

Republic of the Philippines

Ex-Post Evaluation of Japanese Technical Cooperation Project
“Establishment of Ecological Solid Waste Management System”

External Evaluator: Keiko Asato,
Foundation for Advanced Studies on International Development

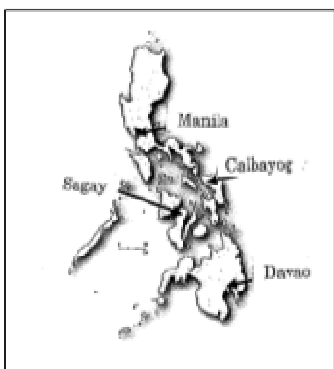
0. Summary

This project is consistent with the issues of solid waste management (SWM) designated as important themes in the development plan of the Republic of the Philippines as well as the sector plan and development needs. At the same time, it is aligned with Japanese aid policy. In this regard, the relevance of the project is high. During the project period, technical assistance was provided to the three target cities to enhance the basic capacity to manage solid waste, such as the capacity to elaborate the SWM plan, to promote the IEC (Information, Education and Communication) campaign for “3R” (Reduce, Reuse and Recycle)¹ and also to monitor SWM-related activities. On the other hand, the capacity development to strengthen the operation and management of the final disposal facilities was not enough due to the delay of the construction of the facilities caused by the time-consuming fundraising process. Since the completion of the project, the National Solid Waste Management Commission (NSWCM) has tried their best to diffuse the knowledge of SWM by various approaches. Even though the number of SWM plans approved by NSWCM is not high, the rate of construction of SWM-related facilities has been increasing. This change can be considered an effect of the project. Therefore, the effectiveness and impact of the project are fair. Both the project cost and the period of cooperation were mostly as planned, therefore the efficiency of the project is high. The local government units (LGUs) work on their possible SWM activities, even though their progress varies due to different factors, such as political, financial, economic, and technical factors. In the three target cities, the officials equipped with technical capacity by the project continue the SWM-related activities. However, some issues still have yet to be improved, such as increasing the number of officials equipped with SWM skills and securing the budget to maintain the equipment, among others. The introduction of a waste charge system is particularly important to secure the budget and reduce waste. Considering these situations, even though no problem can be seen in the policy background, some problems have been observed in terms of the institutional, technical and financial aspects of the project. Therefore, the sustainability of the project is fair.

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

¹ 3R is the endeavors to minimize the wastes. It is the general term of “reduce”, “reuse” and “recycle”, referring the treatment of wastes.

1 . Project Description



Project Location



Material Recovery Facility (Calbayog City)

1.1 Background

In the Philippines, inadequate SWM in metro Manila and the LGUs was a serious social problem, and the Ecological Solid Waste Management Act, Republic Act 9003 (RA9003) was enacted in 2001. The law prescribes that the LGU is the entity responsible for SWM, aiming to reduce the final disposal waste amount via the promotion of 3Rs and to manage the solid waste appropriately. RA9003 also obliged the LGUs to transfer all existing dump sites to the sanitary landfill (SLF) by 2006.

Japan had been cooperating with the concerned sector since 1990 in the Philippines. However, there still remain many LGUs that have neither conducted the proper waste management nor gone forward with the arrangement of the disposal facilities due to a lack of understanding about RA9003 and the technical, institutional and financial constraints. At the start of the project, of the roughly 1,600 LGUs, fewer than 2% had complied with the proper waste management procedures requested by RA9003.

Considering this situation, this project selected three cities (Sagay City, Calbayog City and Davao City) to strengthen the capacity of SWM and cooperated with NSWMC to promote RA9003 by standardizing the process of establishing a SWM plan and the procedures to transfer to SLF, based on the cooperation of the three cities.

1.2 Project Outline

Overall Goal	Knowledge and experience of ecological SWM in the three cities ² are
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² The outline of three cities at the time of ex-ante evaluation was as follows: Sagay city is with the population of 143,226 persons, 25 barangays and the area of 330 km², Calbayog city is with the population of 166,036 persons, 157 barangays and the area of 903km², and Davao city is with the population of 1,338,403 persons, 182 barangays and the area of 2,440km².

		replicated in other LGUs.
Project Purpose		Ecological SWM systems is established in the three cities.
Outputs	Output 1	Capacity of LGUs on SWM planning is strengthened.
	Output 2	Solid waste diversion system is improved.
	Output 3	Final disposal system is improved.
	Output 4	Guidebooks and manuals are developed as a tool of planning and implementation of SWM based on the experience of the three cities.
Inputs		<p>Japanese Side:</p> <ol style="list-style-type: none"> 1. Experts: 7 Experts (Dispatched as contract-out type experts) 2. 12 Trainees received (Counterpart training in Japan) 3. Equipment: 17 million yen 4. Local Cost: 16.6 million yen <p>Philippines Side:</p> <ol style="list-style-type: none"> 1. Counterparts (CP): 37 (4 at NSWMC secretariat, 6 at Sagay city, 8 at Calbayog city, 9 (from October 2007 to September 2009) and 10 (from October 2009 to October 2010) at Davao City) 2. Local Cost: Personnel expense, provision of vehicle (including driver), fuel, cost to acquire the Environmental Compliance Certificate (ECC) 3. Other cost (only at Sagay City and Calbayog City): The cost to close existing dump site, the cost for construction of SLF
Total Cost		364.8 million yen
Period of Cooperation		October, 2007 – October, 2010
Implementing Agency		Department of Environment and Natural resources (DEN) and NSWMC
Cooperation Agency in Japan		Nippon Jogesuido Sekkei Co., Ltd.
Related Projects		<p>Master Plan Study, “Solid Waste Management for Metro Manila” (1997-1999)</p> <p>Independent Expert, “Administration of Solid Waste Management” (2003-2006)</p> <p>Basic information collection survey: “Survey for the selection of prioritized cities for the establishment of the appropriate treatment of solid waste” (2004)</p> <p>Other projects by other donors</p>

	<ul style="list-style-type: none"> • USAID, “Eco-Governance Project (Phase 1)” (2001-2004) • USAID, “Eco-Governance Project (Phase 2)” (2004-2011) • GIZ, “Solid Waste Management Program for Local Government Units (SWM4LGUs)” (2005-2011)
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1.3 Outline of the Terminal Evaluation

1.3.1 Achievement of Overall Goal at the time of the Terminal Evaluation

Indicators 1 and 2 of the project purpose were confirmed to be achieved. However, indicator 3 was difficult to achieve during the project period, influenced by external factors, which implied a low probability of the complete achievement of the project purpose.

1.3.2 Achievement of Project Purpose at the time of the Terminal Evaluation

During the implementation of the project, seminars to diffuse the knowledge and the experience of SWM in the target cities were held four times (93 LUGs participated.), and seven similar seminars were planned to be implemented from July to December of 2010. Twenty SWM plans had been approved, which implied the possibility of achieving the overall goal.

1.3.3 Recommendations at the time of the Terminal Evaluation

The recommendations at the time of the terminal evaluations and the actions taken at the time of the ex-post evaluation are as follows:

<Recommendation to the three target cities >

- On-site operation and maintenance training of new SLFs (at Sagay City and Calbayog City) had been completed before completion of the project.
- Consideration of the welfare of the waste pickers³ working at the existing dump site (at Sagay city and Calbayog city): Some of the waste pickers were hired by the city and continue to work at the SLFs.
- Statement of the cost analysis of SWM to the annual report: The annual reports have not been prepared.
- Increase in understanding by the decision makers of the cities (mayor and city council) about SWM : SWM is understood and accepted at certain levels, but the level of understanding is not enough for them to promote the SWM strongly.

<Recommendation to NSWMC >

- Review the progress and the degree of enforcement of RA9003, cooperating with other ministries, and develop a new strategy to further promote and accelerate implementation of

³ The independent business person who collect the recycle waste at the disposal facility such as final disposal.

RA9003 : Besides “National Solid Waste Management Strategy” (2011-2016), which has been elaborated. The annual work plan and the completion report are prepared every year, and the degree of achievement is reviewed by NSWMC.

2. Outline of the Evaluation Study

2.1 External Evaluator

Keiko Asato, Foundation for Advanced Studies on International Development

2.2 Duration of Evaluation Study

Duration of the Study: October 2013 - December 2014

Duration of Field Study: January 6, 2014 - February 1, 2014; April 23, 2014 - May 6, 2014

3. Results of the Evaluation (Overall Rating : B⁴)

3.1 Relevance (Rating : ③)

3.1.1 Relevance to the Development Plan of the Philippines

The effective development plan at the time of start and completion of the project was the Medium-Term Philippines Development Plan (MTPDP 2004-2010). In the area of “Economic Growth and Job Creation” in this policy, the theme of “Environment and Natural Resources”, where “Safe environment of living condition for the residents” is set as an objective. For this purpose, “Control of contamination and risk” in the living environment is necessary, and “Establishment of SLF and Material Recovery Facility (MRF)⁵” and “Mainstreaming of SWM at educational site” were expected as strategies to attain the purpose. This technical assistance project tried to address these strategies.

In this regard, this project was consistent with the development plan of the Philippines at both time of planning and completion of the project.

3.1.2 Relevance to the Development Needs of the Philippines

The LGUs in the Philippines did not manage solid wastes properly, which threatened the safety of the living environment. Due to this situation, RA9003 was enacted in 2001. This law aimed to reduce the final disposal amount of waste, to have LGUs promote the segregated collection and effective reuse and recycle of resources, and transfer the existing dump sites⁶ to SLFs. To put this law in practice, NSWMC was set up by this law.

⁴ A : Highly satisfactory, B : Satisfactory, C : Partially satisfactory, D : Unsatisfactory

⁵ In this project, MRF was established to promote the recycle the waste, to compost the organic waste and to share the information to promote 3R.

⁶ Disposal area with a low utility value at which waste are disposed of.

