

Summary of Terminal Evaluation

1.Outline of the Project	
Country:Republic of Panama	Project Title :The Project for Improvement of Solid Waste Management for the Municipality of Panama in the Republic of Panama
Sector:Waste Management	Cooperation Scheme :Technical Cooperation Project
Division in Charge :Environmental Management Division 2, Environmental Management Group, Global Environmental Department	Totak Cost (at the time of evaluation) :332 million yen
Period of (R/D): January 2007 to December 2009 Cooperation	Partner Country's Implementation Agency :Municipal Bureau for Urban and Household Cleansing (DIMAUD)
	Supporting Organization in Japan : 、Kokusai Kogyo Co.,Ltd, EX Corporation

1-1 Background of the Project

Through a legislative reform of 1999, the responsibility for solid waste management (SWM) in the Republic of Panama was transferred from the national government to each municipality. Since then, the SWM in Panama City which holds the population of around 800,000 have been carried out independently by the Municipality of Panama. However, the lack of knowledge and techniques in SWM resulted in insufficient collection service or inefficient operation management of the landfill. Therefore, the Republic of Panama requested the cooperation of Japan in the implementation of a development study on solid waste management. In response to this request, JICA conducted the development study named as "The Study on Solid Waste Management for the Municipality of Panama" from November 2001 through March 2003 and developed the Master Plan setting the year 2015 followed by the feasibility studies (F/S) of the priority projects (final disposal site and transfer station).

After conclusion of the development study, the Municipality of Panama has been actively implementing improvement measures with its own financial resources, including the acquisition of 60 new collection vehicles, and the expansion of the final disposal site. However, due to the difficulties in the administrative procedures and coordination among related institutions and the shortage of managerial and technical staff, the implementation of the M/P was delayed. In order to cope with those difficulties, the Municipality of Panama requested, through the Central Government of Panama, the technical cooperation from Japan in the field of the operation and management of final disposal sites, improvement of collection and transport system, and implementation of environmental education.

According to the request on the above, the JICA dispatched the Preliminary Study Mission to Panama in July 2006 and agreed on the contents of the Project signing on the Record of Discussions (R/D) on December 15, 2006, which stipulated the framework of the project. The project was started from January 2007 for the period of three years.

In the occasion prior to the end of the Project in December 2009, a terminal evaluation is conducted to examine the degree of achievement on a comprehensive level in the Project. The specific objectives of the terminal evaluation are summarized in the next section.

1-2 Project Overview

This project aims at transferring knowledge and skill related to waste management for CPs and developing capacity for sustainable solid waste management through improving solid waste management services in the Municipality of Panama.

(1) Overall Goal

Sustainable solid waste management in the Municipality of Panama is achieved.

(2) Project Purpose

Solid waste services in the Municipality of Panama are improved.

(3) Outputs

- 1) Waste collection service is improved in parallel with strengthening the activities for cooperating with community.
- 2) Preparatory work to establish the transfer and transport system is finalized.
- 3) Collection vehicle management is improved.
- 4) Management of the final disposal system is strengthened.
- 5) Organizational operation management is improved.

(4) Inputs (at the time of evaluation)

Japanese Side:

Cost: 320 million yen in total

Experts: Nine(9) Experts in total

Provision of Equipment: 26,000 US Dollar

Training of Panamanian Counterpart Personnel: Twenty-seven (27) counterpart personnels in total
(6 in Japan, 21 in Third Country)

Local Cost: 62 million yen in total

Panamanian Side:

Counterpart Personnel: Fifty-five (55) counterpart personnels in total

Land, office space and necessary facilities for the Project's head office

Waste collection vehicles: Sixty (60) vehicles

Local Cost: 160 thousand US dollar

2. Evaluation Team

Member of Evaluation Team	Leader:Shiro Amano (Senior Consultant, JICA) Environmental Cooperation:Naoki Mori (Deputy Director General and Group Director for Environmental Management, Global Environment Department, JICA) Cooperation Planning:Yoshikazu Taniguchi (Environmental Management Division 2, Environmental Management Group, Global Environment Department, JICA) Evaluation Analysis:Shinobu Mamiya (Specialist, Institutional Development, Project Analysis, International Development Associates Ltd.)
Period of Evaluation	21/9/2009–12/10/2009 Type of Evaluation: Terminal Evaluation

