. Therefore, the sustainability of the project effect is fair.

**5 Summary of the Evaluation**

The project partially achieved its objective, "To increase the population of people who can access safe water and its rate (water supply rate), the population that can obtain water for domestic use and for livelihood improvement", as a certain effect have been observed. Positive impacts such as a decrease in water-borne diseases, an increase in learning time accompanying a decrease in water withdrawal time, and the start of agriculture using water were also observed. However, the population benefiting from the construction of wells and water supply facilities by Djibouti side was limited. As to the sustainability, problems have been observed in terms of the financial aspect as the executing agency's budget is limited. Regarding efficiency, the project period exceeded the plan.

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

**III. Recommendations & Lessons Learned**

Recommendations to Executing Agency:

- The Water Department is recommended to increase the budget so that the well excavation work, well maintenance, hydraulic geological survey etc. can be carried out by its own. At the same time, it is recommended to consult with development partners to support new projects so that the budget shortage is complimented.

Lessons Learned for JICA:

- In addition to the construction of water supply facilities, this project had a component for providing well drilling equipment to be conducted by Djibouti side. The project procured pipes for 17 sites (1,496 m), however, the Water Department utilized them for wells of 300 meter in depth in five villages where water supply was urgently needed. Therefore, ex-post evaluation, the number of villages that benefited was five only while 17 villages were expected at the time of ex-ante evaluation. In the project which provides equipment and materials, it was necessary to gather information such as area selection, depth of well, schedule of implementation, etc. at the time of project planning and to share the contents of discussions between the two countries. If only the materials of the assumed number of facilities were delivered to the destination and the purpose of use was unclear, it should be taken into consideration that the judgment would be based on necessity or urgency.
- In this project, re-drilling of wells at three sites were conducted to respond the issues such as declining quality of water, i.e. iron briquettes and declining pump capacity and as a result, the project period exceeded the plan. In a case that drilling works are carried out as a part of a preparatory survey, it is necessary to discuss and confirm selecting casing pipes which are resistant to corrosion and measures in case of declining pump capacity at the time of the preparatory survey, as it is expected that the wells will not be used for some time until the start of a construction project.
- This project, in cooperation with the Water Department, established water management committees through three steps (elder meeting in the first day, community meeting in the second day, and establishment of a water management committee in the third day). The project conducted awareness activities on water management by preparing printing materials in the local language and performing a song for water management committees at various events. Further, the project invited all members of committees for a joint establishment ceremony at Dikhil, and thus the project tried to enhance solidarity and nurture a sense of competition. As a result, JICA's approach of establishment and operation of water management committees was successful while it was not at other donors'

approach. The Water Department plans to refer this project as a good practice for future introduction of water management committees.



Afka Arraba water supply facility



Sek Sabir water supply facility

Country Name	<b>The Project for Introduction of Clean Energy by Solar Electricity Generation System</b>
Republic of Moldova	

**I. Project Outline**

Background	The Republic of Moldova, one of the least developed countries in Europe, imports approximately 80% of its power consumption (2008). In order to promote sustainable socioeconomic development, an important issue common to all sectors was to ensure necessary power sources through utilizing domestic energy sources including renewable energy, and improving self-sufficiency of energy. Particularly, giving consideration of objectives for reduction of greenhouse gases (GHG) emissions expressed by the European Union (EU), Moldova was required to establish country's institutional setup in line with a Moldova's plan to become an EU member. Therefore, there was an increasing need to introduce the renewable energy including solar energy.			
Objectives of the Project	To increase power generation capacity, diversify power sources, and raise awareness of people of Moldova on renewable energy by procurement of Photovoltaic (PV) system and related equipment in Chisinau, the capital of Moldova, and by providing technical assistance for capacity development of technical personnel, and thereby contributing to publicity of Japan's initiative for promoting measures against climate change both by developed and developing countries.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Oncology Institute (OI) /the central Chisinau</li> <li>2. Japanese side <ul style="list-style-type: none"> <li>(1) PV generation system (PV modules (289kW*), Power conditioner, Data management and monitoring system, Meteorological observation instruments and others)</li> <li>* At the time of ex-ante evaluation, 250kW was planned, but the capacity was increased by utilizing the project fund remained.</li> <li>(2) Technical assistance (soft component): Training on basic knowledge, preventive maintenance, and troubleshooting of grid connected PV system</li> </ul> </li> <li>3. Moldovan side: <ul style="list-style-type: none"> <li>(1) Demolition of existing building and site clearance, (2) Asphalt pavement and others, (3) Renovation for monitor room and (4) Security measures for PV system to be installed on ground with structural steel frames</li> </ul> </li> </ol>			
Project Period	E/N Date	May 11, 2011	Completion Date	October 2, 2013
	G/A Date	July 18, 2011		(Completion of soft component)
Project Cost	E/N Grant Limit / G/A Grant Limit:417 million yen, Actual Grant Amount: 394 million yen			
Executing Agency	Oncology Institute (OI)			
Contracted Agencies	Contractor : ITOCHU Corporation Consultant : ORIENTAL CONSULTANTS Co., Ltd.			

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Moldova at the time of Ex-Ante and Ex-Post Evaluation&gt;</p> <p>The project has been highly consistent with the development policy of Moldova. At the time of Ex-Ante Evaluation (2011), the Government of Moldova developed "the National Energy Strategy to 2020" in 2007 and aimed at increasing the ratio of renewable energy to the total energy consumption from approximately 3% in 2007 to 20% in 2020. At the time of Ex-Post Evaluation, "the Energy Strategy of the Republic of Moldova until 2030", the most recent energy strategy continuously prioritizes the promotion of renewable energy.</p> <p>&lt;Consistency with the Development Needs of Moldova at the time of Ex-Ante and Ex-Post Evaluation&gt;</p> <p>The project has been also highly relevant with development needs of Moldova for renewable energy. At the time of Ex-Ante Evaluation, Moldova was heavily reliant on the import for its energy consumption (more than 80% of total energy consumption) in 2008. At the time of Ex-Post Evaluation, annual electricity consumption in Moldova was 4,218 GWh (2016), and the amount of electricity generated within the country was 897 GWh. In order to compensate for the above shortage, 3,321 GWh was imported. Therefore, the necessity of promoting renewable energy in the country is still high.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of Ex-Ante Evaluation&gt;</p> <p>The project was also consistent with Japan's ODA policy at the time of Ex-Ante Evaluation. The project was implemented under the scheme of Grant Aid for Environment and Climate Change, which was newly introduced by the Government of Japan in 2008. The purpose of this scheme is to provide assistance to developing countries which aim to contribute to climate change measures, but are short of capacity and funds to achieve both GHG emission reduction and economic growth. In the basic policy of assistance to Moldova, the Government of Japan highlighted its strong attention to building basis for economic development through the improvement of socio economic infrastructure.<sup>1</sup>.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Effectiveness&gt;</p> <p>The project has mostly achieved its objectives. Quantitative effects such as "Net power generation" (indicator 1), "Reduction in power purchase expenditure" (indicator 2), and "Reduction in CO2 Emission" (indicator 3) have been obtained, meeting the targets set at the time of Ex-Ante Evaluation.</p> <p>The project expected that a newly installed display would help promote the use of PV power, providing information on electricity</p>

<sup>1</sup> Source: ODA Country Databook 2010

amount generated by the PV system to citizens visiting the hospital (the institute is also functioning as a hospital) , so that awareness of citizens was increased. As a result, people who visit the hospital can easily find the amount of electricity generated by the PV system and other related information, since the display was installed in the entrance of OI's building. Furthermore, every year after the completion of the project, a presentation on this PV system is made to first-year medical students visiting OI.

The enhancement of staff's capacity to operate and maintain (O&M) the PV system was also expected in consequence of soft-component. The interviewed current O&M manager did not participate in the training conducted in 2013 because he was not assigned to O&M of this institute at that time. Therefore, the effects of the training under the soft component are not clear. However, according to his explanation, there is no problem so far, as he took part in a wrap-up training carried out by a Japanese survey team for several hours in 2014, and manuals created for the project are also referred when needed.

The manuals are utilized for training of new staff. At the same time, they are being used from time to time to maintain the PV system. Also, editing, processing, and utilization of data collected from the PV system and weather observation devices are appropriately performed. In fact, meteorological data, power generation volume, and CO2 reduction volume are managed on the personal computer and updated constantly, which is displayed on the publicity display.

<Impact>

While this project was expected to show Japan's initiative on climate change measures, cases led by the Government of Japan at symposium and other occasions in direct relation to the project, have not been confirmed at the time of Ex-Post Evaluation. Nevertheless, Energy Efficiency Agency, responsible for energy conservation and renewable energy under the umbrella of Ministry of Economy, organized a contest to introduce excellent efforts on renewable energy utilization in Moldova, supported by the United Nations Development Programme (UNDP). Since this project won the first prize in 2013, it was widely covered by media in Moldova. Also, a video introducing this project has been created, which is open to the public on You Tube. Furthermore, even outside the country, the staff of Energy Efficiency Agency introduced the outcomes of the project as the winner of the above contest.

In addition, this project has an influence on dissemination and promotion of PV power generation. Because of efforts to promote the dissemination of renewable energy by Energy Efficiency Agency and others, 37 new projects have been implemented up to now, which has a total power generation capacity of 2.42 MW. The scale of each facility ranges from a small household type to a large-scale one installed at factories.

No negative impacts on natural environment were observed. No land acquisition and resettlement 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

	Baseline 2009 Baseline Year	Target year Target 2016	Actual 2014 Completion Year	Actual 2015 1 Year after Completion	Actual Target year 2016	Actual 2017*4 3 Years after Completion
Indicator 1: Net power generation (kWh/year)	0	299,400*1	302,068.3	348,681.3	309,328.8	214,590.9
Indicator 2: Reduction in power purchase expenditure (MDL/year)	0	329,340*2	332,275	383,549	340,262	236,050
Indicator 3: CO2 Emission (ton/year)	0	139.3*3	154.6	178.5	158.3	109.8

Source: JICA internal documents, questionnaires and interviews with OI.

\*1 Net power generation for 250kW capacity

\*2 Calculated by using the unit cost of MDL1.10/kWh as of January 2009 (299, 400kWh x 1.1=329,349)

\*3 Reduction of CO2 when the existing power is replaced with PV system (t-CO<sub>2</sub>/y): (518.7-53.4) x 299,400/1,000,000=139.3

(CO<sub>2</sub> emission by the existing combined heat and power plant (g-CO<sub>2</sub>/kWh): 518.7, Life cycle CO<sub>2</sub> emission by PV system (g-CO<sub>2</sub>/kWh): 53.4

\*4 As of July 24, 2017

3 Efficiency

Although the project cost was within the initial plan (ratio to the plan: 94%), the project period exceeded the one originally planned (ratio to the plan: 114%). As to output, although 250kW PV system was planned at the onset, the final capacity was increased by utilizing the project fund remained. The project period was extended by extra time for the preparation of procurement at the initial stage of the project, the additional procurement and installation of PV panels for the increased generation capacity.

Therefore, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

O&M of the PV system developed under the project is carried out by OI. The institute has an O&M department, and a total of 4 staff members are assigned to the O&M of the PV system. According to the O&M manager, there is no problem with carrying out daily operations at the present stage in terms of the number of O&M staffs. However, because the staff of the O&M department has also maintenance work of other equipment as well as the PV system, they cannot deal with some periodic inspection items such as open voltage<sup>2</sup>.

<Technical Aspect>

All of the staff members have expertise in electrical engineering. One of the four staff members assigned to O&M is a manager who has a master degree of electrical engineering, and the others are graduates of electrical vocational training courses. Manuals developed through the project are effectively used in carrying out O&M. Even though there is no systematized training program, the necessary training is individually delivered by using the manual when a new staff member is assigned.

<sup>2</sup> Maximum voltage when not connected to the terminal (not operating).



<Financial Aspect>

The following table shows the revenue and expenditure of OI.

**Table : Financial Balance of OI (unit: thousand MDL)**

	2014	2015	2016
Revenue	215,379	278,655	288,902
Expenditure	263,878	268,801	317,954
(O&M expenses)	5,452	7,603	11,457

It shows that there was a year when the balance between revenue and expenditure was in deficit. The shortage of budget is addressed by carry-over of payment to the subsequent year or the financial support by the central government. O&M expenses are on an increasing trend, covering personnel and social security expenses of the O&M staff in charge of the PV system and other equipment. The PV system installed under the project has required no repair up to now. Therefore, OI did not have to secure expenses appropriated directly for the PV system. However, it is unclear whether repair costs can be secured in the future event of a breakdown.

<Current Status of Operation and Maintenance>

Basic daily inspections are carried out as originally planned. However, some periodic inspections were not implemented. In case of the open voltage, inspections were not conducted because the inspection of open voltage takes a whole day. Even though there is no case where repairing the PV system was required so far, doing repairing is considered possible because agents dealing with PV system exist in Moldova, and can be contacted in such an occasion.

<Evaluation Result>

Consequently, some uncertainty has been observed in terms of institutional and financial aspects, such as staffing shortage and future repair costs. 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 Moldova on renewable energy by providing PV system and related equipment in Chisinau, the capital of Moldova, and by providing technical assistance for capacity development of technical personnel”. The targets have been met for indicators such as net power generation. Also, the PV system has been demonstrated at various opportunities. As for sustainability, some uncertainty has been observed in terms of institutional, technical and financial aspects such as lack of personnel and structured training system, and future repair cost. However, there is no major problem so far. As for efficiency, although the project period exceeded the initial plan, the project cost was within the plan.

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

### III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

- The staff of the O&M department has also maintenance work of other equipment as well as the PV system. Therefore, they cannot deal with periodic inspection for some items such as open voltage. In order to operate the PV system in a stable way until the end of durable time, OI is recommended to ensure that periodic inspection is fully implemented for all the items including open voltage, whose periodic inspection has not been undertaken so far due to the insufficient number of personnel.

Lessons Learned for JICA:

- Contributing to publicity of Japan’s initiative for promoting climate change measures was set as one of the objectives of this project. Ministry of Economy, responsible for energy sector, has promoted this project through the executing agency under the ministry. Therefore, it is judged that certain effects have been made for this goal. On the other hand, the ministry responsible for this project is Ministry of Health and the executing agency is a medical institution, whose main obligation is not to raise awareness on the use of renewable energy. This time, it was possible to achieve the objective due to the spontaneous efforts of the Moldovan side. However, in order to ensure achievement of the objective, the project should have teamed up with Ministry of Economy, as the responsible ministry of energy sector. Establishing such a framework before or during the project implementation should have been ideal, so that JICA and the responsible ministries could develop a detailed strategy on how to raise awareness and dissemination of the use of renewable energy through implementation of the pilot project. If JICA plans to carry out a future project with the same objective, it is necessary that JICA and the appropriate ministries and agencies of the recipient country fully discuss the activities that should be performed to achieve the objective before project completion.



PV modules installed on the roof of the building of OI



Display showing the amount of electricity generated etc. installed at the front entrance of the OI building

Country Name	<b>The Project for Improvement of Transportation Capacity of Public Bus in Vientiane Capital</b>
Lao People's Democratic Republic	

**I. Project Outline**

Background	Vientiane Capital rapidly progressed in urbanization, which resulted in motorization, thereby increasing private transportation and hence traffic congestion in urban area. To solve the traffic congestion and reduce traffic accidents in Vientiane Capital, it was required to increase the share of public transportation by enhancing the transportation capacity of the public buses. Major public transportation of Vientiane Capital was the public buses operated by Vientiane Capital State Bus Enterprise (VCSBE). VCSBE operated the buses, most of which had been provided by the past Japan grant aid, by repair and maintenance. These small and big buses exceeded the running distance of 400,000 km and 1,200,000 km, respectively, thereby seriously damaging engine parts, worsening its transport safety and reducing its operation rate.				
Objectives of the Project	To enhance the public bus operation of Vientiane Capital and increase the transportation capacity by replacing the VCSBE owned outdated buses in urban routes, and thereby alleviating traffic congestion and traffic accidents in Vientiane Capital.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Vientiane Capital</li> <li>2. Japanese side: Procurement of bus (42 units) and maintenance equipment</li> <li>3. Lao side: (1) To secure the necessary personnel and obligations at the execution of the guidance for initial operation, inspection and maintenance. (2) Conducting the operations of city bus and making arrangements for necessary budgets and staff. (3) Making appropriate and effective use of, and maintaining and managing equipment to be procured.</li> </ol>				
Ex-Ante Evaluation	2011	E/N Date	March 10, 2011	Completion Date	19 June, 2012
		G/A Date	March 18, 2011		
Project Cost	E/N Grant Limit/ G/N Grant Limit: 500 million yen, Actual Grant Amount 494 million yen				
Executing Agency	Vientiane Capital State Bus Enterprise (VCSBE)				
Contracted Agencies	Katahira Engineering International, Toyota Tsusho Corporation				

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Laos at the time of ex-ante and ex-post evaluation&gt;</p> <p>This project has been highly consistent with Laos's development policy. At the time of ex-ante evaluation, the 6th Development Plan (2006-2010) aimed at improving urban environment by promoting "Environmentally Sustainable Transport: EST" policy. At the time of ex-post evaluation, the 8th Socio-Economic Development Plan (2016-2020) of Vientiane Capital clearly mentioned the solution of traffic congestion in Vientiane Capital, especially in 4 urban districts.</p> <p>&lt;Consistency with the Development Needs of Laos at the time of ex-ante and ex-post evaluation&gt;</p> <p>The project has been also highly relevant with Laos's development needs for improvement of urban environment of Vientiane Capital. At the time of ex-ante evaluation, increase of private transportation, traffic congestion and traffic accident accordingly were issues in Vientiane Capital. Although increase of the share of public transportation was necessary, the condition of busses of VCSBE was deteriorated and bus replacement was urgently required. At the time of ex-post evaluation, the traffic congestion is still an issue, due to the drastic increase of the registered vehicles, and the rapid growth of city caused by the development projects is considered as the factor. Therefore, the needs for public bus services are still high due to the traffic congestion, safety reasons and conveniences since the coverage of public bus service network is still insufficient.</p> <p>&lt;Consistency with Japan's ODA Policy at the time of ex-ante evaluation&gt;</p> <p>The project was also consistent with Japan's ODA policy at the time of ex-ante evaluation as the Country Assistance Program to Laos (2006) prioritized developing socioeconomic infrastructure and effectively utilizing existing infrastructure.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Effectiveness&gt;</p> <p>The project has, to a certain extent, achieved its objectives, "to enhance the public bus operation of Vientiane Capital and increase the transportation capacity". Indicators of quantitative effects such as "operation frequency" and "transportation capacity" have almost achieved the target figures in 2012 but they have gone down and have not reached the targets set at the time of ex-ante evaluation.</p> <p>The buses procured by the project operated well. Together with the opening of additional two routes, the operation frequency has increased. Especially, the frequency of buses on high-occupancy routes has increased stepwise. Although the operation frequency of those 42 buses dropped from 2012, it was the results of restructuring the lower revenue routes (replaced by medium-sized buses), and the operation suspension of some provided buses over the route where the road construction was undergoing. Increase in operation routes and frequency, especially on the high occupancy routes, has resulted in the increase of transportation capacity. However, increased figure could not achieve the target figure set forth at the time of Ex-Ante evaluation due to the aforementioned restructure of bus operation on the low rate route, suspension of bus operation service due to the road construction including the reconstruction of new Central Bus Station.</p> <p>Almost all the passengers interviewed during this ex-post evaluation are satisfied with the quality of buses and services of VCSBE. However, it was observed that bus and services need more improvement, especially on-time service, number of bus route, and service</p>

information.

After the project implementation, because of VCSBE's efforts on the mechanical inspection and maintenance, the number of malfunctions of public buses in Vientiane Capital has reduced when compared with that before the project. The improvement in quality and conditions of the buses has mitigated the risk on technical and mechanical aspects and hence, the number of traffic accidents of the public buses has reduced.

<Impact>  
After the project completion, smooth operation and quality air-conditioning buses has motivated people to use public bus services more frequently. No statistic clearly shows the declining trend of traffic accidents. On the other hand, the traffic congestion on public bus routes in Vientiane Capital has not improved. It may be due to the increase of registered vehicles. However, the traffic congestion is limited to the rush hours.

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 to a certain extent, as operation frequency and transportation capacity have improved, though the targets were not achieved. Therefore, the effectiveness/impact of the project is fair.

#### Quantitative Effects

	Before the project 2010	Target figure at target year (2015) (3 years after implementation)	Actual figure at the year of completion (2012)	Actual figure at the target year (2015)	Actual figure at the year of Ex-post evaluation (2016)
Indicator 1 Operation Frequency*1	177	211	284	191	165
Indicator 2: Transportation Capacity	196,000 pax km/day*2 (pax: passenger)	331,000 pax km/day	328,429 pax km/day	327,691 pax km/day (Actual pax km/day: 195,355 pax km/day)	313,569 pax km/day (Actual pax km/day: 159,450 pax km/day)

\*1 Number of operation or urban routes per day. At the time of ex-ante evaluation, urban routes consisted of 10 routes, however, it changed to 9 in 2015 and 8 in 2016.

\*2 pax km is multiplying "Bus vehicle kilometer" by "seating capacity"

Source : JICA internal documents, questionnaire with VCSBE

#### 3 Efficiency

Although the project cost was within the plan (ratio against the plan: 99%), project period slightly exceeded the plan (ratio against the plan: 118%). Supply of parts for assembling in Thailand was delayed due to influence by flood lasted for three months from July 2011 in Thailand.

Therefore, the efficiency of the project is fair.

#### 4 Sustainability

<Institutional Aspect>

Operation and Maintenance (O&M) of the buses procured under the project is carried out by VCSBE, a state owned company established under Vientiane Capital administration. Under the Deputy Director of Technical Affairs, Technical Workshop is responsible for maintenance, and Division of Parts Supplies is responsible for supply of spare parts. The number of maintenance technicians and drivers has slightly reduced in accordance with the reduction in number of buses<sup>1</sup> during the past years. However, the number of technical staff is sufficient to carry out maintenance activities.

<Technical Aspect>

The technicians and maintenance technicians are very skillful. The capacity of maintenance technicians of VCSBE was strengthened and enhanced through series of technical workshops, guidance and transfer on O&M from Japanese Experts under a technical cooperation project "Project to Enhance the Capacity of Vientiane Capital State Bus Enterprise". The technical and maintenance divisions have systematically and strictly followed the technical guideline and maintenance plans of buses. Technical transfer from senior to junior technicians is conducted on the regular basis.

<Financial Aspect>

Although the number of bus passengers has increased, profitable tariff cannot be secured<sup>2</sup>, and therefore, the operation loss still occurred. However, considering the depreciation cost, the cash flow becomes positive. Although VCSBE secured maintenance budget, increasing cost for O&M activities is still a problem. However, VCSBE has planned to minimize its expenses by increasing the efficiency of maintenance and operation management through securing appropriate number of qualified and skillful technical engineer and maintenance technicians. Meanwhile, they have also planned to make the number of passengers increase by opening 2 new bus routes in order to generate more revenue .