However, as of the planning stage of this project, only 21 LGUs (less than 2% of the approximately 1,600 LGUs in the whole country) conducted SWM by constructing SLFs, complying with RA9003. Many LGUs faced financial and technical constraints, and so could not promote the construction of the facilities. They also lacked of understanding of SWM and could not set up the necessary institutional arrangements (such as appointing officials and arranging the organization); thus, they could not take proper action on SWM.

When the project was completed (December 2010), only 20 SWM plans had been approved, and 790 LGUs continued to use their existing dump sites. Many LGUs did not comply with RA9003, and the need to develop facilities was also high.

Moreover, the Department of Interior and Local Government (DILG) applied an evaluation system of LGU's administrative performance, which contained the criteria to assess disaster response management and environmental conservation. The ability to manage solid waste was incorporated into this evaluation system. As such, improving this ability was regarded as a high priority from the perspective of administrative performance.

3.1.3 Relevance to Japan's ODA Policy

According to the Country Assistance Policy for the Philippines (under revision when the project was planned, came into effect in 2008), the necessity to cooperate for the improvement of the urban environment, including waste management, was recognized in the section "Improvement of the Urban Living Environment," which was a part of "Development of a Base for Economic Growth" in the important development issue of "Sustainable Economic Growth for the Creation of Job Opportunities." Moreover, in the Country Assistance Program (2006), the proper management of solid waste was regarded as an important issue in the "environment program" with the same aspect, under the area of "Support for the Development of a Base for Economic Growth".

In light of the above, this project has been highly relevant to the country's development plan, development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact ⁷ (Rating : ②)

3.2.1 Effectiveness

3.2.1.1 Project Outputs

The degree of achievement of the indicators in each output at the time of project completion was as follows:

⁷ Sub-rating for Effectiveness is to be put with consideration of Impact.

1) Output 1: Capacity of LGUs on SWM planning is strengthened⁸.

Indicator	Achievement
1) The developed SWM plan is approved by the city council (Sagay and Calbayog city).	Achieved
2) Workshop and seminars for officials responsible for SWM in 3 cities are held at least 7 times.	Achieved
3) Cost on SWM is grasped in details (all cities)	Achieved
4) Fee collection options are proposed to the cities' SWM Boards (Sagay and Calbayog).	Not achieved
5) Basic managerial indicators such as collection efficiency and unit figures per operation are collected and analyzed annually (all cities).	Achieved

The project assisted Sagay and Calbayog City with on-the-job training methods for them to establish the objectives based on the analysis of the current SWM situation, and to examine the strategies and measures to achieve these objectives and also to elaborate the SWM plan. At the same time, the revenue and the expenditure of the city as a whole and income and cost related to SWM were grasped and analyzed to examine the several fee collection options, the most realistic of which were presented to each city⁹.

The SWM plans (draft), worked out as such, were approved by the city council and DENR Environmental Management Bureau (EMB), in June 2009 at Sagay City and in March 2009 at Calbayog City. Based on these SWM plans, the basic management indicators related to SWM were collected, such as the population covered by collection service; estimated volume of waste collected, estimated volume of waste composted and other estimates, and recorded in the 2009 annual report.

The information about the project activities, the outputs and the professional knowledge regarding SWM were shared with the relevant personnel in the three target cities, EMB officials at the respective regional offices, the Provincial Environmental Natural Resource Office (PENRO), the

⁸ According to the Japanese consultant, Davao city had already received assistance for SWM from USAID, therefore, in this project, the city carried out activities mainly at barangay, and did limited cooperation to the city SWM office

⁹ The project examined and compared the options of 1) the charge to collect all the necessary cost related to SWM (including the cost for operation and maintenance), 2) the charge only to cover the cost for the waste collection, 3) the affordable charge by the residents (2% of the monthly income), 4) the charge that takes into account the residents' willingness to pay (results of residents survey), and proposed the option 2). The option to cover all the cost is desirable. However, the exact calculation of charge in proportion to waste amount is difficult, and some households might reject the collection service subject to the amount of charge, they dare to throw the wastes illegally. Taking into consideration these factors, the project decided to introduce the charge system acceptable by the residents. Even though, all the cost cannot be collected, the waste charge system was expected to be introduced so that the residents understand that the SWM needs budget and they had to reduce waste generation. The amount of charge calculated in the option 2) is similar to that of 4), therefore, the residents are easy to accept that charge, therefore the project proposed that option. (Project completion report (2010) and interview with the Japanese consultant).

City Environmental Natural Resource Office (CENRO), representatives from barangays,¹⁰ the people in charge of SWM, NGOs and the neighboring cities through workshops and technical seminars. The record of the workshops and technical seminars is as stated in the Table 1.

Table 1: Record of workshops and technical seminars

	Workshop	Technical Seminar
First year	December, 2007 (for Davao City : March, 2008)	
Second year	August, 2008	February, 2009
Third year	June, 2009	February, 2010
Forth year	June, 2010	October, 2010

Source: "Project Completion Report" (October 2010)

On the other hand, the fee collection options proposed by the SWM plan had not been presented to the SWM board because the new administration (mayor and city council) elected in 2010 showed an unwillingness to introduce the fee options.¹¹ In the case of Davao City, a city ordinance issued in 2005 included general residents in the waste charge system. However, the fee set in the said waste charge system was not realistic, so the Japanese experts presented a revised option. But Davao City was also reluctant to introduce the revised waste charge system, which imposed an additional economic burden on the residents. Therefore, no action was taken on that proposal.

2) Output 2: Solid waste diversion system is improved

Indicator	Achievement
1) WDR ¹² is monitored periodically (Sagay and Calbayog).	Achieved
2) The amount and type of materials collected at the pilot MRF are recorded and reported monthly (Sagay, Calbayog and Davao)	Partially achieved
3) IEC campaign on 3R activities is carried out according to the IEC campaign plan in barangays (Sagay, Calbayog and Davao)	Achieved

¹⁰ The minimum unit of the local government composing the city/municipality.

¹¹ The new administration was reluctant to impose the economic burden to the residents, and had an opinion that the cost for SWM should be borne by tax.

¹² WDR is the abbreviation of "Waste Diversion Rate". This is the rate of the volume of waste diverted, by recycle, compost and other ways, to the volume of waste in generation or in collection. High WDR means that the volume transferred to the final disposal is small, and that facility can be used longer. In this project, supposing the situation as the following formula, (collected volume of waste) – (diverted volume of waste) = (final disposed volume of waste), WDR is calculated as follows: $WDR = (\text{diverted volume of waste}) / (\text{collected volume of waste})$. Another formula to calculate WDR is the diverted waste will be divided by the total generated volume of waste, and in the Philippines, this formula has not been fixed yet. In this project, the exact amount of generation is difficult to know, so the formula with the denominator of "collected volume of waste" is introduced.

In this project, the main measures to divert and dispose the waste to reduce the final disposal amount were the sales of the recycled waste to the junkshop¹³ (the sales through the MRF or the direct sales by the residents) and the composting¹⁴ of organic waste. In order to grasp the volume of the sales and the disposal of the waste to junkshops or at MRFs, the personnel in charge of SWM in each city were instructed how to monitor these processes. During the project period, the sales volume of the recycled waste was checked by interviewing at the Junkshop every year.

The construction of the pilot MRF in each city was completed from February to March 2009, and the volume and characteristics of the waste brought to MRFs were recorded every month. In Calbayog and Davao, the records at MRF were reported monthly to the SWM section in the city offices, as they were necessary to calculate the WDR. However, in Sagay City, the record of the barangay MRF was not reported to the LGU, and the person in charge, for his necessity, was referring the record at MRF to manage the transition of waste volume.

Based on those collected data, Sagay City and Calbayog City monitored the WDR in 2009 and 2010. However, in Davao City, the section responsible for SWM did not agree on the necessity of monitoring its data, and did not comply with this process.

The IEC campaign activities on SWM to the residents and educational institutions were conducted as stated in table 2. These IEC campaign activities were implemented as nearly planned, and some IEC programs directly targeted to the students were also carried out¹⁵. In addition to this, in Davao the seminar to facilitate the understanding of SWM, the “Barangay Summit,” was held, and roughly 400 residents from all the 187 barangays were present at the seminar.

¹³ The distributor who circulate the goods with no value as an original products.

¹⁴ Making compost from organic waste using microbe

¹⁵ In Sagay and Davao city, the IEC campaign activities to teachers were conducted less than planned. This is because the IEC campaign activities were programmed during the summer vacation and the officials in charge in Sagay and Calbayog city could not conduct them. However, these officials had already learned the way to conduct the IEC campaign activities, so this difference did not negatively affect the capacity of implementation of IEC activities of city officials. In case of Davao city, no exact reason was found for the less number of IEC campaign activities conducted.

Table 2 : Record of IEC Campaign Activities related to SWM

(Unit : institution: number of institution, participants: persons)

City	Target	2009			2010		
		Plan	Actual		Plan	Actual	
		institution	institution	participant	institution	institution	participant
Sagay	Barangay	3	3	19,423	3	3	35,543
	Schools	No data	4	1,896	No data	6	8,008
	Schools for teachers training	7	7	242	18	13	350
Calbayog	Barangay	7	7	19,264	5	5	19,133
	Schools	No data	3	1,875	No data	6	5,643
	Schools for teachers training	8	8	209	15	16	321
Davao	Barangay	10	5	46,463	17	17	64,974
	Schools	No data	4	4,071	No data	27	44,398
	Schools for teachers training	25	25	748	24	20	1,199

Source: "Project Completion Report" (October 2010)

3) Output 3: Final disposal system is improved (only at Sagay and Calbayog City¹⁶).

Indicator	Achievement
1) The current dump site is closed in accordance with the safe closure guidebook	Not achieved
2) On-site operation and maintenance training for sanitary landfill management are conducted using the operation and maintenance manual	Achieved

Existing dump sites were expected to be closed only after the SLFs started operations. The construction of the SLF at each city was completed just before the project was finalized, so the existing dump site could not be closed before the completion of the project.

