

**Evaluation Grid of the Terminal Evaluation  
Country: The Philippines  
Project Name: Establishment of Ecological Solid Waste Management in Three Cities**

**1. Implementation Process**

Evaluation Questions		Study Result
Questions	Sub-questions (indicators)	
Timing, amount and quality of input	Have the human resources/materials/budget/training opportunities been input to the project as planned?	<p>The input of human resources, material, equipment, training opportunities, sub-contracting and budget from both Japanese and Philippine sides is listed in Annex 4 and Annex 5.</p> <p><b>Input by the Japanese Side (See Annex 4)</b></p> <p><b>Japanese Experts:</b> Six experts, comprising of a chief advisor in charge of SWM planning and five experts in charge of waste diversion, IEC, final disposal, financial analysis and environmental and social considerations were engaged. In terms of total man-month, the input of the experts was implemented as scheduled. About one fourth of their assignments is allocated to each of the four cities where 3LGUs and NSWMC are located. The replacement of the waste diversion expert did not cause any problems since job assignment was carefully taken over. The total man-month of the Japanese experts at the time of terminal evaluation is 64.87.</p> <p><b>Training in Japan:</b> The training in Japan was carried out twice.</p> <ul style="list-style-type: none"> <li>• First training: from October 27 to November 15, 2008 for two C/Ps from each LGUs.</li> <li>• Second training: from 5 to 24 October, 2009, for two C/Ps and/or relevant actors of the project from each LGUs.</li> </ul> <p><b>Equipment:</b> All the equipment from the Japanese side was procured and provided within the expected schedule. The status of each item is as follows.</p> <ul style="list-style-type: none"> <li>• <b>Portable weigh bridges:</b> They were useful for the waste amount and composition survey (WACS) in the first year. Sagay city even used it to instruct WACS to the neighboring cities. They are now kept at the project office in Manila and will be provided to NSWMC to be utilized for WACS in other cities.</li> <li>• <b>Water quality meters:</b> They are used by the C/Ps for water monitoring at the new final disposal sites.</li> <li>• <b>IEC campaign material and equipment:</b> The campaign materials were effectively distributed to the targeted barangay residents, teachers and school children. Audio equipment has been also utilized well during the workshops at the barangays and schools to easily deliver messages of the cities.</li> <li>• <b>MRFs:</b> The facilities in three cities have been used mainly for composting work using provided equipment including shredders, rotating composters, scales and cleaners. MRFs in Sagay and Calbayog have also played an educational role, receiving visitors and researchers even from outside of the cities.</li> <li>• <b>Combustible gas detectors</b> were provided to Sagay and Calbayog. It was only tested, and will be employed in the monitoring of the new final disposal sites.</li> <li>• <b>Multi-purpose vehicles</b> were provided to Sagay and Calbayog respectively in October 2008, and fully used.</li> </ul>

		<p>The one provided to Davao at the same time needed some time for the registration process, but soon became fully available.</p> <p><b>Sub-contracting:</b> The works sub-contracted by the Japanese sides are listed in Annex 4.</p> <p><b>Cost for Project Activities:</b> The Japanese side covered the cost for local activities by the Japanese experts such as report printing, domestic transportation and telecommunication.</p> <p><b>Input by the Philippines Side (See Annex 5)</b></p> <p><b>Counterpart Personnel:</b> A counterpart personnel has been allocated in the three cities to each category of the project activities, namely SWM planning, waste diversion, financial analysis, sanitary landfill construction and operation, IEC and environmental and social consideration, and formed a task team. NSWMC assigned three officers as coordinators for the activities in the three cities. They were also involved in the preparation of the guidebooks. One of them, however, will leave NSWMC in September 2010 and is someone else from NSWMC will take over her duties.</p> <p><b>Expenses Necessary for the Project Implementation:</b> The local expenses, including cost for such items as personnel, a driver and fuel for the donated vehicle, and protocol for the approval of the ESWM Plan and ECC were incurred by the city. The cost for the construction of sanitary landfills in Sagay and Calbayog are being inputted at the time of terminal evaluation along with the progress of construction. The costs for their operation and the closure of existing dump sites in two cities are also to be borne by the concerned local government units, but the cost secured at present is just enough to cover the cost for present dumping of existing dump sites. It has been requested to the city authorities since the time when the request for the budget of 2009 was made during the previous city administration based on the cost estimates in the ESWM plan. The request is being submitted to the new city administration.</p>
<p>Implementation status of activities</p>	<p>Were activities implemented as planned?</p>	<p>Annex 6 describes the outline of each activity and causes for the delayed activities.</p> <p>The activities in three cities, which were to produce Outputs 1, 2 and 3, have been carried out by three phases, namely study phase, planning phase and implementation phase. Most of the activities went as planned with partial delays, except for activities related to final disposal in the implementation phase. As for Output 4, the activity schedule was pushed forward when PO ver.1 was prepared due to NSWMC's request. The activities were then completed by March 2010.</p> <p>The implementation status of the activities related to final disposal is as follows.</p> <p><b>Sagay:</b></p> <p>The delay in starting the construction of final disposal site was caused firstly by the delayed approval of ECC. Secondly, the payment of IRA, the expected financial source for construction, was delayed and only a portion was available in 2009 due to the financial constraint of the national government, which had to allocate a substantial amount of its budget for rehabilitation of infrastructures damaged by severe natural disasters of that year. Sagay City decided to be financed by Land Bank of the Philippines for the remaining financial source. The loan contract was finally signed in December 2009.</p> <p>The loan disbursement was another obstacle. Due to a number of uncertainties in the loan request process and the delay of processing due to national elections, the first payment is finally to be done as of this terminal evaluation study. Consequently, the payment for material and contractors, who works for part of construction, has been delayed. The first payment is to be done for 15% of mobilization cost, and once the city goes through the entire loan request process, the further payment, which will be paid in proportion of construction progress, will be done without significant delay because the construction work has already proceeded. The total completion of construction will be at the end of</p>

		<p>September 2010 according to the adjusted work schedule in March 2010.</p> <p>The basics of operation and maintenance of the sanitary landfill was instructed to the C/Ps during the manual preparation by bringing forward its schedule. To allow on-site technical transfer during the project period, it is planned to accept waste at the new site from the beginning of September when the first waste cell, leachate circulation facility and retention pond are ready to use. An issue, however, remains regarding the institutionalization of operation and maintenance. It is generally agreed that the machinery owned by City Engineering Office is used and that CENRO monitors environmental impacts at and around the site. The assignment of human resources and responsibility still needs to be discussed among City SWM Board, General Service Office and City Engineering Office.</p> <p>Safe closure of the existing dump site has started by applying soil covering to more than a half of the area without disturbing the current waste dump operation. The remaining work, which can start only after the start of the new landfill, will need three to four months. Further, an even more critical issue to close the dump sites is no secured budget for safety closure. Sagay city can only expect allocation from the budget of the next fiscal year starting January 2010. The C/P in Sagay is now requesting the budget to the new city mayor.</p> <p><b>Calbayog:</b></p> <p>The construction of the new final disposal site started behind the schedule due to the delay of loan contract between the city and Development Bank of the Philippines. The construction work was temporarily slow down due to the delayed loan disbursement, which was in turn caused by the delayed fund request from the city administration before and after the election. The work, however, still proceeded, and only the pavement of the internal road and power supply are left. It will be completed in the middle of August 2010.</p> <p>The basics of operation and maintenance of the sanitary landfill was instructed to the C/Ps during the manual preparation by bringing forward its schedule. The on-site training can be started at the end of August 2010 after the completion of construction, provided that operation and maintenance structure comprising personnel, machinery and finance is established. The City SWM Office intends to bear full responsibility to operate and maintain the sanitary landfill, but lacks the manpower of technical personnel. CSWMO is requesting additional technically skilled personnel to the mayor. Also, the arrangement of site operation, specifically whether it is to be contracted out, has to seek the decision making of the mayor.</p> <p>As for the safe closure of the existing dump site, a portion of covering earth was hauled to the site. Four to five-month work will start after the opening of the new sanitary landfill, but the budget, appropriated with 10 million pesos, still needs the approval of the new mayor.</p>
<p>Implementation status of monitoring</p>	<p>Has monitoring been carried out?</p> <p>Is the monitoring mechanism appropriate?</p> <p>Are responsibilities of monitoring clearly assigned to</p>	<p><b>Monitoring of the Project Progress</b></p> <p>All project members including the Japanese experts and C/Ps have been monitoring the progress of their activities and some of them have been monitoring even the activities that they are not directly involved in or the activities of other C/Ps. The information about project progress was shared among them by the following means.</p> <ul style="list-style-type: none"> <li>• Plan of Operation</li> <li>• Plan of the coming half year described in each Progress Report</li> </ul>

project members?

- Verbal communication, e-mails, telephone conversations
- Weekly reports from local consultants stationed in the three cities
- Large or small seminars, workshops and meetings, JCC

JCC was held five times so far; in December 2007, September 2008, February and June 2009, and February 2010. It functioned well to monitor and assist the project progress and gave an opportunity to discuss various issues of SWM not only among the project participants but also with attendants from EMB, FASPO and NEDA.

The PDM as a tool of project monitoring is useful. It was observed that the status of some indicators in the PDM was not clearly described in the progress reports. Some of the means of verification such as SWM account report and monthly report of Sagay's MRF were not prepared. If some indicators and/or means of verification appeared inappropriate, they should have been substituted with other proper ones.

**Monitoring of the SWM Performance**

Such SWM indicators as follows were monitored in Sagay and Calbayog (and Davao for the items with an asterisk).

Indicators	When Monitored/Frequency	Methodology/Procedure
Waste generation amount	At the formulation of ESWM Plan	Waste generation rate x total number (e.g. kg/day/capita x population)
Waste collection amount	The number of truck trips is daily monitored.	(Estimated waste load of the trucks) x (trip numbers)
Waste diverted	Planned to be twice a year in Sagay and monthly in Calbayog.	Waste diverted is considered as recyclable materials sold to junkshops and waste composted at MRFs (and other composting facilities if any). The junkshop surveys are planned twice a year.
MRF operation*	The data are recorded daily basis by the city C/Ps and/or MRF managers of the barangays. In Davao, the monthly report is prepared by the barangay and submitted to the barangay and CENRO.	The received waste is scaled. The type of biodegradable waste is determined visually. In Davao, the recyclables were segregated by type and scaled.
Environmental monitoring in and around the new final disposal site	Monthly water quality monitoring of surface water in Sagay and Calbayog.	Sagay: Reported in the Compliance Monitoring Report, which was submitted to EMB Regional Office. Calbayog: Not compiled in any report form.

Relationship between Philippines C/Ps and Japanese experts

Communication among relevant parties

The Philippine C/Ps and the Japanese experts have maintained good communication. As the project activities have taken place in four cities (Manila, Sagay, Calbayog and Davao) and the Japanese experts did not stay long at one place, they kept in contact by effective meetings and collaborative activities during every stay of the Japanese experts, and e-mails and telephone during their absence. The contact via local consultants was also vital.

The communication with CENRO in Davao, however, was mostly limited although it is CENRO who has the primary responsibility of SWM in Davao. It is because activities to assist CENRO in this project were narrowed as a result of

		<p>midterm review to respect their capacity and commitment. Instead, the Japanese experts developed a good relationship with CPDO, CSSDO and DepED, which were active in the IEC campaign, and the barangay where the pilot MRF was located.</p>														
<p>Opportunity of technology transfer (The opportunity of technology transfer is deemed to be enough when communication is close and technical capability of both sides is appropriate.)</p>		<p>There were moderately adequate opportunities of technology transfer at every stage and at every component of the project.</p> <p>However, the Japanese experts recognize that their assignment should have been longer for more careful technology transfer. The visit of the Japanese experts was on a one-week one-city basis, and it was not always possible to run a PDCA cycle for the expected outputs. (See also evaluation result of "Efficiency" on Page 19 of this evaluation grid.)</p> <p>Some of the C/P members also regretted that they only have a short time and less frequency to work with the Japanese experts.</p>														
<p>Ownership of C/Ps</p>	<p>Degree of initiatives taken by the C/P LGUs / NSWMC</p>	<p>The initiative of the C/Ps was extended to the following occasions.</p> <table border="1" data-bbox="683 168 912 1422"> <thead> <tr> <th data-bbox="683 683 718 1422">LGUs</th> <th data-bbox="683 168 718 683">NSWMC</th> </tr> </thead> <tbody> <tr> <td data-bbox="718 683 753 1422">• SWM Planning and review (Sagay and Calbayog)</td> <td data-bbox="718 168 753 683">• Organizing JCC</td> </tr> <tr> <td data-bbox="753 683 788 1422">• Pilot MRF setup and its operation</td> <td data-bbox="753 168 788 683">• Preparation of three guidebooks</td> </tr> <tr> <td data-bbox="788 683 823 1422">• IEC campaign</td> <td data-bbox="788 168 823 683">• Dissemination of the guidebooks</td> </tr> <tr> <td data-bbox="823 683 858 1422">• New sanitary landfill development (Sagay and Calbayog)</td> <td></td> </tr> <tr> <td data-bbox="858 683 893 1422">• Open dump closure (Sagay and Calbayog)</td> <td></td> </tr> <tr> <td data-bbox="893 683 912 1422">• Dissemination of project experience</td> <td></td> </tr> </tbody> </table> <p><b>LGUs:</b></p> <p>In preparation of the SWM Plan, the basic studies to understand the current situation of SWM were carried out by the C/P members under the guidance of the Japanese experts. With the result of such surveys, the plan was formulated through close discussion between the C/Ps and the Japanese experts. Each C/P member provided data and/or drafted part of the plan according to his responsibility. The C/Ps made presentation of the plan in the seminars and the city council and have vigorously worked for the publicity of the plan. When they prepare the SWM annual report 2009, they reviewed the progress of the plan and confirmed that they were in the right direction.</p> <p>The C/P members participated in pilot MRF development at every stage including site selection, facility design, organization of operation teams, IEC for the barangays, action plan preparation, and operation management. The ownership was also fostered through the introduction of the facility to visitors. The C/P in Sagay has been exploring a research function at the pilot MRF by implementing composting experiments using different raw materials and receiving university researchers. In Calbayog city, the pilot MRF is almost only facility of composting in the city and the C/P recognizes the significance of its role as a model. The city was invited to the Waste Management Summit in 2009 in Palo, Leyte where the pilot MRF was presented. At present the C/P is working on the activation plan of the MRF to improve its operation. Barangay Vicente Hizon in Davao City, where the pilot MRF is located, is very keen on developing self-reliance of the pilot MRF and making various efforts including establishment of scheduled separate</p>	LGUs	NSWMC	• SWM Planning and review (Sagay and Calbayog)	• Organizing JCC	• Pilot MRF setup and its operation	• Preparation of three guidebooks	• IEC campaign	• Dissemination of the guidebooks	• New sanitary landfill development (Sagay and Calbayog)		• Open dump closure (Sagay and Calbayog)		• Dissemination of project experience	
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collection, enrichment of the compost product and product marketing.

