

# Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Panama Office/ El Salvador Office/ March 2014

Country Name	The Project for Improvement of Solid Waste Management in the Municipality of Panama
Panama	

## I. Project Outline

Background	<p>Although the waste management service was transferred to the Municipality of Panama from the central government in 1999, the solid waste management had not been adequately executed by the municipal government without their own waste management plan. Upon the request from the Panama government, JICA supported to elaborate the waste management master plan. However, while actions for reduction of waste and improvement of legal and institutional system have been carried out, improvement of collection and transportation system as well as landfill have been delayed due to the lack of skills and knowledge of the municipal government.</p>												
Objectives of the Project	<ol style="list-style-type: none"> <li>Overall Goal: Sustainable solid waste management in the municipality of Panama is achieved.</li> <li>Project Purpose: Solid waste services in the municipality of Panama are improved.</li> <li>Assumed steps for achieving the project goals<sup>1</sup>: The project delivers trainings collection service and landfill management, establishes database of collection vehicles for regular maintenance and information network system for waste management and expands the existing landfill site. Through these activities, the project aims to improve the waste management service in the municipality of Panama. Thereby the waste management service in the municipality of Panama sustains financially.</li> </ol>												
Activities of the project	<ol style="list-style-type: none"> <li>Project site: The municipality of Panama</li> <li>Main activities: Development of manuals for supervision of operation of landfill, trainings for collection service and landfill management, establishment of database for vehicle maintenance and information network of waste management, extension of the existing landfill.</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%;">Panama Side</td> </tr> <tr> <td>1) Experts: 9 persons</td> <td>1. Staff allocated: 36 persons</td> </tr> <tr> <td>2) Trainees received: 6 persons</td> <td>2. Land and facilities: project office, electricity, water supply</td> </tr> <tr> <td>3) Third country training: 21 persons</td> <td></td> </tr> <tr> <td>4) Equipment: PCs, software, printers, etc.</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Panama Side	1) Experts: 9 persons	1. Staff allocated: 36 persons	2) Trainees received: 6 persons	2. Land and facilities: project office, electricity, water supply	3) Third country training: 21 persons		4) Equipment: PCs, software, printers, etc.	
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Project Period	January, 2007 to December, 2009	Project Cost	307 million yen										
Implementing Agency	Municipal Bureau for Urban and Household Cleansing (DIMAUD), Municipality of Panama (since 2010, the Authority for Urban and Household Cleansing (AAUD: Autoridad de Aseo Urbano y Domiciario) is responsible for solid waste management)												
Cooperation Agency in Japan	Kokusai Kogyo Co. Ltd., EX Corporation												
Related Projects (if any)	Japan's cooperation: The Study on Solid Waste Management Plan for Municipality of Panama (Development Study, 2001 -2003)												

## II. Result of the Evaluation<sup>2</sup>

### 1 Relevance

This project has been highly relevant with Panama's development policy "integrated management of hazardous and non-hazardous waste in an environmentally rational and sustainable way" in the National Environment Strategy (Estrategia Nacional del Ambiente 2008-2012), development needs "improvement of waste management to cope with an increase in waste in urban areas", as well as Japan's ODA policy prioritizing environmental protection at the time of both ex-ante evaluation and project completion. Therefore, relevance of this project is high.

### 2 Effectiveness/Impact

[The Achievement of the Target set in the PDM] The project focuses on improvement of solid waste management service in the municipality of Panama through improvement of waste collection services, including redesign of collection routes,

<sup>1</sup> Reviewed at the time of the ex-post evaluation

<sup>2</sup> Construction of transfer station for the waste transportation as the Output 2 was excluded at the time of mid-term review due to the difficulties of land acquisition within the project period.

appropriate maintenance of collection vehicles and increases in public awareness, as well as expansion of landfill capacity. The landfill capacity was sufficiently expanded by the project and the current lifetime of the existing landfills is extended to additional 50 years. Also, the small illegal dumps or pile of garbage, so-called "Pataconicos" in the eastern and northwestern part of Panama City have been progressively eliminated under the cooperation with the communities. However, the operation of collection services has not been improved due to the difficulty to carry out smooth and regular collections with the long distance from the collection sites to the landfills, the lack of transfer stations, traffic jams, uncompleted redesign of collection routes, mechanical troubles of collector vehicles and the lack of supervision for collection service. Therefore, the number of complaints tended to increase at the time of ex-post evaluation despite that it decreased at the project completion. Also, satisfaction of the citizens has been limited according to the household survey. As for the overall goal, the average revenue/expense ratio has been over 1.0 during the period from 2010 to 2012 despite of the downward trend. Although the operational cost per collection has been increasing due to the necessity of large investment in equipment, the Finance Department of AAUD has been monitoring the level of expenses in order to control the expenses not to exceed the revenue. However, it is difficult that the outcome of the project is appropriately evaluated with using this indicator and information only, since the overall goal of the project is more like sustainability of the project effects rather than the outcome of the project.

[Other issues to realize the Project Effect] The project originally planned to construct a transfer station for efficient collection service in order to cover the collection sites with long distance from the disposal site. However, the construction plan for the transfer station was eliminated due to the difficulty of land acquisition at the time of mid-term review. Since one of the key components of the project to improve the collection service was eliminated, improvement of the collection service was seriously inhibited. According to the interview survey for this ex-post evaluation in Panama City<sup>3</sup>, 64% of them, in particular the persons living in the areas far from more than 15km from the landfills were not satisfied with the service whereas 22% of the persons living near the landfills were satisfied. The unreliable waste management service by AAUD induced the contract of private collectors who tend to dispose the garbage in much cheaper, informal dumps near the Cerro Patacon landfill site, which are organized by the communities, and the informal dumps have been causing environmental problems due to the inappropriate treatment. Also, from 2009 to 2012, the proportion of final disposal collected by DIMAUD/AAUD decreased 50.4% to 44.3% since the private collection services increased their share.