<Current Status of Operation and Maintenance>

Inspection, regular maintenance and overhaul are performed on the regular basis, for instance: Daily check and regular check every 1,000 km, technical maintenance 1 (TO1) for every 5,000 km, technical maintenance 2 (TO2)<sup>3</sup> for every 10,000 km, engine overhaul for every 250,000 km. The spare parts procured by the project have been properly managed. In addition, the spare parts can be procured from the original sources through the middle man in Vientiane Capital.

<sup>1</sup> Considering the safety reason, VCSBE demolished some over-aged and damaged buses.

<sup>2</sup> VCSBE still keeps seeking ways to reduce its expense by requesting for tax exemption of imported spare parts and gasoline, which will be considered as the governmental subsidy.

<sup>3</sup> TO2 include all checklist of TO1 and additional checking list.

<Evaluation Result>

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

5 Summary of the Evaluation

The project has to a certain extent achieved its objectives, “to enhance the public bus operation of Vientiane Capital and increase the transportation capacity”, as indicators of quantitative effects such as “operation frequency” and “transportation capacity” have improved, though the targets were not achieved. Passengers are satisfied with the bus services, and the number of the accidents in public buses has reduced owing to upgradation of buses. As to impact, although the project motivated people to use public bus services, it is difficult to clarify contribution of this project to reduce traffic accidents and traffic congestion in Vientiane Capital. For sustainability, a few problems have been observed in terms of the financial aspect of the executing agency. As to efficiency, the project period exceeded the plan.

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

**III. Recommendations & Lessons Learned**

Recommendation to executing agency

Appropriate measures have already been taken on the observed issues on the bus route and service information by the subsequent technical cooperation project with JICA. It is suggested that the executing agency continuously follow up the measures through the project.

Lessons learned for JICA:

In order to ensure sustainability of the bus provided by the grant aid project, skills and know-how of maintenance technicians were strengthened and enhanced by the technical cooperation project targeting VCSBE. Thus, a technical cooperation project for capacity development for bus operator is effective when introduced concurrently with the grant aid.



Picture 1: Bus provided by Grant Aid is popular as “Green Bus” among citizens at the Central Bus Station



Picture 2: Minister for Land, Infrastructure, Transport and Tourism, Mr. Ishii visited the Vientiane Capital State Bus Enterprises (the 4<sup>th</sup> gentleman from the left)

Country Name	<b>The Project for Improvement of Solid Waste Management</b>
Republic of Kosovo	

**I. Project Outline**

Background	In February 2008, Kosovo Parliament passed the unanimous declaration of independence. Kosovo was considered as the least developed country among the former Yugoslavia countries and its economy totally depended on assistance by donor countries. After its independence, Kosovo put high priorities to reconstruct its economy and social development, but less emphasis was given to the environment. Consequently, waste collection service was not sufficient enough to cope with the increasing solid waste due to the population upsurge in the urban area and due to the decrepit waste collection vehicles. These problems in solid waste management made the sanitary condition severely worse in the capital city, Pristina municipality, as well as the second largest city, Prizren municipality.			
Objectives of the Project	To improve the waste collection services of municipalities in Kosovo by replacing the decrepit collection vehicles with small collection vehicles suitable for the urban area with narrow roads, and the equipment for vehicle maintenance, thereby contributing to establishment of the effective waste management system as well as to improvement of the living environment of the target municipalities.			
Contents of the Project	<ol style="list-style-type: none"> <li>Project Site: Pristina municipality and Prizren municipality Note: The above two municipalities are where the executing agencies were located. Collection vehicles were deployed in six municipalities. (Pristina, Prizren, Suhareka, Malesheva, Rahovec and Dragash)</li> <li>Japanese side : Provision of grant for (1) 30 Compactor Trucks with lifting device (10m<sup>3</sup>), (2) 6 Compactor Trucks with lifting device (6 m<sup>3</sup>), (3) 7 Compactor Trucks (6 m<sup>3</sup>), (4) Equipment used for vehicle maintenance and (5) Spare parts and tires for winter season</li> <li>Kosovo side: Repair of the entrance road of final disposal site in Prizren municipality</li> </ol>			
Project Period	E/N Date	March 30, 2011	Completion Date	October, 2012
	G/A Date	March 30, 2011		
Project Cost	E/N Grant Limit : 543 million yen, Actual Grant Amount : 449 million yen			
Executing Agency	Pristina municipality and Prizren municipality Ekoregjioni Public Company(Prizren municipality) and Pastrimi Public Company(Pristina municipality)			
Contracted Agencies	Main Contractor: Mitsubishi Shoji Corporation Main Consultant: Kokusai Kogyo Co. Ltd.			

**II. Result of the Evaluation**

<Special Perspectives Considered in the Ex-Post Evaluation>

[Indicators and supplemental information for Effectiveness]

Two indicators specified in the ex-ante evaluation sheet such as (1) Daily volume of waste collected and (2) Waste Collection Rate (%) are used to judge the effectiveness. Other indicators listed under the preparatory survey report such as (3) Coverage of waste collection service, (4) Volume of greenhouse gas (CO<sub>2</sub>) emission in Prizren municipality, and (5) Cost of fuel for waste collection in Ekoregjioni Public Company of Prizren municipality are considered as supplemental information. Because of the data type and numerical target specified for these supplemental information, they are included in the quantitative data although they are stated as qualitative information in the preparatory survey report. It is decided not to use the supplemental information, such as "Volume of greenhouse gas (CO<sub>2</sub>) emission in Prizren municipality" and "Cost of fuel for waste collection in Ekoregjioni Public Company of Prizren municipality" for the evaluation judgment since the reliable data has not been obtained at the field study and it cannot be perceived as the mainstream project effect from the "Objectives of the Project". It is confirmed that two indicators and other supplemental information suffice for the evaluation judgment.

[Target values for indicator 1 and 2]

Target values for indicator 1 and 2 were obtained individually from each municipality during this study because the ex-ante evaluation sheet only provides those for Prizren municipality. Furthermore, in terms of target value of indicator 1 for Prizren municipality, the ex-post evaluation study uses the one provided by Prizren municipality (116.74 ton /day). According to the Prizren municipality, the one shown in the ex-ante evaluation sheet (188.40 ton/day) was calculated based on the incorrect population data.

[Qualitative effect and impact of the project]

Better living environment (sanitary condition) of both Prizren and Pristina municipalities and increase of fees on waste collection services collected from citizens are stated as qualitative effects in the preparatory survey report. However, these changes are indirectly related to the project, so this ex-post evaluation considers them as impacts.

[Target areas for evaluation]

Target areas of the project include six municipalities. However, the indicators presented in the ex-ante evaluation sheet only refers to Prizren municipality, the area to which this project has given a high priority according to the preparatory survey report. This ex-post evaluation gives a high weightage to Prizren municipality, too, but also takes the other target municipalities into consideration roughly based on the ratio of allocated number of vehicles for each municipality against the total number of vehicles allocated. Based on the total number of collection vehicles allocated to each municipality, the ratio of allocation for each municipality is calculated; Prizren municipality for 58.1%, Pristina 23.3%, Rahovec 7.0%, Suhareka 4.7%, Malisheva 4.7% and Dragash 2.3%. In case sufficient quantitative data for municipalities other than Prizren are not available, but qualitative effects are confirmed, judgement will be made based on the qualitative data.



## 1 Relevance

### <Consistency with the Development Policy of Kosovo at the Time of Ex-Ante and Ex-Post Evaluation>

At the time of ex-ante evaluation, this project was consistent with development plans such as “Kosovo Environmental Strategy” (2003) which stated the need of establishment of social infrastructure for solid waste management and gradual waste minimization. “National Solid Waste Management Strategy (2010-2020)” which was in the process of preparation at that time, also stated its policy to establish a sound material-cycle society through reduction of environmental pollution caused by waste, to improve the waste collection service by setting the numerical targets. At the time of ex-post evaluation, “The Strategy of the Republic of Kosovo on Waste management (2013-2022)” which is one of the main documents for solid waste management policy in Kosovo, sets main goals as to establish sustainable system for waste management in accordance with the standards and requirements of the EU and national legislation on waste.

### <Consistency with the Development Needs of Kosovo at the Time of Ex-Ante and Ex-Post Evaluation>

This project has been consistent with the development needs of solid waste management in Kosovo at the time of ex-ante evaluation as described in “Background” above. At the time of ex-post evaluation, there are continuing needs for waste collection vehicles and equipment provided by the project since it is presumed that the daily volume of waste and the coverage of waste collection have been increased due to the population increase in all target municipalities.

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

Priority areas of the Japan’s ODA Policy for Kosovo as of 2011, were assistance to economic development and stabilization of society including capacity development and assistance in the field of environment.

### <Evaluation Result>

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

## 2 Effectiveness/Impact

### <Effectiveness>

The project objective of improving the waste collection services of target municipalities by procuring small collection vehicles suitable for urban area has been achieved.

For quantitative effects, waste collection service of the target municipalities in Kosovo is improved. Regarding Indicator 1, Actual (ton/day) in 2013 in Prizren increased compared to Actual (ton/day) in 2010, while it decreased in Rahovec, Suhareka, Malisheva and Dragash. The achievement level of Prizren municipality to which the high priority was given with provision of 25 vehicles, shows 88%.. For other municipalities, the levels of achievement are from 77% to 106%. The weighted achievement, which takes into account the allocation % of collection vehicles for each municipality, has reached to 92% in average, which implies that each municipality has performed well enough to produce the outcome in proportion to the number of vehicles donated. For the period between target year (2013) and four years after completion (2016), much improvement has been identified for all six municipalities showing the percentage increase for these three year as about 41% in average. This shows that the effect by the project has steadily been continued.

With respect to Indicator 2, the waste collection rate (%) means the proportion of waste collected (ton/year) against the waste generated (ton/year). Prizren municipality achieved the waste collection rate of 100% of their coverage area. (According to the interview with Ekoregioni Company, their service contributes to 70% of total waste generated in Prizren municipality and remaining percentage is covered by other companies.) The subject rates in 2013 of other municipalities are from 36 % to 58%, which shows no positive improvement compared to 2010 (No data is available for Rahovec and Malisheva municipalities). It is presumed that the outstanding performance of Prizren municipality in this indicator is partly due to the effect of technical cooperation project “the Project for Enhancement of the Capacity for Waste Management toward Sound Material-cycle Society (2011-2015)”. This indicator has followed the similar pattern of change over the time as indicator 1 because of its close correlation between the two indicators. No positive change has been made for the period between the baseline year (2010) and the target year (2013) for three municipalities except Prizren, but major improvement has been identified for the three years period after the target year for Suhareka, Malisheva and Dragash municipalities.

The coverage of waste collection services (Supplemental information 1) indicates the proportion of population who receive the waste collection service against the total population of the municipality. Prizren, Suhareka and Pristina municipalities have reached the 51% to 80% coverage, showing the achievement level of around 100%. (No data was available for other three municipalities.) All municipalities except Dragash has achieved more than 90% four years after the completion (2016) for coverage. As for the utilization of collection vehicles (Supplemental Information 4), it is confirmed by the field study that all vehicles procured under this project have been properly operating at each municipality and they have accounted for 33% in average of total number of operating collection vehicles by all municipalities.

As for qualitative effects, the questionnaire survey with municipalities has revealed that the collection vehicles procured by the project, has greatly contributed to the quality of waste collection services, especially the punctuality of collection services. All municipalities have commented that they have expanded coverage of waste collection services compared with that of before the project.

### <Impact>

Improvement of waste collection services by the project has contributed to the establishment of the effective waste management system and to the improvement of the living environment of the people in target municipalities as well. Responses to the questionnaires from municipalities showed that the percentage of those who was paying the waste collection fee has increased for the past four years. According to the persons in charge of fee collection at municipalities, the citizens are willing to pay the waste collection fee because they receive good quality services. Also, employees engaged in waste collection operation mentioned that, because vehicles are small-sized and suitably designed for waste collection by door-to-door services in urban areas with narrow roads, they have found the vehicle very easy to maneuver capable to handle large waste load and to drop them directly into the vehicle, which eventually has helped them to save their service time. No negative impacts were found on environment.

### <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	Name of Municipality (Number of collection vehicles provided by the project and allocation [%] of total number of collection vehicles)	Baseline 2010	Target 2013				Actual 2016	
		Baseline Year	1 year after Completion				4 years after Completion	
		Actual (ton/day)	Target (ton/day)	Actual (ton/day)	Achievement (%)	Weighted Achievement (%)	Actual (ton/day)	% increase from Actual(2013)
Indicator1 Daily volume of waste collected (ton/day)	Prizren municipality (25 vehicles [58.1%])	93.10	116.74	102.68	87.96%	51.1%	143.97	40.21%
	Rahovec (3 [7.0%])	18.44	23.30	17.94	77.00%	5.39%	28.66	59.75%
	Suhareka (2 [4.7%])	20.95	19.65	20.37	103.66%	4.87%	27.32	34.12%
	Malisheva (2 [4.7%])	15.50	na	14.74	na	na	29.77	101.97%
	Dragash (1 [2.3%])	18.24	na	17.74	na	na	19.62	10.60%
	Pristina (10 [ 23.3%])	na	90.00	95.00	105.56%	24.59%	130.00	36.84%
	Total ton/day (average %)	na	na	268.47	(93.54%)	(92.33%)	379.34	(41.30%)
Indicator 2: Waste collection rate (%) <sup>(1)</sup>		Actual (%)	Target (%)	Actual (%)	Achievement (%)	Weighted Achievement (%)	Actual (%)	% increase from Actual(2013)
	Prizren municipality (25 vehicles [58.1%])	39.00%	70.00%	100.0%	142.86%	83.00%	100.00%	0.00%
	Rahovec (3 [7.0%])	12.00%	24.00%	na	na	na	53.00%	na
	Suhareka (2 [4.7%])	42.00%	60.00%	42.00%	70.00%	3.29%	80.00%	90.48%
	Malisheva (2 [4.7%])	na	na	56.00%	na	na	98.00%	75.00%
	Dragash (1 [2.3%])	37.50%	38.00%	36.00%	94.74%	2.18%	48.00%	33.33%
	Pristina (10 [ 23.3%])	na	50.00%	58.00%	116.00%	27.03%	65.00%	12.07%
	Average %	na	na	na	105.90%	130.65%	74.00%	na

<Source> Ex-ante Evaluation Sheet, Questionnaires of the targeted municipalities for both Public companies and field survey

Note: (1) Waste collection rate (%)= Waste collected (ton/year)/Waste generated (ton/year)

#### Supplemental Information 1: Coverage of waste collection service <sup>(2)</sup>

Name of Municipality  % achieved against plan	Baseline 2010	Target 2013		Actual 2013			Actual 2016	
	Baseline year	1 year after Completion		1 year after Completion			4 years after Completion	
	Beneficiary population	Beneficiary population	Coverage for total population (%)	Beneficiary population	Coverage for total population (%)	Achievement Against target value (%)	Beneficiary population	Coverage for total population (%)
Prizren municipality (25 vehicles [58.1%])	na	185,809	70.00%	184,126	69.37%	99.09%	194,015 <sup>(3)</sup>	99.63%
Rahovec (3 [7.0%])	na	na	na	na	51.00%	na	59,499	100.00%
Suhareka (2 [4.7%])	na	34,707	56.00%	35,109	56.65%	101.16%	58,455	90.00%
Malisheva (2 [4.7%])	na	54,655	na	30,607	56.00%	na	56,133	98.00%
Dragash (1 [2.3%])	na	24,200	71.18%	na	na	na	20,500	60.23%
Pristina (10 [ 23.3%])	na	na	80.00%	na	80.00%	100.00%	178,393	90.00%

<Source> Preparatory Survey Report, Project Inspection Report, Questionnaires of the targeted municipalities for both Public companies and field survey.

Note: (2) Coverage of waste collection service = proportion of population who receive waste collection service to the total population in municipality.

(3) Beneficiary population of Prizren municipality for 2016 was calculated using the annual population growth rate of 1.76% which was computed from the official registration of the population in 2011.

#### Supplemental Information 4: Utilization of collection vehicles

Name of Municipality (Number of collection vehicles provided by the project and allocation [%] of total number of collection vehicles)	Completion Year	5 years after Completion	
	2012	2017	
	The number of collection vehicles procured under this project	Total number of operating collection vehicles in each municipality	The proportion (%) of the number of operating collection vehicles procured by the project to the total number of operating collection vehicles in each municipality
Prizren municipality (25 vehicles [58.1%])	25	37	67.57%
Rahovec (3 [7.0%])	3	5	60.00%
Suhareka (2 [4.7%])	2	6	33.33%
Malisheva (2 [4.7%])	2	8	25.00%
Dragash (1 [2.3%])	1	4	25.00%
Pristina (10 [ 23.3%])	10	72 <sup>(4)</sup>	13.89%
Total	43	132	32.58%

<Source>Questionnaires of the targeted municipalities, both Public companies and field survey  
 Note: (4) The total number of vehicles of 72 for Pristina Municipality includes 64 vehicles, 6 loaders & 2 small trucks.

### 3 Efficiency

Both of the project cost and the project period (planned as 15 months)<sup>(5)</sup>were within the plan (ratio against plan: 83%, 93%). Therefore, efficiency of the project is high.

Note: (5) The project period (in months) should be counted, in principle, on the basis of the number of months given in the ex-ante evaluation sheet. However, the project period of this study was counted on the basis of the time schedule of work (14.5 months) shown in the Preparatory Survey Report as the starting month given in the ex-ante evaluation sheet was not clear. Therefore, the planned project period is 15 months by including both start and end months and by considering that the starting month is when the Detailed Study was commenced.

### 4 Sustainability

#### <Institutional Aspect>

At the central level, the Environmental Protection and Water Department of Ministry of Environment and Spatial Planning is responsible for the Solid Waste Management (SWM) Policy and Environmental Impact Assessment. At the local level, the Public Service Department is responsible for supervising the SWM operation for Prizren municipality. The capacity of this department has been strengthened by establishing Solid Waste Management Sector with 9 staff since 2015. Waste collection services of Prizren municipality and four other municipalities, such as Rahovec, Suhareka, Malisheva and Dragash municipalities, have been provided by Ekoregjioni Public Company with the increased number of staff to operate the collection vehicle procured by the Project. The company maintains sufficient number of staff (352 in total) with 52 drivers and 11 staff for maintenance and repair work for collection vehicles. As for Pristina municipality, the Solid Waste Management Section (12 staff) of Public Service Department is responsible for supervising the SWM operation. The organizational reform to strengthen the capacity is expected by establishment of Solid Waste Management Sector just like Prizren municipality. Waste collection services of Pristine municipality have been provided by Pastrimi Public Company which maintains sufficient number of staff (558 in total) with 65 drivers and 26 staff for maintenance and repair work for collection vehicles.

#### <Technical Aspect>

It was observed that most of drivers and maintenance staff of Ekoregjioni Public Company and Pastrimi Public Company who received training by the project <sup>1</sup>have maintained sufficient skill and are still working for the respective companies. Therefore, there are no problems in terms of current technical skills. However, it was pointed out by both companies that there are some needs to train their electricians to cope with the electrical malfunction of vehicles which may occur in the future.

#### <Financial Aspect>

No major problems have been identified in the financial aspect. Both Ekoregjioni Public Company and Pastrimi Public Company have secured the financial condition by waste collection fees as revenues. Both companies have enough budgets for operation and maintenance of collection vehicles. Pastrimi Public Company allocates about 2% of total expenditure to the operation and maintenance for collection vehicles. Negative net income recorded in 2014 for Ekoregjioni Public Company is partly due to the low collection rate during that period and timing difference of booking between billing and payment received, etc. Some issues related to the old debts to Kosovo Landfill Management Company have been observed, however, measures have already been taken through reprogramming debt settlement agreement.

Revenue and Expense of Ekoregjioni Public Company in Prizren municipality and Pastrimi Public Company in Pristina municipality  
 (Currency in Euro)

Items	Ekoregjioni Public Company* (Prizren municipality)			Pastrimi Public Company (Pristina municipality)		
	2014	2015	2016	2014	2015	2016
Revenue	2,655,973	2,933,927	3,227,511	5,578,949	6,041,194	6,377,534
Operating expense	2,968,724	2,796,657	3,042,454	5,313,459	5,810,733	6,009,328
Of which O&M expenditure for collection vehicles	na	na	na	91,891	101,551	128,770
Operating revenue	Δ312,751	137,270	185,057	265,490	230,461	368,206
Depreciation	61,739	62,397	63,157	247,692	204,663	293,358
Operating revenue after depreciation	Δ374,490	74,873	121,900	17,798	25,798	74,847
Tax		13,727	18,506	1,780	2,580	7,485
Net income	Δ374,490	61,146	103,394	16,018	23,218	67,363

<Source>Questionnaire of Ekoregjioni and Pastrimi Public Companies

\* Ekoregjioni Public Company covers waste collection services of 5 cities except Pristina.

#### <Current Status of Operation and Maintenance>

During the field survey, it was observed that collection vehicles and equipment for maintenance procured by the project have been well maintained by both Ekoregjioni and Pastrimi Public Companies. Both companies have carried out the periodical inspection in order to maintain the good condition. In terms of procurement of some spare parts which they often need to look them for in neighboring markets, such as hydraulic pumps coupling cylinders, which make them face the higher prices due to transport or inter trade charges, however, both public companies have managed with the cost by themselves.

#### <Evaluation Result>

In light of the above, there is no problem in institutional, technical and financial aspects of the executing agencies. Therefore, the sustainability of the project effect is high.

<sup>1</sup>Prior to the operation, this project conducted basic trainings for drivers of collection vehicles and maintenance staff of both public companies to operate vehicles and equipment procured by the project.

## 5 Summary of the Evaluation

The project has achieved its objectives, “to improve the waste collection services of municipalities” as it was observed that both indicators, the daily volume of waste collected and the waste collection rate, have achieved more than 80% of the target level on average for the target municipalities. Positive impacts were observed in the increase of waste collection fees and the reduction of waste collection service time due to the use of small-sized and suitably designed collection vehicles for urban areas with narrow roads. As for sustainability, there is no problem in institutional, technical and financial aspects.

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

## III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

To: Prizren Municipality (Ekoregjioni Public Company) and Pristina Municipality (Pastrimi Public Company)

Both public companies have secured staffs with very good technical skills. On the other hand, they have recognized that their employees in charge of vehicle maintenance lack diagnostic technique of electrical malfunctioning of Japanese vehicles. In order to enhance the sustainability of the project, it is recommended that public companies should request JICA to offer them a suitable training scheme after specifying which skills should be improved. The training should be done either by dispatching the experts to public companies or/and by accepting trainees in Japan from the public companies.

Lessons Learned:

Suitability of vehicles and equipment which can fully respond to user’s needs contribute to improving the effect by the project.