As IEC campaign required manpower, city officials from not only the office responsible for SWM but also other offices relevant to awareness raising in the city governments such as City Planning and Development Office, City Social Services Development Office, CENRO, and the City Schools Division under the Department of Education were involved and executed their responsibility. Various workshops and seminars were conducted at targeted schools and barangays mostly by their initiatives.

The ownership of the C/Ps in new sanitary landfill development was observed during designing, bidding and construction. At present, the C/Ps properly monitor the progress of construction work, revise time schedules, and hold monthly supervisory meetings where necessary design changes are discussed and agreed.

As for dump site closure, activities done by the time of terminal evaluation is engineering design, where the C/Ps played a main role.

The C/Ps organized the technical seminars and workshops by preparing the programs and materials, inviting relevant organizations and chairing the open discussions. Most of the presentations were made by the C/P members.

**NSWMC:**

As an executing agency, NSWMC appropriately organized JCC five times so far. JCC served a very important and valuable occasion to bring together the representatives from three cities, EMB, FASPO and NEDA.

NSWMC set up three working groups for three guidebooks. Although NSWMC did not have enough capacity in terms of technical expertise and staff, it managed to make the guidebooks practically useful by utilizing external resources including the Japanese experts, other donor agencies (USAID and GTZ), local specialists of SWM, and other relevant and related materials.

## 2. Verification of Achievements

Evaluation Questions		Study Result															
Questions	Sub-questions (indicators)																
<p><b>Achievement of Overall Goal</b></p> <p>Knowledge and experience of ecological solid waste management (SWM) in the three cities are replicated in other LGUs.</p>	<p>1. The number of seminars and workshops held at regional or national level by the NSWMC for other LGUs</p>	<p>The seminars aiming at the dissemination of the knowledge and experience of the project were already held four times with 93 LGUs, and a comprehensive program involving as many as 500 LGUs is planned by NSWMC's own initiative from July to December 2010.</p> <p>The following seminars were already held to disseminate the knowledge and experience of the project and publicize the guidebooks to be used by the LGUs.</p> <table border="1"> <thead> <tr> <th>Seminar</th> <th>Date</th> <th>Number of LGUs Attended</th> </tr> </thead> <tbody> <tr> <td>Thematic Forum on Best Practices in Solid Waste Management</td> <td>September 14-15, 2009</td> <td>4</td> </tr> <tr> <td>Seminar to introduce the guidebooks to the LGUs</td> <td>December 10-11, 2009</td> <td>6</td> </tr> <tr> <td>Workshop on Updating/Preparation of 10-year SWM Plan for Coastal LGUs within the Manila Bay Region</td> <td>June 16-18, 2010</td> <td>37</td> </tr> <tr> <td>Writeshop/workshop for Updating/Preparation of 10-year SWM Plan for LGUs in Region III</td> <td>July 15-16</td> <td>46</td> </tr> </tbody> </table> <p>Further, a wrap-up seminar of the project will be held in Manila in October 2010, where also some of LGUs will be invited.</p> <p>NSWMC developed a plan by itself to have a comprehensive capacity development program for the guidebooks to be widely used. The program consists of 7 sessions, each of which targets the LGUs in two to three regions all over the country except for ARMM, from July to December 2010. In total, 500 LGUs will participate.</p>	Seminar	Date	Number of LGUs Attended	Thematic Forum on Best Practices in Solid Waste Management	September 14-15, 2009	4	Seminar to introduce the guidebooks to the LGUs	December 10-11, 2009	6	Workshop on Updating/Preparation of 10-year SWM Plan for Coastal LGUs within the Manila Bay Region	June 16-18, 2010	37	Writeshop/workshop for Updating/Preparation of 10-year SWM Plan for LGUs in Region III	July 15-16	46
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2. The number of participating LGUs in the abovementioned seminars and workshops.	<p>Ten LGUs were already participated, and 500 more are expected as far as currently planned.</p> <p>See above.</p>																
3. The number of approved ESWM plans.	<p>At the time of terminal evaluation, 20 plans were approved.</p> <p>There are 1610 LGUs in total in the country. The number of LGUs that submitted the ESWM Plan is 298 as of December 2009, and the number of LGUs whose ESWM Plans were approved by NSWMC is 20, including Sagay and Calbayog. Further the TWG of NSWMC finished the review of another 13 plans, which will be approved by NSWMC.</p>																
<p><b>Achievement of Project Purpose</b></p> <p>Ecological SWM system is established in the three cities.</p>	<p>1. ESWM Plan is reviewed annually (Sagay &amp; Calbayog)</p>	<p>The ESWM Plan was reviewed once so far.</p> <p>The first review of the ESWM Plan was carried out in February 2010 and the result is shown in the annual report 2009 in both cities. The annual report compared what was planned and what was done during the year 2009, and it was not found that the plan needed to be modified.</p>															

2. Waste Diversion Rate (WDR) is improved as compared with the baseline. (All cities)

In Sagay and Calbayog, WDR of 2009 has not improved compared with the baseline. It should be noted, however, that the WDR is influenced by various factors such as calculation methodology and increase of waste collection amount. In Davao, it cannot be evaluated since WDR is not monitored. In all cities, however, the pilot MRF has been contributing to WDR by treating biodegradable waste in Sagay and Calbayog, and both biodegradable and recyclable waste in Davao.

WDR in 2008 and 2009 is as below.

	2008 (baseline) (ton/day)			2009 (ton/day)		
	Final disposal	Recycled (sold)	Composted	Final disposal	Recycled (sold)	Composted
Sagay Reference	13.09	2.9	0.6	16.15	2.07	1.95
	Attachment 3 of Progress Report (4)			Page 8, AR2009, Total disposal 5,986 ton/365 days		
	WDR 21.1%			WDR 19.9%		
Calbayog Reference	13.72	3.71	0.7	17.65	4.24	0.36
	Attachment 3 of Progress Report (4)			Page 7, AR2009		
	WDR 25.2%			WDR 20.7%		
Davao Reference	WDR 25%			Not available		
	Integrated SWM Plan					

AR: Annual report of each city  
PR: Progress report (English)

From the data above, WDR has not improved compared to the baseline. It is difficult, however, to conclude whether WDR has improved or not from such data due to the following reasons.

- The data available are those of only two years, and data collection methodology is different. For example, final disposal amount in 2008 was the measurement using potable weigh bridges during a predetermined week of January, while final disposal amount in 2009 is the yearly average of the multiplication of truck load capacity and trip numbers. Such deference of the data collection methodology between the two years will make comparison inappropriate.
- The final disposal amount is increased probably due to the increase of population receiving waste collection service and/or the increase of the unit generation amount per capita per day.
- The sudden increase of waste disposal amount in Sagay is also partly attributed to the newly opened large shopping mall.

Nevertheless, the pilot MRFs are receiving waste from the barangays where they are located (20 kg/day in Sagay, 41 kg/day in Calbayog and 308 kg/day in Davao from January to June 2010), which indicates that part of waste generated in the barangays is diverted from final disposal.

Therefore, the amount of waste diverted should have an upward trend even though it cannot be proved in numeric value of WDR.



<p>3. New sanitary landfills are operated in compliance with RA9003. (Sagay &amp; Calbayog: Category 2)</p>	<p>Landfill operation is not started, thus the existing dump sites are still used.</p> <p>The operation of the new sanitary landfill in Calbayog will start by the end of August 2010. In Sagay, it will start in September 2010. As far as the operation manual prepared during the third year of the project is concerned, the manner of operation and maintenance of the site satisfies RA 9003 and the new guidebook on the operation and management of sanitary final disposal.</p> <p>From a viewpoint of a final disposal system as a whole, the existing dump sites should be safely closed and properly maintained in accordance with RA9003. Because of the time and financial constraint, it is impossible to complete safe closure of the existing dump sites in Sagay and Calbayog by the termination of the project.</p>																																																																
<p>Achievement of the Outputs</p> <p>1. Capacity of LGUs on SWM planning is strengthened.</p>	<p>Sagay: The ESWM plan was once drafted in September 2008. It was finalized with inclusion of cost and economic analysis and finally approved by the City Council in June 2009. It was also submitted to NSWMC in March 2009 and approved by NSWMC in June 2010.</p> <p>Calbayog: The ESWM Plan was drafted in September 2008. The draft further included cost and economic analysis and the recommendations from the City Council and approved by the City Council in March 2009. Also, it was submitted to NSWMC in March 2009 and approved in June 2010.</p>																																																																
<p>1.2 Workshops and seminars for officials responsible for SWM in 3 cities are held at least 7 times. (All cities)</p>	<p>Four workshops and two seminars were held in each city so far as below.</p> <table border="1" data-bbox="742 183 1369 1348"> <thead> <tr> <th>Workshop/Seminars</th> <th>City</th> <th>Date</th> <th>Number of Other LGUs Attended</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1st workshop</td> <td>Calbayog</td> <td>05/12/2007</td> <td>-</td> </tr> <tr> <td>Sagay</td> <td>21/11/2007</td> <td>-</td> </tr> <tr> <td>Davao</td> <td>28/11/2007</td> <td>-</td> </tr> <tr> <td rowspan="3">2nd workshop</td> <td>Calbayog</td> <td>02/07/2008</td> <td>-</td> </tr> <tr> <td>Sagay</td> <td>09/07/2008</td> <td>-</td> </tr> <tr> <td>Davao</td> <td>16/07/2008</td> <td>-</td> </tr> <tr> <td rowspan="3">3rd workshop</td> <td>Calbayog</td> <td>23/06/2009</td> <td>-</td> </tr> <tr> <td>Sagay</td> <td>29/06/2009</td> <td>-</td> </tr> <tr> <td>Davao</td> <td>17/06/2009</td> <td>-</td> </tr> <tr> <td rowspan="3">4th workshop</td> <td>Calbayog</td> <td>24/06/2010</td> <td>-</td> </tr> <tr> <td>Sagay</td> <td>16/06/2010</td> <td>-</td> </tr> <tr> <td>Davao</td> <td>09/06/2010</td> <td>-</td> </tr> <tr> <td rowspan="3">1st technical seminar</td> <td>Calbayog</td> <td>10/03/2009</td> <td>10</td> </tr> <tr> <td>Sagay</td> <td>12/02/2009</td> <td>2</td> </tr> <tr> <td>Davao</td> <td>25/02/2009</td> <td>9</td> </tr> <tr> <td rowspan="3">2nd technical seminar</td> <td>Calbayog</td> <td>17/02/2010</td> <td>2</td> </tr> <tr> <td>Sagay</td> <td>24/02/2010</td> <td>5</td> </tr> <tr> <td>Davao</td> <td>10/02/2010</td> <td>9</td> </tr> </tbody> </table> <p>The workshops were held internally to exchange information of the project progress and opinions for smooth implementation, while the technical seminars were held to widely present the project achievements not only within the cities but also the third parties including neighboring LGUs, and share project experiences.</p>	Workshop/Seminars	City	Date	Number of Other LGUs Attended	1st workshop	Calbayog	05/12/2007	-	Sagay	21/11/2007	-	Davao	28/11/2007	-	2nd workshop	Calbayog	02/07/2008	-	Sagay	09/07/2008	-	Davao	16/07/2008	-	3rd workshop	Calbayog	23/06/2009	-	Sagay	29/06/2009	-	Davao	17/06/2009	-	4th workshop	Calbayog	24/06/2010	-	Sagay	16/06/2010	-	Davao	09/06/2010	-	1st technical seminar	Calbayog	10/03/2009	10	Sagay	12/02/2009	2	Davao	25/02/2009	9	2nd technical seminar	Calbayog	17/02/2010	2	Sagay	24/02/2010	5	Davao	10/02/2010	9
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	Davao	16/07/2008	-																																																														
3rd workshop	Calbayog	23/06/2009	-																																																														
	Sagay	29/06/2009	-																																																														
	Davao	17/06/2009	-																																																														
4th workshop	Calbayog	24/06/2010	-																																																														
	Sagay	16/06/2010	-																																																														
	Davao	09/06/2010	-																																																														
1st technical seminar	Calbayog	10/03/2009	10																																																														
	Sagay	12/02/2009	2																																																														
	Davao	25/02/2009	9																																																														
2nd technical seminar	Calbayog	17/02/2010	2																																																														
	Sagay	24/02/2010	5																																																														
	Davao	10/02/2010	9																																																														