3. Result of Evaluation

3-1 Achievement

(Achievement of the Project Purpose)

As previously mentioned, the external factors have substantial negative influences on the progress of project implementation. According to the report by 800 ASEO, the number of complaints by the people of the municipality (21 districts) has been decreased to 9.1 in average per 1,000 people in 2008 as compared with that of 2006 that is 13.9. For the details, see Annex 9–12. This is due to the fact that the frequency of collection services was increased with the sixty (60) collection vehicle newly added in 2008. However, the complaints in 2009 have shown the increasing trend reflecting the decreasing of frequency of collection services because of collection vehicle often being under repairs. (Indicator 1)

The Project intended to examine the positive change of the satisfaction level of the community people toward the collection services by implementing the redesigned routes. However, the implementation of redesigned routes was limited, thus the follow-up satisfaction survey was not conducted. Therefore, there is no data available to examine this indicator. (Indicator 2)

According to the interviews to C/Ps who performs as an inspector of landfill site, final disposal services are continuously provided without interruption and the average capacity of landfill per day is shown as 1.502ton in 2007, 1,542ton in 2008 and 1,531 ton in 2009. (Indicator 3)

The collection service has not yet brought about the tangible outcome due to the external factors emerged and this has made it extremely difficult for the Project to achieve the project purpose within the given project period. However, the landfill operation has been smoothly shifted to the private company under the concession

contact and effectively supervised by the DIMAUD. In summary, the Project Purpose could be said as **“partly achieved”**

(Achievement of the Outputs)

(1) Although the Project has not yet fully achieved the indicators due to the external factors, the strong foundation for data consolidation, redesigning of the routes and publicity activities has been firmly established. In summary, the Output 1 could be said as **“partly achieved”**. If the Panamanian side is to continue further efforts, it is reasonable to presume that the capacities developed through the project activities will fully contribute to producing the expected outcome.

2) The site investigation has been continuously conducted. The manuals for 1) Guide for Selecting a Place for Transfer Station, 2) Report for Site Survey, 3) Report on Private Sector Participation were developed. If the land for transfer station is obtained, the DIMAUD can manage to proceed the construction of transfer station by itself. (Indicator 2-1) The achievement level of the Output 2 will not be examined as it has been the outside of the framework of the Project since the Mid-term Evaluation.

3) A guidebook for procurement of collection vehicles has been developed and to be used by the management level. Overall, a great contribution has been made to build-in the computerized data management system which is incorporated into the daily operation of collection vehicle management. (Indicator 3-2)

In order to make the reporting on a regular basis for both Zone A (Pacífico) and Zone B, and to analyze the data, the continuous efforts should be made. The new administration of DIMAUD is planning to allocate the adequate personnel from other departments to be trained in order to strengthen the capacity of maintenance department.

In summary, the Output 3 could be said as **“partly achieved”**. It is expected that the continuous efforts will increase the coverage of data volume and ensure the data accuracy, so that the data analysis will become more appropriate.

4) With the consultation of ANAM, it was determined that the landfill needs to be assessed by PAMA (Environmental assessment program to examine the environmental management and the appropriateness) to satisfy the requirement of national standard. The inspection of PAMA is to be carried out every six months and report is to be prepared by the consulting company (ITS PANAMA). The first inspection was conducted in May, 2009 at the sanitary landfill site with the presence of two engineers. The inspection covers all activities conducted at the site according to the check list by site visits, document review, examination of environmental measurement results and safety standard of work site and interviews of staff of Cerro Patacon as well as UPSA. The first inspection shows that landfill fulfilled the requirement (progress as opposed to the plan) for 92%. Inspection covers during the period of Nov 2008 to May 2009. For the details, see the Annex 9-8. (indicator 4-3) The next assessment is scheduled in December 2009.

In summary, the Output 4 could be said as **“satisfactorily achieved”**.

5) At the Mid-term Evaluation, it was strongly suggested that DIMAUD should make an effort to create better relation among departments through close communication and information sharing. Unfortunately, the external factors emerged after the Mid-term Evaluation has negatively affected the activities under this Output. Regular Working Group meetings have not been held since Feb. 2009, and activities to promote interrelationship among departments in DIMAUD have rarely been conducted. (Indicator 5-1) However, it should be noted that attempts were made by the Project to hold project seminars and workshops to widely disseminate the project activities and promote the understanding of importance of solid waste management for those in municipal government, private sectors, NGOs and communities.