Small sized collection vehicles that are suitably designed for door-to-door collection services in urban areas with narrow roads have greatly contributed to improving the waste collection service system. Those collection vehicles have made it possible for operators and drivers of the collection vehicle to easily drop waste into the vehicle with maximum waste load, which eventually have helped save their service time. Furthermore, those vehicles are durable but simple without complicated electronic devices, which have enabled maintenance staff to do maintenance with ease. It is very important, therefore, at the planning stage, to select the equipment which can fully respond to the user’s needs.



Ekoregjioni Company (Prizren) – regular maintenance of donated vehicle



Pastrimi Company (Pristina) – preparation of the vehicle for the waste collection

Country Name	<b>The Project for Managing Digital Topographic Data in Djibouti City</b>
Republic of Djibouti	

**I. Project Outline**

Background	<p>The City of Djibouti, the capital city of the Republic of Djibouti, where the International Autonomous Port of Djibouti, the leading port in the country and the region, is located, was a strategic place for regional economy as well as for domestic economy. The population of the city was approximately 350 thousand persons (as of 2009), and approximately 43% of the total population of the country lived in the city. Economic development in the country and advancement of desertification in the countryside had accelerated the inflow of population into the city, and these migrants chaotically lived in suburbs of the city center where residential lands were not developed properly. In such suburbs, infrastructure such as roads and water and sewerage systems was underdeveloped, and as a result, aggravation of the living and working environment was progressed, obstructing socio-economic stabilization in the city and surrounding suburbs. Under such circumstances, the Government of Djibouti was preparing to establish a development plan in order to address urban problems in the suburbs of the city. However, the existing basic data to be used for planning was the topographic map which showed the city center only of 1989 on the scale of 1/5,000, which was needed to be updated, and the existing data did not identify the range of the urban area that was expanding year by year in accordance with the population growth.</p>										
Objectives of the Project	<p>The project aimed at creating digital topographic maps on the scale of 1/2,500 and orthophotos<sup>1</sup> with a ground resolution of 20cm and technology transfer for independently utilizing and updating the geographic information data in Djibouti City, thereby promoting utilization of the geographic information data in related organizations and for determining policy priorities in national land plans and national development plans and improvement of living environment and developing urban infrastructure.</p> <ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>2</sup>: (1) Improvement of living environment and development of urban infrastructure are promoted through utilization of the geographic information data. (2) Utilization of the geographic information data is promoted in related organizations.</li> <li>Expected utilization of the proposed plan: Through creating the latest digital topographic maps reflecting the latest information on the national land such as topography and land use, the geographic information data is utilized for determining policy priorities in national land plans and national development plans.</li> </ol>										
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Djibouti City</li> <li>Main Activities: (1) Collect and study existing documents and discuss on schema, measurement rules and specifications; (2) Create digital topographic maps (photocontrol points survey, aerial photographing, aerial triangulation, field identification, digital plotting, digital compilation, field completion, complement editing, map symbolization and GIS structuralization); (3) Transfer technologies for independently utilizing and updating the geographic information data; and (4) Issue and promote utilization of the geographic information data etc.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Djibouti Side</td> </tr> <tr> <td>1) Mission members: 13 persons</td> <td>1. Staff Allocated: 17 persons</td> </tr> <tr> <td>2) Trainees Received: 0 person</td> <td>2. Project office</td> </tr> <tr> <td>3) Equipment: GPS and a set of digital mapping equipment</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Djibouti Side	1) Mission members: 13 persons	1. Staff Allocated: 17 persons	2) Trainees Received: 0 person	2. Project office	3) Equipment: GPS and a set of digital mapping equipment	
Japanese Side	Djibouti Side										
1) Mission members: 13 persons	1. Staff Allocated: 17 persons										
2) Trainees Received: 0 person	2. Project office										
3) Equipment: GPS and a set of digital mapping equipment											
Project Period	March 2012 – February 2014	Project Cost	(ex-ante) 250 million yen, (actual) 217 million yen								
Implementing Agency	Topographic Section, Department of Planning, Djiboutian Road Agency (ADR)										
Cooperation Agency in Japan	PASCO Corporation										

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation &gt;

- 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.

## &lt;Special Perspectives Considered in the Ex-Post Evaluation &gt;

- [Evaluation of Impact] It is not stated in related documents of this project to what extent digital topographic maps and orthophotos produced under the project were planned to be utilized after project completion. On the other hand, in the ex-ante evaluation sheet, three indicators, (1) national development strategies/plans that were formulated utilizing the digital topographic maps (expected utilization of the proposed plan), (2) records of development projects in various sectors such as infrastructure development including roads and water and sewerage systems which utilize the digital topographic maps (expected goals through the proposed plan), and (3)

<sup>1</sup> An orthophoto is geospatial information in which an image is converted to one shown with a correct size in a right position without a position gap and tilt as if it is a view from a direct top (an image shape is corrected and an image is accurately located), which enables to measure position, an area and distance accurately on an image in geographical information system (GIS) and can be used together with map data (Source: homepage of Geospatial Information Authority of Japan).

<sup>2</sup> The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan (“output” of the project).

records of utilization of the digital topographic maps in related organizations (names of projects and plans)(expected goals through the proposed plan), are set as ‘targets expected to be achieved after project completion’ (indicators to be used for ex-post evaluation). In the ex-post evaluation, in evaluating Impact, if records of utilization (see below for the definition of utilization) that fulfill all these three indicators are confirmed, Effectiveness/Impact is judged as “high”, if records of utilization that fulfill one or more indicators are confirmed, Effectiveness/Impact is judged as “fair”, and if no record of utilization that fulfill these indicators is confirmed, Effectiveness/Impact is judged as “low” (however, there is a possibility that the indicators (2) and (3) above overlap depending on how the digital topographic maps are utilized). While in development planning projects, in principle, projects are to be evaluated emphasizing ‘expected utilization of the proposed plan’ (see the footnote 2), as there seems to be no major difference in time required for achieving the indicators (1) to (3) above, in this ex-post evaluation, the indicators (1) to (3) are evaluated equally.

- [Definition of Utilization<sup>3</sup>] Indicator (1) National development strategies/plans that were formulated utilizing the digital topographic maps: the digital topographic maps produced under the project are utilized as basic information for determining policy priorities in order to achieve goals of current national development policies.

Indicator (2) Records of development projects in various sectors such as infrastructure development including roads and water and sewerage systems which utilize the digital topographic maps: the digital topographic maps produced under the project are utilized as basic information in two to three development projects.

Indicator (3) Records of utilization of the digital topographic maps in related organizations (names of projects and plans): the digital topographic maps produced under the project are shared with five to six organizations and utilized as basic information for project planning in two to three organizations.

## 1 Relevance

### <Consistency with the Development Policy of Djibouti at the Time of Ex-Ante Evaluation and Project Completion>

The project was consistent with Djibouti’s development policy on ‘urban and rural development’ as set forth in the “National Initiative for Social Development (INSD)(2008-2012)” and “Vision Djibouti 2035 (2013-2035)”, as preparation of topographic map data is required in urban (city) planning for urban and rural development.

### <Consistency with the Development Needs of Djibouti at the Time of Ex-Ante Evaluation and Project Completion >

At the time of ex-ante evaluation (2011), donors such as the World Bank and French Agency for Development were implementing projects for developing infrastructure such as water and sewerage systems in the suburbs of Djibouti City, however, the lack of topographic maps required them to conduct current-condition surveys and topographic surveys in each project. Therefore, there was a high need for developing comprehensive, large-scale digital topographic maps for the entire city that could be used for current-condition identification and outline design. At the time of project completion, the inflow of population into the city progressed further and consequently, the city was further expanded, and there was a high need for developing digital topographic maps to expand areas of digital topographic maps in the city and develop digital topographic maps of regional cities etc.

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

In the Overseas Economic Cooperation Policy Consultation between Japan and Djibouti held in April 2010, Japan’s ODA policy was stated to continue cooperation with a focus on infrastructure development for basic human needs in order to support Djibouti’s economic and social development<sup>4</sup>, and thus this 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 Objectives at the time of Project Completion>

The objectives were achieved by the time of project completion. Digital topographic maps of Djibouti City (an area about 110km<sup>2</sup>, on the scale of 1/2,500) and orthophotos including the suburbs of Djibouti City (an area of about 300km<sup>2</sup>, a ground resolution of 20cm) were created. Moreover, according to the report prepared by mission members (document provided by JICA), as a result of technology transfer, staffs of Topographic Section, Department of Equipment (TSDE)<sup>5</sup> became technically able to undertake “partial correction (updating the geographic information data)”, and understood the theory on “topographic mapping technique”. In order for the geographic information data prepared under the project to be effectively and widely utilized, TSDE and mission members conducted an actual condition survey to promote dissemination of the geographic information data, stakeholder meetings and utilization promotion seminars etc., in which surveys and information sharing with stakeholder organizations and potential user organizations were conducted, and established stakeholder meetings for the geographic information data.

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

The digital topographic maps and the orthophotos have been partially utilized (limited use) since project completion. The digital topographic maps and the orthophotos have been shared with the Ministry of Equipment and Transports (MET), the Ministry of Housing, Urban Planning and Environment (MHUPE), Electricity of Djibouti (EDD), National Office for Water and Sanitation of Djibouti (ONEAD), and Djibouti Telecom etc., and utilized for preparation of plans in each organization etc. However, as the subject area of the digital topographic maps and the orthophotos is Djibouti City only, they are not utilized for determining policy priorities in national land plans and national development plans. On the other hand, regarding the technical capacity of C/P staffs to independently utilize and update the geographic information data, which was strengthened under the project, most C/P staffs who received technology transfer under the

<sup>3</sup> The extent of utilization was defined considering to what extent the geographic information data prepared under the project was supposed to be utilized in what kinds of organizations, based on inquiries to the consultants involved in this project and the sectoral department in JICA and existing documents.

<sup>4</sup> Source: ODA Country Data Book 2010.

<sup>5</sup> The implementing agency of the project was Topographic Section, Department of Equipment (TSDE) of the Ministry of Equipment and Transports (MET) in the beginning, however, it was changed to Topographic Section, Department of Planning, Djiboutian Road Agency (ADR) in November 2013 due to the organizational change.

project still work in the Topographic Section, while only one staff was transferred to other section, and equipment for updating the geographic information data provided under the project are operated without problems except for a part of them (a plotter scanner was broken down and is under repair). Moreover, stakeholder meetings for the geographic information data mentioned above were held once in both 2015 and 2016, and as a result, it was determined in a guideline that the owner of for the geographic information data is to be Djiboutian Road Agency (ADR) (Topographic Section, Department of Planning) and ADR needs to distribute the geographic information data to governmental organizations/stakeholders in need of the data. ADR updates the digital topographic maps only when new roads are constructed, and the map data was updated once in 2016.

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

Expected Goals through the Proposed Plan have been achieved by the time of ex-post evaluation. As stated above, the digital topographic maps and the orthophotos are shared with approximately five organizations and utilized as basic information in five development projects and preparation of plans as shown in the table below.

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

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

<Evaluation Result>

In light of the above, through the project, the objectives were achieved by the time of project completion. At the time of ex-post evaluation, while it was turned out that the digital topographic maps and the orthophotos are not utilized for determining policy priorities in national land plans and national development plans, Expected Goals through the Proposed Plan have been achieved. Therefore, the effectiveness/impact of the project is high.

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

Aim	Indicators	Results
Create digital topographic maps on the scale of 1/2,500 of Djibouti City (an area about 110km <sup>2</sup> ) and orthophotos of surrounding areas of Djibouti City (an area of about 300km <sup>2</sup> ).	1. Digital topographic maps of Djibouti City (an area about 110km <sup>2</sup> , on the scale of 1/2,500) are created. 2. Orthophotos including the suburbs of Djibouti City (an area of about 300km <sup>2</sup> , a ground resolution of 20cm) are created. 3. Technical capacities of project counterparts (C/Ps) to independently utilize and update the geographic information data are enhanced.	Status of the Achievement: (Project Completion) achieved Digital topographic maps of Djibouti City (an area about 110km <sup>2</sup> , on the scale of 1/2,500) were created by February 2014. Status of the Achievement: (Project Completion) achieved Orthophotos including the suburbs of Djibouti City (an area of about 300km <sup>2</sup> , a ground resolution of 20cm) were created by February 2014. Status of the Achievement: (Project Completion) achieved As a result of technology transfer, staffs of TSDE became technically able to undertake “partial correction (updating the geographic information data)”. TSDE and mission members conducted an actual condition survey to promote dissemination of the geographic information data, stakeholder meetings and utilization promotion seminars etc., in which surveys and information sharing with stakeholder organizations and potential user organizations were conducted, and established stakeholder meetings for the geographic information data. (Ex-post Evaluation) continued C/P staffs who received technology transfer under the project still work in the Topographic Section except for one staff, and equipment for updating the geographic information data provided under the project are operated without problems except for a part of them. Stakeholder meetings for the geographic information data were held once in both 2015 and 2016, and as a result, ADR became the owner of for the geographic information data. ADR updated digital topographic maps in 2016 following the construction of new roads.
(Utilization Status of the Proposed Plan) Through creating the latest digital topographic maps reflecting the latest information on the national land such as topography and land use, the geographic information data is utilized for determining policy priorities in national land plans and national development plans.	National development strategies/plans that were formulated utilizing the digital topographic maps (The digital topographic maps produced under the project are utilized as basic information for determining policy priorities in order to achieve goals of current national development policies)	(Ex-post Evaluation) not achieved As the subject area of the digital topographic maps and the orthophotos is Djibouti City only, they are not utilized for determining policy priorities in national land plans and national development plans.



<p>(Expected Goals through the Proposed Plan 1) Improvement of living environment and development of urban infrastructure are promoted through utilization of the geographic information data.</p>	<p>Records of development projects in various sectors such as infrastructure development including roads and water and sewerage systems which utilize the digital topographic maps (The digital topographic maps produced under the project are utilized as basic information in two to three development projects)</p>	<p>(Ex-post Evaluation) achieved The digital topographic maps and the orthophotos are utilized in development projects in each sector as shown in the table below.</p> <table border="1"> <thead> <tr> <th>Organization in charge</th> <th>Projects/Plans that utilize digital topographic maps and orthophotos</th> <th>Progress of projects/plans in the left</th> <th>How digital topographic maps and orthophotos are utilized in projects/plans</th> </tr> </thead> <tbody> <tr> <td>Ministry of Housing, Urban Planning and Environment (MHUPE)</td> <td>Djibouti City Reform Plan (2013-2015)</td> <td>Approved</td> <td>Basic data on urban area related to Djibouti City Reform Plan</td> </tr> <tr> <td>Electricity of Djibouti (EDD)</td> <td>International Transmission Network Construction Plan (duration is unknown, as the plan is under preparation)</td> <td>Under preparation</td> <td>Basic data on urban area related to the transmission network construction plan of Djibouti City</td> </tr> <tr> <td>Ministry of Equipment and Transport (MET)</td> <td>Tram Introduction Plan (duration is unknown, as the plan is under preparation)</td> <td>Under preparation</td> <td>Basic data on urban area related to introducing trams in Djibouti City</td> </tr> <tr> <td>Djiboutian Road Agency (ADR)</td> <td>Road Rehabilitation Plan (2015-2016)</td> <td>Approved</td> <td>Basic data on urban area related to the road rehabilitation plan in Djibouti City</td> </tr> <tr> <td>National Office for Water and Sanitation of Djibouti (ONEAD)</td> <td>Sewerage Improvement Plan (duration is unknown, as the plan is under preparation)</td> <td>Under preparation</td> <td>Basic data on urban area related to the sewerage improvement plan in Djibouti City</td> </tr> </tbody> </table>	Organization in charge	Projects/Plans that utilize digital topographic maps and orthophotos	Progress of projects/plans in the left	How digital topographic maps and orthophotos are utilized in projects/plans	Ministry of Housing, Urban Planning and Environment (MHUPE)	Djibouti City Reform Plan (2013-2015)	Approved	Basic data on urban area related to Djibouti City Reform Plan	Electricity of Djibouti (EDD)	International Transmission Network Construction Plan (duration is unknown, as the plan is under preparation)	Under preparation	Basic data on urban area related to the transmission network construction plan of Djibouti City	Ministry of Equipment and Transport (MET)	Tram Introduction Plan (duration is unknown, as the plan is under preparation)	Under preparation	Basic data on urban area related to introducing trams in Djibouti City	Djiboutian Road Agency (ADR)	Road Rehabilitation Plan (2015-2016)	Approved	Basic data on urban area related to the road rehabilitation plan in Djibouti City	National Office for Water and Sanitation of Djibouti (ONEAD)	Sewerage Improvement Plan (duration is unknown, as the plan is under preparation)	Under preparation	Basic data on urban area related to the sewerage improvement plan in Djibouti City
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<p>(Expected Goals through the Proposed Plan 2) Utilization of the geographic information data is promoted in related organizations.</p>	<p>Records of utilization of the digital topographic maps in related organizations (names of projects and plans) (The digital topographic maps produced under the project are shared with five to six organizations and utilized as basic information for project planning in two to three organizations)</p>	<p>(Ex-post Evaluation) achieved The digital topographic maps and the orthophotos have been distributed to related organizations and utilized as basic data in plans/project planning as shown above.</p>																								

Source : JICA internal document, questionnaire survey and interview with Topographic Section

### 3 Efficiency

Both project cost and project period were within the plan (the ratio against the plan: 87% and 100%, respectively). Therefore the efficiency of the project is high.

### 4 Sustainability

#### <Policy Aspect>

‘Urban and rural development’ and ‘social infrastructure development’ (including preparation of topographic map data) are still emphasized as important issues in “Vision Djibouti 2035 (2013-2035)” and “Strategy for Accelerated Growth and Promotion of Employment (SCAPE)(2015-2019)” which are effective at the time of ex-post evaluation.

#### <Institutional Aspect>

During the project implementation, it was recommended to upgrade TSDE to the National Directorate of Topography and Geodesy and increase the number of staff from 12 at the time of project completion to 25 in future, as strengthening of TSDE institutionally and financially is necessary in order to sustainably update and utilize the geographic information data. On the other hand, the Department of Equipment of MET has become a public corporation as ADR due to a structural reform of the Djiboutian government, and TSDE has been transferred to ADR and become the Topographic Section, Department of Planning of ADR. As the Topographic Section has become beyond the jurisdiction of MET, it was not upgraded to the National Directorate of Topography and Geodesy, and the Section has not become able to facilitate collaboration with other related organizations regarding updating the geographic information data (it has not reached the level

yet that the data is updated by other organizations and the Section manages it in an integrated manner in future). The Section is composed of the Topography Team, which is responsible for planning and making topographic maps and managing the digital topographic maps and orthophotos etc., and the Geodesy Team, which is responsible for geodetic planning and managing geodetic networks etc., and the number of staff in the Section is 23. At the time of ex-post evaluation, the digital topographic maps and the orthophotos produced under the project have been shared with related organizations and the data has been updated as needed, and thus it can be said that the current number of staff is sufficient. In addition, as stated above, stakeholder meetings to promote utilization of the geographic information data were held in 2015 and 2016 after project completion, and the organizers of the meetings are MET and MHUPE, and participating organizations are ADR, EDD, ONEAD, Djibouti Telecom and Djibouti Center for Research Studies (CERD). MET has established the Department of Digital Topography, in which one staff has been assigned in charge of promoting utilization of the geographic information data and organizing stakeholder meetings.

<Technical Aspect>

As stated above, technology transfer for “partial correction (updating the geographic information data)” was conducted under the project, then the data was updated by the Topographic Section, Department of Planning of ADR in 2016, and stakeholder meetings to promote utilization of the data have been continuously held. Thus, it can be said that the technical level has been maintained after project completion. On the other hand, while technology transfer for partial correction was conducted in the form of on-the-job (OJT) training under the project, analysis related to aerial triangulation for producing original data for geographical information, digital plotting, map symbolization and creating orthophotos were conducted in Japan. While there is no problem on sustainability of project effects, technical transfer on these aspects would be required in the future.

<Financial Aspect>

As stated above, the geographic information data prepared under the project has been updated, and thus it can be said that financial resource to sustain project effects is secured. However, financial data on updating the geographic information data and utilization promotion could not be obtained, as budget management is not conducted in the Topographic Section alone, and thus there are some uncertainties for securing financial resource in future.

<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

Through the project, the objectives were achieved by the time of project completion. At the time of ex-post evaluation, while it was turned out that the digital topographic maps and the orthophotos are not utilized for determining policy priorities in national land plans and national development plans, Expected Goals through the Proposed Plan have been achieved. As for sustainability, slight problems have been observed in terms of the institutional and financial aspects, while policy background and technical aspect are secured.

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

### III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- As stated above, while the Topographic Section has not been upgraded, collaboration for updating the topographic map data (the data is updated by other organizations and the Section manages it in an integrated manner in future) is desired to be promoted through upgrading of the Section or through strengthening of collaboration with MET, in order to enhance sustainability of project effects.
- In order to enhance sustainability of project effects, skills of technical staff should be developed in other related organizations as well as in ADR so that they can update the digital topographic maps.
- As stated above, financial data on updating the geographic information data and utilization promotion could not be obtained, as budget management is not conducted in the Topographic Section alone. In order to secure sustainability of project effects, proper budget management in the Section is desired.
- 

Lessons Learned for JICA:

- As stated above, as the subject area of the digital topographic maps and the orthophotos is Djibouti City only, they are not utilized for determining policy priorities in national land plans and national development plans. When implementing a similar project in future, it should be checked whether there is no discrepancy between the project area (Djibouti City in this project) and the proposed plan area (a country as a whole in this project), and targets that are possible to be achieved by the time of ex-post evaluation should be set during project planning.