Therefore, effectiveness/ impact of the project is low.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Improvement of solid waste management service of the municipality of Panama	The number of complaints to the 800ASEO* is on a declining trend.	(Project Completion) Achieved. In average, decreased from 13.9 per 1,000 people in 2006 to 9.1. (Ex-post Evaluation) Fluctuated year by year: increased by double from 2009 to 2010, decreased to half of the level of 2009 in 2011, then increased again in 2012.
	The satisfaction survey by DIMAUD shows that the level of satisfaction of the people toward the Solid Waste Services in the Municipality of Panama is improved.	(Project completion) No data available since the survey was not conducted. (Ex-post Evaluation) According to a nationwide household survey, 11% of the population considered performance of AAUD as excellent or good, and 50% considered it as bad or very bad.
	Final disposal services are continuously provided throughout the project period.	(Project completion) Achieved. The average capacity of landfill per day increased from 1,502 ton in 2007 to 1,531 ton in 2009. (Ex-post Evaluation) Increased from 1,903 tons in 2010 to 2,018 tons in 2012. The expansion of landfill size from 132 ha to 162 ha increased lifetime of landfill to additional 50 years.
(Overall goal) Establishment of sustainable solid waste management in the municipality of Panama	The average revenue/expense ratio regarding Solid Waste Management in the municipality of Panama for 5 years after the project is over 1.0.	(Ex-post Evaluation) The ratio improved from 0.94 in 2009 to 1.40 in 2010 and 1.35, 2011, but decreased to 1.19 in 2012. The operational cost per collection (USD/ton) decreased from 114.68 USD/ton in 2009 to 77.34 USD/ton in 2010, but increased to 148.61 USD/ton in 2011 and 194.81 USD/ton in 2012

Source : Project Completion Report, Data provided by AAUD, Interviews with AAUD officials.

\* This is the name of section which deals with customer's claim in DIMUD/AAUD

### 3 Efficiency

While the inputs were mostly appropriate for producing the outputs of the project, and the project period was as planned (ratio against the plan: 100%), the project cost was higher than the plan (ratio against the plan: 118%) because cost for the third country training and the local cost borne by the Japanese side were not included in the plan. Therefore, efficiency of the project is fair.

### 4 Sustainability

In the policy aspect, AAUD was established under the Law No.51 of September 29, 2010, for more effective solid waste management in Panama City. The sufficient number of capable staff of AAUD, 2,713 employees is directly engaged in

<sup>3</sup> Interviews were conducted with 30 people on a random basis.

municipal waste management. The landfills are operated by Urbalia Panama S.A. (UPSA) under the supervision of the Department of Integrated Waste Management and Sanitary Landfills of AAUD. 10 engineers and technical staff supervise the landfills, but most of them are newly recruited and need specialized trainings for the landfill operation. Since the landfills have not been well-managed, the fires broke out in ETAPA 2, one of the landfills in Panama City in March, 2013. The operation manuals have not been utilized after the organizational change from DIMAUD to AAUD. In terms of the collector vehicles, the maintenance has been transferred to the private company. However, the inadequate corrective and preventive maintenance for collector vehicles has brought about longer time to prepare and to reduce frequencies waste collections. The Human Resource Department of AAUD has no specific training program for their staff to improve their waste management services from the technical aspect. As mentioned above, AAUD has been sustaining the financial balance on the waste management services. Since the waste management is one of the great concerns of the Central Government, the additional budget from the Ministry of Economy and Finance has been allocated to AAUD to purchase or rent collector vehicles.

From these findings, it is considered that the project has some problems in institutional and technical aspects of the implementing agency; therefore, sustainability of the project is low.

#### 5 Summary of the Evaluation

This project has somewhat achieved the project purpose and overall goal of the target set in the PDM. However, the waste collection services have not been improved since one of the key components of the project has not been constructed due to the difficulty of land acquisition. Despite of the good financial balance of the waste management service by AAUD, the proportion of waste collection by AAUD has been decreasing due to the unreliable collection services. As for sustainability, improvement of waste management is still given importance in the Central Government. However, there are problems in terms of institutional and technical aspects due to inappropriate management of the landfills, inadequate preventive maintenance of collector vehicles, and the lack of technical trainings for the staff of AAUD. For efficiency, the project cost exceeded the plan.

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

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing agency (AAUD):

- AAUD is recommended to fully utilize the manuals and indicators produced by the Project, particularly for the landfill management and monitoring.
- Also it is recommended to furnish the Planning Department with a vehicle and necessary software to continue the designing of routes as well as constructing the transfer station, in order to conduct waste collection in a more efficient way,.
- AAUD should encourage and facilitate the participation of its staff in training programs offered by JICA and other donors, particularly those engaged in the waste collection and supervision of the landfill operation.

#### Lessons learned for JICA

- As for appropriateness of the indicators of Overall Goal, it is not adequate to verify the sustainability of the solid waste management by only financial indicator since sustainability of the project effects should be verified from the aspects of policy, institutional and technical aspects as well as financial aspect.  
Overall goal should be set as an expected outcome which has direct causal relationship with the Project Purpose.
- After a major change of authorities in charge of continuing the activities of a former JICA Project, it is advisable to have several meetings with the new administrative and technical staff in order to confirm that they have the same interpretation of the project concepts and they are willing to make use of the project outputs.



Cerro Patacon Landfill (in use)



Other Landfill (unused after fire)