Substantial contribution has been made to firmly construct the necessary database of solid waste management services, such database as the collection service, maintenance, and in-coming waste and vehicles at the landfill (Cerro Patacon) with which corresponding manuals are attached. These database have been already utilized by the department concerned in their daily operation. Please see the Annex 9-10 for the diagram of these information networks. (Indicator 5-2) According to the interviews, there are currently five staff members in the information department who can manage the information network by themselves. As the new administration intends to strengthen the information management department and the number of staff will be increased.

In summary, the Output 5 could be said as **“mostly achieved.”** With the organizational reform which facilitates the delegation of authorities and promotes the inter-departmental collaboration, it is assured that

the organizational operation management will be improved.

3-2 Summary of Evaluation Results

(1) Relevance

The relevance of the Project is high.

The environmental concerns have been often discussed and its necessity and priority has been widely recognized in the Municipality of Panama. The new administration which took the office in July 2009, although its policy has not yet officially come out with, has put the priority on the environmental protection and has expressed the need to improve the public services as well as the urban planning. And the solid waste management, especially the collection services in the urban areas, is one of their focused issues. In this respect, the project's overall goal and project purpose have been consistent with the policy of the Government of Panama and its needs of the target people.

The project has also relevant with the policy of Japanese Development Assistance. Japanese ODA policy puts high priority on environmental protection among three pillars in the sustainable development toward the assistance for Panama. According to the JICA's Country-Specific-Assistance Program for Panama as of March 2007 and a Rolling Plan for Republic of Panama as of April, 2009, there is a great need to enhance the administrative capacity to deal with environmental management, especially for those in the Municipality.

Furthermore, the Japanese assistance has its comparative advantages in transferring the technologies and her experiences of solid waste management in Latin American countries. The strong ownership was expected to be taken by the Panamanian side of this Project, who bears the responsibilities to implement the redesigned routes by allocating the sufficient collection vehicles. However, appropriate measures, in case of delay of procurement of collection vehicles due to the unprecedented factors, should have been discussed by both sides prior to the initiation of the Project.

(2) Effectiveness

The effectiveness of the Project is relatively low.

1) Project Purpose

As explained in 4-1-2, the Project Purpose could be said as "partly achieved". It is expected that the DIMAUD will continuously make efforts to implement the redesigned routes to improve the collection services.

2) Contribution of each output

Each output has been contributing to the achievement of the Project Purpose in the following manner. Output 1 is consisted of two components. The one component serves to improve the efficiencies of collection services in terms of quality and quantity by renovating the operational procedures in the redesigned routes. The other component serves to furnish the recipients with appropriate information of collection services in timely manner and raise their awareness. Output 3 also serves to support the Output 1 to increase the utilization of collection vehicles by effective maintenance. Output 4 aims to improve the final disposal system by supervising the management of landfill operation by the private contractor under the consignment contract. All these Outputs deal with the technical aspects of solid waste management. On the other hand, Output 5 serves as the catalyst facilitating the implementation of these three Outputs by improving the organizational management as well as the information management. Affected by the external factors previously explained, the achievement of Output 1 has been limited. And the delay of necessary equipment has caused to lower the achievement level of Output 3.

3) Inhibiting factors to achieve the Project Purpose

Project activities were restricted in some degree due to the fact that the election period had distracted attention of some municipal authorities and the management of DIMAUD, so that the strong initiatives had not been taken especially to implement the redesigned routes, since the end of 2008.

(3) Efficiency

The efficiency of the Project is low.

1) Japanese Side

Most of the inputs from Japanese side, such as dispatch of experts, training of counterparts in Japan and local cost support, are executed as planned. As for the counterpart trainings in Japan and the third-country (Chile and Dominican Republic), it has encouraged the Panamanian C/Ps to promote their motivation to serve for the public services as well as to improve their technical knowledge and skills. More C/Ps from the Operation Dept. has participated in the trainings which greatly helped them to improve technical knowledge and skills.