Construction of the SLF was delayed because of the tardiness of the fundraising, attributed to time-consuming loan procedures. Originally, Sagay City planned to use their own budget to construct SLF. But the distribution of the internal revenue allotment (IRA) was delayed¹⁷, and furthermore, the full amount was not allocated to each city. Sagay was obliged to borrow twenty million pesos from the Land Bank of the Philippines (LBP), which took a lot of time, and the start of construction of the SLF was delayed¹⁸. Calbayog City borrowed 48.2 million peso from the fund of Environmental Development Program (EDP)¹⁹ via the Development Bank of the Philippines

¹⁶ Davao city had already designed and started to construct SLF before this project started, therefore, they were excluded from the support for the facility construction.

¹⁷ Originally, Sagay city planned to shoulder the cost of construction of SLF using IRA and annual city budget. They planned to allocate 10 million peso from general budget. However, due to the delay of disbursement of IRA, they were obliged to compensate their expense using general budget, therefore only 1.5 million peso remains as a budget for construction of SLF.

¹⁸ The loan request was approved at the city council in December 2008.

¹⁹ EDP is the yen loan program with the ceiling of 24,846 million yen, whose loan agreement was exchanged in September 2008. This program offers the mid-long term loan fund to be invested to the facilities for the environment

(DBP)²⁰. However, it took time to conclude the loan agreements, which was another reason for the delay of starting construction. Even after the loan agreements were concluded, the partial payment by LBP and DBP took time to scrutinize the loan documents, and Sagay and Calbayog city also needed some time to elaborate the necessary documents, which delayed the completion of construction of facilities. By the end of the project in September 2010, only the first cell of the SLF in Sagay City was completed, and at Calbayog City, the entire facility except for the electric and equipment installation, was finished at the beginning of October 2010. On the other hand, the production of operation and maintenance manuals for the facility was completed as planned, and the on-site operation and maintenance training was carried out as stated in table 3²¹.

Table 3 : Record of on-site operation and maintenance training for SLF

Contents	Sagay city (number of participants)	Calbayog city (number of participants)
Lecture on SL O&M	13 September 2010 (5)	20 September 2010 (23)
On-the Site Guideline on Facility Inspection	14 September 2010 (4)	13 September 2010 (9)
Landfill Operation Training	13 September 2010 (15)	13 September 2010 (13)

Source: "Project Completion Report" (October 2010)

4) Output 4: Guidebooks and manuals are developed as a tool for planning and implementation of SWM based on the experience of the three cities.

Indicator	Achievement
1) The number of technical working group meetings held	Achieved (5 times)
2) The number of LGUs who participated in the consulting seminar	Achieved (22 LGUs)
3) The necessary procedure for the Department Administrative Order initiated by the NSWMC to reflect the contents of the manuals/guidebooks produced.	Achieved

Source: "Project Completion Report" (October 2010)

NSWMC had completed the following three guidebooks, "Guidebook for Formulation of Solid Wastes Management Plan", "Guidebook for Safe Closure of Disposal Sites" and "Technical Guidebook on Solid Waste Disposal Design Operation & Management" through the working group

improvement. Four target sectors are designated, one of which is "solid, medical and hazardous waste disposal".

²⁰ Calbayog city had not have prior business with DBP, which required them to take additional procedures, such as opening of new account among others. In July 2009, the loan agreement was concluded and the construction started in September 2009.

²¹ The guidebook on operation and maintenance for SLF was accomplished in March 2010, and were distributed to Sagay and Calbayog city respectively.

meetings, which were held five times between October and December 2009, and organized the consultation seminar to receive public comments from the 22 LGUs on these guidebooks. NSWMC revised the guidebook based on their comments and finalized them in March 2010.

In order to standardize these guidebooks, their contents were originally planned to be reflected to the Department Administrative Order (DAO). However, the reflection process takes time, while, the issuance of a Resolution by NSWMC takes less time though holding the same effect as legal enforcement. Therefore, NSWMC issued the resolution²² to prepare the smooth set-up of the legal framework, which implied that the guidebooks were to become the national standard for preparing SWM plans, closing existing dump sites and constructing the new SLFs.

3.2.1.2 Achievement of the Project Purpose

The degrees of achievement of the Project Purpose at the time of the completion of the project are as follows:

1) Indicator 1: SWM plan is reviewed annually (Sagay & Calbayog city): Achieved

As reviewed in Outputs 1 and 2, the basic data related to SWM have been collected since 2009, and the SWM plan was reviewed in February 2010. The indicator was achieved.

2) Indicator 2: Waste diversion rate (WDR) is improved as compared with the baseline :Partially achieved

The transition of WDR in each city is as follows:

Table 4 : the record of WDR in each city

	2008	2009	2010
Sagay City	21.1%	23.1%	19.2%
Calbayog City	25.2%	24.7%	26.5%
Davao City	25%	NA	NA

Source: For 2008: "Terminal Evaluation Report" (July 2010)

For 2009-2010: Project Completion Report (Note: 2010 data were calculated from January to June for Sagay City, and from January to August for Calbayog and Davao City) (October 2010)

The main measures to improve the WDR were collection of recycled waste and composting of organic waste. According to interviews with residents, the segregation of waste had already put in practice before the start of this project. But by participating in this project, they could grasp the whole picture of 3R, and tried to separate waste and follow 3R more positively. In each city, the volume of collected waste at MRF was 20kg/day at Sagay City, 41kg/day at Calbayog City and

²² The Resolution was in effective on October 22, 2010.

308kg/day in Davao City.²³ When the project was in the planning stage, there were no MRFs in any of the three cities, which implied that the generated waste could not be diverted at all. Therefore, only the establishment of MRFs by this project would have raised the diverted waste amount by recycling and composting at the MRFs.

Furthermore, the WDR at the completion of the project in Sagay City did not improve compared with that of the baseline data in 2008. This is because of the expansion of the waste collection area, the increased waste generation per person and the increased amount collected, caused by the unexpected launch of a big commercial shopping mall.²⁴

Considering these situations, even though the WDR did not improve in some cities compared with that at the time of planning, the establishment of MRFs increased the diverted waste volume, which implies that the volume disposed at final facilities decreased.

3) Indicator 3: New SLFs are operated in compliance with RA9003 (Sagay and Calbayog City): Not achieved

Both Sagay and Calbayog City delayed in the construction of the final disposal, which hindered the start of the operation of these facilities in alignment with RA9003. The existing dump sites have finally been closed, and the SLFs have only been utilized since February 2012 in Sagay City and since May 2012 in Calbayog City.²⁵

Regarding the degree of achievement of Project Purpose, indicator 1 was achieved. However, indicator 2 was achieved only in Calbayog City and was not achieved in Sagay City because of the increase in waste collection. Indicator 3 could not be achieved because of the delay of the completion of the final disposal site. Considering these situations, this project purpose was partially not achieved.

3.2.2 Impact

The degree of achievement of the Overall Goal at the time of the ex-post evaluation is as follows.

3.2.2.1 Achievement of the Overall Goal

In the Philippines, RA9003 was enacted in 2001, but only a few LGUs could put it in practice, so its application by more LGUs was an urgent task. In this project, three cities were selected as model LGUs to strengthen the capacity to elaborate the SWM plan, to implement and monitor the planned

²³ "Project Completion Report" (October 2010)

²⁴ Interview with Sagay City official

²⁵ Sagay city completely stopped using the existing dump site in June 2013. On the other hand, Calbayog City could not get the loan from DBP necessary to close the dump site safely due to the delayed follow-up action on the incomplete documents. After starting to use SLF, they stopped using the dump site but they did not take proper procedure for safe closure of the dump site.

activities;²⁶ to safely close the existing dump sites and to construct, operate and maintain the SLFs. Their experiences were summarized and compiled into the three kinds of guidebooks. After the completion of the project, NSWMC was expected to expand their activities to spread SWM methods utilizing these guidebooks, and LGUs were also expected to implement any SWM-related activities stipulated in RA9003.²⁷

1) Indicator 1: The number of seminars and workshops held at a regional or national level by the NSWMC for other LGUs

2) Indicator 2: The number of LGUs participating in the above mentioned seminars and workshops

Although neither indicator 1 nor 2 set the numerical indicator, the related activities were conducted. During the project, seminars to spread knowledge and experience about SWM were conducted four times, and 93 LGUs participated. Moreover, after completion of the project, the related workshops were implemented 7 times from October to December 2010, and NSWMC made an effort to promote the SWM, utilizing the guidebooks produced by this project, through the various activities, such as hosting the seminars and workshops and distributing the IEC materials. As for indicator 2, the number of participants in these seminars and workshops was set as an indicator; however, it was difficult to get that information, so the number of seminars and workshops held on this issue was evaluated instead (refer to table 5). According to the opinion of NSWMC, the approximate number of participants in each seminar and workshop was 30 to 50, even up to 100 for some popular events.

Table 5 : Record of SWM education activities after completion of the project

	2011	2012	2013	total
SWM seminars and lectures* (number of events)				
– for LGUs	24	29	30	83
– for universities and academic institutions	21	19	18	58
– for other (private NGOs etc.)	18	39	39	96
Dissemination of guidebooks (copies)				
– SWM plan	534	919	NA	1,453
– Safe closure of Open Dump Site	534	735	NA	1,269

²⁶ IEC campaign activities, the waste diversion through the recycling and composting at MRF.

²⁷ “Implementation of SWM” covers wide range of activities, such as SWM planning; the segregation of waste; the collection of waste; the collection of recycled waste; composting; the IEC campaign activities; the waste charge calculation, approval and collection; the construction, operation and maintenance of disposal facilities (MRF, SLF and others); the monitoring of related activities and others. Whether LGUs can put all these elements into practice is affected by institutional and financial factors, and is beyond the range of control of NSWMC. According to Japanese experts and NSWMC, to “replicate the knowledge and experience of SWM” in the overall goal means the implementation of “any kinds of activities,” not expecting the all the modeled activities.