	<p>The participants of the technical seminars included neighboring LGUs, PENRO, EMB, recycling industry and NGOs. Most of the presentations at the workshops and the technical seminars were made by the C/Ps, whereby the understanding of the C/Ps was deepened and their ownership of the project was enhanced.</p> <p>The third technical seminars are to be held in September 2010 in three cities.</p> <p>Consequently, workshops and seminars for officials responsible for SWM in three cities will be held seven times in total in each city.</p>
<p>1.3 Cost on SWM is grasped in detail. (All cities)</p>	<p>The details of the cost on SWM in Sagay and Calbayog is analyzed and reported in the SWM Plans, and that in Davao is shown in the recommendation report by the Japanese experts.</p>
<p>1.4 Fee collection options are proposed to the city SWM Board. (Sagay &amp; Calbayog)</p>	<p>The proposal for fee collection was worked out for Sagay and Calbayog. The proposed fee structure consisted of waste charge and tipping fee. The waste charge has five options with different unit fee as below.</p> <ol style="list-style-type: none"> <li>1. Unit fee is set equivalent to the unit cost of the ESWM plan implementation.</li> <li>2. Unit fee is set to be 1.07 (Sagay) / 1.25 (Calbayog) times of Option 1.</li> <li>3. Unit fee is set equivalent to the unit cost of operation and maintenance required for the ESWM plan.</li> <li>4. Unit fee is set at the affordability to pay studied by the project.</li> <li>5. Unit fee is set at the willingness to pay studied by the project.</li> </ol> <p>The proposal was presented at the 4th workshops in both cities and was generally understood between the project team and the city authorities. However, the decision on the approval of the proposal is left to the new city administration, which has just launched in July 2010.</p> <p>In Sagay, as soon as the new members of City SWM Board are nominated by the new mayor, the proposal of the fee collection options will be submitted to the Board. The first Board meeting with new members is expected to be held in August 2010.</p> <p>In Calbayog, the amended fee options is to be proposed to the new city mayor in the first week of August 2010, whereby types and amount of fees (waste collection fee for households and for business entities and tipping fee for other LGUs) will be considered. Upon his general understanding, the amendment of the current city ordinance on fee collection system will be proposed to the City SWM Board.</p>
<p>1.5 Basic managerial indicators such as collection efficiency, unit figures per various operations are collected and analyzed annually. (All cities)</p>	<p>Sagay: ESWM Plan includes various technical and financial indicators. The annual report 2009 reported not all the indicators shown in ESWM Plan, but the following indicators.</p> <ul style="list-style-type: none"> <li>• Collection service population in each barangay, number of collection vehicle trips, estimated waste collection amount, composted waste amount, waste disposal amount, IEC campaign achievements, and garbage fee revenue from business establishments.</li> </ul> <p>Calbayog: ESWM Plan includes various technical and financial indicators. The annual report 2009 reported not all the indicators shown in ESWM Plan, but the following indicators.</p> <ul style="list-style-type: none"> <li>• Collection service population in each barangay, number of collection vehicle trips, estimated waste collection amount, waste recycling amount (biodegradable waste and non-biodegradable waste), final disposal amount, waste diversion rate, IEC campaign achievements, and the expenditure of personnel for SWM.</li> </ul>

	<p><b>Davao:</b> Basic managerial indicators were collected when the waste amount and composition survey was carried out and a waste flow was elaborated in the first year of the project. Financial data was also collected and analyzed when the recommendation report was prepared by the Japanese experts. However, the terminal evaluation team does not have information regarding whether such managerial indicators are collected and analyzed annually in Davao and cannot verify Indicator 1.5.</p>																		
<p>2. Solid waste diversion system is improved.</p>	<p>2.1 WDR is monitored periodically. (All cities)</p> <table border="1" data-bbox="438 138 965 1377"> <thead> <tr> <th></th> <th>Sagay</th> <th>Calbayog</th> </tr> </thead> <tbody> <tr> <td>Amount of recycled materials (A)</td> <td>Junkshop survey is planned twice a year. Done 4 times already.</td> <td>Junkshop survey is planned monthly. Twice already done.</td> </tr> <tr> <td>Amount of composted waste</td> <td>The data of pilot MRF and city's composting facility (vermin and windrow composting) are always available. The data of other facilities are also available, but only estimates.</td> <td>The data of pilot MRF is always available. No other composting facilities. No data available about composted waste amount at the household level.</td> </tr> <tr> <td>Final disposal amount</td> <td>The data is always available, but only estimates.</td> <td>The data is always available, but only estimates.</td> </tr> <tr> <td>WDR monitoring</td> <td>To be monitored twice a year.</td> <td>To be monitored monthly.</td> </tr> <tr> <td>WDR reported</td> <td>- ESWM Plan (December 2008) - The waste diversion activity report attached to Progress Report 5 (March 2010)</td> <td>- ESWM Plan (December 2008) - Annual report 2009 (February 2009) - The waste diversion activity report attached to Progress Report 5 (March 2010)</td> </tr> </tbody> </table> <p><b>Davao:</b> WDR was monitored when the Integrated SWM Plan was formulated, but Indicator 2.1 cannot be evaluated since no information is available about periodical monitoring of WDR.</p>		Sagay	Calbayog	Amount of recycled materials (A)	Junkshop survey is planned twice a year. Done 4 times already.	Junkshop survey is planned monthly. Twice already done.	Amount of composted waste	The data of pilot MRF and city's composting facility (vermin and windrow composting) are always available. The data of other facilities are also available, but only estimates.	The data of pilot MRF is always available. No other composting facilities. No data available about composted waste amount at the household level.	Final disposal amount	The data is always available, but only estimates.	The data is always available, but only estimates.	WDR monitoring	To be monitored twice a year.	To be monitored monthly.	WDR reported	- ESWM Plan (December 2008) - The waste diversion activity report attached to Progress Report 5 (March 2010)	- ESWM Plan (December 2008) - Annual report 2009 (February 2009) - The waste diversion activity report attached to Progress Report 5 (March 2010)
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<p>2.2 The amount and type of materials collected at the pilot MRF are recorded and reported monthly. (All cities)</p>	<p><b>Sagay and Calbayog:</b> The amount and type of materials collected at the pilot MRF are recorded at the time of their reception. In Sagay, however, they are not compiled or reported monthly because the size of waste was not suitable to be measured by the scale, and the workers at the MRF were not educated enough to do so. A newly hired person has educational background and is expected to manage waste measurement and reporting. In Calbayog, a monthly report has been submitted by the facility manager to the C/P in charge of waste diversion. The content of the monthly reports is partly insufficient, but reporting has been improving thanks to the instruction from the C/P to the facility manager.</p> <p><b>Davao:</b> The amount and type of materials collected at the pilot MRF are recorded and tabulated monthly. The report contains such information as the number of visitors per month, food and garden waste collected and processed per month, total recyclable waste sold per month, income by selling recyclables per month, problems encountered and recommended actions to be made. The monthly report is submitted to the project team, barangay authority and CENRO.</p>																		

2.3 The number of barangays where IEC campaign on 3Rs activities is carried out according to the IEC campaign plan. (All cities)

The preparatory works such as the allocation of necessary personnel from the city, the printing of IEC materials, and the procurement of IEC equipment were completed by March 2009. In May 2009, IEC campaign practically started with two programs, i.e. a social awareness program for barangays and an environmental education programs for schools. The main feature of the IEC campaign plan and the actual achievement are summarized as below.

	2009		2010	
	Planned	Actual	Planned	Actual (as of time of visit of the terminal evaluation team)
Sagay				
No. of barangays targeted	3	3	3	0 (to be started in August)
No. of schools whose teachers are trained	7	7	18	2
Calbayog				
No. of barangays targeted	7	7	5	0 (Just started)
No. of schools whose teachers are trained	8	8	15	3
Davao				
No. of barangays targeted	10	5*	17	11
No. of schools whose teachers are trained	25	25	24	0 (Just started)

As shown above, the IEC campaign in 2009 was almost carried out according to the IEC campaign plan. Most of IEC campaign in 2010 has started very recently, which is also as planned.

The exception was seen in the case of Davao (with an asterisk in the table above) in 2009. The social awareness raising program was not carried out in five barangays in the plan, because firstly one of the barangays was not cooperative, and secondly CENRO did not carry out the campaign in four barangays which were assigned to CENRO. CENRO pointed out that i) the City Ordinance that stipulated the responsibility of CENRO for IEC was drafted but not yet issued, ii) there was discrepancy in opinions between CENRO and DepED/CSSDO/CPDO, and iii) the four barangays were not what CENRO put a priority.

3. Final disposal system is improved.

3.1 The current dump site is closed in accordance with the safe closure guidebook. (Sagay & Calbayog)

The current dump site in Sagay and Calbayog is still in use and not closed yet. The detailed design of the landfill closure in Sagay and Calbayog was completed and presented in the 2nd technical seminar and the 4th workshop. The design was drawn in accordance with the guidebooks. As the new landfill is under construction, the current dump sites are still used.

The implementation status of safe closure is described on Page 3. Due to the time and financial constraint, it is very unlikely that the closure work is completed within the project period in both cities.

3.2 On-site training for sanitary landfill management is conducted using the operation and maintenance manual. (Sagay & Calbayog)

In both Sagay and Calbayog, the operation and maintenance manual of the sanitary landfill was drafted during the 3rd year of the project. Its contents were presented at the 2nd technical seminar. At the time of the terminal evaluation study, however, the on-site training for sanitary landfill management has not yet started as the new sanitary landfill is under construction.

Also, to start training, both cities need to institutionalize the operation system, as described on Page 3 in the section in "Implementation Status of Activities".

<p>4. Guidebooks and manuals are developed as a tool for planning and implementation of SWM based on the experience of the three cities.</p>	<p>4.1 The number of technical working group meetings held</p>	<p>NSWMC organized a technical working group for each guidebook. Each technical working group was composed of three officers of NSWMC.</p> <p>The group meetings were held 5 times since October to December 2009 as below.</p> <table border="1" data-bbox="252 235 384 1294"> <thead> <tr> <th>Guidebooks</th> <th>Date of Meetings</th> </tr> </thead> <tbody> <tr> <td>Solid waste disposal design, operation and management</td> <td>2 Nov, 9 Nov, 16 Nov, 23 Nov, 2 Dec.</td> </tr> <tr> <td>Safe closure of disposal sites</td> <td>4 Nov, 10 Nov, 17 Nov, 24 Nov, 3 Dec.</td> </tr> <tr> <td>Formulation of solid wastes management plan</td> <td>29 Oct, 30 Oct, 11 Nov, 18 Nov, 4 Dec.</td> </tr> </tbody> </table>	Guidebooks	Date of Meetings	Solid waste disposal design, operation and management	2 Nov, 9 Nov, 16 Nov, 23 Nov, 2 Dec.	Safe closure of disposal sites	4 Nov, 10 Nov, 17 Nov, 24 Nov, 3 Dec.	Formulation of solid wastes management plan	29 Oct, 30 Oct, 11 Nov, 18 Nov, 4 Dec.
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<p>4.2 The number of LGUs who participated in the consulting seminar</p>		<p>In December 2009, NSWMC held a technical seminar for the consultation about the draft guidebooks with the three cities (Sagay, Calbayog and Davao), LGUs in the national capital region, and other relevant organizations. The number of LGUs who attended was 6.</p> <p>At the 2nd technical seminar in the three cities where other LGUs also attended, the members of the technical working groups of NSWMC made a presentation about the guidebooks. There were participants from 5 LGUs in Sagay, 2 LGUs in Calbayog, and 9 LGUs in Davao.</p> <p>In total, 22 LGUs participated in the consulting seminars.</p>								
<p>4.3 The necessary procedure for the Department Administrative Order is initiated by the NSWMC to reflect the contents of the manuals/guidebooks produced.</p>		<p>The procedure to issue the Departmental Administrative Order (DAO) is as follows.</p> <ol style="list-style-type: none"> <li>The content of the guidebooks are reviewed at the Technical Working Group of NSWMC.</li> <li>The guidebooks are amended, if necessary, following the comments from TWG and NSWMC Resolution is drafted.</li> <li>TWG proposes NSWMC to approve the Resolution.</li> <li>NSWMC approves the Resolution and it is signed by NSWMC Chairman.</li> <li>Draft DAO shall be submitted to the Office of the Undersecretary for Policy and Planning for possible endorsement and approval of the DENR Secretary.</li> </ol> <p>The guidebooks were submitted to TWG, and as of the terminal evaluation, the current status is in Step a, awaiting review result from the TWG. NSWMC Secretariat estimates one month for Steps a and b, but it should be noted that TWG is held twice a month and there may be other priority issues to be discussed at TWG. Any practical difficulty to proceed to Step c is not observed, but it may take time as NSWMC is held only once a month.</p>								

3. Evaluation by Five Evaluation Criteria

	Evaluation Questions		Study Results
	Questions	Sub-questions	
Relevance	Necessity of the Project	Is the project consistent with the national or regional development and environmental policies of the Philippines?	<p>The Medium-Term Philippine Development Plan (MTPDP2004-2010) highlights solid waste management as one of target issues of the environment sector. Also MTPDP stated the importance to technically support the LGUs for full implementation of RA9003.</p> <p>As the global concern about climate change becomes high, the government of the Philippines is considering a solid waste management issue as one of the important challenges against climate change. The issue of Executive Order dated on January 19, 2009, which requires 50% reduction of waste amount, is a sign of a keen concern of the government about solid waste management.</p> <p>For the enforcement of RA9003, NSWMC has been making various efforts including the introduction of cost sharing scheme, enhancement of NSWMC, encouragement of safety landfill closure, development of solid waste management database and promotion of barangays' activities.</p> <p>The project, which intends improved solid waste management at the LGU level complying with RA9003, is accordingly considered consistent with the national policy of the Philippines.</p>
		Is the project consistent with the Japanese ODA policy?	<p>The "Assistance Plan for the Philippines" (by the Ministry of Foreign Affairs in Japan), which states the importance of "environmental conservation including strengthening of administrative capacity, measures for general waste disposal and industrial pollution, and natural environmental conservation", shows high priority given to the environmental issues in the Philippines. The environmental related programs are included in the "Environment Challenges" under "Sustainable Economic Growth for More Employment", which is one of the three policy pillars in the Assistance Plan. Furthermore, the Country Assistance Strategy (CAS) for the Philippines (Working Paper of ODA Taskforce of Philippines) also mentioned that solid waste management is one of the target areas for assistance by Japan's ODA.</p>
	Appropriateness of the project design	Were the C/Ps selected appropriately for the achievement of the project purpose and the overall goals?	<p>Because of the enactment of RA9003, all the LGUs were imposed important responsibility to carry out solid waste management and needed to shift to a new paradigm stipulated in RA9003. Among them, three target cities were those appropriately selected for the following reasons.</p> <p><b>Sagay:</b> The city positively followed RA9003, by issuing Ordinance No. 2330-2001 to organize City SWM Board and Ordinance No. 2380-2002 to implement city's SWM in line with RA9003. The city had a clear vision to be an environmentally friendly city and two offices, namely City Planning and Development Office and General Service Office, were well motivated toward ecological solid waste management under the city mayor.</p> <p><b>Calbayog:</b> The city initiated its challenges for better solid waste management by formulating a Task Force on Ecological Waste Management in 1995. After RA9003 was promulgated, the city issued Executive Order of Mayor #008, 28 February 2002, and City SWM Board was created. The city also started to work out its 10-year SWM plan and submitted it to NSWMC in November 2004. It was, however, not approved and the city needed technical assistance for rewriting. At the time of project commencement, the mayor of Calbayog was Secretary-General of the League of Cities in the Philippines, thus the city was in a position to promote good practices of SWM to other LGUs.</p> <p><b>Davao:</b> The integrated SWM plan was prepared just before the project and the willingness of the city to implement</p>