Country Name	<b>Project for Treatment of Sewage, Rainwater and Wastes in Kaolack City</b>
Republic of Senegal	

**I. Project Outline**

Background	Kaolack city is one of the major cities in Senegal with a population of about 270,000 in 2012. However, sewage, rainwater and solid waste were not treated properly, resulting in its poor sanitary and environmental conditions. In addition, its Master Plan on hygienic environment had never been updated since its formulation in 1979. In order to improve the sanitary and environmental conditions overall, revision of the Master Plan was urgently necessary. Regarding solid waste management (SWM), deterioration of equipment was so serious that the collection rate remained at 25% in 2007. Kaolack city formulated a Master Plan for SWM with the technical assistance from the National Agency for Public Cleaning of Senegal (Agence Nationale pour Propreté du Sénégal: APROSEN) in 2008. However, this Master Plan was not implemented due to financial constraints.				
Objectives of the Project	<ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>1</sup>: (1) waste water treatment ratio in Kaolack city will improve, (2) flood area in Kaolack city will decrease, (3) solid waste collection ratio in Kaolack city will increase.</li> <li>Expected utilization of the proposed plan: Projects planned in the Master Plan and studied in the Feasibility Study will be implemented.</li> </ol>				
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: the entire area of Kaolack city, Senegal.</li> <li>Main Activities: (1) review of the existing plans and current conditions of sewerage, stormwater drainage and solid waste management in Kaolack city, (2) compilation of the Master Plan of sewerage, stormwater drainage and solid waste management in Kaolack city, (3) conduct of a Feasibility Study for highly prioritized projects, (4) transfer of relevant skills and technologies to personnel concerned in Senegal in the course of the project.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>Japanese Side</b>  (1) Mission members: 11 persons  (2) Trainees Received: 7 persons  (3) Equipment: none </td> <td style="width: 50%; vertical-align: top;"> <b>Senegalese Side</b>  (1) Staff Allocated: 10 persons  (2) Operation cost: cost for electricity and telephone bill of Japanese experts' office, travelling cost for Senegalese counterparts, etc.  (3) Land and Facilities: Japanese experts' office </td> </tr> </table> </li> </ol>			<b>Japanese Side</b> (1) Mission members: 11 persons (2) Trainees Received: 7 persons (3) Equipment: none	<b>Senegalese Side</b> (1) Staff Allocated: 10 persons (2) Operation cost: cost for electricity and telephone bill of Japanese experts' office, travelling cost for Senegalese counterparts, etc. (3) Land and Facilities: Japanese experts' office
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Project Period	Nov. 2011 - Oct. 2013 (24 months)	Project Cost	(ex-ante) 320 million yen, (actual) 297 million yen		
Implementing Agency	National Office of Sanitation of Senegal (Office National d' Assainissement du Sénégal: ONAS)				
Cooperation Agency in Japan	CTI Engineering International Co., Ltd., Earth and Human Corporation				

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Senegal at the Time of Ex-Ante Evaluation and Project Completion&gt;</p> <p>The project was consistent with the development policies of Senegal stated in the "Environment and Natural Resources Sector Policy Letter (LPSEPN)" (2009-2011) at the time of ex-ante evaluation and the "Senegal Emerging Plan (PSE)" (2014-2035) at the time of project completion, which aimed at sustainable sanitation for the people by realizing sound management of the environment and natural resources.</p> <p>&lt;Consistency with the Development Needs of Senegal at the Time of Ex-Ante Evaluation and Project Completion &gt;</p> <p>Following the Master Plan formulated in 1979, a sewage treatment plant, a sewer network, and a primary drainage canal network have been constructed in 1980's, but they covered only the central part of the city. Regarding SWM, while there were three transfer stations and one final disposal site in the city, all of them were open dumping without any heavy machines for land-leveling nor truck scales. In order to improve this situation, the city was in need of a comprehensive hygienic environment development plan or an updated Master Plan. Therefore, the project was consistent with the development needs of Senegal at the time of ex-ante evaluation and the project completion.</p> <p>&lt;Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation&gt;</p> <p>The project was consistent with Japan's ODA policy for Senegal since the "Country Assistance Program for the Republic of Senegal" (April 2009) prioritized the assistance to "promote the improvement of basic living standards in collaboration with the health sector."</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Status of Achievement for the Objectives at the time of Project Completion&gt;</p> <p>The objectives of the project were achieved by the time of project completion. The existing plans and social, economic, institutional and managerial situations of public services in Kaolack city were reviewed (Output 1), and based on the review the Kaolack city's Master Plan has been compiled under the category of Sewerage/ Sanitation System Improvement Plan, Stormwater Drainage Management Plan, and Solid Waste Management Plan (Output 2). Feasibility studies were conducted, and prioritized projects were planned (Output 3). According</p>

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

to the interviews with the staff of ONAS Kaolack, relevant skills and technologies were transferred to them through the on-the-job training (OJT) in Senegal and training in Japan<sup>2</sup> (Output 4).

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

The Master Plan prepared by the project was approved by the Ministry of Hydraulics and Sanitation (MHS) in January 2014. Prior to the approval, a workshop to confirm the contents of its plan was held in Dakar, the capital of Senegal, inviting concerned stakeholders of governmental and non-governmental organizations. ONAS refers to the Master Plan for selecting project approaches and alternatives. However, none of the projects studied in the Feasibility Study have been implemented due to insufficient funds. The World Bank and the West African Development Bank (BOAD) have started sanitation related projects in Kaolack city in 2017, and they referred to the Mater Plan prepared by the project in their planning surveys.

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

Improvement of waste water treatment ratio, flood area and solid waste collection ratio through the implementation of the projects proposed by the Master Plan and the Feasibility Study were not verified because any project planned in the Master Plan have not been implemented yet.

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

According to the interviews with officials of ONAS, since a participatory approach was taken in the field surveys in the project, community members were involved and their awareness of sanitation especially on waste management has been raised. And the city officials' ownership of the Master Plan is high because of this participatory approach involving the Kaolack city officials. No negative impact on natural environment has been observed.

<Evaluation Result >

In light of the above, the objectives of the project were achieved at the time of project completion. However, the proposed plans were not implemented. Some positive impacts caused by the participatory approach taken by the project can be observed. Therefore, the effectiveness/impact of the project is fair.

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

Aim	Indicators	Results
Utilization Status of the Proposed Plan	Projects planned in the Master Plan and studied by the Feasibility Study will be implemented.	(Ex-post Evaluation) Not achieved Projects planned in the Master Plan and studied by the Feasibility Study have not been implemented yet due to the insufficient funds.
Expected Goals through the Proposed Plan	(1) Waste water treatment ratio in Kaolack city will improve.	(Ex-post Evaluation) Not verified Because no projects proposed by the project have been implemented, changes on the waste water treatment ratio in Kaolack city cannot be verified.
	(2) Flood area in Kaolack city will decrease.	(Ex-post Evaluation) Not verified. Because no projects proposed by the project have been implemented, changes on the flood area in Kaolack city cannot be verified.
	(3) Solid waste collection ratio in Kaolack city will increase.	(Ex-post Evaluation) Not verified. Because no projects proposed by the project have been implemented, changes on the solid waste collection ratio in Kaolack city cannot be verified.

Source: Final Report Vol.1 (2014), questionnaire to and interviews with the staff of ONAS and Kaolack city (2017)

3 Efficiency

Although the project cost was within the plan (the ratio against the plan: 93%), the project period exceeded the plan (the ratio against the plan: 112%). Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect >

The "Priority Actions Plan 2014-2018" which operationalizes the PSE for five year period of 2014-2018 allocates 26% of its fund for sustainable development, along with human capital and social protection, including safe drinking water and sanitation as well as living environment conditions. As for the environment sector, LPSERN has been updated to LPSERN 2016-2018 keeping its policy for realizing sanitary environment of the people through sound management of environment. Therefore, the project effects are expected to be sustainable from the perspective of policy aspect.

<Institutional Aspect >

While human resource constraints were cited in the Master Plan prepared by the project as a major issue of ONAS Kaolack, the situation has not been changed since then. There is only one technician in ONAS Kaolack at the time of the ex-post evaluation in 2017, who can support implementation of the projects. Other technical staff members are operation and maintenance staff for sanitation facilities, who don't have knowledge and experience of project planning and implementation.

<Technical Aspect >

According to the interviews with officials of ONAS Headquarters, technical level of ONAS staff is sufficiently high to implement the projects proposed by the Master Plan. While technical level of ONAS has been high, it has been further improved through the off-the-job and on-the-job training provided by the project. However, out of five staff members trained by the project, three of them have been transferred or turned over.

<Financial Aspect >

Financial constraints were also reported in the Master Plan as a major issue not only at ONAS Kaolack but also at Headquarters. The Master Plan stated that "against budgetary constraints, there might be no rapid effective solution except for the central government to increase its subsidies to the local governments and the government-affiliated organizations" (Final Report Volume I: Summary, March 2014, p.123). However, the central government's subsidies have not been sufficiently increased to implement the projects proposed by the

<sup>2</sup> A total of seven engineers and technicians of ONAS, the Kaolack City, and some other ministries participated eight days training program in Japan. The participants learned about urban environmental management in Japan through lectures, on-site visits, and discussion with Japanese experts from the public and private sectors.

Master Plan.

<Evaluation Result>

In light of the above, some 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 objectives of the project were achieved by the time of project completion by submitting the Master Plan including the Feasibility Study. However, while the Master Plan was approved by MHS, none of the projects proposed have been implemented due to insufficient funds. As for sustainability, limited human resources and funds constrained implementation of the projects proposed. As for efficiency, the project period exceeded the plan.

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

### III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- Since some international organizations have shown their interests in some projects studied in the project, it is recommended MHS and Kaolack city to take a further step to have the discussion with those and other active donors for financing the implementation of the projects.

Lessons Learned for JICA:

- None of the projects proposed in the Master Plan prepared by the project have been implemented due to financial constraints of the Government. Funding could be a critical factor in project implementation for most developing countries. If specific financing strategies could be included in a Master Plan, it might increase the possibility of implementation of projects.

Country Name	<b>Study on the Strategic Planning for Water Supply and Sewerage Sector in Ulaanbaatar City</b>
Mongolia	

**I. Project Outline**

Background	<p>In accordance with the continuous population growth and the rapid water demand growth thereby, “Ulaanbaatar City Water Supply Plan”, which targeted only the water supply sector was formulated as a master plan of the water supply and sewerage sector in 1995 with the support of JICA. Then, the “Ulaanbaatar City Master Plan 2020” (UBMP2020) which targeted both water supply and sewerage was formulated in 2006 with the assistance of the French Agency of Development (Agence Française de Développement: AFD) and approved by the Cabinet. In 2009, the “Preparatory Study on Ulaanbaatar City Master Plan Urban Development Program” (UBMPS) was conducted which included a review of UBMP 2020. Nonetheless, due to a rapid increase in population and expansion of the city's urban area, it was necessary to review the existing master plans for water supply and sewerage sector including UBMPS. On the other hand, sewage system had a problem of poor quality of treated water due to the aged facilities and the problem of operation ability.</p> <p>In order to improve this situation, the Government of Mongolia made a request to the Government of Japan to implement a development planning project which includes analysis of the current situation, including a review of the UBMPS, system planning and a feasibility study (F/S) of priority projects.</p>								
Objectives of the Project	<ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>1</sup>: Water supply and sewerage environment in Ulaanbaatar improves.</li> <li>Expected utilization of the proposed plan: (1) Proposed plan is added/modified to the existing master plans. (2) Implementation of priority projects is approved by the cabinet.</li> </ol>								
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site: Ulaanbaatar city</li> <li>Main Activities: (1) To review the planning frame of the existing master plan for water and sanitation improvement at Ulaanbaatar city based on UBMPS, (2) To conduct feasibility study on priority projects to be identified in the Study, and (3) To enhance capacity of Mongolian side through the study</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Mongolian Side</td> </tr> <tr> <td>1) Mission members: 14 persons</td> <td>1. Staff Allocated: 10 persons</td> </tr> <tr> <td>2) Trainees Received: 7 persons</td> <td>2. Provision of Project office</td> </tr> </table> </li> </ol>			Japanese Side	Mongolian Side	1) Mission members: 14 persons	1. Staff Allocated: 10 persons	2) Trainees Received: 7 persons	2. Provision of Project office
Japanese Side	Mongolian Side								
1) Mission members: 14 persons	1. Staff Allocated: 10 persons								
2) Trainees Received: 7 persons	2. Provision of Project office								
Project Period	April 2012 – July 2013	Project Cost	(ex-ante) 197 million yen, (actual) 208 million yen						
Implementing Agency	Municipality of Ulaanbaatar, Ulaanbaatar Water Supply and Sewerage Authority (USUG)								
Cooperation Agency in Japan	NJS.Co., Ltd., Tokyo Metropolitan Sewerage Service Corporation, Bureau of Waterworks Tokyo Metropolitan Government								

**II. Result of the Evaluation**

< Special Perspectives Considered in the Ex-Post Evaluation >

· Since the ex-ante evaluation sheet was not prepared for this project, it was not defined how to measure the "utilization of the proposed plan". Therefore, in this ex-post evaluation, we evaluated "utilization of proposed plan" from the following viewpoint. (1) whether the proposal plan was added/modified to existing master plans, (2) whether the progress such as project formulation and budgeting of the proposed plan is being made, (3) whether the implementation of priority projects is decided by the Cabinet.

**1 Relevance**

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

The project was consistent with development policy of Mongolia both at the times of ex-ante evaluation and project completion. At the time of ex-ante evaluation, one of the strategic goals in Mongolia's "Water National Program" that came into effect in 2010 was "proper use of water resources, water saving, reuse of sewage, introduction of the latest water treatment technology". The program continued to be effective even at the time of project completion. Regarding to water supply, the basic direction of development policy of the “Ulaanbaatar City Master Plan 2020, Development Trend for 2030” which is the succeeding master plan of UBMP-2020 and UBMPS is to improve water source and water supply, improving appropriate facility scale in accordance with future water demand in the capital, improvement of legal environment and administrative management, strengthening of management and implementation system and introduction of advanced technology, etc.

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

The project was consistent with development needs for improvement of water supply and sewage of Mongolia both at the times of ex-ante evaluation and project completion. At the time of ex-ante evaluation, expansion of the urban area of Ulaanbaatar city and the sharp increase in population required review of the existing master plans. At the time of project completion, the population growth rate of Ulaanbaatar city as well as the average daily supply of water were continuously growing. Problems of the sewage system included aged sewage pipes, aged sewage treatment plants and deterioration of discharged water quality.

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

The project was consistent with Japan's ODA policy strengthening of urban function of Ulaanbaatar was one of the prioritized areas for support to Mongolia<sup>2</sup>.

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

<sup>2</sup> Source: ODA country databook 2012



<Evaluation Result>

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

2 Effectiveness/Impact

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

At the time of project completion, the planning frame of the existing master plan for water and sanitation improvement at Ulaanbaatar city based on UBMP was reviewed, "improvement and expansion of Central Wastewater Treatment Plant" was selected as a priority project, and F/S was implemented. Regarding the capacity building of the implementing agencies through this project, under the guidance of two Japanese experts, technical capacity of staff in the sewage treatment plant, i.e. priority project, (17 staff members) was strengthened. The project conducted on-site training and technical guidance for concentration measurement of pollution level of drainage by using portable equipment (COD meter etc.). Training lectures and seminars were also conducted on the analysis and utilization of measurement results. The staff has continued to utilize the skills and knowledge acquired in the training for daily work.

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

The proposed plan by this project has been highly utilized. Proposal from the project and improvement items such as securing new upstream water sources, improvement of water supply system facilities (renewal of water pipes, increase of water supply facilities), development and dissemination of use of surface water, reuse of treated regenerated water, improvement and expansion of the Central Wastewater Treatment Plant, introduction of advanced technology, etc. were reflected in the "Ulaanbaatar City Master Plan 2020, Development Trend for 2030" which was approved by Great Khural Decree (Parliament Decree) No. 23 on February 8, 2013.

In addition, project formulation and budgeting are progressing in many measures and projects under the proposed plan. In the water supply system development, the proposed water distribution management measures, replacement of water pipes, water supply facilities improvement project are being implemented. Regarding sewerage system development, sewage treatment facility construction and factory improvement of sewer culvert is in progress, and improvements of sanitation facilities in the ger districts are also being considered and implemented. Regarding "improvement and expansion of the Central Wastewater Treatment Plant" proposed as a priority project in this project, it was included in the "National Property Concession Item List" approved by the Cabinet Decree No. 317 in 2013. However, , Cabinet decision on soft loan from China was decided at the Cabinet No. 311 on November 15, 2017<sup>3</sup>, and thus implementation of the project is decided.

Regarding strengthening of operational capacity, although the improvement of the treatment process of the Central Wastewater Treatment Plant is being gradually implemented, concrete measures have not been taken concerning improvement of the operation and management capacity of the wastewater treatment plant. With respect to the water supply, USUG's management improvement is being made by taking measures against non-revenue water and setting appropriate water charges.

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

Any concrete effects of utilization of the proposed plan has not been produced yet, since the project is just being planned or shortly after its implementation. However, under this project, detailed surveys and evaluations on water supply and sewerage systems in Ulaanbaatar city were carried out, proposed measures and recommendations including various issues to be improved were submitted and they have been referred as documents for important measures for future policies and development plan. In Ulaanbaatar city, reduction of the non-revenue water rate and increase in capacity of water supply facility by water source development, etc. are being progressed, and this project contributes to some extent to improvement of water supply and sewerage environment of Ulaanbaatar city.

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

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

<Evaluation Result>

In light of the above, as the objectives were attained both at the time of project completion and ex-post evaluation, the effectiveness/impact of the project is high.

3 Efficiency

Both the project cost and project period exceeded the plan (the ratio against plan: 106%, 145%) and the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The continuation of the effect of this project is secured by the Mongolian government policy. 4.2.5.1 of the "Government Action Plan 2016-2020" includes the priority project "Implementation of renovation/renewal work of Central Sewage Treatment Plant" and so on. Also, "Ulaanbaatar City Master Plan 2020, Development Trend for 2030" reflects projects and activities aimed at developing and improving water and sanitation systems.

<Institutional Aspect>

An institutional system necessary for sustaining the effect of this project has been established. In Municipality of Ulaanbaatar, the Urban Development and Master plan Agency, the Ger Districts Infrastructure Agency, the Engineering Facilities Agency and the Procurement Agency are in charge of water supply planning and implementation, Ger Districts development planning and implementation, engineering and maintenance, and procurement respectively. The number of staff members satisfies the quota confirmed by the city council decision, and the number of people assigned to each agency is also appropriate.

Regarding the planning, construction and maintenance of water supply and sewage facilities, the role and responsibility sharing between Ulaanbaatar city and USUG is clear. The work performance agreement with the Head of USUG and the annual activity plan of the institution describes the construction plan of the water supply facility between Ulaanbaatar city and USUG, its use and maintenance, the division of work roles, the budget and securing funds, etc. Through the implementation of this activity plan, the work performance contract of the Head of USUG has been evaluated, and then, management, evaluation, conclusion, etc. on the business activities of the whole organization are made.

<Technical Aspect>

Regarding the departments concerned in Municipality of Ulaanbaatar, due to personnel change, dismissal etc., the knowledge and

<sup>3</sup> Although initially it was planned to conduct the project in the concession system, negotiations were canceled because agreement on the terms and conditions was not reached.

understanding on the water and sanitation environment are insufficient, and strengthening of capacity on selection of priority project plans and on guidance and management skills for implementation etc. are necessary, according to staff concerned in Municipality of Ulaanbaatar. USUG wishes to improve the technical capacity of the staff at the Central Wastewater Treatment Plant and to participate in training on advanced technology.

<Financial Aspect>

As written in the Effectiveness/Impact, as for the priority project of "Improvement and expansion of Central Wastewater Treatment Plant", budget has already been secured and the implementation has been decided by the Cabinet. Implementation of some of the proposed projects have been decided, however, details such as budget and the date of start of the implementation are yet to be decided.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the technical and financial aspects of the implementing agency; however, there are no major problems in the policy and institutional aspects. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project completed reviewing the plan frame of the existing master plan, selecting the priority project and implementation of F/S and capacity building of the implementing agencies at the time of project completion. At the time of ex-post evaluation, progress was made on the state of utilization of the proposed plan, and the implementation of the priority project was also decided by the Cabinet. As for the sustainability, slight problems have been observed in the technical and financial aspect, however, no problems have been observed in terms of policy and institutional aspects. As for the efficiency, both the project period and project cost exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.



Current situation of the Central Wastewater Treatment Plant  
(at the time of ex-post evaluation)

Country Name	<b>The Project for Study on Improvement of the Bridges through Large Scale Earthquakes Disaster Mitigating Measures</b>		
Republic of the Philippines			

**I. Project Outline**

Background	Since the Philippines is within the Pacific Rim of Volcanic Zone, it is geographically prone to large earthquake disasters similar to the “North Luzon Earthquake of 1990,” which imply the necessity of earthquake-related disaster mitigation measures. Although the Department of Public Works and Highways (DPWH) had carried out emergency seismic inspection and retrofit of public infrastructures, it still lacked the experience sufficient for inspection and retrofit of large and special type bridges along the major national highways serving as emergency lifeline road. Moreover, the seismic design standards and specifications for bridges had not been updated/ revised.								
Objectives of the Project	This project aims to revise the bridge seismic design standard and propose a plan for bridge improvement based on the standard in the Philippines, thereby contributing to the strengthening of urban disaster prevention functions and safety and durability of bridges resistant to large-scale earthquake disasters, by way of designing bridges based on the standard and conducting seismic strengthening works on target bridges based on the improvement plan.								
	<ol style="list-style-type: none"> <li>Expected Goals through the proposed plan<sup>1</sup> : Urban disaster prevention function is strengthened through improvement of the safety and durability of bridges as a lifeline that is resistant to large-scale earthquake disasters.</li> <li>Expected utilization of the proposed plan : <ul style="list-style-type: none"> <li>-Revised bridge seismic design standard and reference materials proposed by the Project are utilized for bridge design in the Philippines.</li> <li>-Seismic strengthening works of the target bridges<sup>2</sup> are implemented by DPWH and related organizations such as donors based on the plan for bridge improvement (retrofit / replacement) proposed by the Project.</li> </ul> </li> </ol>								
Activities of the Project	<ol style="list-style-type: none"> <li>Project Site : Metro Manila area and outside Metro Manila area (mainly along the Philippine-Japan Friendship Highway)</li> <li>Main Activities: <ul style="list-style-type: none"> <li>- Package A (Seismic design guidelines<sup>3</sup> for bridges): Collection of earthquake records, soil and geological condition classifications, records of seismic damages on existing bridges; identification and analysis of issues and concerns on the current DPWH seismic design specifications<sup>4</sup>; development of draft on revision of the current specifications and reference materials; seminars for technology transfer.</li> <li>-Package B (The plan for bridge improvement within Metro Manila) and Package C (The plan for bridge improvement outside Metro Manila): Inspection of bridge conditions, including environmental and social conditions around the bridges; traffic volume survey on the roads related to the bridges; prioritization and selection of bridges to be retrofitted or replaced; preparation of outline design of retrofit or replacement and estimation of cost for the selected bridges to be retrofitted or replaced.</li> </ul> </li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Philippines Side</td> </tr> <tr> <td>1) Mission Members: 21 persons</td> <td>Staff Allocated: 8 persons from DPWH</td> </tr> <tr> <td>2) Training Received: 10 persons</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Philippines Side	1) Mission Members: 21 persons	Staff Allocated: 8 persons from DPWH	2) Training Received: 10 persons	
Japanese Side	Philippines Side								
1) Mission Members: 21 persons	Staff Allocated: 8 persons from DPWH								
2) Training Received: 10 persons									
Project Period	April 2012 to December 2013	Project Cost	(ex-ante) 420 million yen (actual) 387 million yen						
Implementing Agency	Department of Public Works and Highways (DPWH)								
Cooperation Agency in Japan	CTI Engineering International Co., Ltd; Chodai Co., Ltd; Nippon Koei Co., Ltd.								