—Construction, operation and maintenance of SLF	534	642	NA	1,176
Action plan preparation seminars for LGUs**				
— seminars	13	NA	NA	13
—participating LGUs	256	NA	NA	256

Source: internal documents from NSWMC

* This is the seminar of one day for one LGU . (For 24 LGUs, 24 seminar were organized)

** This is the seminar for LGU of 3 days, including the training of Waste Amount and Characterization Survey (WACS) and others.

3) Indicator 3: The number of approved SWM plans : Numerical figure is not set, and the number of approved plans remains at 43.

By May 2014, 565 SWM plans had been submitted to the NSWMC secretariat, and 43 SWM plans (8%) had been approved. Aside from these approvals, an additional 39 plans are waiting to be examined, and 461 plans were returned to LGUs.

One of the reasons for the slow pace of approval of SWM plan is attributed to the lack of institutional capacity in terms of technical support for LGUs in the regions. The preparation of SWM plans by LGUs was expected to be supported by EMB regional offices. However, in most EMB regional offices, only two or three officials responsible for SWM are equipped with the requisite knowledge and experience regarding the environment and solid waste, which is quite a limitation, as they cannot cover all the LGUs or give technical advice to revise imperfect SWM plans.²⁸ Some EMB regional offices need technical support from NSWMC due to technical deficiencies to prepare SWM plans in giving LGUs technical guidance.

In DENR, there are offices of PENRO or CENRO in the regions, but they are not mainly responsible for SWM, so they are not so cooperative in promoting the SWM. At the beginning of the project, the National Ecology Center (NEC) and Regional Ecology Center (REC) were expected to be established and enhanced as an SWM-promoting entity, as designated in RA9003. However, in reality, the officials assigned to the NEC and REC were EMB officials with double assignments in most cases, and institutional capacity to support LGUs technically to prepare SWM plans is not sufficient.

On the other hand, even LGUs understand the necessity of putting RA9003 into practice; many LGUs do not establish a section exclusively to direct SWM. They allocate the SWM-related tasks to already-existing sections. However, the preparation of SWM plan demands a wide range of technical knowledge and experience, such as WACS survey, collection and update of knowledge of SWM-relevant data. Therefore, it is difficult for officials not in SWM-related section to respond to

²⁸ In the case of EMB Region 8, two official cover 27 LGUs (seven cities and 20 municipalities) and have to visit these LGUs so frequently that they cannot give each LGU detailed technical advice regarding technical flaws found in the SWM plan drafts, such as WACS survey, projection of waste generation, and collection of waste based on these analyses.

the issues and take action properly. They cannot prepare a proper SWM plan with the appropriate information and data updated to suitably align with the necessary items designated by the guidelines. An SWM plan that does not meet these guidelines are not examined by NSWMC and will be returned back to LGU. However, many LGUs not equipped with an SWM section cannot afford to request the technical support to EMB or NSWMC to correct and revise an incomplete SWM plan. Therefore, many SWM plans remain unapproved.²⁹

4) Dissemination of SWM by NSWMC other than the activities set as indicators

In addition to the expected activities set as indicators, the NSWMC secretariat has expanded various activities to disseminate the SWM.

① Facilitation of MRF construction

In 2012, NSWMC secured a budget of 16 million peso from DENR and allocated one million peso to each region to facilitate MRF construction. All over the country, the fund was allocated to 42 LGUs. At the end of 2013, 19 LGUs had completed the construction of an MRF (of 19 LGUs, 14 LGUs were already in operation, and 5 LGUs were waiting to start to operate), and 7 LGUs were under construction.

② Facilitation to transfer the existing dump site to SLF

According to the results of monitoring by EMB regional offices, at the end of 2013, 55 SLFs were in operation and 61 SLFs were under construction. At the beginning of the project, the number of SLFs in operation was 21. The number of established SLFs, including those under construction, has increased almost fivefold since the beginning of the project. NSWMC coordinated with DILG so that the ombudsman would issue warning letters addressed to the mayors of the LGUs that were behind in their transfer of final disposal to SLFs in order to accelerate its process. NSWMC makes use of the external pressures so that LGUs push through the necessary SWM-related tasks prescribed by RA9003.

③ Promotion of SWM with collaboration with other departments (Department of Education and DILG)

NSWMC collaborated with the Department of Education to support the implementation of the segregation of wastes and 3Rs at educational sites. In 2013, NSWMC started the “Eco Savers Club” program as a trial at schools in metro Manila with the budget from DENR.³⁰ Since 2014, this

²⁹ According to an interview with an official of Cadiz and Bayawan City.

³⁰ “Eco Savers Club” is the program that makes students keep a “path book” to record the point, which is calculated based on the weight of waste brought to the office that the Supreme Pupil Government (SPG) manages. These

program has been expanded to other areas across the country by involvement of EMB regional office.³¹

Moreover, taking into consideration the importance of the political will of the mayors to practice the SWM at LGUs, NSWMC makes use of DILG's program of "Seals of Good Local Governance (SGLG)³²" which commend the good performance of LGUs for the implementations of SWM. In addition to this, lectures addressing the topics of SWM are provided by the persons in charge at LGUs to the newly elected mayors and the newly elected barangay captains in the "Newly Elected Officials Program" (NEO).

In addition to these activities by NSWMC, the three target cities have also disseminated their knowledge and experience acquired from the project activities to other LGUs that visited them to observe their activities.

Regarding the degree of achievement of the overall goal, the dissemination activities by NSWMC generate a certain effect concerning activities related to indicators 1 and 2, and other various activities without indicators. As for indicator 3, even though the concrete figure has not been set, the approval rate of SWM plans remains at 8%. Considering these conditions, the degree of achievement level of the overall goal is fair.

3.2.2.2 Other Impacts

1) Environmental Impact³³

Both Sagay and Calbayog city acquired the ECC, and no negative influence to the natural environment was found during the construction of their SLFs. Sagay acquired the ECC in August 2009, and no bad odor has been reported at the current SLF. The leachate received circulatory treatment, and no water contamination is seen around the SLF.³⁴ The proliferation of disease-causing insects, such as flies and cockroaches, has ceased, and the inundation caused by the clogging of drainage ditches by waste in the rainy season has decreased.

Calbayog City acquired the ECC in February 2008. Leachate has been inspected every month for its water quality at eight sites around the SLF, and the results have been reported to the EMB regional office. However, a bad odor has been found around the SLF in Calbayog City. It is believed that the bad odor is caused by the incomplete segregation of waste and leachate staying at the bottom of the

accumulated points can be used to purchase stationery and snack sold at school. This is a sustainable mechanism because the students are motivated to collect and bring the wastes to the office with these advantages mentioned, and SPG can also manage their activities with the income brought from sales of recycled wastes to junkshops. Calbayog City also conducts a similar program by their own initiative in collaboration with schools.

³¹ At the time of ex-post evaluation, EMB was selecting target schools to implement this program.

³² Some banks consider winning of this award to be requisite for LGU to obtain loan, which implies that, this approach can influence the behavior of local chief executive.

³³ Only Sagay and Calbayog constructed SLFs that might cause environmental influence. Therefore, this section refers only to the situation at Sagay and Calbayog.

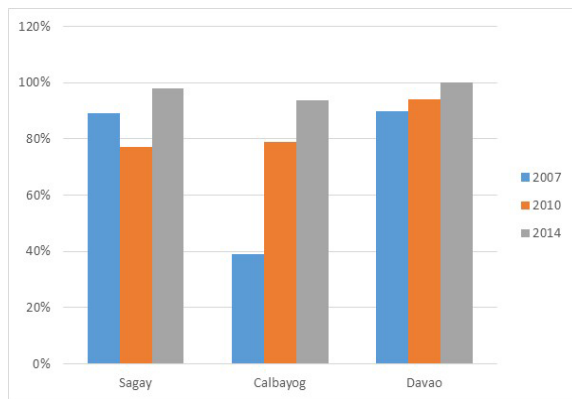
³⁴ This is confirmed by the periodical report submitted to EMB regional office every half year.

landfill area. According to the periodic inspection report of Calbayog City submitted to the EMB regional office every half year, the regulations set by DENR have not been violated. The leachate water under the landfill area should have been extracted at the proper time. But due to budget constraints and other factors, prompt actions could not be taken to solve this problem.³⁵

2) Social Impact ³⁶

Regarding the waste pickers worried about the prospect of unemployment due to the operation of SLFs, of 13 waste pickers in Sagay City, six Sagay citizens were hired as blue-collar workers to work at the SLF. They get vaccinations against diseases such as tetanus as safety measures. At Calbayog City, among the 48 waste pickers who had been working at final disposal, 12 who were willing to work at the new SLF are now working at the facility. In both cities, the waste pickers who do not work at the current SLF are the ones who were not willing to work at the new SLF, and they are now engaged in other jobs in the city, such as garbage collection and street sweeping.³⁷

3) Behavioral change of the residents



The beneficiary’s surveys of residents regarding current SWM-related activities were conducted in Sagay, Calbayog and Davao.³⁸

Figure 1: Proportion of residents who segregate their waste

³⁵ According to the person in charge of operation and maintenance at the SLF, the pipe to collect and treat the leachate is clogged by stone, sand and small waste, which hinders the leachate flow to the outside. They recognize this situation is problematic, but a big volume of waste is already accumulated on the landfill area, and it is difficult for them to take action to this situation.

³⁶ See 32.

³⁷ According to an interview with officials in Sagay and Calbayog.

³⁸ The data of beneficiary’s survey in 2007 and 2010 are taken from the survey conducted during the project. In this ex-post evaluation, the same questions posed in 2007 and 2010 were applied to 45 residents (19 males and 26 females) of Sagay City, 63 residents (6 males and 57 females) in Calabayog City and 53 residents (25 males and 28 females) in Davao City. In Sagay and Calbayog, the survey was done at the same barangays where surveys had been done in 2007 and 2010, but in Davao city, 20 residents out of 53 were from the same barangay.