			<p>the plan was high. Although the city had been managing their solid waste in a dedicated manner, it still needed to be enhanced in some particular areas such as MRF development and IEC promotion. Further, being the largest city in Mindanao, it was expected to have an influence on other LGUs in the region.</p> <p>In addition to the three cities, NSWMC acted as the C/P at the national level. NSWMC's primary mission is the implementation of RA9003. It was, however, not effectively enforced and NSWMC needed to develop its practical knowledge on how to really put it in force and how to make the LGUs follow RA9003. NSWMC particularly needed to experience to go through all the SWM implementation process from planning to implementation, which was intended to carry out in the target cities in the project.</p> <p>The size of the C/P groups is considered to be generally appropriate in terms of effective project operation and dissemination impacts to other LGUs. The target cities are located in different regions, thus the influence of their good practices is expected to extend to a number of LGUs.</p> <p>It was, however, also considered that Davao could be too large for the project to raise public awareness through IEC within the limited project timeframe. Also, targeting three cities, which are located in different regions of the country and not connected each other by direct flights, forced the Japanese experts to severely manage their assignment schedule.</p> <p>The project had collaborative relationships with other foreign assisted programs in the solid waste management sector as below.</p> <ul style="list-style-type: none"> <li>• "Solid Waste Management as a Social Enterprise: Community-based 3R Approaches in Bago City, Philippines" by Kitakyushu Initiative (secretariat by IGES): Information about composting was exchanged.</li> <li>• "The Philippines Environmental Governance Project" by USAID and "Solid Waste Management for LGUs in the Visayas" by GTZ: A seminar on good practices was held collaboratively.</li> </ul>
	<p>Level of project purpose achievement</p> <p>Technical capacity development</p>	<p>Is the achievement level of the project purpose adequate at this stage? Will be the project purpose achieved at the end of the project?</p> <p>Did C/Ps develop their technical capacity by the project?</p>	<p>The level of the achievement of project purposes is already described on Page 7. The potential for the project to accomplish the project purposes will largely depend on the progress of landfill construction, which will in turn influence the adequacy of on-site training on landfill operation and maintenance and the progress of safe closure of existing dump sites. At the time of terminal evaluation, however, due to the time and financial constraint, it is very unlikely that the closure work is completed within the project period in both cities.</p> <p>NSWMC: NSWMC amended the two guidebooks (the one on solid waste disposal design, operation and management and the other on safe closure of disposal sites) and developed one guidebook for formulation of solid waste management plan. As of the terminal evaluation study, three NSWMC officers are those whose capacities are expected to improve through the project. Two of them were involved in the revision of the final disposal guidebook and the other in the safe closure guidebook. They were considered to be already capable to a certain extent at the project commencement, but it is observed that their capacity has further enhanced through the project activities. The three coordinators were part of the 9 NSWMC staff who prepared the guidebooks.</p> <p>Sagay:</p> <p>There are six C/Ps including a vice mayor as a leader, and five of them are those to be provided with technology transfer. Three of them are in a managerial position to supervise their organizations. As Sagay city does not have an</p>

		<p>office specialized in SWM, all the C/P members have both duties of SWM and duties of other subjects. Therefore, some C/Ps had a difficulty to concentrate on the project and considers that their capacity developments of technology transfer, and it is observed that the effect of the project extended beyond the C/P team to a certain extent.</p> <p><b>Calbayog:</b></p> <p>Calbayog City assigned seven persons as C/Ps including a vice mayor as a leader. The remaining six were the target group of capacity development. The C/P in charge of final disposal had limited opportunity of technology transfer in the stage of landfill construction as he is not directly involved in the supervision of landfill construction as a result of organizational arrangement by the city authority. Nevertheless, all the C/Ps understand the project in detail, and are well motivated to fulfill their duties in the project. As the city has its SWM office, an office designated to be responsible for SWM, the C/Ps of the SWM office had a certain level of capacity and have improved it further through the project.</p> <p><b>Davao:</b></p> <p>The activities in Davao are limited to the operation and monitoring of MRF and IEC campaign. The number of the C/P members is nine including a leader, and capacity development is targeted to six of them, who are directly involved in the aforementioned activities. Those six include new members who joined the project in October 2009, but all of them show significant improvement of their capacity. Their active participation in the project is considered to contribute to the successful achievement of the project in Davao.</p>
<p>Implementation of the ESWM Plans</p>	<p>Is the ESWM Plans implemented as planned?</p>	<p>The annual reports 2009 of SWM of Sagay and Calbayog comparatively reported what was actually done by the cities and what was planned in the ESWM Plans. According to the reports, the ESWM Plans have been implemented as planned as of the time of its preparation. At the time of terminal evaluation, the sanitary landfill construction and operation and open dump closure are delayed, but are expected to be achieved once the budget is secured.</p>
<p>Were the outputs sufficient to achieve the project purpose?</p>	<p>Are the C/P members involved in the ESWM Planning engaged in the plan execution? (Effectiveness of Output 1 to the project purpose)</p> <p>Is the improved waste diversion system contributing to WDR increase? (Effectiveness of Output 2 to the project purpose)</p>	<p>The C/P members involved in the ESWM Planning have been implementing and reviewing the Plan, thus the planning capacity developed through the project activities is considered to be effectively utilized in plan implementation.</p> <p>Because the improvement of WDR is not clearly proved, it cannot be judged whether Output 2 is contributing to WDR increase. It is considered, however, that the system that the project intended to develop has the possibility to increase WDR.</p> <p>The project aimed to improve the waste diversion system by the establishment of a pilot MRF and IEC campaigns. The amount of waste received at the pilot MRF in Sagay and Calbayog is not sufficiently large. The pilot MRFs have the following issues to be considered.</p> <ul style="list-style-type: none"> <li>• Recyclable waste is not collected at the MRFs as it is sold to buyers by the residents.</li> <li>• Not all food waste is collected at the MRF as it is fed to animals.</li> <li>• The manpower and skills of the MRF workers are not enough and assistance by the cities, the barangays and/or the barangay residents is further required.</li> </ul>

**Effectiveness**



	<p>Nevertheless, the technical capacity of the C/Ps in charge of the MRF has been adequately improved. The record keeping of MRF is functioning although it needs improvement. The C/Ps and personnel working at the MRFs are willing to activate the facility by process modification. The visits from the inside and outside of the cities for an environmental education purpose have not only encouraged the movement toward ecological waste management but also stimulated the MRFs themselves.</p> <p>In Davao, the pilot MRF serves an essential component of the whole solid waste management system of the barangay. The pilot MRF receives more than 300 kg/day of biodegradable waste and more than 20 kg/day of recyclable waste, diverting substantial amount of waste from final disposal.</p> <p>The IEC campaigns have been carried out even more vigorously than planned as the demand for the campaign was increased. The project developed various printed materials, including pamphlets, textbooks for students, and instruction materials for teachers. The positive and cooperative reaction from residents and school teachers has been observed.</p> <p>Furthermore, it is considered that the project gave a momentum to WDR to increase during the remaining period of the SWM Plan.</p> <p>According to the ESWM Plan of Sagay and Calbayog, the improvement of WDR is expected as a result of the following.</p> <ul style="list-style-type: none"> <li>• The increase of waste segregation behavior among the residents-----A.</li> <li>• The increase of the number of MRFs. -----B.</li> <li>• The establishment of a central composting facility. -----C.</li> </ul> <p>A is likely because the cities well recognize the importance of IEC and necessity of continuous IEC. They are well motivated to apply the capacity of IEC developed through the project.</p> <p>B is partially likely, considering the impact of the pilot MRFs on the other barangays and cities' technical capacity acquired from the project experience. Sagay City constructed another MRF in 2010 and started vermi-composting of biodegradable waste from markets. City's financial arrangement for MRF development largely depends on when and how the fee collection options proposed by the project are implemented.</p> <p>C is also considered partially likely in Sagay and Calbayog. The space for central composting is secured at the existing vermin composting site in Sagay and the site of Calbayog is secured in the compound of new landfill sites. The actualization of the fee collection options is strongly expected to cover the initial and operation costs. The biodegradable waste will be collected from markets. The technology to be used will be vermi-compost or windrow, which are already practiced in Sagay. Sagay City will also start segregated collection whereby biodegradable waste from households is brought to the central composting facility. Calbayog City also has intention to introduce segregated collection and will continue advocacy on waste segregation to barangays.</p>
<p>Have the C/Ps acquired sufficient technical capability to operate and maintain the final disposal sites in a sanitary manner? (Effectiveness of Output 3 to the project</p>	<p>As the new final disposal sites are still under construction in both Sagay and Calbayog, the training on operation and maintenance of the final disposal sites has not started yet. The C/Ps, however, have acquired some basic knowledge about sanitary landfills through the preparation of operation and maintenance manuals and information sharing about the preparation of the Technical Guidebook on Solid Wastes Disposal Design, Operation and Management.</p> <p>Only after the completion of construction and institutionalization of the operation structure, the on-site training at the</p>

Effectiveness	purpose)	<p>final disposal sites can start. It will start, at the earliest, in late August 2010 in Calbayog and September 2010 in Sagay. This means at maximum one and a half years are allowed to the operation and maintenance training. The training period of one and a half months is considered to be minimal for effective technology transfer.</p>
	<p>Are there any other factors which contributed to project purpose achievement?</p>	<p>The local consultants who have been working with the C/Ps in three cities throughout the project period adequately helped the communication between the C/Ps and the Japanese experts and facilitated the project activities.</p>
	<p>Did any of the “important assumptions” influence the project?</p>	<p><b>Important Assumption 1:</b> The ESWM Plans of Sagay and Calbayog were both approved by NSWMC in June 2010.  <b>Important Assumption 2:</b> The waste collection fee options of the two cities were prepared, but not officially proposed. It is the matter of new city administration in the two cities, which have just taken over since July 2010. Although the resistance of the citizens is anticipated, it is considered that this is the most appropriate time to introduce the fee system now that the new sanitary landfills start to operate. Difficult and plausible decision is truly anticipated.  <b>Important Assumption 3:</b> The mayors of the three cities were changed after the May 2010 elections. Construction works are included in the project in Sagay and Calbayog, and the mayors retain ultimate decision making power in regard to the allocation of human resources and budget. The understanding and support of the previous mayors that the project team had fostered since the beginning of the project has to be built again with the new mayors. The project team started to explain about SWM as a whole and specifically about the project to the new mayors. Also, the decision on the collection fee system was not made before the elections to avoid negative influence to the election results. Even after the elections, the proposal cannot still submitted as the new administration has just taken over.</p>
<p>Are there any other influencing factors?</p>	<p>The following influencing factors were found.</p> <ul style="list-style-type: none"> <li>• The delay in the submission of requirements for ECC approval (Sagay) and delay in loan agreement with DBP (Calbayog) took time to start the construction of landfills.</li> <li>• Natural disasters worsened the financial condition of the country and impede the appropriation of IRA for landfill construction in Sagay.</li> <li>• The national elections caused delays in the procedure of request for loan disbursement, hence slowed down construction.</li> <li>• A number of uncertainties in the request process for loan disbursement from LBP further delayed construction.</li> </ul> <p>Also, there is a concern that can be another influencing factor for the operation and maintenance of the sanitary landfills. Sagay and Calbayog need to establish management teams and mobilize resources including personnel, machinery and budget necessary for adequate operation and maintenance.</p>	

Efficiency	Level of project outputs achievement	Is the achievement level of the project outputs adequate at this stage? Will be the project output achieved at the end of the project?	The level of achievement of the project outputs was described in "1. Verification of Achievements" on Page 9. As some activities are behind the schedule, the level of achievement is in short of the expected level.
Were the amount, quality and timing of the input appropriate compared to the produced output?	Adequacy of the number, assignment timing and duration, and area of expertise of the J/Es	<p>The input of the Japanese experts was generally adequate, but their assignment period was not appropriate in some cases because of the followings.</p> <ul style="list-style-type: none"> <li>• The assignment needed to be allocated to four cities (including Metro Manila), making the each period of visit to each city not longer than one week. The stay was too short on some occasions to execute both office work (meetings, plan making, arranging for newly assigned personnel, etc.) and field work.</li> <li>• Once the experts visited the Philippines, they visited four cities. The timing of the visit could not be adjusted to the specific needs of each C/P organization.</li> </ul>	
	Adequacy of the number, specification and timing of the equipment provide.	<p>The items provided and their current statuses were shown in "Timing, amount and quality of input" on Page 1. As for the IEC campaign equipment in Davao, however, where three campaign teams are actively working as it is a large city, the number of equipment is not enough. The combustible gas detectors are not yet used: it should be utilized when the new sanitary landfills become operational.</p>	
	Adequacy of the number of participants, timing and contents of the counterpart training in Japan	<p>The C/P training in Japan was carried out twice and both are considered effective for project implementation.</p> <p><b>1st C/P training in Japan:</b> Being the first training in Japan of this project, it mainly expected the C/P members who should exercise a leadership to understand the importance of appropriate solid waste management and have an overall picture of the entire system. All the participants expressed their satisfaction about the training, although they had some difficulty to understand part of the training due to a language barrier and the insufficient knowledge about the specific waste management system executed in Japan.</p> <p><b>2nd C/P training in Japan:</b> The second training in Japan was conducted mainly aiming at drawing lessons practical and adaptable for the Philippines from Japanese practices with particular focuses on resource recovery and local residents' mobilization. The site visit was carefully planned to include places where there were common features of the solid waste management with the Philippines, such as SWM without the use of incineration and direct landfill of non-treated household waste. All the participants acquired new knowledge useful for their project activities and the effect of the training was valued by both the C/Ps and the Japanese experts.</p>	
	Adequacy of the number, degree of participation and technical capacity at project commencement of the C/Ps	<p>The C/P members in Sagay and Calbayog were adequately assigned to the project activities. Not only the personnel of the office/section in charge of solid waste management but also the personnel from other organizations (such as Department of Education) were involved if appropriate.</p> <p>In Davao, the activities of the pilot MRF and IEC campaign are the main components of the project. The activities largely depended on the C/Ps from Brgy. Vicente Hizon, DepEd, CPDO and CSSDP, although they did not have any formal training in solid waste management.</p>	
	Adequacy and timing of local cost to be borne by the C/Ps	<p>The local cost to be borne by the C/P necessary for the project operation was mostly secured for the daily activities however the cost for final disposal is yet to be allocated. The cost for the construction of new sanitary landfills was borne by the concerned LGUs, but the delay of disbursement slowed down the construction work.</p>	