**II. Result of the Evaluation**

< Special Perspectives Considered in the Ex-Post Evaluation >

- (i) Indicator 2 for the Expected Utilization of the proposed plan (i.e. the number of seismic strengthening works): Ex-post evaluation for this Project was originally planned after five years from completion of the Project (i.e. at the earliest in 2018) as per the ex-ante evaluation sheet. In addition, according to the implementation schedule of the bridge improvement plan proposed by the Project, the construction works start in 2018. Considering the above, it is not appropriate to use the number of construction works to assess the degree of utilization at the time of ex-post evaluation conducted in 2017. It is noted that, as per the said schedule, detailed design (DD) and tender assistance is conducted from the beginning of 2015 to the middle of 2017 and tendering is implemented from the beginning of 2017 to the first quarter of 2018. In addition, the Final Report of the Project recommended that, among 7 priority bridges, 2 in Metro Manila be replaced urgently while the other 5 outside Manila be improved “at appropriate timing”. For the ex-post evaluation, therefore, “the number of seismic strengthening works for which DD has been implemented and tendering process has started (at least 2)” shall be checked as an alternative indicator to assess the degree of utilization for Indicator 2.

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

<sup>2</sup> The bridges prioritized by the Project: Lambingan Bridge (Br) and Guadalupe Br. (for Metro Manila/Package B); 1st Mandaue- Mactan Br., Palanit Br, Mawo Br., Lilo-an Br., and Wawa Br. (for outside Metro Manila/Package C)

<sup>3</sup> “Guidelines” consist of standard and reference materials to be proposed through Package A of the Project.

<sup>4</sup> “Specifications” is a term used in Final Report for “standard” actually proposed through Package A.

## 1 Relevance

### <Consistency with the Development Policy of the Philippines at the Time of Ex-Ante Evaluation and Project Completion>

The Project was consistent with the development policy of the Philippines both at the time of ex-ante evaluation and project completion, as development of infrastructure resistant to natural disasters was regarded as a priority action issue from the viewpoint of improving the investment environment in the Philippine Medium Term Development Plan (2011-2016).

### <Consistency with the Development Needs of the Philippines at the Time of Ex-Ante Evaluation and Project Completion >

The Project was consistent with the development needs of the Philippines to improve the durability and safety of bridges and other infrastructures under large-scale earthquakes as mentioned in the “Background” above at the time of ex-ante evaluation. In the interview for the ex-post evaluation, DPWH confirmed the continuity of the needs 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 development and improvement of major transportation networks supporting economic growth was listed as an area of cooperation of the Country Assistance Program for the Philippines (2008).

### <Evaluation Result>

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

## 2 Effectiveness/Impact

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

The Objectives were achieved at the time of project completion. All of the planned study items were implemented, and the revised DPWH bridges seismic design specifications (BSDS), including reference materials, and projects for seismic strengthening of bridges targeting the 7 priority bridges (2 in Metro Manila Area and 5 outside Metro Manila Area) were proposed. According to the key officials, DPWH was satisfied with the quality of the draft of the revised BSDS because it provided design criteria and maps based on Philippine/local conditions. DPWH was also satisfied with the quality of the design for the 7 priority bridges because it conformed to the draft of the revised BSDS.

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

The revised BSDS proposed by the Project was approved and published through DPWH’s Department Order in February 2016, and the mandatory use of it became effective in February 2017. It is being used to update the standard plans for the new bridges by DPWH, and its design criteria and methodology are incorporated in the standard terms of reference (TOR) for consultancy services for construction of new bridges. The revised BSDS had been utilized for bridge design in the Philippines even before its approval. For example, it has been applied in Bridge Construction Replacement Program (2015-2022), a locally-funded project for the rehabilitation of 112 bridges implemented by DPWH, since 2015 (Indicator 1).

In the meantime, the degree of utilization of the proposed project for seismic strengthening of the priority bridges is lower than expected (Indicator 2). DD has not been implemented for any bridges yet. As for the two priority bridges in Metro Manila, however, a Japanese ODA loan agreement was signed in August 2015. DD and tender assistance are planned to be conducted from July 2017 to June 2019, and DPWH is in the process of procuring consultants for this. It is two years behind the schedule proposed by this Project because of project approval and procurement-related matters. With respect to the five priority bridges outside Metro Manila, DPWH has allocated budget in the past years for various works such as retrofitting and maintenance, but those works are not based on the retrofitting / replacement plan proposed under this Project.

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

The revised BSDS proposed by the Project served as an input for the finalization of DPWH Design Guidelines, Criteria and Standards (DGCS), 2015 Edition, which incorporates the industry’s best practice in design for public infrastructure adaptable to local requirements such as climatic, geotechnical, geological and seismological conditions.

### <Evaluation Result>

In light of the above, through the Project, the Objectives were achieved at the time of Project completion and the Proposed Plan were partially utilized at the time of ex-post evaluation. Therefore, the effectiveness/impact of the Project is high.

Status of Achievement of Utilization Status of the Proposed Plan through the Proposed Plan

Aim	Indicators	Results
(Utilization of Proposed Plan)  -Revised bridge seismic design standard and reference materials proposed by the Project are utilized for bridge design in the Philippines.  -Seismic strengthening works of the target bridges are implemented by DPWH and related organizations such as donors based on the plan for bridge improvement (retrofit / replacement) proposed by the Project.	Indicator 1 Example(s) of utilization of the bridge seismic design standard and the reference materials proposed by the Project for bridge design in the Philippines.	(Ex-post Evaluation) achieved The revised BSDS proposed by the Project were approved by DPWH in February 2016 and the mandatory use became effective in February 2017. Examples of utilization of the revised BSDS and the reference materials are as follows: - The revised BSDS has been utilized to update the standard plans for new bridges and has been incorporated in the standard TOR since 2016. - The revised BSDS has been applied in Bridge Construction Replacement Program since 2015. - Incorporating the revised BSDS developed by the Project is a requirement for DD of bridges since 2016. This is included as a minimum requirement in the Consultants’ TOR for construction of new bridges
	Indicator 2 The number of seismic strengthening works  Alternative Indicator: The number of seismic strengthen works for which DD has been implemented and tendering process has started (at least 2)	(Ex-post Evaluation) partially achieved DPWH is in the process of procuring consultants for DD and tender assistance for the two priority bridges in Metro Manila. The 5 bridges outside Metro Manila have been allocated with budget in the past years for various works such as retrofitting and maintenance, but not based on the plan proposed under this Project.  <Utilization status of the proposed project for seismic strengthening of the priority bridges in Metro Manila >

		Bridge	Progress	Schedule in Future
		Lambingan Br.	- Japanese ODA loan agreement signed in Aug. 2015	- DD and Tender Assistance: Jul. 2017 to Jun. 2019 - Tendering: Jun. 2018 to Jun. 2019
		Guadalupe Br.	- Procurement of consultants for Detailed Design and Tender Assistance is ongoing	- Construction: Jul. 2019 to Dec. 2021 - Operation: Dec. 2021

Source : Focused group discussions with Bridge Management Cluster, United Project Management Office, DPWH; interview with Project Preparation Division; questionnaire and interview with Bureau of Design, DPWH

### 3 Efficiency

While the project cost was within the plan (ratio against the plan: 92%), the project period exceeded the plan slightly (ratio against the plan: 111%) because of the inclusion of additional outputs such as technical seminars, trainings, traffic simulation, schematic design of target bridges and completion of original outputs such as draft BSDS. Therefore, the efficiency of the Project is fair.

### 4 Sustainability

#### <Policy Aspect>

There is an established policy support. The objectives of the Philippine Development Plan (2017-2022) include enhancing the efficiency of the transport sector to sustain economic growth and increase competitiveness by providing adequate, accessible, reliable, and safe access for people and goods. The DPWH Strategy Map 2022 (2017-2022) aims at the full rehabilitation and retrofitting of all bridges identified to be in earthquake vulnerable areas to be completed by 2022.

#### <Institutional Aspect>

DPWH engages and oversees consultants and contractors for DD, supervision, and implementation of the seismic improvement projects. Within DPWH, Bridges Management Cluster (BMC) of United Project Management Office (UPMO) is responsible for seismic strengthening of the two priority bridges in Metro Manila, which are supported by the Japanese ODA loan project (i.e. Metro Manila Priority Bridges Seismic Improvement Project (MMPBSIP)). BMC/UPMO has a stable number of permanent staff for the past three years. As of June 2017, there are 46 permanent staff, consisting of 4 Project Managers, 40 Project Engineers, and 2 administrative staff. The number of permanent staff is expected to be maintained in the succeeding years since it has been approved under the Rationalization Plan of DPWH in 2014. Institutional set-up for MMPBSIP is being established. So far, 5 permanent staff have been assigned to deal with procurement for MMPBSIP. According to BMC/UPMO, a Project Manager and appropriate number of Project Engineers will be assigned before DD and tender assistance/construction begins. From these, the institutional set-up and the staffing of DPWH are considered appropriate to implement seismic strengthening for bridges.

#### <Technical Aspect>

DPWH conducts regular trainings for its staff in the central and field offices (i.e. Regional Offices, District Engineering Offices and Project Management Offices) on various topics, targeting 600 persons per annum. Trainings for the revised BSDS and DGCS (2015), however, have not been conducted even though the use of these documents were made mandatory in 2016. As for BMC/UPMO, it appears that the staff have at least basic skills for supervising their consultants and contractors for seismic improvement works since it is undertaking Bridge Construction Replacement Program utilizing the revised BSDS. Staff at BMC/UPMO, however, feel the need to improve their capacity in seismic design to implement MMPBSIP since they have only limited experiences on this area, and training will only be provided in the future by the Consultants to be engaged for the project. Given the above, it is not certain if DPWH staff have sufficient knowledge and skills to apply the revised BSDS and DGCS in supervision of the proposed bridges seismic improvement works appropriately at the moment.

#### <Financial Aspect>

Budget for seismic improvement project of the two priority bridges in Metro Manila is secured through MMPBSIP, for which Japan agreed to provide 9,783 million yen of ODA loan.

#### <Evaluation Result>

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

### 5 Summary of the Evaluation

This Project achieved its Objectives at the time of project completion, as the revised BSDS and the project for seismic strengthening of the seven priority bridges were proposed. The utilization status of the proposed plan, etc. at the time of ex-post evaluation is partial: while the revised BSDS has been approved by DPWH and has been utilized for bridge design in the Philippines, DD for seismic strengthening of the priority bridges has not been implemented yet. Regarding sustainability, slight problems have been observed in the technical aspect (lack of training for utilization of the BSDS). Nevertheless, the policy background, the institutional set-up, and the budget for utilization of the proposed plan, etc. are secured. As for efficiency, the project period slightly exceeded the plan. Considering all of the above points, this Project is evaluated to be satisfactory.

## III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

- It is recommended that DPWH organize annual seminars and trainings on the topic of bridge seismic design standards for better understanding and capacity enhancement of field staff at DPWH Regional Offices, District Engineering Offices and Project Management Offices in relation to the DGCS and BSDS.

#### Lessons Learned for JICA:

- One of the Objectives of the Project was to propose the draft of the revised BSDS for DPWH. After completion of the Project, its utilization has become mandatory for DPWH through the issuance of a Department Order. Inclusion of the issuance of a Department Order and/or policy directives in the project design (such as Indicators for Objectives/Project Purpose, Expected Utilization/Overall Goal, etc.) is considered as a good practice, which ensures the impact and sustainability of the project.



The Guadalupe Bridge along the Epifanio Delos Santos Avenue (EDSA) in Metro Manila is one of the seven (7) priority bridges proposed for retrofitting / replacement identified under this Project. The plan for the bridge is now included in the Loan Agreement for the Metro Manila Priority Bridges Seismic Improvement Project between the Republic of the Philippines and JICA.



Interview with Bureau of Design: Bureau of Design Director and Bridges Division Engineer explains how the revised Bridge Seismic Design Standards produced by the Project served as an input to the new Design Guidelines, Criteria & Standards (Volume 5) of DPWH.



Country Name	<b>The Project for the Reinforcement of Vaccine Storage in Kenya</b>
The Republic of Kenya	

**I. Project Outline**

Background	In Kenya, provision of medical service focusing more on prevention was a key issue to improve the situation under which many people have suffered from preventable diseases and more expenses for their treatments were required. In particular, according to the WHO mortality country fact sheet 2006, the main causes of death for children under 5 years were pneumonia (20%), diarrhea (16%) and measles (3%) which were diseases preventable by immunization. Therefore, the government of Kenya had been implementing vaccination under “the Kenya Expanded Programme on Immunization” (KEPI) since 1980. However, there was insufficient storage capacity for vaccines and transportation of vaccines from the National Vaccine Depot to the Regional Vaccine Depots was not smoothly carried out, which hampered efficient immunization services.			
Objectives of the Project	To enable more efficient stock management and delivery of vaccines by construction of the Central and Regional Vaccine Depots and procurement of equipment for adequate storage of vaccines, thereby contributing to improvement for the full immunization coverage in Kenya			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Nairobi (later moved to Kitengela), Kakamega (Western Province), Meru (Eastern Province), Garissa (North Eastern Province), Nyeri (Central Province), Nakuru, Eldoret (Rift Valley Province), Kisumu (Nyanza Province), Mombasa (Coast Province)<sup>1</sup>.</li> <li>2. Japanese side <ul style="list-style-type: none"> <li>• Consultant services: Design of facilities, equipment, and supervision of construction</li> <li>• Construction: Nairobi Central Vaccine Depot, Kakamega Regional Vaccine Depot, Meru Regional Vaccine Depot, and Garissa Regional Vaccine Depot</li> <li>• Equipment: Cold rooms, freezer rooms, freezer, pallet lifts, tool boxes etc.</li> </ul> </li> <li>3. Kenyan side: <ul style="list-style-type: none"> <li>• Removal of any obstacles on construction sites</li> <li>• Installation of fence around the construction site</li> <li>• Provision of electricity, water supply and other necessary utilities for the Project</li> <li>• Disposal of construction and demolition waste according to legal requirements</li> </ul> </li> </ol>			
Project Period	E/N Date	August 8, 2011	Completion Date	June 17, 2013
	G/A Date	August 8, 2011		
Project Cost	E/N Grant Limit / G/A Grant Limit: 899 million yen, Actual Grant Amount: 826 million yen			
Executing Agency	Ministry of Health (the former Ministry of Public Health and Sanitation)			
Contracted Agencies	Main Contractor: Kitano Construction Corp. Main Consultant: Yokogawa Architects & Engineers, Inc. Agent: Mitsubishi Corporation			

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- According to the security advisory by the Ministry of Foreign Affairs of Japan, travel to Garissa by personnel of Japanese agencies has been restricted due to the deteriorated security situation. Therefore, the ex-post evaluation team was not able to conduct site visit to Garissa which had been selected for the ex-post evaluation, and the investigation on the Regional Vaccine Depot in Garissa was therefore limited.

## &lt; Special Perspectives Considered in the Ex-Post Evaluation &gt;

- According to the ex-ante evaluation, an indicator of “percentage of children under 12-months old fully immunized” was considered as one of the “expected quantitative effects” of the project. While increased storage capacity is a factor contributing to increased immunization coverage, it cannot be solely and directly attributed to the latter. Therefore, this indicator will not be used to verify Effectiveness but to verify Impact (the goal of this project is to have “more children immunized”), in order to logically assess this project’s contribution to the immunization coverage.

**I Relevance**

## &lt;Consistency with the Development Policy of Kenya at the Time of Ex-Ante and Ex-Post Evaluation&gt;

The project was consistent with Kenya’s development policies such as “Vision 2030”, “the Medium-term Plan 2008-2012”, “Ministry of Public Health and Sanitation Strategic Plan 2008-2012” and “the National Policy Guidelines on Immunization 2013”, prioritizing improvement of public health service delivery including vaccination and immunization, thereby aiming at the full immunization coverage of children under 12-months old by 2012. The development priorities were confirmed at the time of ex-ante evaluation and at the time of ex-post evaluation.

## &lt;Consistency with the Development Needs of Kenya at the Time of Ex-Ante and Ex-Post Evaluation &gt;

The project was consistent with Kenya’s development needs of streamlining primary healthcare service delivery including vaccination and immunization services through expansion of storage capacity of the National and Regional Vaccine Depots. The development needs were confirmed at the time of ex-ante evaluation and at the time of ex-post evaluation.

## &lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;

The project was consistent with Japan’s ODA policy towards Kenya, the “Country Assistance Program for Kenya (2000)”, prioritizing to support the health sector as one of the five priority areas, including strengthening healthcare systems for enhancement of primary healthcare services.

<sup>1</sup> In line with the Constitution of Kenya, 2010, the devolved system of governance was introduced in the year 2013, and the former provincial administrative regions were restructured into smaller units called Counties.

<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 improve the stock management and delivery of vaccines by construction of the Central and Regional Vaccine Depots and the procurement of equipment for adequate storage of vaccines by the time of ex-post evaluation. According to data on indicators as collected from the field survey, the frequency of vaccine distribution in Kakamega (Indicator 1) reduced from 12 times a year in 2010 (every month) to 4 times in 2014 (quarterly) as planned and is still maintained in 2016. The vaccine distribution from the Central Vaccine Depot (CVD) in Kitengela to the Regional Vaccine Depot (RVD) in each target site (Indicator 2) has been continuously and stably undertaken 4 times a year since 2010. The Central and Regional Vaccine Depots constructed by the project expanded storage space by a total floor area of 3,854 m<sup>2</sup> (Indicator 3). In terms of the storage capacity of the CVD (Indicator 4), this was expanded by the project from 59m<sup>3</sup> (cold room of 54m<sup>3</sup> and freezer room of 5m<sup>3</sup>) to 131 m<sup>3</sup> (cold room of 115m<sup>3</sup> and freezer room of 16m<sup>3</sup>). The cold room storage capacity of the Regional Vaccine Depots in Nakuru, Eldoret, and Mombasa (Indicator 5) were each increased from 5m<sup>3</sup> to 10 m<sup>3</sup>. All the indicators have been maintained at these levels since the project completion.

Although before the project vaccines had been stored and managed at not only the National Vaccine Depot but also some hospital stores in Nairobi, the staff at the CVD reported that they were able to procure, store and issue large quantities of vaccines from a central location as well as appropriately distribute them to the target regions based on the storage capacity of the Depots expanded by the project. As a result, the efficiency of vaccine management in the Depots has been improved. The field survey for the ex-post evaluation also revealed that the expansion of the Depots has enabled the government of Kenya to introduce a variety of new vaccines into the immunization schedule. In fact, the government introduced Rotavirus and Inactivated Polio vaccine (IPV) in 2014 and 2015, respectively, and is planning further introduction of human papillomavirus (HPV), meningitis, and malaria vaccines. However, due to unavailability of data on vaccine management costs at the Central and Regional Vaccine Depots targeted by the project, the extent of cost reduction or savings associated with improved efficiency and reduction in vaccine wastage through the improvements in vaccine management at the Depots could not be verified by this ex-post evaluation.

<Impact>

As regards the positive impact of the project, the field survey results show that improvement of “percentage of children under 12-months old fully immunized” has been almost achieved. The full immunization coverage in 2016 was 75.6% against the target value of 80%. On the other hand, the annual rates of full immunization coverage fluctuated during the period from 2010 to 2014 (from 73% to 68%) and the period from between 2015 to 2016 (from 78.4% to 75.6%) largely due to the following events as reported by the Unit of Vaccines and Immunization Services (UVIS); (1) reorganization of the health sector after devolution in July 2013 that affected the previous vaccine management system and immunization service delivery across the newly devolved units; (2) in 2015, there was a marked increase in coverage of immunization as health system restructuring had settled to improve service capacity, allowing better service delivery at various levels; (3) however, health services were negatively affected by industrial actions (strikes) by health workers that occurred in 2016/17, resulting in decline in health indicators with full immunization coverage dropping in 2016.

Some other positive and negative impacts were observed at the time of ex-post evaluation. Along with increases in the volume of vaccines and other supplies to the CVD (positive), the volume of general waste pertaining to the packaging of vaccines and other supplies also increased, which led to emission of smoke from open burning of the waste and air pollution near the CVD (negative). As such, UVIS reported that it has taken measures such as off-site incineration by certified providers and minimization of general waste by recycling packaged materials in order to address the problem. On the other hand, the Regional Vaccine Depots constructed by the project also have been positively utilized for other purposes related to health services. For example, the Depot Managers in Meru and Kakamega reported that the facilities are used to store materials and commodities used by their county health programs including medical equipment, drugs, IEC (Information, Education and Communication) materials and reporting tools.

<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

Indicators	Baseline 2010 Baseline Year	Target 2016 3 Year(s) after Completion	Actual 2013 Completion Year	Actual 2014 1 Year after Completion	Actual 2015 2 Year after Completion	Actual 2016 3 Years after Completion Ex-post Evaluation
Indicator 1: Frequency of vaccine distribution in Kakamega (per a year) *	12	4	4	4	4	4
Indicator 2: Frequency of vaccine distribution in all the project sites (per a year)**	4	4	4	4	4	4
Indicator 3: Total Floor Area of the depots in Nairobi, Nakuru, Eldoret and Mombasa (m <sup>2</sup> )	0	3,854	3,854	3,854	3,854	3,854
Indicator 4: Storage Capacity of the National Vaccine Depot in Nairobi (m <sup>3</sup> )	59	131	131	131	131	131

Indicator 5: Storage Capacity of the Regional Vaccine Depots in Nakuru, Eldoret, and Mombasa (m <sup>3</sup> )	5	10	10	10	10	10
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Source : Ex-ante evaluation summary, Questionnaire response by UVIS for ex-post evaluation.

Note : \* At the time of ex-ante evaluation, Kakamega, Meru and Garissa did not have any facilities dedicated to the hold vaccines so that stocks needed to be often distributed from Nairobi to the regions. Therefore, a reduction in the frequency of the distribution from Nairobi to the target regions was expected through the construction of new depots by the project to stock adequate volume of vaccines required for immunization services.

\* \*Regarding “the frequency of vaccine distribution in all the project sites”, even if the amount of vaccine increases due to the introduction of new vaccines, the project would contribute to the expansion of storage capacities at the Regional Vaccine Depots and thus the frequency was set as same as the baseline.

### 3 Efficiency

The outputs of the project were produced as planned. Although the project cost was within the plan (ratio against the plan: 92%), the project period exceeded the plan (ratio against the plan: 110%).

Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Institutional Aspect>

There was devolution of healthcare services from the national government to the County governments in July 2013 in a way that the administrative jurisdiction of the Regional Vaccine Depots falls under the County governments. However, since management of vaccines and immunization services are shared functions, there remain some challenges in management, operation and maintenance (O&M) of the Regional Vaccine Depots. For example, the responsibilities for staff deployment, training, procurement of spare parts and supplies (syringes), vaccine storage and distribution by the Regional Vaccine Depots have been shared by the national and County governments.