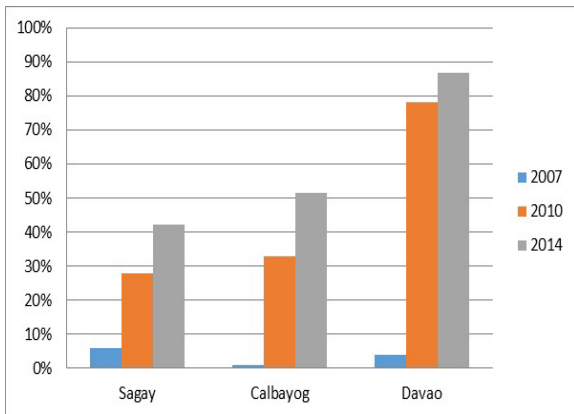


Figure 2 : Rates of MRF use

Source: beneficiary’s survey by evaluator

more conscious of the significance of the segregation of waste and its economic effects, which led to thorough segregation of waste. At some barangays, the policy of “No segregation, no collection” was enforced strictly,³⁹ and the segregation of waste was promoted by residents.

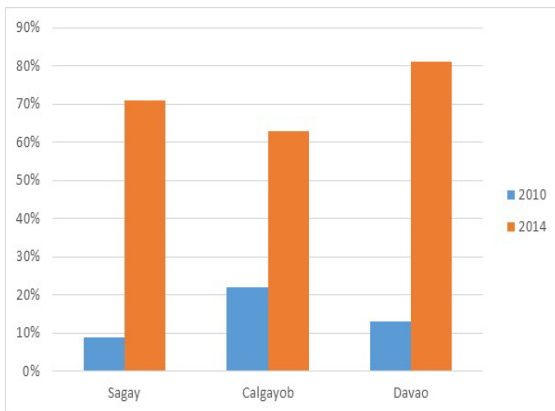


Figure 3 : Rate of participation of the residents in the seminar on SWM

Source: beneficiary’s survey by evaluator

them to the MRF. Also, many residents said that they were not aware of the difference in the quality of the compost of food waste produced at their own backyard and at MRFs, and they did not understand the necessity to utilize the MRF. In the case of the MRF in Calbayog City, the facility was supposed to be used and operated jointly by three barangays. But some residents said that due to friction among barangays, the joint operation was difficult to put into practice, and the frequency of

The segregation of waste had been taught to residents as part of environmental education before starting this project, which shows the high rate of implementation of the “segregation of waste.” Except in Calbayog, more than 80% residents already segregated the waste at the time when the project began, as shown in the figure 1. However, it was reported that the residents learned 3R as a whole, not only the topic of segregation of waste through this project, and they became

MRFs were also constructed in each city to facilitate waste disposal and to guide environmental and hygienic education. During the implementation of the project, the number of MRF users has increased and continues to increase. However, in spite of the high rate MRF use in Davao City—more than 80% of residents—In Sagay and Calbayog city, the rate remains only 50%. According to the residents, recycled wastes generate income, so they sell them directly to junkshops by themselves rather than bringing

³⁹ At some barangays (such as barangay Fabrica in Sagay, barangay Carmen in Calbayog and others), the waste collectors or the Kagawad (barangay council members) checked the segregation of waste, and waste that was not segregated well was not collected, in fact. In Bayawan city, which is not the target city in this project, but highly evaluated by NSWMC secretariat for its good practice of SWM, the waste segregation came to be conducted thoroughly, by identification of the household who does not segregate waste completely and its return to them by garbage collector.

MRF use by the residents has decreased.

On the other hand, in Davao city, residents of barangays where the MRFs were constructed are well off and have different concern. They are not motivated by the possible income from waste by taking time in selling them at junkshops by themselves, so they bring these wastes to the MRF and entrust the job of negotiating with junkshop to the operator of MRF. In the case of Sagay City, a women's group makes products from the recycled waste, and their sale volume reached to 20 thousand peso in 2013. Considering these situations, the barangays that are not aware of the advantages of MRFs do not make use of MRFs.

The number of the residents who have participated in the SWM-related seminar has increased since the project completed. This is the effect of continuous IEC campaign activities by each city since the completion of the project.

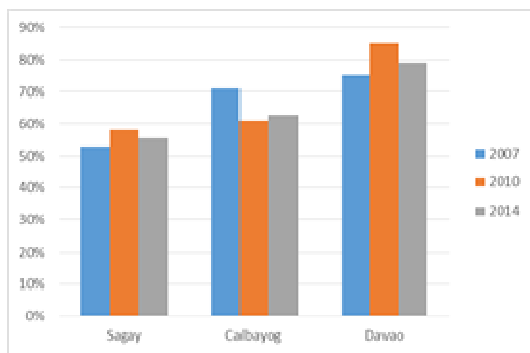


Figure 4: Rate of residents to have willingness to pay
Source: beneficiary's survey by evaluator

Regarding the recognition of the residents as for the importance of waste charge, 50-60% of residents of Sagay and Calbayog and roughly 80% of the residents of Davao City showed their willingness to pay the waste charge. However, 80% of residents in any city said that their tolerance range of payment for waste charges is 5-20 peso (monthly), which is the minimum range of the payment.

Considering this situation, since starting the project, the three target cities have continued to conduct SWM-related IEC campaign activities, and that encourages residents of each city to segregate, recycle and compost the waste more actively and thoroughly. The way of using MRF is not as originally expected, but it is used to respond to the needs of residents. Regarding the waste charge, even though relatively many residents showed their willingness to shoulder the cost, its tolerable amount is not so big.

4) Utilization of the effects of the project by other donors.

The guidebooks produced by this project were approved as a national guidebook of official procedures, and the LGUs in regions 6 and 7 empowered by GIZ also utilized these guidebooks.

Even though the indicators of the project purpose and the overall goal have partially not been achieved, certain effects caused by the project have identified. Moreover, regarding the impacts other than the overall goal, no negative environmental or social impacts were seen, residents' consciousness of SWM has been changed and the amount of waste diverted has increased.

Thus, a certain level of effect by this project is recognized, therefore the effectiveness and impact of the project are fair.

3.3 Efficiency (Rating : ③)

3.3.1 Inputs

Inputs	Plan	Actual (at the time of completion)
(1) Experts	Chief advisor/Solid Waste Management, Final Disposal, Environmental and Social Consideration, and other expert(s) will be dispatched when necessity arises for the effective implementation of the project.(No differentiation of long and short term of its dispatch, nor description of their number)	In total, 7 experts: (Dispatched as contract-out type experts) 1) Chief advisor/Solid Waste Management, 2) Waste Diversion, 3) Final Disposal, 4) Financial Analysis, 5) IEC campaign activities, and 6) Environmental and Social Consideration/Coordination
(2) Trainees received	No description	12 personnel (6 in 2008 and 6 in 2009). Main training field: Waste management administration, operation and maintenance of final disposal facility
(3) Equipment	No description	Portable weigh bridge, office supplies (FAX/printer/scanner/copy machine), IEC campaign material (video recorder, laptop PC, digital camera, LCD projector, vehicle), water quality analysis material, combustible gas detector among others
Total Project Cost	380.0 million yen	364.8 million yen (96% of plan)
Project Cost borne by counterpart country	No description	<ul style="list-style-type: none"> ● Cost for construction of SLF: Sagay : 20 million pesos Calbayog: 50.2 million pesos Davao: None (No construction of SLF) (Cost to acquire ECC related to SLF construction at Sagay and Calbayog) ● Fuel for the transportation⁴⁰ : (for three cities)

⁴⁰ The information of the actual amount could not be obtained.

3.3.1.1 Elements of Inputs

The experts for each assigned assistance field were dispatched for 65.5 MM. The project activity was conducted at four sites, so the period to stay at one site was necessarily short. To compensate for this situation, the experts tried to have smooth communication with CP by coordinating the timing of the dispatch of each expert with continuous communication through email during their absence from the project site. However, some CP at the target city said that more time ought to be spent for the technical assistance, especially for financial analysis and examination of the waste charge.

Regarding the counterpart training, the trainees had visited and observed various activities on SWM at Japanese LGUs. Among the twelve trainees, eight continue to be engaged in SWM-related duties, and they evaluate the knowledge and experience acquired during the training in Japan was effective.⁴¹ After returning to their country, they utilized this knowledge and experience to improve their IEC campaign activities and to promote the understanding of mayors on SWM. A certain level of effect by this counterpart training is recognized.

The equipment was procured as planned and utilized for the project activities. However, some equipment, such as the combustible gas detector, was used barely, and the truck scale in Calbayog has not been used due to parts trouble.

3.3.1.2 Project Cost

The actual project cost was 364.8 million yen (96% of the plan), which is within the planned amount of 380 million yen. Therefore, the project cost was appropriate.

3.3.1.3 Period of Cooperation

The period of cooperation was 3 years (from July 2007 to July 2010), in comparison with the original plan of 3 years (from 2007 to 2010). The period of cooperation was also appropriate.

In light of the above, both the project cost and project period were as planned. Therefore, efficiency of the project is high.

3.4 Sustainability (Rating : ②)

3.4.1 Related Policy towards the Project

At the time of ex-post evaluation, RA9003 is an effective policy related to waste management. The development objective “Quality, adequacy and accessibility of infrastructure facilities and services enhanced” stated in the “Medium Term Philippine Development Plan (2011-2016)” set the indicator of “Increase percentage of total LGUs served by Sanitary Landfill” from 2.7% in 2010 to 7.76% in

⁴¹ According to the interview with seven officials who had participated in the counterpart training.

2016.

At the same time, the following policies are stated in “National Solid Waste Management Strategy” (2012-2016) elaborated by the NSWMC such as “Bridging Policy Gaps and Harmonizing Policies,” “Capacity Development, Social Marketing and Advocacy”, “Sustainable SWM Financing Mechanisms”, “Support for Knowledge Management on Technology, Innovation and Research”, “Organizational Development and Enhancing Inter-agency Collaboration,” among others, to promote the RA9003 from various approaches.

At the target three cities, the city ordinance related to SWM had been issued,⁴² and the SWM plan was approved in Sagay and Calbayog in 2010.⁴³

Related policies are prepared for the sustainability of the project.