<b>Impact</b>	<p>Is the achievement of the overall goal expected due to the effect of the project?</p>	<ul style="list-style-type: none"> <li>• Are there other LGUs which are interested in the replication of knowledge and experience of ESWM in the three target LGUs?</li> <li>• Are the knowledge and experience of ESWM in the three target LGUs readily available for other LGUs?</li> </ul>	<p>The following observation implies the achievement of the overall goal as an impact of the project.</p> <ul style="list-style-type: none"> <li>• The neighboring LGUs of the three cities often visit the pilot MRFs, new sanitary landfill sites, and attended the technical seminars of the project. This suggests the effect of the project to raise interest and motivation of the other LGUs towards ecological SWM.</li> <li>• Utilizing the lessons learnt from the project, waste amount and composition surveys were carried out in the municipalities adjacent to Sagay, such as Cadiz and Escalante with instruction by the C/Ps of Sagay.</li> <li>• Sta. Margarita Municipality, adjacent to Calbayog, started to consider its SWM Plan. The Municipality of Gandara, also adjacent to Calbayog, is preparing an MRF plan.</li> <li>• The C/Ps have the soft copies and/or hard copies of project outputs relevant to each city, such as ESWM Plans, engineering design drawings of pilot MRFs, sanitary landfills and dumpsite closure, operation and maintenance manuals of sanitary final disposal, IEC material, etc. They are ready to be used by the other LGUs.</li> <li>• NSWMC already developed a plan of capacity building program for the LGUs to understand the guidebooks. This shows positive attitude of NSWMC toward guidebook dissemination.</li> </ul>
<p>What is the status of external factors for overall goal achievement?</p>	<p>External factors:</p> <ul style="list-style-type: none"> <li>- Utilization of the manuals/guidebooks by other LGUs</li> <li>- Establishment of operational assistance mechanisms for LGUs</li> <li>- Issuance of the DAO</li> </ul>	<p><b>External Factor 1:</b> The copies of the three guidebooks were already delivered to the EMB Regional Offices, and the EMB Regional Office will distribute them to LGUs. The feedback from the LGUs that received the guidebooks is favorable. To further promote the utilization of the guidebooks they should be reproduced more and be made available on the internet.</p> <p>For the effective utilization of the guidebooks, however LGUs need practical and technical assistance. In order to provide adequate technical assistance, the enhancement of National Ecology Center and Regional Ecology Centers (RECs) by augmenting the number of technical personnel is necessary.</p> <p><b>External Factor 2:</b> The NSWMC has already requested the Department of Budget and Management (DBM) to allocate and release 1.0 Billion Pesos that will constitute the first tranche of the national government. It is, however, not allocated yet.</p> <p><b>External Factor 3:</b> The study result of Indicator 4-3 (page 13) is to be referred to. The issuance of the DAO needs to go through the deliberation at the TWG and NSWMC, and will be influenced by the schedule of TWG and NSWMC and other issues to be deliberated. Nevertheless, NSWMC Secretariat should have enough capability to fulfill its responsibility for explaining the guidebooks in the TWG and NSWMC, and no particular difficulties are anticipated.</p>	

Impact	Any other impacts, either positive or negative?	The following impacts are found.
		<ul style="list-style-type: none"> <li>• In Sagay, the awareness of the C/Ps and city residents has been further raised through the project, and achieved to such a level as all the 12 barangays in the waste collection service area have MRFs even though some are operating at a basic level using indigenous materials.</li> <li>• Both Sagay and Calbayog plan to implement a “no segregation, no collection” policy when the new sanitary landfill becomes operational and intend to continue advocacy activities.</li> <li>• Sta. Margarita, a neighboring LGU of Calbayog, and Escalante City, a neighboring LGU of Sagay are considering to use the sanitary landfills of the two cities. If the two cities decide to receive waste from the neighboring LGUs, the project will contribute to the ecological SWM of the other LGUs. Receiving waste from other LGUs may shorten the service life of the sanitary landfill, but such a negative impact can be minimized by setting the tipping fee at an appropriate level.</li> <li>• The sanitary landfills and pilot MRFs serve as a showcase for study tours of other LGUs and students.</li> <li>• If proper operation and maintenance is not provided, there is a possibility that sanitary landfill will have negative impact to the environment.</li> <li>• If proper consideration and livelihood assistance is not given to waste pickers working on the existing dump sites, then social negative impact is anticipated when the dump sites are closed.</li> <li>• Although the EMB Regional Offices are not directly involved in this project, the EMB’s SWM coordinators have been invited to the technical seminars and the SWM coordinator of EMB Region XI has even participated in the project as a C/P in the later stage. It is thus considered that the project stimulated the knowledge and concerns about SWM at the EMB Regional Offices in the three regions.</li> <li>• Sufficient information about the project is provided whenever enquired by mass media, students and researchers from both Japan and the Philippines. The understanding about the project, as well as the SWM issues of the country as a whole, is considered to have increased.</li> </ul>

<b>Sustainability</b>	<p>Sustainability in the light of NSWMC</p>	<p>Is NSWMC likely to continue to disseminate the guidebooks based on the project experience in terms of political, institutional, financial and technical sustainability?</p>	<p>As already described in the study result of "Relevance", the government of the Philippines pays particular attention to SWM in the view of environmental management as well as climate change. There is a prospect that the SWM policy is continuously promoted after the termination of the project.</p> <p>NSWMC is a policy making arm of the government, pursuing the effective implementation of RA9003. The guidebooks prepared by the project are tools to encourage the LGUs to observe RA9003 and its dissemination is consistent with the mandates of NSWMC. Accordingly, institutional sustainability is sufficient.</p> <p>NSWMC plans to organize a capacity development program to disseminate the guidebooks from July to December 2010 using its own budget and personnel. NSWMC recognizes the importance of continuous advocacy activities to facilitate the understanding of the LGUs with main focus on the newly elected mayors. Accordingly, NSWMC intends to manage guidebook dissemination even after project termination using their resources.</p> <p>Furthermore, with knowledge acquired through the guidebook preparation, the technical capability of NSWMC has been developed enough for them to be able to carefully explain the guidebooks and reply to inquiries from the LGUs, and even to revise them in future whenever the necessity arises due to changes in SWM conditions.</p> <p>Overall, the effect given by the project to NSWMC is considered to be sustainable.</p>
	<p>Sustainability in the light of the LGUs</p>	<p>Are the LGUs likely to continue to implement ESWM Plan in terms of political, institutional and financial sustainability?</p>	<p><b>Sagay:</b> Considering the good understanding of stakeholders about the ESWM Plan, their motivation to put it in effect, and initiatives taken by the C/P in the project activities and intention to introduce segregated collection, it can be stated that the sustainability of the C/Ps in Sagay has been growing. Their technical capacity required for proper SWM has reached to such level towards their capability to revise the plan every five years as required by RA9003, except for technology for operation and maintenance of sanitary final disposal and safe closure of the dump site.</p> <p>There is, however a concern in the institutional aspect. Sagay city does not have an office or personnel exclusively in charge of SWM, and the C/Ps members are from different offices. Consequently, the knowledge and experience acquired through the project belongs to individuals and can be dispersed in the event of the change or replacement of personnel. It is required to promote knowledge sharing by preparation of manuals, publishing the annual report and other means of information dissemination, and to establish the independent office specialized in SWM in the future. In fact, the city started to consider the establishment of an SWM office. In such an event, a more sustainable SWM can be expected.</p> <p>Financial sustainability largely depends on the establishment of the waste collection fee system. The primary consensus on the fee charging system was reached during the previous city administration and the new mayor has a basic policy to support a beneficiary-pay-principle. Therefore, the approval of the fee charging system can be expected, but there are still remaining issues with regards to the level of fee amount and ensuring fair implementation.</p> <p><b>Calbayog:</b> Adequate sustainability is found in Calbayog, where the C/Ps have been making an intense effort to implement the project and to put their ESWM Plan into action. CSWMO, dedicated to providing SWM services, has acquired technical expertise and experience adequately enough to revise the ESWM Plan every five years.</p> <p>DepED also expressed their strong support to continue the IEC campaigns and the recognition of their responsibility for awareness raising and waste education. However, encouraging the public to practice waste segregation can be fully sustainable only when it is accompanied by the introduction of segregated collection and/or involvement of junkshop operators.</p> <p>However, the problem of technical staff shortage in CSWMO is significant. It urgently needs more technically skilled</p>

personnel for continuous implementation of sanitary final disposal and establishment of segregated waste collection. Also, it is recommended that anticipated outsourcing of final disposal operation as well as current outsourcing of waste collection should keep ensuring consistency with the city's ESWM Plan.

Further, there is a concern about financial sustainability: introduction of the new fee charging system is inevitable. It will be a favorable indication that the city has already implemented the fee charging system for business establishments. The city plans to have public consultation to determine appropriate fee level and to make the system implemented in a fair manner.

**Davao:** It is a potential factor for sustainability that the CPDO, a focal office in policy implementation of the city, has cooperatively shown its commitment and implemented the IEC campaign. CSSDO and DepED also expressed their strong motivation to continue the IEC campaigns and the recognition of their responsibility for awareness raising and waste education. However, encouraging the public to practice waste segregation can be fully sustainable only when it is accompanied by the introduction of segregated collection and/or involvement of junkshop operators.

## Annex 4: List of Input from Japan

### 1. List of the Japanese Experts

Task	Name	Assignment Period
Chief Advisor / Solid Waste Management	Takashi Goto	23/10/2007-05/03/2008 12/05/2008-30/07/2008 20/08/2008-18/10/2008 17/11/2008-16/12/2008 19/01/2009-27/02/2009 27/04/2009-13/07/2009 03/08/2009-29/09/2009 26/10/2009-16/12/2009 13/01/2010-13/03/2010 18/04/2010-02/05/2010 24/05/2010-present
Final Disposal	Masaharu Takasugi	23/10/2007-16/12/2007 28/02/2008-13/03/2008 12/05/2008-08/09/2008 14/01/2009-14/03/2009 11/05/2009-09/06/2009 14/09/2009-12/11/2009 13/01/2010-13/03/2010 16/06/2010-present
Waste Diversion	Sanpei Nakanishi (Kenji Igarashi)	23/10/2007-16/12/2007 13/02/2008-13/03/2008 12/05/2008-10/06/2008 30/06/2008-29/07/2008 01/09/2008-30/09/2008 20/10/2008-03/12/2008 28/01/2009-13/03/2009 14/06/2009-13/08/2009 06/01/2010-04/02/2010
Financial Analysis	Kimiya Tachiyama	23/10/2007-16/12/2007 20/02/2008-05/03/2008 28/07/2008-25/09/2008 01/06/2009-30/06/2009 01/02/2010-02/03/2010
Information Education Campaign	Kenji Takayanagi	17/11/2007-16/12/2007 01/09/2008-30/09/2008 17/11/2008-16/12/2008 01/06/2009-15/07/2009 13/10/2009-11/11/2009 01/06/2010-30/06/2010
Environmental and Social Consideration / Coordinator	Masashi Watanabe	23/10/2007-13/02/2008 13/02/2008-13/03/2008 12/05/2008-10/06/2008 01/09/2008-30/09/2008 27/04/2009-29/05/2009 02/09/2009-01/10/2009 09/02/2010-12/03/2010

### 2. List of Provided Equipment

Items	Equipment or facility	Target City	Quantity	Price
Equipment for Waste Characterization Survey	Portable weigh bridge	Calbayog, Sagay, Davao	1 for 3 cities (total)	29,320 [USD]
Water Quality Analysis Material	Portable Water Quality Meter with standard accessories and cable 10m	Calbayog, Sagay, Davao	1 for each city	550,000 [PhP]
	Portable Total Nitrogen and Total Phosphorous Series Absorption Meter	Davao	1 for Davao	272,000 [PhP]
IEC Campaign Material	Video Recorder with accessories and	Calbayog, Sagay, Davao	1 for each city	63,000 [PhP]



	consumables			
	Digital Camera with Accessories	Calbayog, Sagay, Davao	1 for each city	78,000 [PhP]
	Laptop PC with Pre-installed OS Windows Vista Home Basic Edition, MS Office and accessories	Calbayog, Sagay, Davao	1 for each city	195,000 [PhP]
	Printer with accessories	Calbayog, Sagay, Davao	1 for each city	36,500 [PhP]
	LCD Projector with accessories	Calbayog, Sagay, Davao	1 for each city	191,400 [PhP]
	Mini Screen	Calbayog, Sagay, Davao	1 for each city	10,800 [PhP]
	Vehicle	Calbayog, Sagay, Davao	1 for each city	5,040,000 [PhP]
	Printing Materials (Teacher's and Student's Texts, Pamphlets, Posters)	Calbayog, Sagay, Davao	2,000 texts for teachers, 6,000 texts for students, 60,000 pamphlets, 1,000 posters (for 3 cities (total))	21,700 [PhP]
	T-shirts	Calbayog, Sagay, Davao	2000 pieces (for each city)	
Material Recovery Facilities	Buildings for Waste Processing and Office (Reinforced concrete with steel structure)	Calbayog, Sagay, Davao	1 for each city	65,629 [USD] (Sagay)
	Rotating Composter (Movable drum type)	Calbayog, Sagay, Davao	1 for each city	63,216 [USD] (Calbayog)
	Shredder (Movable Type Driven by Electric Motor)	Calbayog, Sagay, Davao	1 for each city	61,737 [USD] (Davao)
	Platform Scale Dial (Dial Type Scale)	Calbayog, Sagay, Davao	1 for each city	
	Water Jet Cleaner (Movable Type Driven by Electric Motor)	Calbayog, Sagay, Davao	1 for each city	
Combustible Gas Detector	Combustible gases and vapors (specify gas to be detected), Manufacture: New Cosmos Model No: XP 3110	Sagay city and Calbayog city	1 for each city	93,400 [PhP]