[UVIS, Ministry of Health (MOH)]

Along with the devolution, there were organizational changes in structure and mandate of MOH. The division formerly responsible for vaccines and immunization (DVI) was reorganized into UVIS responsible for the formulation of policy, setting standards, guidelines and technical support to Counties. MOH is also responsible for management of national referral facilities. The CVD in Kitengela has been operated and managed by UVIS, and the total number of staffs deployed to the Depot is 5 (3 cold chain engineers and technicians for O&M, 1 pharmacist for quality management and 1 procurement officer for logistics management). However, according to staffs in the Depot interviewed by the ex-post evaluation team, the number of staffs deployed to the Depot has not been sufficient to accomplish their tasks.

[Kakamega county]

Following the devolution, Kakamega County Department of Health reported that it has taken charge of O&M of the Regional Vaccine Depot built by the project in Kakamega. Although one medical engineering technician and one nurse have been posted to the Depot for O&M and quality management, according to the staffs in the Depot interviewed for the ex-post evaluation, the number of staffs available for quality and logistics management remains inadequate and their operational capacity is hampered by competing tasks required of them.

[Meru county]

As is with Kakamega county, Meru county has taken responsibilities for O&M of the Regional Vaccine Depot constructed by the project in Meru. Due to the challenges of devolution, there are no specific staffs assigned for O&M and logistics as well as management of vaccines. Even though one nurse has been assigned for quality management, the number of staff is insufficient and the available staff's expertise is not consistent with the tasks undertaken.

#### <Technical Aspect>

[UVIS, Ministry of Health (MOH)]

The staffs available at CVD for O&M and logistics management of vaccines have sufficient knowledge and skills to perform their duties. Besides their basic qualifications and professional experiences, the staff interviewed at CVD reported that their competencies are periodically enhanced through training conducted by UVIS during placement of new equipment and introduction of new vaccines. On the other hand, the staff assigned to CVD for quality management has not had an upgrade of the necessary knowledge and skills to undertake the relevant tasks that fall outside the core area of technical expertise. However, since MOH plans to introduce new vaccines and carry out national immunization campaigns, the accompanying opportunities available for capacity development will be expanded to benefit staff in charge of quality management of vaccines. . .

[Kakamega county]

The staff assigned for O&M has the sufficient knowledge and skills, but limited expertise for quality management. There is no clear training system established targeting staffs for quality management at county levels.

[Meru county]

Just as in the case of Kakamega county, the staff available for quality management has not had the necessary knowledge and skills to perform the tasks and there is no clear system of training on quality management for staff at county levels.

#### <Financial Aspect>

From the data available on budgets allocated to the Central and Regional Vaccine Depots, funding for O&M is grossly insufficient. According to head of UVIS and staffs of the central and Regional Vaccine Depots interviewed for the ex-post evaluation, the budget for O&M, especially for Regional Vaccine Depots, is insufficient and largely underfunded. From the printed budget supplementary estimates I of 2017/18, Immunization Program has allocation of KES 1,909,620 for recurrent expenditure under vote head 1081009001. Comparing this with estimates in the Program – based Budget, this amount is far less than KES 23,050,000 estimated for 2016/17 and therefore grossly insufficient for O&M.

In July 2015, the World Bank reported in its estimates of the gross national income per capita (GNI) that Kenya, Bangladesh, Myanmar and Tajikistan joined the league of “**lower-middle income countries**”<sup>2</sup>. In line with this development, GAVI, a global vaccine alliance, reduced

<sup>2</sup> For the current 2018 fiscal year, lower middle-income economies are those with a GNI per capita between \$1,006 and \$3,955 calculated using the World Bank Atlas method.

their fund to support vaccination in Kenya. Therefore, the government of Kenya is required to increase its share of counterpart funding from domestic resources. Also, the county governments are required to increase their budget allocations to health sector beyond 20% of total County budget in order to qualify for resources from the on-going World Bank grant project for Transforming Health Systems for Universal Care (THS-UC). It can be expected that increased allocations and subsequent inflows from THS-UC will benefit immunization services as part of the targeted Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) interventions.

<Current Status of Operation and Maintenance>

18 out of the 23 freezers installed in the National and the Regional Vaccine Depots by the project have still been functioning at the time of ex-post evaluation, and breakdown of parts are the reason of 5 freezers installed in Eldoret and Kisumu that has not been functioning. Furthermore, due to budget constraints, any activities for preventive maintenance, monitoring, and inspection of the facilities and equipment have not been regularly conducted. According to staffs of the CVD and Regional Vaccine Depots, these activities are largely dependent on periodic national immunization campaigns or donors' funding. It is 4 years after the Project was completed so equipment is still in good shape.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional and technical aspects of the executing agency and serious concerns have been observed in terms of the financial aspect of the executing agency. However, there are prospects that O&M may still be supported from national immunization campaigns and contributions from County budgets and KEMSA. Therefore, the sustainability of the project effect is low.

5 Summary of the Evaluation

The project has achieved its objectives to enable more efficient stock management and delivery of vaccines by the construction of CVD and Regional Vaccine Depots and procurement of equipment for adequate storage of vaccines and partially contributed to the improvement of the full immunization coverage in Kenya. As for sustainability, although the insufficient number of staffs and the limited budgets allocated has constrained regular preventive maintenance of the equipment procured by the project at the CVD and Regional Vaccine Depots, most of equipment installed by the project have been functioning thanks to support from national immunization campaigns. As for efficiency, the project period slightly exceeded the plan.

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

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

[For MOH/UVIS]

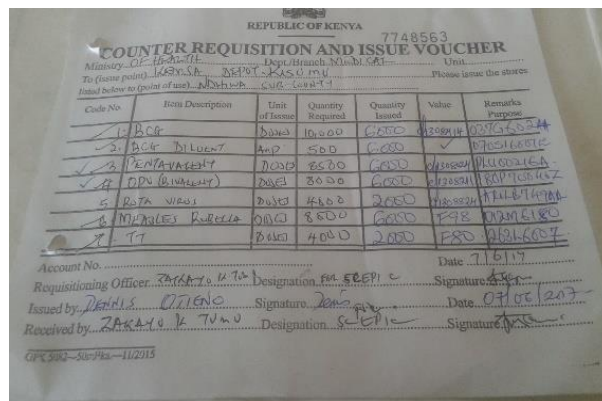
- Deploy additional technical and operational staff for better management and operation of facilities and equipment, in close collaboration with County governments that host regional depots
- Undertake capacity building of staff through regular training, Continuous Medical Education (CME), Professional Development (PD), Support Supervision and Mentorship
- Strengthen institutional capacity and system for planning and budgeting and increase resources allocation to O&M of facilities and equipment, in collaboration with County governments

Lessons Learned for JICA:

- Important data necessary to measure effectiveness and impact of the Project (such as vaccine wastage rate; vaccine management cost) was not readily available to the ex-post evaluation team. Since collection of data, analysis and use in decision making by management is essential to improve effectiveness and impact of a project, it is necessary to select and utilize verifiable indicators where data can be collected from routine systems for regular monitoring and evaluation
- In case of decentralization in the target country at any stage of the project cycle, even at the post-project stage, it is essential to carefully analyze institutional/organizational changes in the decentralization process and institutional/organizational capacity of new entities which should be responsible for O&M of facilities and equipment installed by a grant aid project. Based on those analyses, it is desirable to incorporate a soft component to support capacity development of the responsible entities when the decentralization process starts at the time of project planning and formulation. Or when the decentralization process is initiated after starting implementation of the project or completion of the project, it is better to consider follow-up supports in order to ensure sustainability of project effects.



Dry Store at CVD, Kitengela



Stocks Issue Voucher at the Regional Vaccine Depot

Country Name	<b>The Project of Reinforcement of Capacity of Djougou Teacher Training School</b>
Republic of Benin	<b>(Le Projet de Renforcement des Capacités de l'Ecole Normale d'Instituteurs a Djougou)</b>

**I. Project Outline**

Background	In Benin, the education sector was one of the priority areas in the policy documents such as “the National Development Strategy 2006-2011”. Under the national policy, the policy for fully free primary education had been promoted since 2006. While the gross enrollment rate of primary education reached 105% for boys and 87% for girls, many issues, including the low completion rate (65%) and lack of classrooms and teachers, remained. In particular, limited teaching capacity of teachers became a serious problem since an increase in the number of contract base teachers who just pass the employment examination for the assistant teachers but do not pass the national examination for the permanent teachers brought about the lower proportion of the permanent teachers (42% in 2006). The shortage of capable teachers was induced by suspension of recruitment of teachers for public schools and close of teacher training schools under the structural adjustment policies to reduce the public expenditure.			
Objectives of the Project	To improve educational environment at the Djougou Teacher Training School (ENI Djougou) for fostering teachers with high quality education in accordance with the standards by construction of facilities.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: Djougou (Department of Donga)</li> <li>2. Japanese side: <ol style="list-style-type: none"> <li>1) Construction: 4 classroom buildings, administration building, canteen, 6 dormitories, and so on.</li> <li>2) Equipment: desks, chairs, lockers, beds, medical equipment for dispensary</li> </ol> </li> <li>3. Benin side: <ol style="list-style-type: none"> <li>1) Land preparation and clearance</li> <li>2) Construction of access road</li> <li>3) Construction of accommodation for staffs</li> <li>4) Preparation of incoming electricity distribution line and telephone line</li> </ol> </li> </ol>			
Project Period	E/N Date	August 12, 2011	Completion Date	May 15, 2013
	G/A Date	August 12, 2011		
Project Cost	E/N Grant Limit / G/A Grant Limit: : 677million yen, Actual Grant Amount: 669million yen			
Executing Agency	Ministry of Childhood and Primary Education (Ministère des Enseignements Maternel et Primaire: MEMP) Directorate of Planning and Projection (Direction de la Programmation et de la Prospective: DPP)			
Contracted Agencies	Main Contractor: Toda Corporation Main Consultant: Daiken Seeki Inc. Agent: none			

**II. Result of the Evaluation**

1 Relevance
<p>&lt;Consistency with the Development Policy of Benin at the Time of Ex-Ante and Ex-Post Evaluation&gt;</p> <p>The project has been consistent with Benin’s development policies at the time of ex-ante evaluation, highlighting importance of training school for teachers to develop their necessary skills for performance of their duties, set in policy documents such as “The Education Sector Development 10 year Plan 2006-2015 (PDDSE)” and “The Policy Document for the Training of Teachers and Supervisors of Kindergarten, Primary, Secondary General, Technical and Vocational, Literacy and Adult Education 5 year Plan 2011-2015”. At the time of ex-post evaluation, the new policy of “The Education Sector Plan Post 2015 to 2030”, which intends to integrate the Sustainable Development Goals (SDGs) and “Benin Government Action Program 2016-2021”, has been under development and will be available by the end of 2017. The new policy is likely to emphasize the importance of initial training through ENI.</p> <p>&lt;Consistency with the Development Needs of Benin at the Time of Ex-Ante and Ex-Post Evaluation &gt;</p> <p>The project was consistent with Benin’s development needs to increase in the number of trained teachers from 23,000 in 2005 to 44,700 in 2015 in order to cover a shortage of trained teachers resulted from the long-term suspension of recruitment of teachers as well as close of teacher training schools. There are still the needs to increase the number by 17,600 in 2017-2018 and to improve teaching skills of teachers at the time of ex-post evaluation.</p> <p>&lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;</p> <p>The project was consistent with the Japan’s ODA policy, considering the poverty situation in Benin, which prioritize support for the basic life areas which may have directly contributed to life improvement in the local people’s living, including “human resource development”.</p> <p>&lt;Evaluation Result&gt;</p> <p>In light of the above, the relevance of the project is high.</p>
2 Effectiveness/Impact
<p>&lt;Effectiveness&gt;</p> <p>The project mostly achieved its objectives to improve educational environment of the ENI Djougou at the time of ex-post</p>



evaluation. The number of ENI equipped with exclusive use facilities (Indicator 1) increased from 4 in 2011 to 6 in 2016 as planned and it sustained by the time of ex-post evaluation in 2017. Also, the number of teachers trained with necessary education in accordance with the standard at ENI Djougou (Indicator 2) exceeded the target value of 279 for the period from 2013 to 2016. However, it dropped to 182 in 2017 because the selection criteria for the ENI entry were revised upwards in order to guarantee the quality of students entering ENIs by t MEMP.

Among the number of students studying at ENI Djougou, the number of female students increased from 68 in 2013 to 104 in 2016 and dropped to 89 in 2017. However, the proportion of the female students at ENI Djougou constantly increased from 23.1% in 2013 to 48.9% in 2017.

In terms of study environment of ENI Djougou, according to 10 out of 13 students, 1 out of 2 ex-students and all the 7 ENI teachers interviewed by the field survey of this ex-post evaluation, they considered that class rooms are wide, buildings were well built, and conditions of study were excellent. On the other hand, 3 out of the 13 students interviewed and 1 out of 2 ex-students interviewed answered the facilities were not adequate.

The project constructed 6 dormitories for the students with capacity to accommodate 300 students. For the period from 2014 to 2016, around 60% of the students stayed in the dormitories but it dropped to 24% in 2017. For female students, the number of students staying at dormitories fluctuated year by year. While around 50% of female students stayed in the dormitories in 2014 and 2016, 28% of them stayed in the dormitories in 2015 and it decreased to 10% in 2017. While the MEMP limits the number of students with scholarship holders to enter ENI Djougou up to 200, the rest of students need to pay the tuition fee and they cannot afford to the cost of staying at dormitory which amounts 50,000 FCFA per month including costs for food, water, electricity and so on. It is very expensive compared to the cost to stay a rented house in Djougou which amounts around 7,000 FCFA per person per month without costs for food, water, electricity and transportation. According to MEMP, even for the female students with the scholarship, it is difficult to afford the payment for the dormitory. Also, they tend to prefer to go to private ENI of their locality since some of them are married or do not want to leave from their families. According to the students (3) and the ex-student (1) interviewed by the field survey of this ex-post evaluation, they had discontent with the dormitories due to bad ventilation in bedrooms, too small space in bedrooms to have personal space besides in the bed, and entry of insects due to interspace between door and floor. On the other hand, according to the 13 students interviewed by the ex-post evaluation (9 staying in the dormitory and 4 commuting from home), while the students staying in the dormitory study for 2 hours and 30 minutes per day, the ones coming from home study 1 hour or less. Owing to less commuting time, the students staying in the dormitory have longer self-study time than the students commuting from home. The fact indicates an advantage of dormitories on study time.

<Impact>

Some positive impacts were observed at the time of ex-post evaluation. According to the administration staff, delays and absenteeism of the students and the ENI teachers have considerably reduced because of improved environments of the new buildings constructed by the project compared with the situation before the project since the old buildings for ENI<sup>1</sup> had been not comfortable for them to stay due to hotness and humidity. The 5 public ENIs, including ENI Djougou, contributed to the increase in the number of female teachers for primary schools from 8,083 in 2013 to 9,174 in 2016. The total number of female teachers trained at the 5 Public ENIs was 2,585 for the period of 2013 to 2016, including 442 female teachers trained at ENI Djougou.

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 certain effects of the project are observed but the number of students learning at ENI Djougou drastically decreased in 2017. Therefore, the effectiveness/impact of the project is fair.

#### Quantitative Effects

Indicator	Baseline 2011 Baseline Year	Target 2016 Target Year	Actual (2013) Year of Project Completion	Actual (2014)	Actual (2015)	Actual (2016) Target Year	Actual (2017) Year of Ex-post Evaluation
Indicator 1: No. of ENIs equipped with exclusive use facilities	4	5	5	5	6	6	6
Indicator 2: No. of teachers trained with necessary education in accordance with the standard at the ENI Djougou (person/year)	0	300	289	299	299	279	182

Source: Ex-ante evaluation summary, Inspection Report made for the ex-post evaluation

#### 3 Efficiency

All the outputs were produced as planned and both of the project cost and period were within the plan (ratio against the plan: 97% and 99%, respectively). Therefore, the efficiency of this project is high.

#### 4 Sustainability

<Institutional Aspect>

ENI Djougou has an adequate number of staffs for operation and maintenance (O&M) of the ENI Djougou (School Director: 1, Part-time Instructors: 33). 1 supervisor, 11 cooks and 6 house keepers have been employed for the dormitories, and they are sufficient to conduct O&M for the dormitories.

<sup>1</sup> ENI Djougou used the existing aged building of primary school before the project.



<Technical Aspect>

The staffs in charge of O&M of the ENI Djougou have necessary skills and knowledge for the regular O&M since they are purely administrative or technical personnel in the fields of their respective competences. There are no training systems for the maintenance of installations and equipment provided by the project. The ENI Djougou staff benefit from training courses organized by MEMP in the area of capacity building, with staff from other ENIs. As for the maintenance of the equipment provided by the project, the staff was trained once in the use of the projectors installed in the classrooms.

<Financial Aspect>

The revenue and the expenditure of ENI Djougou balanced at 261.92 million FCFA in 2014 and 261.84 million FCFA in 2015. In 2016, the revenue of 219.24 million FCFA was not cover the expenditure of 261.48 million FCFA. The main source of revenue for ENI Djougou is the government budget which decreased from 235.35 million FCFA in 2014 and 2015 to 196.31 million

		Unit: Million FCFA			
Budget of ENI Djougou	2014	2015	2016	2017	
Revenue	261.92	261.84	219.24	217.06	
Government budget	235.35	235.35	196.31	189.2	
Expenditure	261.92	261.84	261.48	-	

FCFA in 2016 and 189.2 million FCFA in 2017. The main use of budget is personnel cost which amounted 62.44 million FCFA in 2014 and 2015 and 46.83 million FCFA in 2016. It is comparatively expensive because of the payment to the part-time instructors. In fact, part-time instructors should be paid directly by ENI Djougou while permanent instructors are paid by the Ministry of Finance. MEMP plans to redeploy educational staffs with a master’s degree in sciences of education as permanent staff, who have been already recruited and working for MEMP to be assigned to all the 6 ENIs including ENI Djougou in accordance with the needs of each ENI in order to reduce the personnel cost.

<Current Status of Operation and Maintenance>

The current status of most of major facilities and equipment of the ENI Djougou such as administration building, 3 classroom buildings, canteen and 3 dormitories have been good. The ENI Djougou has recruited external providers for the maintenance and implements cleaning there twice a week with the staffs and students. The medical equipment for a dispensary room is currently not in use since 2016 after functioning in 2014 and 2015. Although a nurse from the public health center visited the dispensary room of ENI Djougou for 2 hours a day in 2014 and 2015, she stopped her visit in ENI Djougou in 2016. According to MEMP, there were some administrative issues and discussions among the MEMP, the Ministry of Health and the Ministry of Labor regarding expected issues to be considered in terms of dispatch of nurse to ENI Djougou and an interministerial decree which must be taken by the Ministry of Labor to this end. For the power room, when it rains, the water floods the room and overwhelms the electrical installations installed at ground level but it has been functioning so far. Administration building, classrooms, dormitories, canteen, kitchen, multipurpose hall are maintained once a month by controlling and clearing of electrical or hydraulic installations. The necessity to procure spare parts and consumables for the facilities constructed by the project has not yet occurred at the time of ex-post evaluation, but it is possible to procure them timely when necessary in future.

<Evaluation Result>

In light of the above, Slight problems have been observed in terms of the financial of the executing agency. Therefore, the sustainability of the project effect is fair.

5 Summary of the Evaluation

The project has mostly achieved its objectives of improvement of educational environment at the ENI Djougou with the facilities constructed by the project. As for sustainability, although there are some concerns about financial status of the ENI Djougou, the sufficient number of administrative and technical staffs with necessary skills has been deployed in the ENI Djougou to operate and maintain the facilities.

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

III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

[For MEMP]

- It is necessary for MEMP to reconsider the fee of dormitories associated with ENI Djougou, in particular for the non-scholarship students in order to maximize the advantage of staying in the dormitories and to make the students study for longer time since the current dormitory fee is too expensive for them to afford and make them to inhabit in rent-house outside of ENI Djougou.



Library of ENI Djougou



Class Room of ENI Djougou

Country Name	<b>(I) The Project for Renovation of Viana Vocational Training Center</b>
Republic of Angola	<b>(II) The Project for Equipment Renovation of Viana Vocational Training Center <sup>1</sup></b>

## I. Project Outline

Background	As the peace agreement in 2002 notably added momentum, stable economic growth was a challenge to the development of Angola. The Government of Angola needed to redress its negative legacy and continued its socio-economic development. Revitalization of domestic industries and strengthening of technical vocational education and training (TVET) were urgently needed for the stable economic growth. However, a shortage of skilled workers was a chronic problem in the private sector. Especially, the indispensable skills for public works in the field of civil, mechanical, electrical, and telecommunication engineering were considered to be strengthened urgently as more than 7,000 foreign workers said to get domestically engaged. Under this circumstance, the Government of Angola addressed the need to promote knowledge and skills of the above mentioned engineering fields through enhancement of the vocational training service meeting to the Angolan market needs through the Viana Vocational Training Center (CENFOC: Centro Formação Profissional de Construção Civil de Viana).				
Objectives of the Project	To improve the quality of engineering education and training to meet the demand for labor market and industrial sector development by constructing facilities and procuring equipment for 3 newly opened training courses in CENFOC, thereby contributing to development of the skilled professionals for the industry of Angola.				
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: The Viana Vocational Training Center (CENFOC), Viana, Province of Luanda</li> <li>2. Japanese side <ul style="list-style-type: none"> <li>• Construction and provision of facilities and equipment for 3 newly opened training courses (Topography course, Building Construction course, and Metallic Structure course)</li> </ul> </li> <li>3. Angolan side: <ul style="list-style-type: none"> <li>• Removal of any obstacles on construction sites</li> <li>• Installation of fence around the construction site</li> <li>• Provision of electricity, water supply lines and other necessary utilities to the Project</li> <li>• Disposal of construction and demolition waste according to legal compliance</li> </ul> </li> </ol>				
Ex-Ante Evaluation	(I) 2010 (II) 2011	E/N Date G/A Date	(I) August 30, 2010 (II) December 1, 2011 (I) August 30, 2010 (II) December 5, 2011	Completion Date	(I) March 1, 2013 (II) August 30, 2013
Project Cost	(I) E/N Grant Limit/ G/N Grant Limit: 844 million yen, Actual Grant Amount: 778.4 million yen (II) E/N Grant Limit/ G/N Grant Limit: 220 million yen, Actual Grant Amount: 187.5 million yen				
Executing Agency	National Institute for Employment and Vocational Training (INEFOP)				
Contracted Agencies	(I) (Consultant) Fukunaga Architects-Engineers and Overseas Vocational Training Association, (Contractor) Dai Nippon Construction (II) (Consultant) Fukunaga Architects-Engineers and Overseas Vocational Training Association, (Supplier) Ogawa Seiki Co. Ltd.				

## II. Result of the Evaluation

*Field survey conducted in Jul/2016*

< Special perspectives considered in the ex-post evaluation >

- Two grant aid projects: (i) Project for Renovation of Viana Vocational Training Center and (ii) Project for Equipment Renovation of Viana Vocational Training Center were implemented for capacity development of CENFOC in terms of improvement of training facilities and equipment. As the two projects had a common project objective and same counterpart agency, this ex-post evaluation evaluated two grant aid projects jointly as one packaged project.
- The target year of effect indicators was set as 2016 in the ex-ante evaluation of the target projects. However, this ex-post evaluation made a judgment for degree of achievement of the effect indicators based on the available actual figures in 2015.