2) Panamanian Side

As explained in the 3-1-2, due to the change of political administration and its related organizational reform of

DIMAUD, the management level C/Ps and some technical C/Ps who played the major role to carry out the project activities left the organization in the end of 2008 through the mid of 2009. Although the magnitude of this effect is not negligible, it is likely that remaining technical C/Ps can manage to proceed the activities by themselves in close collaboration with those who have been newly assigned by the new administration to further develop the organizational capacity. Due to the lack of budget, some of the planned equipment such as PCs was not procured, so that some activities in the Maintenance, Warehouse and Line 800 ASEO had not been started as planned. Sixty (60) collection vehicles newly procured in 2008 have already been in the state of frequent repair. One of the reasons is the lack of trainings for drivers as well as mechanics to familiarize themselves with newly purchased vehicles. Much attention should be paid to this issue as the problem has multiple effects on the collection services of DIMAUD.

3) Management of the Project

As explained in 2-4, affected by the election, the strong initiatives had not been taken especially to implement the redesigned routes, since the end of 2008. In 2009, those of former management left the organization only 6 months prior to the end of the project period, and those under the new political administration took it over since July 2009. The new administration has taken the positive approach to promote the inter-departmental communication and collaboration. It is likely that such positive measures, to facilitate the participation of all staff of DIMAUD, will make it possible to establish the strong and resilient collaboration among concerned departments.

(4) Impact

It is not appropriate to examine the likelihood of financial impact by the Project at this moment. In the process of evaluation, the following impacts by the Project have been observed.

One C/P, who participated in the C/P training of Waste Management Techniques for Central American Countries held in Japan in 2007, prepared the action plan proposing the effective way on the temporary deposit of solid waste in multi family unit. This idea was shared among other project members. With the combined efforts of these members of the Project, this proposal was materialized as the regulation of "Temporary Deposit of Solid Waste in Multi Family Units" and was officially adopted by the municipality of Panama on 29 of June 2009.

Third-country trainings have not only contributed to strengthen the technical capacity of C/Ps but also build the strong partnership with accepting organizations and cities. In 2008, the mutual agreement of technical cooperation in the solid waste management was exchanged between the district of Providencia, Santiago de Chile, Republic of Chile, and the Panama City, Republic of Panama.

The individual interviews revealed a negative impact by the Project. In the process of implementation of redesigned routes, the scheduled services have not been implemented as planned in some area. In such case, it created the distrust in the community people who was informed of the new collection service schedule and waited for that. Close collaboration between the planning and operation department with well-thought-out measures is needed.

(5) Sustainability

The sustainability of the Project can be secured though continuous efforts by the DIMAUD.

1) Organizational aspects

Considering the strong environmental concerns and needs of the population, it is very likely for the Municipality of Panama to continue to strengthen the solid waste management with high priority. The role and responsibility of the DIMAUD may depend on the management strategy of the new administration; however, it is likely that the DIMAUD will continue to play a major role in solid waste management.

2) Financial aspects

It is difficult to judge the financial sustainability at this moment. However, according to the new administration, they will continue to make an effort to secure the necessary budget.

3) Technical aspects

It is confirmed that most of knowledge and technologies transferred through the project activities are appropriate in the context of Panama and it has been adopted in the daily operation. Database of solid waste management services has been already fully utilized. Such database will greatly help the management to improve the collection services, maintenance and landfill operations as well by providing with useful management indicators. In order to cover the change of personnel, the Project has developed quite number of manuals and guidebooks. It is likely that remaining technical C/Ps can manage to proceed the activities by themselves in close collaboration with those who have been newly assigned by the new administration. In addition, technical cooperation in the solid waste management exchanged with the district of Providencia,

Santiago de Chile, will serve to mutually improve the technical capacity of both parties.

3-3 Factors Promoting the Achievements

(1) Factors Concerning to Planning

Appropriateness of the subject for technical transfer

Most of knowledge and technologies transferred through the project activities are appropriate in the context of Panama and it has easily been adopted in the daily operation. Especially, it seems that the computerized data management introduced by the JICA experts has been very timely for Panamanian side that has planned to upgrade the overall solid waste management to cope with the pressing needs.

(2) Factors Concerning to the Implementation Process

•Effective technical transfer in third-country trainings

Third-country trainings have served to encourage C/Ps to strengthen their technical capacity by mutually exchanging the knowledge and skills with peer partner countries. It also gives some opportunities to rethink their own problems from the other's point of view. These training opportunities will mutually facilitate the capacity development each other.

•Maintaining the institutional memory

In order to cope with the personnel change, the Project has developed quite a number of manuals and guidebooks. It helps for Panamanian side to train those newly joined C/Ps and to maintain the institutional memories after the project is terminated.