3.4.2 Institutional aspects of the implementing Agency

NSWMC, composed by the representatives of fourteen ministries and three private organizations, does the decision making on the policies, and the secretariat of NSWMC is responsible for its implementation. The NSWMC undertakes the activities, such as providing “appraisal and support of elaboration of SWM plan,” “support for establishment of MRF,” “[enhancement of] the safety closure of existing dump site and the establishment of SLF,” “promotion of various kinds of IEC campaign activities,” and “[review and monitoring of] the implementation of SWM by LGUs,” among other responsibilities. In order to put these policies into practice, NSWMC collaborate in various programs with DILG, Dep. Ed., DOST, and DTI, who are the member ministries of NSWMC. The number of officials assigned to the NSWMC secretariat is thirty-three, and they are responsible for these diversified duties. This number is not so many, but they are somehow able to execute the responsibilities as a central government. Rather, the capacity development of the EMB regional office is more critical, which is expected to promote the SWM implementation in regions. In each EMB regional office, two or three officials are assigned to take care of an SWM issue, which is not enough to promote the implementation of the SWM plan.⁴⁴At the time of ex-post evaluation, the rationalization is still in the process. NSWMC esteems that the number of officials responsible for SWM at an EMB regional office would increase through re-allocation of officials under rationalization because the original number is so small.⁴⁵

Sagay has currently the setup described in Figure 5. This is the defacto setup for implementation,, and there is not an independent section exclusively responsible for SWM. The officials in the

⁴² The city ordinance related to SWM was issue in 2011 in Sagay and Calbayog and in 2005 in Davao.

⁴³ Davao had already formulated ISWMP (integrated solid waste management plan) supported by USAID at the time of planning the project.

⁴⁴ According to the interview with the director of EMB regions 8 and 11.

⁴⁵ According to the interview with NSWC, even though the rationalization might decrease the number of officials assigned, in the case of officials responsible for SWM, the original number is so small that they can expect that its number would increase by the rationalization.

different sections are assigned concurrently to these posts in the SWM. Only the “focal person” is the exclusively assigned official responsible for SWM and overseeing the SWM activities.

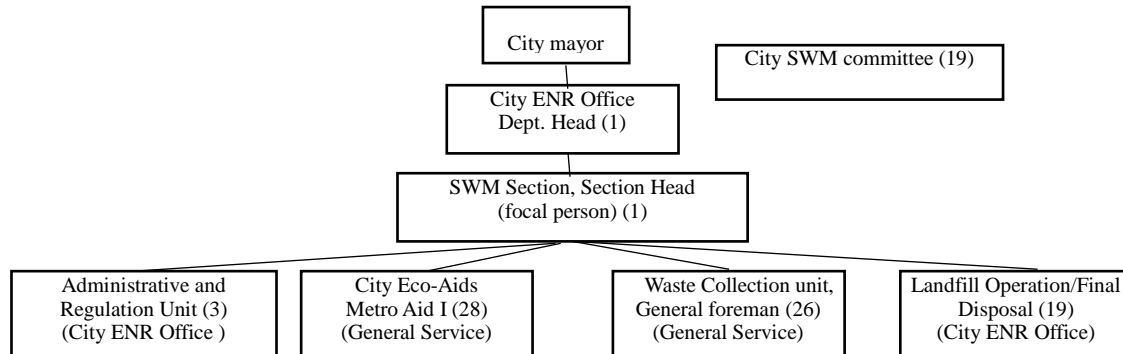


Figure 5 : Organizational structure of SWM implementing group in Sagay City

Source: Documents given by Sagay City (the number in the parentheses is the number assigned to each unit (in total, 95), and the names are the organizational units’ names).

Comparing the current number of officials with that at the time of ex-ante evaluation (2007), the number of officials for street sweeping and waste collection has drastically decreased⁴⁶. However, according to the focal person, the target community where the waste is collected by city is fifteen out of the total twenty-five communities. The city has only four waste collection trucks and other equipment, so the decrease of the number of officials for street sweeping and waste collection does not create much problem with their duties. Now the trucks circulate each house to collect the garbage. If the collection point system, where each household brings their garbage out to a certain point, can be introduced, then the collection process can be more efficient requiring less number of officials. Even introducing any kinds of efficient system for SWM, the establishment of the exclusive section of SWM is indispensable. The City Development and Planning Office is also aware of this point, and they are now discussing the establishment of such an independent SWM-related section directly under the city mayor’s office.

In Calbayog City, the SWM committee, with the mayor as a president, examines and supervises the policy of SWM, and the CSWMO (City SWM Office), which is the independent office, takes care of the implementation of daily duties. One responsible person is assigned to this office, and actual SWM-related activities are conducted by the officials under the unit of general affairs and final disposal facility.

⁴⁶ For SWM and administrative and Regulation unit: 8 officials, for General Service office (for sweeping streets, collection of waste): 113 officials, and for CSWMB: 22 officials, in total 143 officials were assigned.

Table 6: Organizational structure of the SWM Section at Calbayog City

(Unit: person)

Section		2007	2010	2013
SWM Board		15	15	15
City SWM Section	City SWM officer	0	1	1
	General affairs	20	21	21
	Collection/Transportation	24	Contract out to private entity	Contract out to private entity
	Final disposal	12	17	18
	Street sweeping	30	Contract out to private entity	Contract out to private entity
	Others	11	NA	NA
Total		97	54	53

Source: Data for 2007 are from the ex-ante survey report; data for 2010 and 2013 are the answers to the questionnaire.

In Davao City, there is an independent section that takes care of SWM. In Davao, there are so many as 182 barangays, so they try to conduct efficient SWM by commissioning the task of garbage collection and street sweeping to a private company, and making use of volunteers for the IEC campaign activities and the supervision of enforcement of the SWM policy among others.⁴⁷

Table 7: Organizational structure of SWM section at Davao

(Unit: person)

Section		2007	2010	2013
City SWM Board		20	20	20
CENRO (City Environment and Natural Resources Office) / EWMD	SWM	65	50	50
	Total	65	50	50
Commissioned to Private Sector				
	Street sweeping	10	300	300
	Waste collection	55	350	350

Source: Data for 2007 are from the ex-ante survey report; data for 2010 and 2013 are from the answers to the questionnaire.

In any city, in Sagay, Calbayog, and Davao, the office responsible for SWM tries to implement SWM and compensate for their insufficient organizational set-up by collaborating with educational institutions⁴⁸ and barangays.

⁴⁷ They assign 31 volunteers to the IEC campaign activities and 60 volunteers to the policy enforcement. There are also four city permanent officials who supervise their activities.

⁴⁸ Dep. Ed., as a central government, promotes SWM as a part of environmental education. They embed the SWM topic into their curriculum and also implement the YES-O program (Youth for Environment in School Organization

As stated above, in both the central government and the targeted three cities, the officials, though small in number, are assigned to work on SWM, and they are managing it in some way or other. However, in case of Sagay, an independent section for SWM should be established. The more technically competent officials should be assigned to Sagay and Calbayog, even if the number of officials remains the same, so that they can reinforce their SWM activities in the future.

3.4.3 Technical Aspects of the Implementing Agency

The thirty-three officials assigned at the NSWMC secretariat are all university graduates. Among them, more than half of the officials have backgrounds in engineering or science, and others have mastered public administration and economics. This formation of officials enables the execution of technical and procedural duties to promote SWM as a central government. Moreover, the three kinds of guidebooks prepared by this project were elaborated by the NSWMC secretariat officials under the direction of Japanese experts. NSWMC officials are fully equipped with comprehension of SWM plans and with the technical capacity to diffuse SWM to the LGUs. On the other hand, as for the officials at the EMB regional office, they have the capacity to understand and manage solid waste, but they have not been given the chance to elaborate on the SWM plan, which makes it difficult for them to instruct and guide LGUs to formulate the SWM plan. The officials at the EMB regional office sometimes need technical support from the NSWMC secretariat to guide LGUs, so they also need capacity development for the formulation of SWM plan.

Principal officials at the three target cities have well enhanced their capacities for SWM. For example, the counterparts were trained on this project, the technical officials of the local consultant company are commissioned parts of this project, and the technical officials are supported by other donors.⁴⁹ They are well equipped with the necessary knowledge and experience and have no technical problems. Other officials in each city have improved their skills by participating in the seminar and training courses on SWM, sharing information on SWM among officials, being trained through on-the-job-training, utilizing the guidebooks created for this project, and improving their knowledge and experience on SWM. However, the officials in Sagay and Calbayog still need to strengthen their capacity to be able to conduct the duties without guidance from seniors.⁵⁰ With this situation, it is important to assign officials with technical capacity in these two cities. The opinion was expressed that it is necessary to assign the enforcers to supervise the practice of SWM by residents and to strengthen the officials with competence in processing the collected data and also in

Program) to promote the segregation of wastes, 3R activities, and the establishment of MRF.

⁴⁹ The official in Cadiz, who is the focal person on SWM, has strengthened his capacity since 2013 by participating in the diploma course on SWM offered in Iloilo, supported by GIZ. The official responsible for SWM in Davao had been assigned to the current position and trained by USAID to formulate the SWM plan and conduct the SWM-related activities.

⁵⁰ In Sagay, there is only one official who understands SWM technically and is able to promote the activities. Similar opinions were expressed in Calbayog, too.

explaining 3R in a simple way to the residents in order to reinforce the implementation of 3R and to execute the necessary measures for the improvement of WDR.⁵¹ On the other hand, in the case of Davao City, there are some officials, other than the principal ones, who have been working on SWM since the 1980s continuously, and also there are officials who are able to respond properly in a technical and social aspect to the SWM-related issues. There cannot be seen any technical problems. At the same time, correct monitoring is a common issue in all 3 LGUs. In Sagay and Calbayog, the office responsible for SWM tries to establish the periodical reporting system from the barangays and junkshops to collect the information of the diverted amount of the recycle and compost. However, the current information collecting system confronts the problems of the credibility of the data collected, the rejected data submitted by barangay and the junkshop, and also the insufficiency of on-site monitoring due to budget constraints. In case of Davao, they have already given up collecting reliable data from barangay and the junkshop, and now they do not monitor the data to calculate the WDR.