### 3. List of Subcontracting Work

#### (1) Subcontracting work during 2007 JFY

Subcontracting work	Contract amount (US \$)	Contract amount (PhP)
1. Topographic survey	14,046	599,200
2. Geological survey	18,482	788,480
3. Public awareness survey	13,071	557,603
4. Waste flow survey	9,962	425,000
5. Local expert	35,602	1,810,400
<b>Total</b>	<b>91,163</b>	<b>4,180,683</b>

#### (2) Subcontracting work during 2008 JFY

Subcontracting work	Contract amount (US \$)	Contract amount (PhP)
1. Local experts (including design of final disposal)	165,669	7,156,598
2. Water quality survey	4,932	216,000
3. Construction of pilot MRFs	190,582	8,906,790.70
3-1. Davao City	61,737	2,885,247.72
3-2. Sagay City	65,629	3,067,170.01
3-3. Calbayog City	63,216	2,954,372.87

4. Maintenance of Home page	2,301	100,800.00
5. Detailed Design of sanitary landfill	56,157	2,360,870.40
6. Preparation of IEC material	21,700	1,025,904.00
Total	441,341	19,766,963.10

### (3) Subcontracting work during 2009 JFY

Subcontracting work	Contract amount (US \$)	Contract amount (PhP)
1. Local experts (including design of final disposal)	111,606	5,408,376.00
2. Detailed design of Safety Closure of existing sanitary landfill	51,800	2,450,000.00
3. Compost Analysis	3,656	177,172.80
4. Maintenance of Home page	2,080	108,000.00
5. Preparation of IEC material	21,378	994,412.50
Total	190,520	9,137,961.30

### (4) Subcontracting work during 2010 JFY

Subcontracting work	Contract amount (US \$)	Contract amount (PhP)
1. Local experts (including design of final disposal)	62,866	2,840,000.00
2. Public Awareness Survey	15,365	694,000.00
3. Maintenance of Home page	1,488	67,200.00
4. Supervision of SLF Construction work	7,795	352,138.18
Total	87,514	3,953,338.18

## 4. Training in Japan

### (1) In 2008

The training for C/Ps has been implemented from October 27, 2008 to November 15, 2008 in Japan. The participants are as follows.

Name of City	Task	Position	Remarks
Sagay	SWM Plan, WD	Executive Director, City SWM Council	
	SWM Plan, Financial Analysis	Head, City Planning and Development	
Calbayog	Task Team Leader	Vice Mayor	
	Deputy Task Team Leader	CSWMO	
Davao	Task Team Leader	Acting Dep. Head, CENRO	
	Environmental and Social Consideration	Engineer, CENRO	Replaced a former C/P who attended training in Japan but left the project.

### (2) In 2009

The training for C/Ps has been implemented from October 5, 2009 to October 24, 2009 in Japan. The participants are as follows.

Name of City	Task	Position	Remarks
Sagay	Final disposal	City Engineer, City Engineering Office	
	Environmental Monitoring	Environmental officer, CENRO	
Calbayog	Final Disposal	City Engineer, City Engineer Office	
	Finance	City Councilor	
Davao	MRF	Barangay Captain	
	SWM Administration	Regional SWM coordinator, Region XI	

**Annex 5: List of the Input from the Philippines**

1. List of C/P

Present C/P Personnel in Each City (Participants of the Training in Japan are listed in boldface.)

(1) Sagay

Task	Position	Remarks	Assignment Period [week]
<b>Task Team Leader</b>	<b>City Administrator</b>	He resigned (June, 2010)	20
<b>SWM Plan, WD, IEC</b>	<b>Executive Director, City SWM Council</b>	He is OIC of the task team leader.	20
<b>SWM Plan, Financial Analysis</b>	<b>Head, City Planning and Development</b>		5.5
<b>WD</b>	<b>General Service Office (GSO)</b>	Used to be in charge of FD as an engineer of City Engineers Office, replaced a former C/P who had retired, and moved to GSO.	11
<b>Final Disposal</b>	<b>OIC, City Engineers Office</b>	Replaced the abovementioned engineer who used to be in charge of final disposal.	14
<b>Env'l and Social Consideration, IEC</b>	<b>Head, CENRO</b>		10

(2) Calbayog

Task	Position	Remarks	Assignment Period [week]
<b>Task Team Leader</b>	<b>Vice Mayor</b>		20
<b>Deputy Task Team Leader/SWM Plan</b>	<b>Department Head, City SWM Office</b>	Mostly engaged in project coordination.	20
<b>SWM Plan, IEC</b>	<b>Asst. Department Head, City SWM Office</b>		20
<b>WD</b>	<b>Project Evaluation Officer, City SWM Office</b>		11
<b>Financial Analysis</b>	<b>City Councilor, City Council</b>		5.5
<b>SWM Environmental and Social Consideration</b>	<b>Department Head, City SWM Office</b>		4
<b>Final Disposal</b>	<b>Engineer, City Engineers Office</b>		14
<b>IEC</b>	<b>Principal of Carmen Elementary School, Department of Education</b>		6

(3) Davao (October 2007 - September 2009)

Task	Position	Remarks	Assignment Period [week]
<b>Task Team Leader</b>	<b>Acting Dep. Head, CENRO</b>		12
<b>Deputy Task Team Leader/ SWM Plan</b>	<b>Acting Assistant Department Head, CENRO</b>		12
<b>Final Disposal</b>	<b>Engineer, City Engineers Office</b>		6
<b>WD</b>	<b>CEII, CENRO</b>		9
<b>Financial Analysis</b>	<b>City Budget Office</b>		3
	<b>City Accountant's Office</b>		3
<b>IEC</b>	<b>City Schools Superintendent, Dep. of Education</b>		3
	<b>Education Supervisor, Dep. of Education</b>		3
<b>Environmental and Social Consideration</b>	<b>Engineer II, CENRO</b>	Replaced a former C/P who attended training in Japan but left the project.	2

(October 2009 - September Present)

Task	Position	Remarks	Assignment Period [week]
Task Team Leader (1)	Acting Dep. Head, CENRO	JCC Meeting (Feb. 2010) only	1
Task Team Leader (2)	Regional ESWM Coordinator, EMB Region XI		3
City Representative	City Planning Coordinator OIC	Project Coordinator	2
Pilot MRF Activities	Barangay Captain	City Councilor (June,2010)	8
	Barangay Hizon Secretary	New appointed	8
IEC Campaign (1)	DEP ED		6
	Head teacher, High school		6
IEC Campaign (2)	CSSDO		6
	CSSDO		6
Environmental and Social Consideration	Engineer, CENRO		2

(4) NSWMC

Task	Position	Remarks	Assignment Period [week]
Officer in charge of Region VI	PDO III	Sagay City	6
Officer in charge of Region VIII	Sr. EMS	Calbayog City	1
Officer in charge of Region VIII	Senior Geologist	Calbayog city	6
Officer in charge of Region XI	EMS I	Davao City	4

3. Main Project Operation Cost

Item	Price [PhP]
Administration Cost (office equipment, utility cost, transportation cost, etc)	- <sup>1</sup>
ECC Acquisition Cost	8,000 (4,000 for Sagay and Calbayog each city)
Land acquisition cost for new SLF	3.5 million (2.5 million for Sagay, 1 million for Calbayog)
O & M cost for pilot MRFs	0.72million

Landfill Construction Cost	Sagay 37.3 million, Calbayog 48.1 million
Safety Closure of Existing disposal site (not secured yet)	Sagay 5.3 million, Calbayog 7.6 million

<sup>1</sup> It is difficult to determine because the administration cost for the Project is included in the other activities in the LGUs.

**Annex 6: Activities and Status of Their Achievement**

	Activities	Status of achievement		Findings	
		Planned Time Frame	Present		
Output 1	Sagay and Calbayog	1.1 Review the current status of SWM and identify issues to be addressed	From Oct 2007 to Dec 2007	Achieved with some delay	The current SWM such as existing facilities for SWM, legislation, organizations in charge of SWM, social activities for SWM, present 3R activities, recyclables' market, and SWM operation (waste collection and final disposal) were studied.
		1.2 Conduct a cost analysis of the current SWM practices in Sagay	From Nov 2007 to Dec 2007	Achieved with some delay	Current cost for SWM was studied and included in the SWM Plan but only including the collection and transportation cost.
		1.3 Formulate a SWM plan in accordance with NSWMC guideline	From Jan 2008 to Sep 2008	Achieved with some delay	Sagay: The ESWM plan was once drafted in September 2008. It was finalized with inclusion of cost and economic analysis and finally approved by the City Council in June 2009. It was also submitted to NSWMC in March 2009 and approved by NSWMC in June 2010. Calbayog: The ESWM Plan was drafted in September 2008. The draft further included cost and economic analysis and the recommendations from the City Council and approved by the City Council in March 2009. Also, it was submitted to NSWMC in March 2009 and approved in June 2010.
	1.4 Conduct a financial study on the SWM plan and formulate a financial plan based on the concept for charging waste fee	From April 2008 to June 2008	Prolonged until March 2009.	The financial study has been implemented and incorporated into SWM plan. Further studies continued and the proposal of fee collection options was prepared.	
	1.5 Monitor the implementation of the SWM plan.	From Jan 2008 to the end of the project	In progress	The data about waste collection and disposal, recycling activities, and IEC campaign have been collected. The data in 2009 was compiled into the annual report.	
Davao	1.1 Conduct training through workshops, technical seminars and on the job training (OJT) on SWM activities	From Oct 2007 to the end of the project	In progress	Four workshops and two technical seminars were hold. During the workshop and seminar, C/Ps made presentations as a part of training. There were many other small meetings and lecturers to discuss the project activities and collaborative works.	
Output 2	Sagay and Calbayog	2.1 Conduct field investigations to determine the current waste flow.	From Oct 2007 to March 2008	Achieved as scheduled	Waste characterization survey was carried out to determine the current waste flow.



Output 3	Sagay and Calbayog	From Oct 2007 to Dec 2007	Achieved with some delay	Site investigation and necessary surveys were carried out to consider the possibility to convert the existing dump site to SLF and/or closure.
3.1	Conduct site investigation and necessary surveys for the existing dump site.	From Oct 2007 to Dec 2007	Achieved with some delay	Site investigation and necessary surveys including geological and topographic surveys were carried out.
3.2	Conduct site investigation and necessary surveys for the proposed site.	From Oct 2007 to Dec 2007	Achieved with some delay	Sagay: The continuous use of the existing open dump site was considered difficult as the site area was limited and the land owner demanded the return of the land.
3.3	Examine a possibility of continuous use of the open dump site by converting into a SLF	From Jan 2008 to Feb 2008	Achieved with some delay	Calbayog: The continuous use of the existing open dump site was considered not appropriate due to the topographic feature of the site and the city plan to develop the near-by area for one of the community center.
3.4	Conduct design of a SLF at the proposed site.	From April 2008 to Sep 2008	Achieved but delayed	The detail design was conducted for Sagay and Calbayog and prepared the cost estimates and the other document required for bidding.
3.5	Conduct EIA for the proposed site	From July 2008 to Sep 2008	Achieved but delayed	Sagay: Though IEE was completed, it was found that the geological assessment by MGB was also necessary. The geological assessment was carried out in June 2009 and the city received the ECC issued on May 13, 2009.
3.6	Assist to arrange a fund for construction of the SLF	From Oct. 2008 to March 2009	Achieved but delayed	Calbayog: Calbayog City received the ECC issued on February 3, 2009 from EMB Regional office.
3.7	Prepare for bidding for the construction of the SLF	From April. 2009 to June 2009	Achieved well ahead of schedule	Sagay: Arrangement of the fund for construction of SLF was made firstly by IRA. But due to delayed appropriation of the IRA, IRA available for Sagay was much less than expected and it signed the loan agreement with the Land Bank of the Philippines at the end of 2009 for a substantial portion of the construction work and the balance will be provided from appropriation of the IRA. Calbayog: The loan agreement for the construction of SLF was signed with Development Bank of the Philippines on July 1, 2009.
3.8	Carry out the construction work of the SLF.	Sagay: From July 2009 to June 2010 Calbayog: From July 2009 to March 2010	In progress (delayed)	The bidding document was prepared for both cities through the SLF in Sagay is constructed by the city administration method. Calbayog signed contract with the contractor for construction of the SLF. The construction delayed firstly because its start delayed from the plan due to the delayed approval of ECC (Sagay) and delayed loan agreement with DBP (Calbayog). Secondly, the construction work was slow down before and after the general election period due to delay of payment caused of the common procedures practiced in the Philippines.