### 1 Relevance

<Consistency with the Development Policy of Angola at the time of ex-ante and ex-post evaluation>

This project was consistent with Angolan development policy of “to develop the technical vocational education and training (TVET) in the construction sector” as set forth in the policy documents including the Vocational Training Plan for Socio-Economic Development (2011) and the National Plan for Training in Angola (2013-2020).

<Consistency with the Development Needs of Angola at the time of ex-ante and ex-post evaluation>

This project met the development needs of Angola to educate and train the skilled works for the construction sector meeting the needs of the industry of Angola by improving the training facilities and equipment of CENFOC. At the time of ex-post evaluation, CENFOC has played an important role as an exclusive vocational training center in Angola which, the above mentioned development needs was still confirmed.

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

This project was consistent with Japan’s ODA policy for Angola (2010) to take the vocational training as one of priority areas.

<Evaluation Result>

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

<sup>1</sup> There are two target projects for this ex-post evaluation: (i) Project for Renovation of Viana Vocational Training Center and (ii) Project for Equipment Renovation of Viana Vocational Training Center.

## 2 Effectiveness/Impact

### <Effectiveness>

The project partially achieved its objective. After the project completion, the three courses such as (i) Metal Structure Course, (ii) Building Construction Course, and (iii) Topography Course were established in CENFOC in 2015. For the preparation of establishment of three courses, JICA dispatched Japanese expert to CENFOC from 2012 to 2014 under the technical cooperation scheme to support CENFOC to develop the training curriculum and training materials, to guide the operation and maintenance of the courses, etc. in addition to improvement of training facilities and equipment by this project. In 2015, CENFOC had their first graduates of the three courses. Regarding number of trainees who completed each course in 2015, they were 21 in the Metal Structure Course (target achievement rate 88%), 37 in the Building Construction Course (target achievement rate 154%), and 15 in the Topography Course (target achievement rate 31%). The training facilities and equipment provided by the project were utilized for the implementation of training programs in the three courses.

The main reason for low achievement in annual number of trainees who completed the Topography Course was that the needs of the Topography Course were less than expected. Due to the recent economic deterioration in Angola caused by collapse in oil prices, a large number of private companies in construction sector have evacuated from Angolan market. Under such situation, the demand for human resources related to the topography area became smaller. Also, it may be because the Topography Course of CENFOC has not been well-known among the universities.

In addition, some trainees gave up attending the course due to lack of means of transportation to CENFOC. Also, unstable power supply condition affected the implementation of the Metal Structure Course. CENFOC frequently generates the power by their in-house power generators, particularly for the Metal Structure Course that consumes the electricity the most in order to supplement the unstable power supply from the electricity company. However, as the in-house power generation requires high running cost, the training hours for the Metal Structure Course are regulated sometimes. Regarding the electricity issue, INEFOP entered negotiations with ENDE Viana (National Enterprise for Distribution of Electricity in Viana) to resolve a power supply shortage in CENFOC, and it is expected that a power supply condition in CENFOC will be resolved by August 2016. While CENFOC doesn't have any effective measures to cope with the challenges such as lack of means of transportation and high tuition fees so far.

On the other hand, after the implementation of the project, CENFOC was able to improve its quality of engineering education and training to meet the demand for labor market and industrial sector development. CENFOC was able to provide a full scale of new 3 training courses for one year period since 2015, and organized approximately 900 hours training per course on Building Construction Course and Metal Structure Course as well as 110 hours for Topography Course using the facilities and equipment provided by the project. According to the interviewed three major private construction companies, they recognized that the contents, level of knowledge and skills provided in the newly opened 3 courses meet to some extent the demand for labor market and industrial sector in Angola. Some of the interviewed private construction companies had a positive impression on the graduates of 3 courses for their knowledge and skills.

### <Impact>

The project has a positive impact on creating the employment opportunities for trainees of CENFOC but it is quite limited due to the fluctuating economic situation in Angola since 2014, in particular a sharp decline in 2016<sup>2</sup>. According to INEFOP and CENFOC, in 2015, 16 out of 73 graduates from the 3 target courses participated in internship programs and all of them got employment either in the private or the public sector after their internship. Namely, 21.9% of the graduates from the 3 target courses have been employed more than the number of graduates with employment from all the 20 courses of CENFOC of 15%<sup>3</sup>. The contributing factor for this success is that CENFOC has been making great efforts to have a close relationship with private companies for the opportunity of internship. On the other hand, according to CENFOC, only one graduate from the Building Construction Course has participated in the internship program due to the current stagnant economy adversely affecting the labor demand in the country and the limited employment opportunities for the graduated in the labor market dominated by Chinese construction companies preferably seeking Chinese workers.

After the project completion in 2013, CENFOC organized special training programs and seminars such as survey and design course and management course designed for private construction companies for seven sessions and total 131 persons from private companies participated to the above training sessions by using the training facilities and equipment provided by the project. This is also a positive impact of the project.

No negative impact on the natural environment was observed and no land acquisition and resettlement of people was associated with the project.

### <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.

Table 1: Employment Opportunities for Graduates of Target 3 Courses (2015)

Course	Total number of graduates(a)	No. of graduates with Internship	No. of graduates employed. (b) (b/a%)
Metal structure	21	10	10 (47.6%)
Building Construction	37	1	1 (2.7%)
Topography	15	5	5 (33.3%)
Total	73	16	16 (21.9%)

Source: CENFOC

Table 2: Training for Private Sectors by CENFOC

	2013	2014	2015
Number of special training programs and seminars designed for private construction companies at CENFOC	3	2	2
Number of CENFOC trainees from private companies	49	44	38

Source: CENFOC

<sup>2</sup> In 2016, the GDP growth rate declined to -7.8% in the 2<sup>nd</sup> quarter and slightly recovered to -4.9% in the 3<sup>rd</sup> quarter.

<sup>3</sup> For the period from 2009 to 2015, the total number of graduates from the 20 training courses of CENFOC was 907 and the total number of graduated who were employed was 138.

## Quantitative Effects

Course	Baseline 2009 Baseline year	Target 2016 (3 Year After Completion) Target value	Actual 2013 Completion Year	Actual 2014 1 Year After Completion	Actual 2015 2 Year After Completion
<b>Indicator 1</b> Number of training course	0	3	N.A.	N.A.	3
<b>Indicator 2</b> Annual number of trainees who completed each course					
(i) Metal Structure Course	0	24 (24 x 1 batch/year)	N.A.	N.A.	21
(ii) Building Construction Course	0	24 (24 x 1 batch/year)	N.A.	N.A.	37
(iii) Topography Course	0	48 (24 x 2 batch/year)	N.A.	N.A.	15

Source: CENFOC

Note 1: The target 3 courses are composed of 2 semesters. 1st semester starts in February and ends in May/June, and 2nd semester starts in July and ends in November.

Note 2: The data for 2016 were unable to be obtained in July 2016 at the survey of ex-post evaluation.

Note 3: N.A. means that three courses were not formally established in 2013 and 2014.

## 3 Efficiency

### <(i) Project for Renovation of Viana Vocational Training Center>

The project cost was within the plan (ratio against the plan: 92%), the project period was longer than the plan (ratio against the plan 152%) because it required long time for the import and tax-exempt procedure in implementation with agencies concerned. Therefore, the efficiency of the project is fair.

### <(ii) Project for Equipment Renovation of Viana Vocational Training Center>

The project cost was within the plan (ratio against the plan: 85%), the project period was longer than the plan (ratio against the plan 150%) because it required long time for the import and tax-exempt procedure in implementation with agencies concerned. The efficiency of the project is fair.

## 4 Sustainability

### <Institutional Aspect>

CENFOC under INEFOP is a responsible agency for the operation and maintenance (O&M) of the facilities and equipment provided by the project. In particular, Properties and Pedagogical Coordination Section of CENFOC is directly in charge of O&M of the project facilities. The number of staff in Properties and Pedagogical Coordination Section is sufficient. However, due to a limited budget, CENFOC has a problem in shortage of instructors for the target 3 courses. In order to cope with this issue, INEFOP has been making an endeavor to allocate sufficient number of trained staff through enhancing the capacity of human resources with some training programs coordinated by INEFOP. There are 20 instructors in CENFOC, in which 5 instructors were assigned for the target 3 courses (2 for the Metal Structure Course, 2 for the Building Construction Course, and 1 for the Topography Course). According to CENFOC, although the current number of instructors allocated for the target 3 courses was not sufficient, CENFOC can manage to conduct the 3 courses under the limited number of instructors.

### <Technical Aspect>

CENFOC has a periodic training program for the staff in order to maintain and update their technical knowledge and skills on academic subjects including how to use the machines as well as O&M of the project facilities and equipment. This training program was planned by INEFOP, and implemented by CENFFOR (Public Training Center for TOT). Considering a merit of trainings to obtain skills and knowledge in Portuguese language, the instructors of CENFOC received the technical transfer by the Brazilian experts on the related areas through participation in the training program in Brazil, which is a Portuguese speaking country as Angola, under the JICA's technical cooperation program (dispatch of expert). CENFOC recognizes that there are some shortcomings in academic and teaching skills and knowledge of instructors such as how to use welding machine or resistance as well as the guillotine and the lathe in the course of metal structure course, and in O&M skills and knowledge of staff such as including daily check-up, preventive and periodic maintenance, etc. However, they expect that the above challenges will be overcome through continuous training and gaining experiences.

### <Financial Aspect>

CENFOC received about 76-78 million Angola kwanzas (AOA) per year in 2013 and 2014 for the O&M budget, but it dropped to 36 million AOA in 2015. CENFOC has not received sufficient budget allocation for proper O&M of the project facilities and equipment because of shortage of financial resources in the country in general. After the economic crises in Angola in 2014, the annual budget to CENFOC was reduced by half. In 2015, although the original budget was 76.5 million AOA, the actual budget allocated was 36.3 million AOA which was lower than the actual expenditure of 36.5 million AOA. On the other hand, CENFOC has been developing activities by its own efforts to gain external revenue such as implementation of training courses for private companies, sales of products developed by CENFOC as well as technical consulting services and it appears positive results on financial condition in despite of unavailable data of their own revenue.

### <Current Status of Operation and Maintenance>

In general, the project facilities and equipment have been utilized and maintained in good condition by monthly regular maintenance. However, the office room and 2nd class room are not always utilized due to noise caused by the training course without sound insulation such as soundproof door, window, and walls and artificial ventilation system in the training rooms which leads to opening windows and doors. Countermeasures against those issues had not been considered at the time of the Basic Design Study for the project. In addition, there is an issue on shortage of spare parts and consumables due to limited budget.

#### <Evaluation Result>

In light of the above, problems have been observed in terms of the institutional, technical, financial, and current status of operation and maintenance aspects of the executing agency. Therefore, the sustainability of the project effect is fair.

#### 5 Summary of the Evaluation

The project objectives were partially achieved. After the project completion, the three courses such as (i) Metal Structure Course, (ii) Building Construction Course, and (iii) Topography Course were established in CENFOC in 2015. The annual number of trainees who completed each target course fully or mostly met their respective target values except for the Topography Course. The reason for its non-achievement was decrease in demand for the engineers in this field caused by the recent economic deterioration in Angola. Also, it may be because the Topography Course of CENFOC has not been well-known among the universities. On the other hand, the project has positive impacts on creating the employment opportunities for trainees of CENFOC to some extent. In addition, private companies were benefited by the project in terms of receiving special training programs and seminars organized by CENFOC. For sustainability, problems have been observed in terms of the institutional, technical, financial, and current status of operation and maintenance aspects of the executing agency due to shortage of staff, spare parts and consumables which were caused by shortage of budget. Regarding efficiency, the project period was longer than the plan because it required long time for the import and tax-exempt procedure in implementation with agencies concerned.

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

### III. Recommendations & Lessons Learned

Recommendations to executing agency:

[For CENFOC]

#### (1) Diversification of revenues:

- Projects could not fully reach target value of “Annual number of trainees who completed each course” set for the project effect indicator due to principally lack of the budget allocation from the central government to CENFOC. In order to guarantee sufficient number of training courses as well as the effectiveness of 3 newly opened courses and its sustainability, it is indispensable for INEFOP and CENFOC to diversify and to increase their own revenue sources.

#### (2) Employment of trainees

- As it was shown in the ex-post evaluation result that participating to the internship program led to high rate of employment, CENFOC should make continued efforts to create a large number of internship opportunities in cooperation with private companies in construction/industrial sector in Angola in order to promote more employment opportunities for trainees of 3 newly opened courses.
- Marketing (publicity work) of these 3 new courses targeting for young people should be greatly increased and expanded through appealing that these courses (trainers and curriculum content) have been supported by Japan and Brazil in order to increase their interest in enrolling.

Lessons learned for JICA:

- Since Angola is a Portuguese speaking country and the equipment are labeled in Japanese or English, operation itself is a challenge. It is considered that these would be overcome with user manuals in Portuguese language. In addition, there have been still a room to improve the technical capacity of the CENFOC’s instructors, in particular, techniques and skills of metal structure, such as how to use welding machine. Therefore, users’ manual in Portuguese is essential and it may be preferable to assess technical level of the persons in charge of utilize equipment installed by the project and to consider a follow-up cooperation in accordance with necessity in order to ensure the expected project effects and their sustainability.
- As it required long time for the import and tax-exempt procedure in implementation with agencies concerned, JICA had to coordinate with relevant Ministries with time to spare and clarify up-dated import/tax-exempt procedure.



Viana Vocational Training Center



Equipment



Country Name	<b>The project for Improvement of Capacity of Fire Fighting Techniques and Equipment in Ulaanbaatar</b>
Mongolia	

**I. Project Outline**

Background	Fire prevention measures were falling behind in Ulaanbaatar as urbanization and verticalization of buildings were happening in a midst of a construction boom caused by a significant population growth. The number of fire incidents had rapidly increased from approximately 1,100 cases in 2001 to approximately 2,100 cases in 2009. Although the Government of Mongolia was equipped with 47 fire vehicles including 17 Japanese-made fire vehicles provided under a grant aid project in the fiscal year 2001, these vehicles except for Japanese-made vehicles were severely deteriorated, so much so that more than 90 percent of fire fighting operations in the city were carried out by these 17 vehicles. The number of vehicles was utterly lacking, hindering firefighters' prompt arrival at the scenes of fire.			
Objectives of the Project	To strengthen the fire fighting system for effective fire suppression in Ulaanbaatar by renewing fire vehicles and equipment and providing technical assistance on operation and maintenance, thereby contributing to the protection of the lives and property of residents from fires.			
Contents of the Project	<ol style="list-style-type: none"> <li>1. Project Site: 13 fire stations in Ulaanbaatar</li> <li>2. Japanese side: (1) Provision of grant necessary for procuring eight pumpers with a 3,500-litter water tank, eight 8,000-litter water tankers, one chemical engine with an 8,000-litter water tank, two ladder engines (30 meters), three rescue engines with flood light (as well as a set of onboard equipment for each vehicle); (2) Technical Assistance (soft component of Grant Aid).</li> <li>3. Mongolian side: Securing of garages for fire vehicles; development of electricity, water, and wired/wireless communications systems at Fire Station No. 35 slated to be built; supply of fuel, water for fire fighting, and other consumables required for test operation, adjustment, training on operation, and soft component; transportation of equipment from the delivery site in Ulaanbaatar to individual fire stations and maintenance facilities; and securing of necessary personnel for operation and maintenance of procured equipment.</li> </ol>			
Project Period	E/N Date	March 12, 2012	Completion Date	July 9, 2013 (soft component completed)
	G/A Date	March 12, 2012		
Project Cost	E/N Grant Limit / G/A Grant Limit: 840 million yen, Actual Grant Amount: 838 million yen			
Executing Agency	National Emergency Management Agency (NEMA)			
Contracted Agencies	Main Contractor: ITOCHU Corporation Main Consultant: Fire Equipment and Safety Center of Japan			

**II. Result of the Evaluation**

< Special Perspectives Considered in the Ex-Post Evaluation >

- [Supplementary information for verifying achievement level of impact] The ex-ante evaluation summary did not specify indicators for measuring the achievement rate of the impact of this project (contribution to the protection of the lives and property of residents from fires). This ex-post evaluation employs "the number of injured, number of deaths, and amount of damage from fires in Ulaanbaatar" as the supplementary information to verify whether this project contributed to the reduction of loss in lives and property from fires.
- [Verification method for qualitative effects] With respect to the qualitative effects mentioned in the ex-ante evaluation summary (improving the safety and security of the citizens of Ulaanbaatar by raising confidence toward fire fighting among residents), the causal relation concerning the effects of this project can be regarded as (Output: vehicles and equipment procurement and soft component) ⇒ (Outcome: strengthening of fire fighting system) ⇒ (Impact: protection of residents from fire ⇒ improvement in safety and security of citizens). Therefore, "improvement in safety and security of citizens" corresponds to the impact of this project, and the impact would be verified using "the number of injured, number of deaths, and amount of damage from fires in Ulaanbaatar."

**1 Relevance**

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

At the time of ex-ante and ex-post evaluation, this project was and is consistent with Mongolia's development policy to "develop emergency management systems for disaster prevention, rescue, and times of disaster" and "strengthen disaster prevention equipment and personnel" as stated in policy documents such as the "Government Action Plan (2008-2012)," the "Government Action Plan (2016-2020)," and the "National Policy and Strategy Plan on Disaster Prevention (2012-2020)" etc.

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

At the time of ex-ante evaluation (2011), most of the fire vehicles, except for the 17 Japanese-made fire vehicles provided through a



grant aid project in the fiscal year 2001, were former Soviet-made vehicles older than 20 years and were experiencing frequent breakdowns as it was difficult to perform maintenance due to lack of spare parts; it became also difficult to handle a growing number of fires at high-rise buildings as there was only one ladder engine with an extremely high deployment rate. In addition, fires would begin to spread to nearby buildings in about 10 minutes after the fire breaks out in Ger areas where many Gers and wooden houses were randomly built without following regulations, creating a need for improving fire vehicles and equipment for effective fire suppression. At the time of ex-post evaluation, compared with the situation at the time of ex-ante evaluation, population is further concentrating in Ulaanbaatar, and the area of the city is continuing to expand as new settlements have been established. Further, there are continuing needs for creating new fire stations and improving fire vehicles and equipment because of the construction of a large number of high-rise buildings.

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

The project was consistent with Japan's ODA policy, as "development of infrastructure for promoting economic activities (strengthening of the urban functions of Ulaanbaatar)" is stated as one of the priority areas for assistance in the "Country Assistant Program for Mongolia (2004)".

<Evaluation Result>

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

2 Effectiveness/Impact

<Effectiveness>

This project has mostly achieved its objective, "strengthening of the fire fighting system for effective fire suppression." At the time of ex-post evaluation, the fire vehicles and equipment procured through this project are used properly. Although the JICA Mongolia Office could not obtain the actual yearly values for "(reducing) mobilization preparation time (Indicator 1)," an anticipated effect of the elimination of engine troubles and reduced engine startup time through the introduction of new fire vehicles, NEMA claims that all fire stations covered in this project have generally achieved target values since project completion, being able to start engine now in one to two minutes. The project also achieved the target in terms of the "number of pumper tankers that can be mobilized within one minute (Indicator 2)." Although the JICA Mongolia Office could not obtain the actual yearly values for the "time it takes for a ladder engine before discharging water (Indicator 3)," an anticipated effect of the improved performance through the new procurement of a ladder vehicle, NEMA claims that the fire stations targeted in this project have managed to achieve target values since project completion. According to the Emergency Management Department of Capital City under NEMA, actual values for each year have not been tracked for the "(greater) number of Ger area residents who can receive fire fighting activities promptly (within 10 minutes of the start of the fire)," an anticipated effect of the new procurement of four-wheel-drive fire vehicles that would enable driving in Ger areas where many roads are steep, narrow, and in poor condition, and the values in the table below are, thus, theoretical values calculated from the city's statistical data (such as the growth rates of population and households); these values have exceeded target values by a large margin since project completion. According to the Department, the reason was that the migrant population moving to Ulaanbaatar from the provinces has increased every year and settlements in Ger areas have expanded<sup>1</sup>. Moreover, according to the Department, among Fire Stations No. 11, 18, 29, 30, 64, 65, and 80, which acquired pumper tankers with good traveling performance through this project, the jurisdictions of Fire Stations No. 18, 29, and 30 encompass Ger area households located at hilltops, valleys, and other areas where it is difficult for fire vehicles to navigate and are each larger than a five-kilometer radius. While fire vehicles from these three stations sometime take longer than 10 minutes to arrive at scenes of fire due to these conditions, the rest of the fire stations mostly manage to have firefighters arrive within 10 minutes.

With respect to qualitative effects, according the Department, the ease of operation and hook-up of pumper tankers and tankers enabled by effective implementation of the soft component and a high performance of the procured vehicles allowed firefighters at Fire Stations No 11, 18, 29, 30, 65, 80 and 35, which deployed pumper tankers and tankers through this project, to engage in prompt and efficient fire fighting activities by coordinating the operation between these vehicles.

<Impact>

A certain level of anticipated impact of this project, "contribution to the protection of the lives and property of residents from fires" seems to have materialized. As shown in the table below, across Ulaanbaatar as well as the jurisdictions of the fire stations targeted in this project, the number of injured and deaths from fires have been on a decreasing trend while the number of fire incidents has increased between pre- and post-implementation of the project. According to NEMA, the implementation of this project enabled prompt arrival at scenes of fire, contributing to the reduction in the number of injured and deaths. Therefore, the safety and security of the citizens of Ulaanbaatar have seemingly also improved.

This project did not cause any adverse impacts on the natural environment. Although land acquisition took place to build new facilities (garages) at Fire Stations No. 35 and 65 as part of project implementation, it did not involve resettlement of residents as they were public lands.

<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.

<sup>1</sup> The actual number of khoroo of Indicator 4 (Number of Ger area residents who can receive fire fighting activities promptly (within 10 minutes of the start of the fire) (in entire Ulaanbaatar)) and another indicator, "Of these, the number of Ger districts served by Fire Stations No. 11, 18, 29, 30, 64, 65, and 80 that deployed efficient pumper tankers in this project, and the numbers of households and residents in these districts", has increased each year by eight and three, respectively, since 2013. The Emergency Management Department of Capital City claims that the number of khoroo has been increasing following the population growth in the city, but the basis for these numbers or calculation methods are unknown.