In addition to these, Calbayog needs to improve its operation of SLF. Some problems that arise from operation of SLF cannot be handled properly due to budget constraints and lack of communication among the officials, which delays taking actions and worsens the situation.⁵² Even though NSWMC has been pointing out to improve this situation, effective actions have not been taken.

3.4.4 Financial Aspects of the Implementing Agency

The NSWMC secretariat prepares the annual work plan and secures the budget for their activities every year. The budget since 2012 is as follows. The budget to support the construction of MRF⁵³ and IEC campaign-related activities are the major items to be expensed. The NSWMC secretariat supports LGUs for their promotion of SWM. For that purpose, the budgets for their activities to visit these LGUs are secured, even though it is not sufficient.

Table 8: Annual activity budget of NSWMC secretariat (except personnel cost)

(Unit : thousand peso)

Activities	Details	2012	2013
Improvement of WDR		<u>54,016</u>	<u>66,627</u>
Establishment of MRF	Cost for establishment, LGU assistance	44,300	50,498
Appraisal of SWM	Evaluation, approval and enhancement of LGU	6,346	4,166
Support to execute the ESWMC	Support to LGU, monitoring, elaboration of criteria	3,370	11,963

⁵¹ Calbayog needs officials who can understand the statistics for appropriate monitoring, analyze the situation to activate the 3R activities at barangays, and have good command of communication.

⁵² Refer the footnote no.34.

⁵³ Detailed information can be referred to 3.2.2.1 Achievement of Overall Goal (p.13)

Closure of current dump site		<u>1,534</u>	<u>97</u>
Monitoring	Support for LGU and monitoring	1,534	97
Construction of SLF		<u>2,524</u>	<u>1,498</u>
Monitoring and others	Finalization of guidelines, evaluation of proposal, fund establishment	2,524	1,498
IEC campaign		<u>12,531</u>	<u>2,068</u>
Training	Training of SWM to LGU/schools/staff, guidelines finalized	3,957	787
Production of teaching materials	IEC materials printed, purchased, disseminated	5,178	5,918
Advocacy	Technology transfer, TV segment, LGUs awarded,	1,964	509
SWM-related data inventory	Module development, EMB regions training, database/website updated, inventory development	1,432	1,854
Others		<u>2,085</u>	<u>2,270</u>
Collaboration with other ministries	Eco-labelling standard preparation, support to Eco-saver's program and others	2,085	2,270
Total		72,690	79,560

Source: Documents given by NSWMC Secretariat

In Sagay, due to the absence of the independent SWM-related section, the SWM exclusive expenses are not grasped clearly. The activity expenses are borne by the several different sections to which the double-assigned officials belong. Under this situation, the expense presented by Sagay in this survey is as stated in table 9.

Table 9 : Annual expenditure on SWM at Sagay City

(unit: thousand peso)

(Expenditure)	2006	2007	(Expenditure)	2012
Personnel	4,152	2,532	Program management	313
Fuels	2,763	1,865	Collection and Transport	817
Office supplies	48	19	MRF/Treatment & Processing	985
Maintenance of Vehicles	(N/A)	312	Disposal & Storage Facility	3,213
			Other expense	185
Total	6,953*	4,728*	Total	5,513*

* The expenditure in 2006 and 2007 does not include the cost for collection of wastes and operation of facilities, and the expenditure in 2012 does not include the personnel.

Source: For 2006 and 2007: Ex-ante evaluation report, for 2012: documents given by Sagay city

According to the officials related to SWM activities, the lack of budget to procure and maintain the equipment to collect the garbage is most remarkable (allocated under the items of “Program management” and “Collection and Transportation”). In 2009, the total income of Sagay was 485,116 thousand peso⁵⁴ and the expense of SWM in 2013, without including the personnel cost, was roughly 1% of it. Before starting the project, this rate was 0.54%. The expense rate of SWM to the city revenue has increased, compared with the figure before starting the project, but it is not enough. The focal person on SWM has been proposing to introduce the waste charge system to the mayor and the city council. However, they have not consented to this proposal, and the waste charge collection system has not been put into practice. In 2011, the city surveyed the residents on their willingness to pay the waste charge. Only one quarter of the residents showed willingness to shoulder it, and the city judged it would be difficult to introduce the waste charge system.⁵⁵ The annual expense of SWM in Calbayog is as stated in table 10.

Table 10: Annual expenditure on SWM at Calbayog City

(unit : thousand peso)

Expenditure	2007	2010	2011	2012	2013	2014
Personal services	5,505	5,569	6,056	7,347	6,782	9,211
Travel, supplies, training and public expense	397	417	315	265	265	265
<i>(sub-total)</i>	<u>5,902</u>	<u>5,986</u>	<u>6,371</u>	<u>7,611</u>	<u>7,048</u>	<u>9,476</u>
SWM Board	50	50	50	50	50	
SWM program	---	550	550	1,663	1,663	
Waste collection and street sweeping	5,388	6,100	7,709	7,709	9,043	
Maintenance pf SLF	---	2,610	2,610	2,610	2,610	
Maintenance of dumpsite	---	264	264	264	264	
Others	---	210	210	210	210	
<i>(sub-total)</i>	<u>5,888</u>	<u>9,784</u>	<u>11,393</u>	<u>12,506</u>	<u>13,840</u>	
Total	11,790	15,770	17,764	20,117	20,888	

Source: For 2006 and 2007: Ex-ante evaluation report, For 2012: Answers to the questionnaire

Recently, the expense amount for SWM has increased. The annual income of the year of 2009 in

⁵⁴ Homepage of Bureau of Local Government Finance DOF (<http://www.blgf.ph/>)

⁵⁵ Sagay City collects the waste charge from its business sector at the time of renewal of the business license, as a part of its renewal cost.

Calbayog was 622,830 thousand peso⁵⁶ and the SWM-related expense in 2013 was 3% of that amount. The expenses for SWM in the city's revenue before starting the project were 2.54%. A subtle increase can be seen, but it is not enough. This city has a relatively wide area and many barangays compared to its population, which brings difficulties in implementing effective SWM,⁵⁷ and they confront the problem of monitoring, even though they try their best to implement the effective SWM. Moreover, they limit the collection area to 33 barangays among 182, and still they confront the lack of operation and maintenance of facilities and equipment for the collection of garbage.⁵⁸ Regarding the introduction of the waste charge system by the residents, the city management has not consented to this proposal, and the city still cannot have introduced the charge collection system.⁵⁹ However, they plan to secure the budget, including the cost for the allocation of the enforcers to implement the SWM activities.⁶⁰

The city ordinance of Davao issued in 2005 regulates collecting the waste charge from both the general residents and the business sector. The waste charge from the business sector is collected at the time of renewal of the business license; on the other hand, the full collection of the waste charge from the general residents cannot be achieved.⁶¹

The annual revenue in 2009 in Davao was 4,006,605 thousand peso,⁶² and the SWM-related expense in 2013 was roughly 7% of that. The budget for SWM is not enough, but they can somehow manage to continue the current SWM-related activities. The rate of expense of SWM in proportion to the annual revenue before starting the project was 0.79%, and it has increased, comparing with that at the beginning of the project.

Table 11 : Annual expenditure on SWM in Davao

(Unit : thousand peso)

		Personnel	O&M	Contract personnel	Total
2010	Road cleaning	2,113	281	27,171	29,565
	SWM-related work	11,591	64,500	53,081	129,172
	Total	13,704	64,781	80,252	158,737
2011	Road cleaning	2,210	885	27,171	30,266
	SWM-related work	12,329	164,570	53,936	230,835

⁵⁶ Homepage of Bureau of Local Government Finance DOF (<http://www.blgf.ph/>)

⁵⁷ They try to cluster the several barangays and set the BSWMC to collect the basic SWM related data.

⁵⁸ In Calbayog city, the truck scale was provided with by the project. However, they cannot respond to malfunction of the parts due to budget constraints, and this equipment has not been used.

⁵⁹ Calbayog collects the waste charge from business sector at the time of renewal of the business license (once a year). The charge is set according to the type of business, with the area of office. In 2010, 522 thousand peso, in 2011, 546 thousand peso, and in 2012, 558 thousand pesos were collected.

⁶⁰ According to the interview with the official responsible for SWM in Calbayog.

⁶¹ According to the interview with the official in Davao.

⁶² Homepage of Bureau of Local Government Finance DOF (<http://www.blgf.ph/>)

	Total	14,539	165,655	81,107	261,301
2012	Road cleaning	2,390	286	28,755	316,645
	SWM-related work	13,227	176,770	58,860	248,857
	Total	15,617	177,056	87,615	280,288
2013	Road cleaning	2,363	286	35,676	323,539
	SWM-related work	14,157	176,770	57,327	248,254
	Total	16,620	177,056	93,303	286,979

Source: Documents given by Davao City

The SWM fund that was expected to have been established at the time of completion of the project has not been set up at the time of ex-post evaluation. Provided with this situation, NSWMC examines other schemes of financial support and actually has given support to LGUs. For example, financial support to construct the MRF is one of its endeavors. In addition to this, NSWMC is in the final stage of negotiation with ADB to get a loan of 70 million dollars, preparing the matching fund of 3.8 million dollars from the Philippines government to cover the cost of procurement of the facility and equipment and also capacity development. The EDP fund from JICA, which amounts to 150 million dollars, also remains to be used for the preparation of the environmental infrastructure, including the SWM sector. The fund to facilitate implementing RA9003 is secured as such; however, the administrative capacity to utilize these funds for LGU to promote SWM is not enough, nor is the political will.