	3.9 Operate and maintain the SLF	From April 2010 to the end of the project	Not started	Operation and maintenance is not started yet since the SLF is still under construction.
3.10	Formulate a manual for operation and management of SLF	From July 2010 to the end of the project	Achieved well ahead of schedule	Considering the possible time constraint due to delayed construction, a manual for operation and maintenance of SLF was drafted well ahead of schedule for both cities. It will be modified and finalized before the operation starts.
3.11	Formulate a plan and design of safe closure of the existing dump site	From April 2009 to June 2010	Achieved but delayed	The existing dump site shall be used until starting of landfill operation at new SLF. In order to reflect the latest conditions into the closure work of the existing dump site, topographic survey and the design were postponed and all the design activities were carried out in last quarter of JFY 2009.
3.12	Prepare for bidding for safe closure work	From April 2010 to June 2010	Not planned in Sagay. To be started.	Sagay: The closure work will be carried out by the city administration method and the bidding will not be carried out. Calbayog: Approval of the budget for the closure work is waiting for decision of new mayor.
3.13	Carry out safe closure of the site based on the plan	Sagay: From June to Sep 2010 Calbayog: From April to Sep 2010	Sagay: Started ahead of schedule Calbayog: Started as planned.	Although the existing dump sites are still used, soil covering has already partially started in Sagay and hauled a portion of covering earth in Calbayog.
4.1	Establish a working group for development of materials	From July 2009 to March 2010	Achieved as scheduled	Three working groups were organized to formulate three guidebooks.
4.2	Develop a practical manual on a LGU SWM Plan for replication by other LGUs	From Aug 2009 to March 2010	Achieved as scheduled	The guidebooks were drafted by December 2009 and discussed with external human resources and LGUs. It was finalized by February 2010, and printed in the next month.
4.3	Review and update the NSWMC guidebook on landfill design and operation	From Aug 2009 to March 2010	Achieved as scheduled	
4.4	Review and update the NSWMC guidebook on safe closure of landfills	From Aug 2009 to March 2010	Achieved as scheduled	
4.5	Hold seminars to share the developed materials with other LGUs	Feb. 2010 and Oct. 2010		The new guidebooks were introduced to the LGUs by NSWMC in the 3 <sup>rd</sup> technical seminars held in the three cities. The guidebooks will be also introduced in the final seminar to be held in October 2010.
Output 4	NSWMC and All Cities			

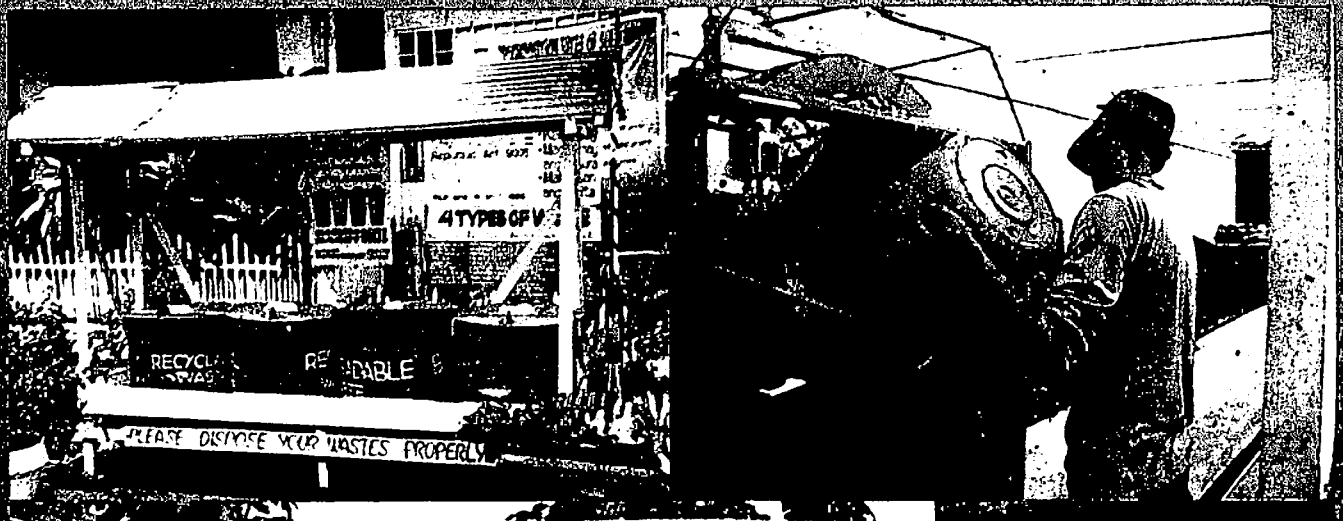


## **Annex 7. Main Materials of the Project Output**

The cover pages of the main materials of the project output shown below are attached.

- **Guidebook for Formulation of Solid Wastes Management Plan**
- **Guidebook for Safe Closure of Disposal Sites**
- **Technical Guidebook on Solid wastes Disposal Design, Operation and Management**
- **Solid Waste Management Plan of Sagay City**
- **Solid Waste Management Plan of Calbayog City**
- **IEC Campaign Materials**

# GUIDEBOOK FOR FORMULATION OF SOLID WASTES MANAGEMENT PLAN



ING NG MANGITANG SANG BASURA NGA WALA NASEPARARA

**MRF**  
MATERIAL RECOVERY FACILITIES  
BASURA MO SAGOT MO

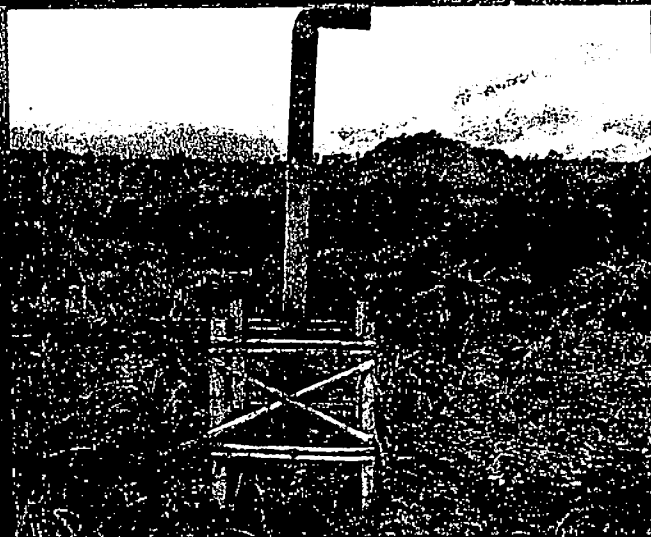
DAMAG

4 TYPES OF WASTE

SCHEDULE  
OF WASTE DISPOSAL  
BY WASTES TO MRF  
4:00 PM - 6:00 AM  
6:00 PM - 8:00 PM

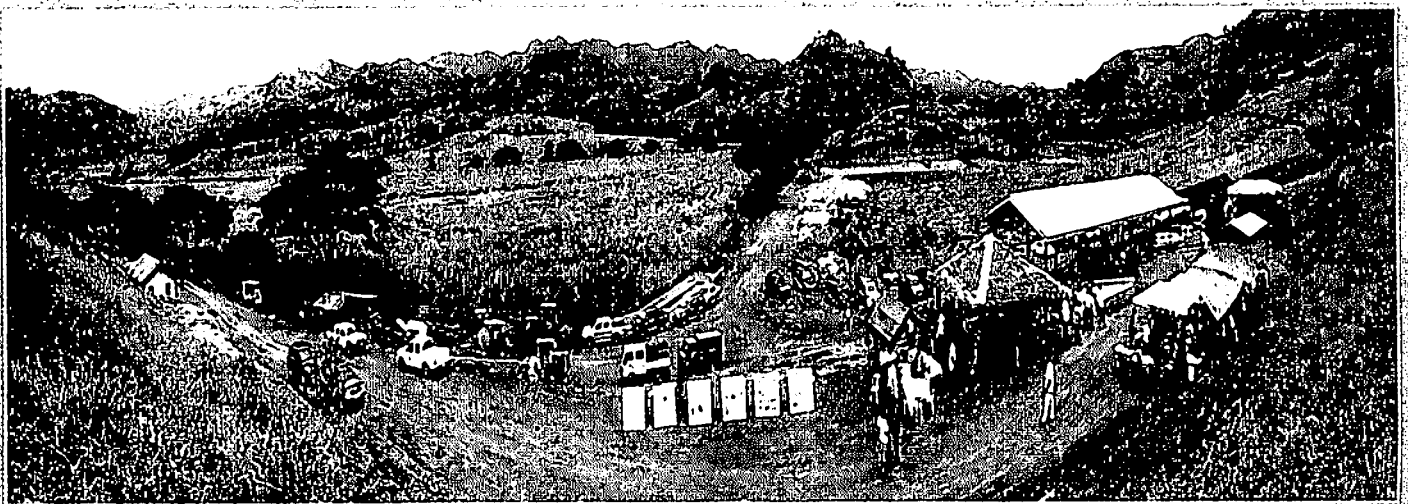
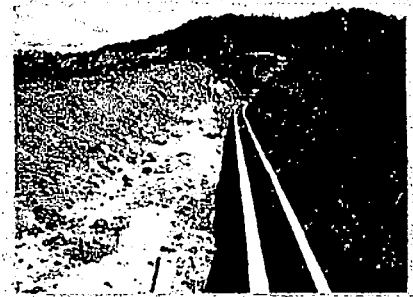
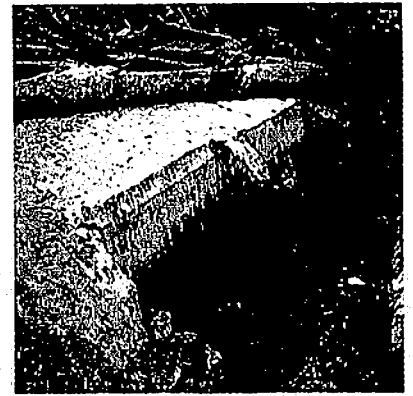
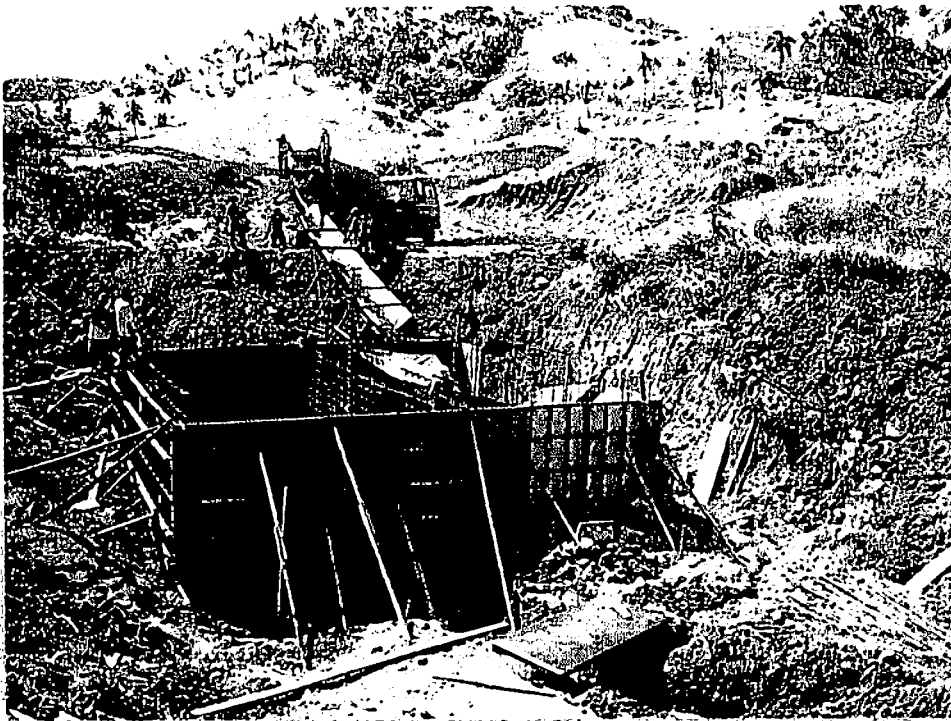
NATIONAL SOLID WASTE MANAGEMENT COMMISSION  
JAPAN INTERNATIONAL COOPERATION AGENCY

# GUIDEBOOK FOR CLOSURE OF DISPOSAL



NATIONAL SOLID WASTE MANAGEMENT COMMISSION  
JAPAN INTERNATIONAL COOPERATION AGENCY

# TECHNICAL GUIDEBOOK ON SOLID WASTES



**NATIONAL SOLID WASTE MANAGEMENT COMMISSION  
JAPAN INTERNATIONAL COOPERATION AGENCY**

**Sagay City**

**Ecological Solid Waste Management Plan**

**October, 2008**

**Sagay City**

**Calbayog City**

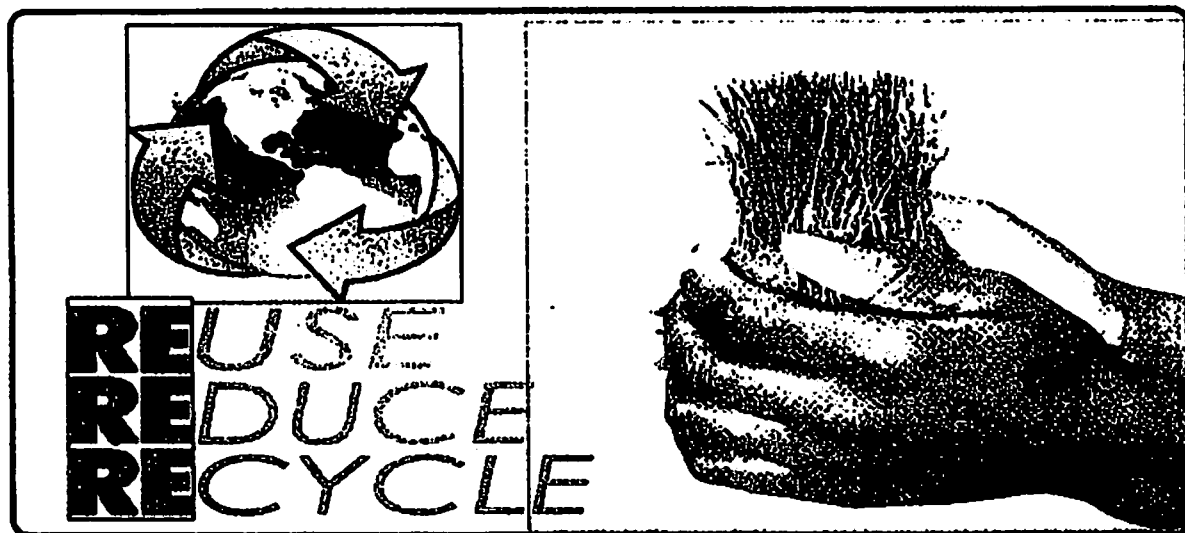
**Ecological Solid Waste Management Plan**