**Quantitative Effects**

Indicators	Baseline 2011 Baseline Year	Target 2016 3 Years after Completion	Actual 2013 Completion Year	Actual 2014 1 Year after Completion	Actual 2015 2 Years after Completion	Actual 2016 3 Years after Completion
Indicator 1 Mobilization preparation time (minutes) (Fire Stations No. 10, 11, 18, 26, 28, 29, 30, 34, 35, 63, 64, 65, and 80)	2-8 <sup>(1)</sup>	1	1-2 <sup>(2)</sup>			
Indicator 2 Number of pumper tankers that can be mobilized within one minute (vehicles) (in entire Ulaanbaatar)	7/15	15/15	15/15	15/15	15/15	15/15
Indicator 3 Time it takes for a ladder engine before discharging water (seconds) (Fire Stations No. 18 and 26)	180 <sup>(3)</sup>	120	120 <sup>(4)</sup>			
Indicator 4 Number of Ger area residents who can receive fire fighting activities promptly (within 10 minutes of the start of the fire) (in entire Ulaanbaatar)	9 khoroo <sup>(5)</sup> 27,690 households 149,900 persons	24 khoroo 50,690 households 259,900 persons	55 khoroo 68,074 households 272,297 persons	63 khoroo 77,799 households 311,196 persons	71 khoroo 87,524 households 350,096 persons	79 khoroo 97,249 households 388,996 persons
Of these, the number of Ger districts served by Fire Stations No. 11, 18, 29, 30, 64, 65, and 80 that deployed efficient pumper tankers in this project, and the numbers of households and residents in these districts	N/A	15 khoroo 23,000 households 110,000 persons	19 khoroo 30,592 households 122,371 persons	22 khoroo 34,963 households 139,852 persons	25 khoroo 39,333 households 157,334 persons	28 khoroo 43,704 households 174,816 persons

Source : Ex-ante Evaluation Summary, Preparatory Survey Report, questionnaire survey with NEMA

Note: (1) The baseline values represent entire Ulaanbaatar. (2) According to NEMA, the actual values for the 2013-2016 period were 1-2 minutes at all of the fire stations targeted in this project. (3) The baseline values represent entire Ulaanbaatar. (4) According to NEMA, the actual value for both Fire Stations No. 18 and 26 in the 2013-2016 period was 120 seconds. (5) A khoroo is an administrative unit below the district level ("Ger area" means areas where Ger houses are concentrated. As an administrative unit, a khoroo is positioned below the district level. A district is divided into several khoroo according to the size of a district, and the number of khoroo is usually used when indicating the number of households and population in Mongolia).

**Expected Impacts**
**(a) Number of injured, number of deaths, and amount of damage from fires in Ulaanbaatar**

	Before the project (2008)	Before the project (2009)	Actual values 2013	Actual values 2014	Actual values 2015	Actual values 2016
Number of fire incidents	2,337	2,165	2,730	3,040	3,249	2,474
Number of injured	24	41	28	27	24	18
Number of deaths	52	55	42	39	31	21
Amount of damage (million MNT)	4,100	3,800	6,800	6,100	4,700	3,800
Population (10,000 persons)	107	111	137	136	140	144

(b) Of these data in (a), the number of injured, number of deaths, amount of damage in areas served by the fire stations targeted in this project (Fire Stations No. 10, 11, 18, 26, 28, 29, 30, 34, 35, 63, 64, 65, and 80)

	Before the project (2009)	Actual values 2013	Actual values 2014	Actual values 2015	Actual values 2016
Number of fire incidents	2,003	2,491	2,857	3,033	2,309
Number of injured	38	26	24	23	16
Number of deaths	54	40	37	30	19
Amount of damage (million MNT)	3,656	6,639	5,640	4,345	3,528
Population (10,000 persons)	102	117	128	131	134

Source: The National Statistical Office of Mongolia for Population in Tables (a) and (b); The Disaster Research Institute for all other data.

### 3 Efficiency

Both the project cost and project period stayed within the plan (100 percent and 81 percent against the plan, respectively), and the output was generated according to the plan. Therefore, the efficiency of the project is high.

### 4 Sustainability

#### <Institutional Aspect>

Each fire station is placed under the Emergency Management Department of Capital City. Although a total of 132 positions were needed to be recruited at the time of ex-ante evaluation to operate and maintain (O&M) the vehicles procured through this project—pumper tankers and tankers (one of each at Fire Station No. 35), two ladder engines (Fire Stations No. 18 and 26), and two rescue engines with flood light (Fire Stations No. 34 and 63), a chemical engine (Fire Station No. 10)—, a total of approximately 60 individuals have been hired by the time of ex-post evaluation. This was caused by the cut in the national budget in an economic slump and the inability to secure payroll expenses. As shown in the table on the right, a certain number of employees who engage in O&M are maintained but the number is insufficient, and, as a result, they are forced to work in a shift system (24-hour shifts followed by 72-hour rest) that leads to extra working hours and overtime, creating problems such as the loss of vacation time. Although the shortage of firefighters is not affecting O&M of fire vehicles and equipment, overtime work tends to reduce the efficiency of the work. In pursuant to the “Requests for Fire Stations and Rescue Crew (Mongolian National Standard),” which is currently being followed, measures will be taken in future to increase and reinforce the number of fire stations and firefighters.

Number of personnel at each fire station at the time of ex-ante and ex-post evaluation<sup>(1)</sup>

Fire station	Management level (captains, assistant captains)		Other management level (lieutenants)		Firefighters, dispatchers		Engineers (maintenance engineers)				Total	
							Drivers, maintenance personnel		Professional engineers <sup>(2)</sup>			
	Ex-ante	Ex-post	Ex-ante	Ex-post	Ex-ante	Ex-post	Ex-ante	Ex-post	Ex-ante	Ex-post	Ex-ante	Ex-post
10	2	2	9	1	79	80	3	28	N/A	1	93	112
18	1	1	8	1	36	31	0	10	N/A	0	45	43
26	2	1	8	1	39	40	0	15	N/A	1	49	58
11	1	1	2	1	39	20	0	8	N/A	0	42	30
29	1	1	3	1	41	28	0	9	N/A	0	45	39
63	1	1	10	1	38	32	1	12	N/A	1	50	47
28	1	1	8	1	47	31	0	11	N/A	1	56	45
34	1	1	9	1	39	32	0	13	N/A	0	49	47
30	1	1	3	1	46	28	0	8	N/A	1	50	39
65	1	1	2	1	20	20	0	9	N/A	0	23	31
64	1	1	7	1	45	32	0	12	N/A	1	53	47
80	1	1	6	1	24	20	0	7	N/A	1	31	30
35	0	1	0	1	0	27	0	9	0	0	0	38

Source: Preparatory survey report, questionnaire survey with NEMA

Note: (1) According to the Emergency Management Department of Capital City, the differences in the number of personnel between the time of ex-ante evaluation and the time of ex-post evaluation are caused by the differences in position classification methods (no further details). (2) A “professional engineer” is a person with a college degree in automotive engineering and has a certain length of professional experience; a professional engineer provides guidance on diagnosing and evaluating causes of failures and repair procedures.

#### <Technical Aspect>

The engineers who would be in charge of O&M of the fire vehicles and equipment procured in this project were found to have an adequate level of technical skills at the time of ex-ante evaluation, and the ex-post evaluation also finds that engineers and drivers at each fire station possess sufficient technical skills. According to NEMA, in the events of fire vehicle or equipment failures, fire personnel have been able to correctly identify the causes and repair the problems quickly. Each fire station has been conducting four technical drills and 12 fire fighting/disaster drills each year since 2015. In addition, firefighters from multiple fire stations (about 70-130 participants each year) have participated in large-scale fire fighting training using fire vehicles and tankers at office buildings, thermal power plants, schools, shopping centers, etc. Further, those employees who had participated in the seminars targeted for each station’s trainers, which were conducted as part of the soft component of this project, have been training other employees at their own fire stations through seminars and training on operation techniques for coordinating a ladder engine and a pumper tanker, and the operation and maintenance of fire vehicles and equipment. The technical manual for fire fighting activity that was developed in the soft component has been utilized in training and seminars.

#### <Financial Aspect>

Although a certain level of budget is allocated for NEMA and the Emergency Management Department of Capital City at the time of ex-post evaluation, it has become difficult to secure an adequate allocation of budget necessary for O&M of the fire vehicles and equipment procured in this project due to the cut in the national budget allotment caused by an economic slump. As a consequence, NEMA claims that the organization has to give up buying genuine spare parts and resort to cheap parts, creating problems such as frequent replacement and shorter service life.

#### <Current Status of Operation and Maintenance>

As mentioned above, the fire vehicles and equipment procured through this project are used properly. According to NEMA, there are maintenance plans for all the fire vehicles and equipment including those procured through this project, and daily inspection, periodic inspection, and repair works are carried out. Results of inspections are recorded by engineers. Although necessary consumables and spare parts are properly procured and maintained, the shortage in the budget and the regulation in the procurement law<sup>2</sup> have made it difficult to purchase genuine spare parts as mentioned above.

<sup>2</sup> The procurement law in Mongolia prohibits specifying brands and manufacturers etc., and thus procurement specifying genuine spare parts is not allowed.

<Evaluation Result>

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

5 Summary of the Evaluation

This project has mostly achieved its objective. The project has mostly achieved the target value for the mobilization preparation time, and achieved the target values for the number of pumper tankers that can be mobilized within one minute, the time it takes for a ladder engine before discharging water, and the number of Ger area residents who can receive fire fighting activities promptly (within 10 minutes of the start of the fire). With respect to the achievement of the project impact, a certain level of effect has seemingly been produced given that the number of fire incidents has increased since project completion while the number of injured and deaths from fires has decreased, compared with the situation before project implementation. With respect to sustainability, while the cut in the national budget due to an economic slump has caused problems such as the shortage of personnel and difficulty in purchasing genuine spare parts, technical competency of the personnel at executing agencies have been maintained due to the implementation of various training and seminars after project completion.

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

**III. Recommendations & Lessons Learned**

Lessons Learned for JICA: As mentioned above, this evaluation experienced difficulty in obtaining actual yearly values for several indicators. When executing similar projects in future, it becomes important to: define, at the time of ex-ante evaluation, the indicators that the executing agency can continuously monitor (and obtain) through the time of ex-post evaluation; require the executing agency to monitor and report such data; and, in order to conduct ex-post evaluation smoothly, share the ex-ante evaluation results and its report with the partner country to strengthen mutual understanding.



A ladder engine used at Fire Station No. 26



A scene of a coordination drill between a ladder engine and a pumper tanker

Country Name	<b>The Project for Improvement of Medical Equipment in National, Municipal and Provincial Referral Hospitals</b>
Kingdom of Cambodia	

**I. Project Outline**

Background	Health sector indicators of Cambodia had much improved by financial and technical cooperation of donors including Japan since the end of the civil war. However, the health sector indicators still remained on a low level compared with the Indochinese peninsula countries. Cambodia still had many difficulties in the health sector. The Ministry of Health (MOH) had been struggling for the improvement of the quality of health services as one of the strategies in the health sector. MOH had been improving medical equipment based on the standard equipment list by each provincial referral level. Nevertheless, medical equipment for providing basic health services had not yet been equipped even in the National Hospitals (NHs) and the tertiary referral hospitals (RHs) in provinces.		
Objectives of the Project	To improve health services by procuring medical equipment to 4 NHs, Phnom Penh Municipality Hospital and 16 tertiary RHs		
Contents of the Project	<p>1. Project Site: Phnom Penh Municipality and capitals of 16 provinces (Banteay Meanchey, Battambang, Kampong Chhnang, Kampong Speu, Kampong Thom, Kampot, Kandal, Koh Kong, Kratie, Prey Veng, Pursat, Siem Reap, Preah Sihanouk, Stung Treng, Svay Rieng, Takeo)</p> <p>2. Japanese side: (1) Procurement of General X-ray (13 pieces), Patient Monitor (39 pieces), Ultrasound Machine (16 pieces, of which 6 pieces are for Obstetrics &amp; Gynecology), X-ray Protection Box (9 pieces) and others. (2) Technical Assistance (soft component) on operation and maintenance of the equipment and on the diagnostic techniques (Originally, General X-ray was planned to be procured to 14 hospitals, but procurement to Sihanouk Ville Hospital was canceled by the time of the Detailed Design. X-ray Protection Box to Kompot Hospital was also canceled.)</p> <p>3. Cambodian side: To ensure that the products be maintained and used properly and effectively for the implementation of the project</p>		
Project Period	E/N Date	March 20, 2012	Completion Date May 24, 2013 (Completion of soft component)
	G/A Date	March 29, 2012	
Project Cost	E/N Grant Limit / G/A Grant Limit : 374 million yen		Actual Grant Amount: 214 million yen :
Executing Agency	Ministry of Health (MOH), 4 NHs, Phnom Penh Municipal Hospital and 16 tertiary RHs		
Contracted Agencies	Main Contractor(s): NISSEI TRADING CO., LTD. Main Consultant(s): INTEM Consulting, Inc.		

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- The survey team was only able to collect data from 8 hospitals out of 21 target hospitals.
- There were some constraints in data collection as follows: (1) Some focal persons who had clear technical knowledge of the field and can answer the questionnaires have changed. (2) It was technically difficult for hospitals at the provinces to respond to the questionnaire because they lack capacity and access to use internet to response via email. For this reason, the questionnaires were also sent in hard copy. Response was not completely received from all the target hospitals due to their physical distance from the capital city.

**1 Relevance**

## &lt;Consistency with the Development Policy of Cambodia at the Time of Ex-Ante and Ex-Post Evaluation&gt;

The project has been consistent with Cambodia's development policy. At the time of ex-ante evaluation, health was one of the prioritized sector under "the National Strategic Development Plan (NSDP 2009-2013)", and the Royal Government aimed at continuing to take measure to increase investment in physical infrastructure, medical equipment and technologies. At the time of ex-post evaluation, under "the National Strategic Development Plan (2014-2018)", health remains highlighted point of priority sector. The Royal Government recognizes that the current health service delivery system has not yet met the goals both in terms of quantity and quality. Health centers and referral hospitals have not yet provided a full range services due to lack of medical equipment and medical technology, shortage of medical staffs. Also, "the National Policy on Medical Equipment Management in Cambodia (2015)" emphasizes needs on strengthening and improvement of standardization of medical equipment management throughout the country.

## &lt;Consistency with the Development Needs of Cambodia at the Time of Ex-Ante and Ex-Post Evaluation &gt;

The project has been consistent with Cambodia's development needs for medical equipment. At the time of ex-ante evaluation, MOH had been improving medical equipment based on the standard equipment list by each provincial referral level. However, medical equipment for providing basic health services had not yet been equipped even in the NHs and the tertiary RHs in provinces. At the time of ex-post evaluation, based on interview with the Department of Health Service of MOH and the hospitals surveyed by this ex-post evaluation, the number of patients has increased at NHs and RHs and the equipment procured under the project is needed for operating treatment and patient diagnosis services.

## &lt;Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation&gt;

The project was consistent with Japan's ODA policy, as Country Assistance Program to Cambodia (2002) prioritized the support for the vulnerable (education, health and others).

## &lt;Evaluation Result&gt;

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

## 2 Effectiveness/Impact

### <Effectiveness>

The project has mostly achieved its objectives, “to improve health services by procuring medical equipment to 4 NHs, Phnom Penh Municipality Hospital and 16 tertiary RHs” as the indicators set to measure the effectiveness, such as “the number of patients who take X-ray examination” and “the number of patients who take ultrasound machine” are deemed to achieve the targets, according to the 8 hospitals which responded to the questionnaire, though the number of respondents was limited.

In general, the condition of the equipment procured under the project continues to operate properly although some of machines including X-ray machines (2) and ultrasound machines (3) were reported that they are not operating.

The average number of patients utilizing the ultrasound and X-ray machine has remarkably increased above the expected targets. Members of medical equipment management team of the target hospitals (8 respondents) mentioned that the capacity of doctors and medical equipment operators for diagnostic care to patients has improved with confidence and accuracy to provide appropriate patient care and treatment, following the completion of the soft component of the project at the targeted hospitals. Some hospitals mentioned that patients chose the hospitals because they heard about hospital equipped with the modern medical equipment. Three hospitals specifically mentioned that reliable level of security was reported as the project envisaged, with installment of x-ray protection box to prevent radiation diffusion to X-ray technicians and external surrounding environment. Eight hospitals responded that as a result of implementation of the soft component, ability of medical technicians has been upgraded with basic competence to conduct troubleshooting against minor technical error and simple repair.

### <Impact>

Although the project aimed at improving the referral system at the time of ex-ante evaluation, the number of referred patients is not realistically available since patients in Cambodia visit upper referral hospitals by themselves without going through the referral system. However, the increasing trend of service utilization (outpatients and inpatients) could indicate positively correlated impact on referral system under the project.

The number of patients who use X-ray and ultrasound is generally recorded in aggregate term, which is not categorized by gender. However, ultrasound machines procured under the project include pieces for Obstetrics & Gynecology and therefore, the increase in trend of ultrasound utilization over the last three years indicates a positive impact on improvement in quality of service delivery and hospital visits by female patients.

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

### <Evaluation Result>

In light of the above, a certain effect of the project has been observed. Therefore, the effectiveness/impact of the project is high.

### Quantitative Effects

Indicator 1	Baseline 2009 Baseline Year	Target 2016 3 Years After Completion	Actual 2013 Completion Year	Actual 2014 1 Year After Completion	Actual 2015 2 Years After Completion	Actual 2016 3 Years After Completion
1-1 The number of patients who take X-ray examination	45,326 (Avg: 3,022)	47,592 (Avg: 3,172)	(Average) 5,770	(Average) 6,212	(Average) 7,571	(Average) 8,752
1-2 The number of patients who take ultrasound machine	37,919 (Avg: 2,917)	45,502 (Avg: 3,500)	(Average) 6,907	(Average) 6,891	(Average) 7,883	(Average) 8,883

\*The number of respondents: 8 hospitals for 1-1 and 6 hospitals for 1-2

Source : JICA internal documents, questionnaire and interviews with MOH, and questionnaire survey with the target hospitals, interviews with 1 national hospitals and 3 provincial hospitals

## 3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 57%, 100%). Therefore, the efficiency of the project is high.

## 4 Sustainability

### <Institutional Aspect>

Operation and Maintenance (O&M) of the equipment procured under the project is carried out by the target hospitals of the project. Institutional arrangement for medical equipment management team which is composed of three staff members has been established at the targeted hospitals following the National Policy on Medical Equipment Management in Cambodia (2015). Operational tasks for the medical equipment maintenance are addressed through dispatch of medical technicians for technical follow-up maintenance and inspection. For major repairs, the medical equipment management teams contact contracted agents for the service through reporting to MOH and by the hospitals by their own in some cases.

### <Technical Aspect>

Medical technicians are basically able to diagnose the errors with the machine operation, but the ability to repair the complicated machine malfunctioning is still limited. When complicated errors happen, the hospital medical equipment team contact the agents for trouble shooting and repairs. However, it is also difficult for the agent to repair due to lack of local engineers and spare-parts for replacement the damaged parts. Insufficient and uncertain budget planning and execution on capacity building through refresher training on medical equipment management skills significantly limits opportunities for national and provincial referral hospitals to upgrade capacity of the staff in charge of medical equipment.

### <Financial Aspect>

The hospitals collected user fee as the main source of revenue for spending on maintenance cost of medical equipment although some small portion of budget was allocated by MOH. Over the last three years, the financial flow shows availability of financing on maintenance, which is disbursed when machines break down on ad hoc basis. However, maintenance cost of medical equipment, especially costly broken equipment that bears high expenditure on spare part procurement and repair, makes it difficult over the capacity of hospitals to handle.



### Revenue and Expenditure of the target hospitals

(Unit: Million KHR)

	2014	2015	2016
<b>Revenue (Total)</b>	2,051	2,812	2,987
Breakdown: MOH	1,547	2,003	2,107
Breakdown: Patient Fee	504	809	880
<b>Expenditure (Total)</b>	N/A	N/A	N/A
Breakdown: Maintenance cost of medical expense	23	32	47
<b>Balance</b>	N/A	N/A	N/A

Note: The figures in the table above shows average of the 8 respondents.

#### <Current Status of Operation and Maintenance>

Periodic follow-up inspection was observed against inventory list of equipment maintained by the medical equipment management team at the hospitals with purpose for maintenance and repair. However, repair and spare-part procurement for the broken equipment remain limited. As mentioned above, some equipment items procured under the project were not operating. The reasons are due to technical failure and lack of skills to provide holistic maintenance as well as lack of budget. So far, any measures for the repair were not confirmed.

#### <Evaluation Result>

In light of the above, slight problems have been observed in terms of the technical, and financial aspects of the executing agency, such as lack of technical capacity for the complicated repair, lack of maintenance costs and limited repair and spare-parts procurement. Therefore, the sustainability of the project effect is low.

#### 5 Summary of the Evaluation

The project has mostly achieved its objectives, “to improve health services by procuring medical equipment to 4 NHs, Phnom Penh Municipality Hospital and 16 tertiary RHs” as the indicators set to measures the effectiveness, such as “the number of patients who take X-ray examination” and “the number of patients who take Ultrasound Machine” are deemed to achieve the targets.

As for the sustainability, slight problems have been observed in terms of the technical and financial aspects of the executing agency, such as lack of technical capacity for the complicated repair, lack of maintenance costs and limited repair and spare-parts procurement, however, there is no problem in the institutional aspect.

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

### III. Recommendations & Lessons Learned

#### Recommendations to Executing Agency:

- As soon as possible, particularly at the onset of budget planning stage by MOH, MOH, NHs and RHs at tertiary level are recommended to secure sufficient recurrent budget from the central level for maintenance expenditure which plays important role to support durable operation and effective management of medical equipment.
- In order to fix the equipment items that haven't functioned, the executing agencies are recommended to contact JICA to identify expert/technicians.

#### Lessons Learned for JICA:

- Some of the equipment items which haven't functioned remained unfixed due to the lack of basic technical skills and knowledge. The project should have included longer and more detailed soft component to technicians on how to diagnose the condition of medical equipment and refer to the local agents at appropriate timing.
- Staff members in charge of medical equipment maintenance lack of opportunities to brush up their capacity to perform standard maintenance of medical equipment. According to the interviews with hospital staff members who were trained under the soft component, their understanding and capacity for machine maintenance was upgraded. And they noticed that without periodic refresher training, their knowledge and capacity might deteriorate. Refresher training on technical skills on medical equipment management could be effective as a supportive component to strengthen capacity building of medical equipment management staff for smooth, efficient control of equipment operation and management. Consideration of supporting refresher training under other schemes such as follow-up cooperation or knowledge co-creation programs is recommendable.
- Although its impact was set as "to establish referral system among national and tertiary referral hospitals at provincial level ". there was no support to establish the referral system in this project. In order to build a functional referral system, some technical assistance needs to be provided, such as providing seminar or workshop among staff to teach how to make referral or how to record the patients separately from those who are referred and those who are not, etc. Thus, when establishing a project logic, it is suggested to make an impact that can be achieved from the outputs.



X-ray theater, Siem Reap Provincial Referral Hospital



Patient Monitor, Battambang Provincial Referral Hospital