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

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project is consistent with the issues of SWM designated as important themes in the development plan of the Republic of the Philippines as well as the sector plan and development needs. At the same time, it is aligned with Japanese aid policy. In this regard, the relevance of the project is high. During the project period, technical assistance was provided to the three target cities to enhance the basic capacity to manage solid waste, such as the capacity to elaborate the SWM plan, to promote the IEC campaign for "3R" (Reduce, Reuse and Recycle) and also to monitor SWM-related activities. On the other hand, the capacity development to strengthen the operation and management of the final disposal facilities was not enough due to the delay of the construction of the facilities caused by the time-consuming fundraising process. Since the completion of the project, the NSWCM has tried their best to diffuse the SWM by various approaches. Even though the number of SWM plans approved by NSWMC is not high, the rate of construction of SWM-related facilities has

been increasing. This change can be considered an effect of the project. Therefore, the effectiveness and impact of the project are fair. Both the project cost and the period of cooperation were mostly as planned, therefore the efficiency of the project was high. The LGUs work on their possible SWM activities, even though their progress varies due to different factors, such as political, financial, economic, and technical factors. In the three target cities, the officials equipped with technical capacity by the project continue the SWM-related activities. However, some issues still have yet to be improved, such as increasing the number of officials equipped with SWM skills and securing the budget to maintain the equipment, among others. The introduction of a waste charge system is particularly important to secure the budget and reduce waste. Considering these situations, even though no problem can be seen in the policy background, some problems have been observed in terms of the institutional, technical and financial aspects of the project. Therefore, the sustainability of the project is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

1) Common recommendations to all 3 LGUs

- **Re-examination of the method of monitoring**

It is difficult to expect to receive the reliable data from the general residents and junkshop. Therefore, it is recommended to implement the sample monitoring, selecting the specific barangays to align with the waste flow, instead of collecting information from all households, in order to collect the reliable basic data related to SWM. This way, LGUs can introduce the credible and feasible monitoring system.

2) Recommendation to Sagay and Calbayog

- **Assignment of the technically competent officials**

SWM covers a wide range of activities, requesting the capacity of data processing, smooth communication with residents and others. Therefore, it is recommended to assign the officials who are equipped with these abilities and able to respond to the necessary duties even with the same number of officials.

- **Examination of how to make use of MRF**

The effective use of MRF contributes to increasing the diverted amount of waste. Properly, MRF can be utilized to produce compost with high productivity, to process the waste-recycled product, and to discuss the method of these activities for its improvement and to share these ideas with residents; therefore, its utility value is high. However, at the time of ex-post evaluation, the MRFs were used just to collect tentatively the recycle products, to produce the compost not recognized the

difference in its quality with the ones produced at the backyard of each household and to process and sell the recycled product as elaborated by a group composed of partial residents. This usage of MRF does not show the clear picture of an advantage to utilize MRF for all the residents. Discussing the usage of MRF is recommended, which would bring the practical advantage to the residents, as a whole, to increase the diverted amount of waste.

- **Re-examination of the introduction of the waste charge collection system**

The waste charge system enables increasing the revenue of the city and also reducing the cost to collect and process the waste, due to suppressing the generation of waste.. The management board of the city should consider the long-term positive impact brought by this system and re-examine introducing the waste charge collection system. (The amount proposed by the project was 44 peso in Sagay and 31 peso in Calbayog [both per month per household],⁶³ which are considered to be affordable.)

3) Only for Sagay City

- **Establishment of the independent section responsible for SWM**

Establishment of the independent section responsible for SWM is a basis of implementation of SWM. Establishing an independent section to secure the budget, to allocate the necessary officials, and to work on SWM issue sustainably is recommended.

- **Modification of the waste collection system**

At the time of ex-post evaluation, the waste was collected at each household. However, it is recommended to set-up the waste collection points in barangays where the households bring their waste, and the garbage collection truck would pick up the waste only at these points so that the collection system would be more efficient and the cost for the collection could be cut.

4) Only for Calbayog City

- **Smooth communication among the officials**

It is recommended to have smooth communication among officials and to respond to the problems by proper and opportune way, including the secure of budget, for the sooner solution. Especially, regarding the operation of SLF, due to improper communication about the troubles, budget allocation and technical action could not be done properly, which worsened the problem of the presence of leachate at the bottom of the landfill area.

⁶³ This charge covers only the cost of the collection of waste. This amount is about 15% of the entire cost, including the cost for operation and maintenance of SLF. (Project completion report [2010]).

5) Recommendation to NSWMC

• Capacity development of EMB regional office to follow-up the implementation of SWM by LGUs

The rationalization of the government is still in the process in 2014. From now on, it is recommended that the officials newly and already assigned to the EMB regional office, under the rationalization of the government, should strengthen their capacity to formulate the SWM plan and other SWM-related skills so that they can support that task at LGU, by reinforcing their institutional capacity (such as assignment of the officials and securement of the budget).

4.2.2 Recommendation to JICA

None.

4.3 Lessons Learned

1) Formulation of the project with risk management of the delay of fundraising borne by the counterpart country

In this project, the fundraising to construct the final disposal facilities was for the responsibility of the counterpart country. However, the loan procedure was delayed and the construction of the facility had finished just before completing the project; therefore the technical transfer on the operation and maintenance of the facility could not be done fully as planned. In the case that the series of activities, outputs and project purpose are dependent on the proposed budget secured by the counterpart country, the uncertainty related to the accomplishment of fundraising should be well examined, and also the internalization of that uncertainty should be studied as much as possible. For example, in the case of this project, the period of cooperation could be designed deliberately forecasting the necessary time for the loan approval because this process was led by LGUs who had no prior business relations with DBP. Moreover, if the internalization of the risk factor is difficult, it is recommended to examine how to respond to that risk, and to formulate the project. (For example, we should examine the necessity to implement the additional complementary support to strengthen the loan procedure by other schemes.)

2) Clear Indicator of the Overall Goal in the case of “Model Dissemination” type of the project

In this project, it was expected to develop a SWM model case, during the period of cooperation, that will be the prototype for other LGUs, and that model SWM would be replicated to other LGUs by the Philippines government after the completion of the project. The SWM model plan elaborated in the project comprehensively covers necessary measures for the implementation of SWM, from time-consuming endeavors such as thorough implementation of 3R to cost-consuming endeavors such as construction of SWM facilities, among others. However, when LGUs launch any kinds of

measures of SWM, they cannot execute all these measures and have to choose the feasible activities under the political, technical, legal, financial and social constraints.

In the case that the “replication of model” elaborated by the project is set as an overall goal, the expected degree of the “replication” should be made clear as indicators, such as the number of replicating LGUs, the area of replication of the model, the specific activities in the model to be replicated (such as establishment of MRF, and ratio of communities who implement the segregated waste collection, among others).

3) Collaboration with organized institutions and organizations

The well-organized institutions, such as the Department of Education, who has a network from central government to the schools at the regions, can deliver the command using a top-down system and is good at expanding the activities. In case of the project that aims to disseminate some model as an objective, the implementation of the activities at most lower levels of institutions, monitoring the status of implementation of activities and the collection of related data is important. Therefore, working together with well-organized institutions or parties is effective as it enables efficient dissemination.

4) An approach to the Local Chief Executive

In the Philippines, even though the law is enacted, its execution might be affected by the political will of the local chief executive. In case of the project in which LGUs are the principal implementers of some endeavors, even if the technical transfer was done successfully, the sustainability of the project is subject to the political will of the local chief executive. The sustainability can be hindered by reshuffling the trained officials or not securing the necessary budget among others, if the chief executive does not have a will to utilize and continue that capacity. Moreover, even if the local chief executive has a good will to promote SWM, he might be replaced through the election and the policy for SWM cannot be continued. In case that these kinds of risks can be foreseen to the results of the technical assistance, it is important to work on the political will of that local chief executive in addition to the technical capacity development. In this project, the effort by NSWMC to utilize the SGLG scheme can be appreciated, which is the performance evaluation system for LGUs, to raise the motivation of the local chief executive to promote SWM, in collaboration with DILG.

<Column>

This project was conducted to help the NSWMC, the central government responsible for the diffusion of SWM, formulate the guidebooks regarding the SWM plan and the arrangement of the final disposal facility (such as safe closure of the open-dump site and the construction of the SLF) based on experience gained through technical assistance in the three target cities, and then diffuse

the SWM to LGUs other than the three targeted LGUs utilizing these guidebooks.

The diffusion of SWM is the duty of NSWMC, as stipulated by RA9003; therefore, NSWMC continues to make efforts to promote the SWM by diversified approaches even after the completion of the project through its collaborations with the EMB regional office. On the other hand, not many LGUs can execute SWM-related practices due to the comprehensiveness of its duty from waste generation to final disposal of waste, composed of various processes that require techniques and financial resources. Many LGUs cannot have an independent SWM-related section, allocating the duties to other existing sections, which impede the execution of SWM in line with the methods stipulated by RA9003.

NSWMC can keep promoting SWM to LGUs continuously after the completion of the project because NSWMC is the appropriate implementing agency as a counterpart to promote SWM and was fully involved and strengthen its necessary capacity during the project period. However, considering the large number of LGUs in the regions, the officials in the EMB regional office, who were supposed to be responsible for the promotion of SWM after the completion of the project, should have more actively enhanced their SWM-related capacity during the project, which might have led the reinforcement of the implementing agency to promote SWM after the completion of the project.

On the other hand, the important factors that affect the degree of realization of SWM by LGUs are the enhancement of the capacity of the LGU officials who are engaged in SWM issues, the behavioral changes in the residents, the securement of the budget, the institutional arrangements for SWM implementation, the initiative of the mayors, and others. Among these factors, those other than the enhancement of the capacity of the LGUs' officials are significantly influenced by the LGUs' initiative. Under this situation, it is difficult for the LGUs to execute all the activities, as planned, which are incorporated in the SWM plan.

In light of the above, in the case of the project that aims to disseminate its effects after completion of the project, it is crucial to select the proper counterpart agency, make it fully involved in the capacity development process during the project, clearly define the achievable and specific activities expected to be implemented, and conduct the technical assistance, with the reinforcement of the implementing system in mind to push through those specified activities.