**October , 2008**

**Calbayog City**

**ENVIRONMENTAL EDUCATION**  
**in CALBAYOG CITY**

**PROGRAM TO**  
**REDUCE SOLID WASTE**  
**FOR**  
**BETTER LIFE**

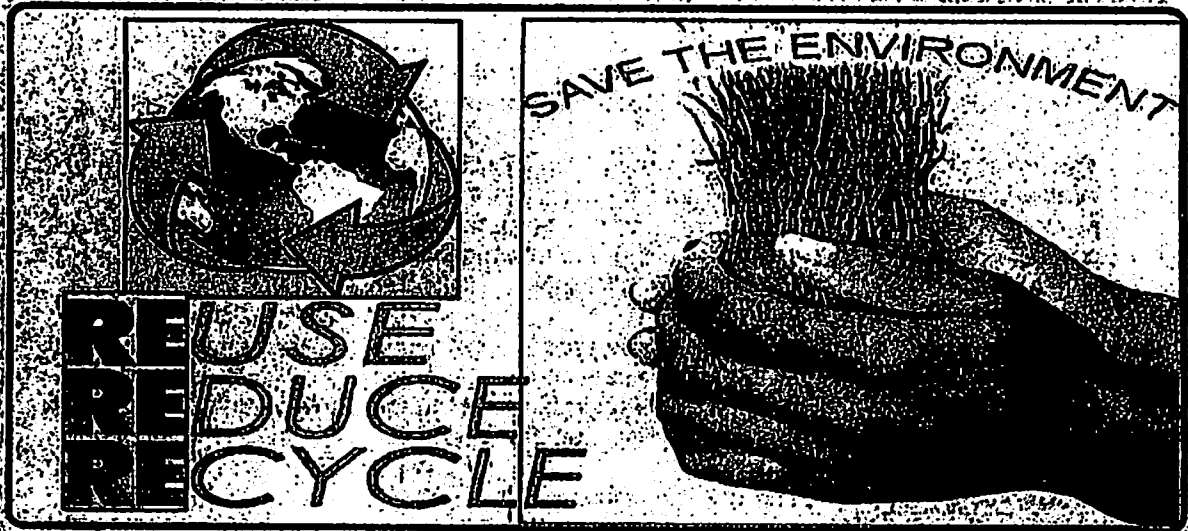


**TEACHER'S TEXTBOOK**



**ENVIRONMENTAL EDUCATION  
in DAVAO CITY**

**PROGRAM TO  
REDUCE SOLID WASTE  
FOR A  
BETTER LIFE**



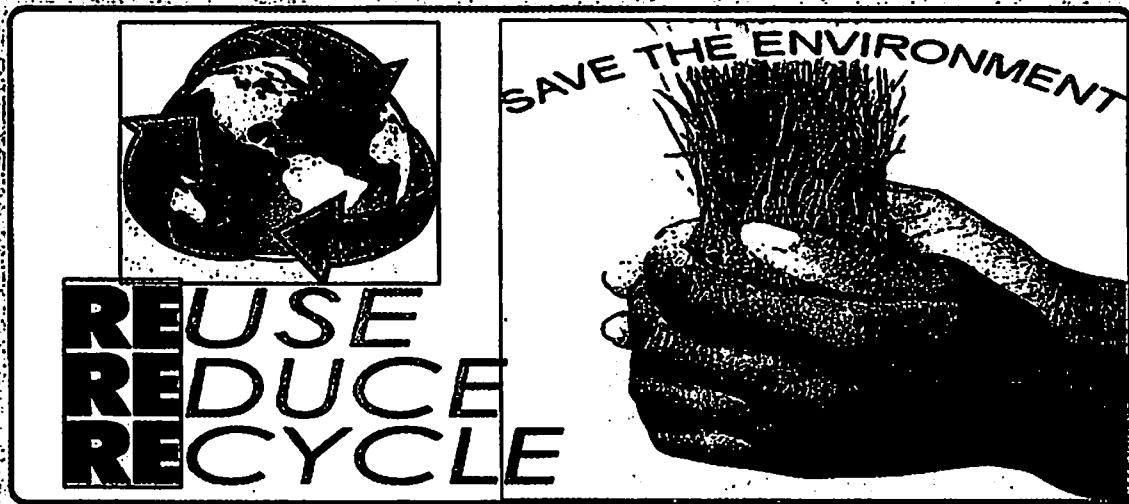
**A HANDOUT FOR TEACHERS**





ENVIRONMENTAL EDUCATION  
in SAGAY CITY, NEGROS OCCIDENTAL

WAYS TO  
**REDUCE SOLID WASTE**  
FOR  
**A HAPPY, HEALTHY AND BETTER LIFE**



**TEACHER'S MANUAL**



**PDM (ver. 3)**

プロジェクト名 地方都市における適正固形廃棄物管理プロジェクト  
 ターゲットグループ 対象3都市の廃棄物管理に携わっている職員および市民  
 プロジェクト期間 3ヶ月 (2007年10月～2010年10月)

PDM Ver. 3, 2009年6月23日作成

プロジェクトの要約	客観的に検証可能な指標	指標の入手段	重要な外部条件
<p><b>上位目標</b>                      プロジェクトサイトでの固形廃棄物管理の知見が、他の地方自治体で実践される。</p>	<ol style="list-style-type: none"> <li>NSWMCによる国あるいは地域レベルでのセミナー／ワークショップの開催回数。</li> <li>上記セミナー／ワークショップへの自治体からの参加数。</li> <li>廃棄物管理計画の承認件数。</li> </ol>	<ol style="list-style-type: none"> <li>セミナー／ワークショップの報告書</li> <li>上記セミナー／ワークショップの出席者リスト</li> </ol>	
<p><b>プロジェクト目標</b>                      プロジェクトサイトにおいて固形廃棄物管理システムが確立する。</p>	<ol style="list-style-type: none"> <li>廃棄物管理計画が毎年レビューされる。(サガイ市、カルバヨグ市)</li> <li>ウェイストダイバージョン (ゴミ減量化) 率がベースライン時より改善される。</li> <li>最終処分場が RA9003 に則って運営される。(サガイ市、カルバヨグ市)</li> </ol>	<ol style="list-style-type: none"> <li>廃棄物管理年次報告書</li> <li>WDR モニタリングレポート</li> <li>最終処分場モニタリングレポート</li> </ol>	<ol style="list-style-type: none"> <li>マニュアルやガイドブックなどプロジェクトによって作成されたツールが他の自治体に活用される。</li> <li>国レベルにおいて自治体に対する財政支援の仕組みが確立し利用可能となる。</li> <li>プロジェクトで作成された資料を反映して省令が発効される。</li> </ol>
<p><b>成果</b>                      1. 地方自治体における固形廃棄物管理計画能力が強化される。                       2. 固形廃棄物の減量化 (ダイバージョン) システムが改善される。</p>	<ol style="list-style-type: none"> <li>1-1 固形廃棄物管理計画 (SWM) が市議会により承認される。(サガイ市、カルバヨグ市)</li> <li>1-2 協力対象3自治体の固形廃棄物管理担当者を対象としたワークショップやセミナーが少なくとも7回開催される。(3都市)</li> <li>1-3 廃棄物管理に係る経費の詳細が把握される。(3都市)</li> <li>1-4 料金徴収システムが市の廃棄物管理委員会に提案される。(サガイ市、カルバヨグ市)</li> <li>1-5 廃棄物管理に関する基礎的な管理指標が収集・分析される。(3都市)</li> <li>2-1 固形廃棄物の減量化 (ダイバージョン) 率が定期的にモニタリングされる。(3都市)</li> <li>2-2 パイロット回収施設 (MRF; Material Recovery</li> </ol>	<ol style="list-style-type: none"> <li>1-1 市議会議事録</li> <li>1-2 ワorkshopおよびセミナーの参加者リストとプログラム</li> <li>1-3 廃棄物管理会計報告書</li> <li>1-4 市の廃棄物管理委員会の議事次第</li> <li>1-5 廃棄物管理年次報告書</li> <li>2-1 WDR モニタリングレポート</li> <li>2-2 MRF 月次報告書</li> </ol>	<ol style="list-style-type: none"> <li>NSWMC によって廃棄物管理計画が承認される。</li> <li>提案された料金徴収システムが実施される。</li> <li>選挙による国レベルおよび地域レベルでの政策変更がプロジェクトに負の影響を与えない。</li> </ol>

<p>3. 最終処分システムが改善される。</p> <p>4. 3都市における経験に基づき、廃棄物管理に関する計画・実施のマニュアル・ガイドブックが作成される。</p>	<p>Facility) において収集されたゴミの種類・量が記録され、毎月提出される。(3都市)</p> <p>2-3 IEC キャンペーン計画に基づいて3R (Reduce, Reuse, Recycle) に関する IEC キャンペーンがバランガイにおいて実施される。(3都市)</p> <p>3-1 既存の処分場が安全閉鎖のガイドブックに沿って閉鎖される。(サガイ市、カルバヨグ市)</p> <p>3-2 運営維持管理のマニュアルを活用し、衛生立処分場の管理に関する研修が実施される。(サガイ市、カルバヨグ市)</p> <p>4-1 ガイドブック作成のためのワーキンググループが開催される。</p> <p>4-2 コンサルテーションセミナーに参加した自治体の数</p> <p>4-3 ガイドブックに記載された内容を省令に反映するべく対応が行われる。</p>	<p>2-3 進捗報告書</p> <p>3-1 閉鎖完了報告書</p> <p>3-2 進捗報告書</p> <p>4-1 議事次第および出席者リスト</p> <p>4-2 出席者リスト</p> <p>4-3 NSWMC 決議</p>	
<p><b>活動</b></p> <p><b>サガイ市およびカルバヨグ市</b></p> <p>1.1 現状の固形廃棄物システムを見直し課題を特定する。</p> <p>1.2 現状の固形廃棄物管理にかかる費用を分析する。</p> <p>1.3 固形廃棄物管理計画を策定する。</p> <p>1.4 固形廃棄物管理計画の中で、財務分析を行い、適切な料金システムを用意する。</p> <p>1.5 固形廃棄物管理計画の実施のモニタリングを行う。</p> <p>2.1 現状のウェストフローを把握するため、現地調査を実施する。</p> <p>2.2 グッドプラクティス焦点をあて、現状の WD システムを調査する。</p> <p>2.3 WDR のベースラインを設定する。</p> <p>2.4 地域の現状を反映させたウェストダイバージョン計画を作成する。</p> <p>2.5 学校と密接な関係を持ったモデル MRF を設立する。(Sagay)</p> <p>2.6 複数の地域をカバーするモデル MRF を設立する。(Calbayog)</p> <p>2.7 WDR を向上させるための IEC Campaign を実施する。</p> <p>2.8 WD 計画の実行についてモニタリングを行う。</p> <p>3.1 複数の衛生立処分場予定地に対して必要な調査を実施する。</p> <p>3.2 最終の処分場予定地に関して必要な調査を実施する。</p> <p>3.3 既設処分場の衛生立処分場への転換について検討する。</p>	<p><b>投入</b></p> <p>日本側</p> <p>専門家派遣</p> <p>カウンターパート研修</p> <p>機材供与</p> <p>その他プロジェクト実施に必要なコスト負担</p> <p>ファイリピン側</p> <p>カウンターパート</p> <p>執務場所</p> <p>ローカルコスト</p>	<p>1. プロジェクト実施期間を通じて、カウンターパートがプロジェクト活動に配置される。(3都市)</p> <p>2. 必要とされる許認可や資金手当てが、衛生処分場の建設を大幅に遅らせない。</p> <p>3. 天候条件が衛生処分場の建設を大幅に遅らせない。</p>	

<p>3.4 処分場の設計を実施する。</p> <p>3.5 処分場の EIA を実施する。</p> <p>3.6 処分場建設の際の必要な財政措置を手配する。</p> <p>3.7 処分場建設の入札準備を行う。</p> <p>3.8 処分場の建設を行う。</p> <p>3.9 処分場の運営を行う。</p> <p>3.10 新処分場の運営・管理マニュアルを作成する。</p> <p>3.11 既設処分場の閉鎖計画と設計を行う。</p> <p>3.12 安全閉鎖工事の入札を準備する。</p> <p>3.13 計画に沿って既設処分場の安全閉鎖を行う。</p>	<p><b>ダバオ市</b></p> <p>1.1 固形廃棄物にかかるワークショップ、セミナー及び OJT を通して研修を行う。</p> <p>2.1 現状のウェストフローを把握するため、現地調査を実施する。</p> <p>2.2 大規模なバランガイにモデルを設置しパイロット事業を行う。</p> <p>2.3 IEC Campaign を実施する。</p> <p><b>NSWMC および対象 3 市</b></p> <p>4.1 ガイドブック作成のためのワーキンググループを立ち上げる。</p> <p>4.2 他の自治体で使用できる固形廃棄物管理計画策定ガイドブックを作成する。</p> <p>4.3 処分場の設計・運営にかかるガイドブックを改定する (*2)。</p> <p>4.4 処分場の安全閉鎖にかかるガイドブックを改定する (*1)。</p> <p>4.5 作成されたガイドブックに関する情報を共有するため、セミナーを開催する。</p>
	<p>前提条件</p>

注: \*<sup>1</sup> Guidebook for Safe Closure of Disposal Sites (2006)

\*<sup>2</sup> The Technical Guidebook on Solid Waste Disposal Design and Operation (2005)