3-4 Factors Inhibiting the Achievement

(1) Factors Concerning to Planning

Lack of effective measures to cope with the unexpected risk

The strong ownership was expected to be taken by the Panamanian side of this Project, who bears the responsibilities to proceed the project activities to implement the redesigned routes by allocating the sufficient collection vehicles. However, appropriate measures, in case of delay due to the unexpected or uncontrollable factors should have been discussed by both sides prior to the commencement of the Project.

(2) Factors Concerning to the Implementation Process

•Lack of strong initiative of the management level

Project activities were restricted in some degree due to the fact that the attention of the municipal government was kept from the project activities during the election period, thus the strong initiatives have not been taken to proceed activities. The operation department made a proposal to the management level in regard to the training needs for those mechanics as well as the collection vehicle drivers to safely deal with the new collection vehicles. However, no decision was made by the management level. As a result, the new collection vehicles have often been under repair due to the circumstances that they were not properly handled.

•Insufficient involvement of all stakeholders concerned

Different interpretation of project concepts among staff members had made it difficult to establish the strong and resilient collaboration among concerned departments. In order to implement the redesigned routes for improving the collection services, all concerned staff should have been fully informed of the purpose and the importance of the project activities in the first place.

•Delay of procurement of equipment for maintenance department, ware-house, Line 800 ASEO

In order to construct the database for maintenance, ware-house and Line 800 ASEO, Panamanian side planned to obtain several PCs. However, due to the financial difficulties, the planned equipment was not procured. This resulted in the delay of technical transfer in the database construction for these departments.

3-5 Conclusion

From the findings of the joint evaluation study as shown in the previous chapters, the Team concludes that the Project Purpose has been partly achieved at the time of the Terminal Evaluation.

The primary reason for that is because implementation of collection improvement (re-designed routes) is limited and minimal. Achievement of the Project Purpose requires physical improvement of collection services on the ground to a greater extent as one of the main outputs of the project.

There are several impeding factors that prevented the organization from carrying out collection improvement operations such as follows:

- 1) lack of strong initiatives of the top management during the election period
- 2) insufficient number of collection vehicles and associated human resources
- 3) limited communication or coordination among planning department, operation department and others.
- 4) reluctance to change by the operation personnel in the field

Some of the causes of the above factors are considered as outside control of the project and others are within. As a result, the Project Purpose is not considered as satisfactorily achieved at the time of the Terminal Evaluation.

It is however worth emphasizing that the capacity of DIMAUD has been well increased through the project activities in terms of planning and supporting systems such as redesigning collection routes, collection vehicle management, management and implementation of final disposal contract, integrated information management and associated various guidebooks and manuals.

Therefore it is expected that the Project Purpose will be achieved and sustainability will also be secured if the new administration takes the strong initiative in implementing planned collection improvement and continues to make the most of the organizational capacity acquired through the project.

3-6 Recommendations

1. In order to ensure the sustainability of the project, it is necessary to utilize the integrated information management system and various guidebooks and manuals developed by the project and familiarize the organization members with those systems firmly. It is also important for the above to allocate appropriate personnel, conduct internal trainings and secure enough budgets.
2. Implementation of the re-designed collection routes should be carried out for producing tangible improvement in the collection services. In order to do that, it is required to procure additional collection vehicles, improve the maintenance of the existing vehicles and conduct trainings for maintenance of new vehicles.
3. Delegation of authority to each department and improvement of communication among departments are now being taken place under the new administration. It is desirable to continue promoting these actions.
4. To gain the cooperation of citizens, continuous efforts to raise public awareness is essential. It is strongly required to encourage the citizens to be involved with activities utilizing public awareness and educational tools developed by the project.
5. There have been important documents developed by Japan's technical cooperation such as the Master Plan for Waste Management (2003) prepared by the previous JICA Development Study and the Strategy Plan proposed by the project to the management of DIMAUD in February 2009. Those plans are expected to be treated as a guiding principle for future decision-making of Panama city and DIMAUD in terms of solid waste management.

3-7 Lessons Learned

1. Appropriate remedial measures against a risk, such as important assumptions being unfulfilled, should be carefully examined and agreed by both parties before and after commencement of the project.
2. It is essential for the important stakeholders within the organization to be well familiarized with as well as involved with the project under the strong leadership, in order for the success of the project.