

Country Name	The project on Integrated Solid Waste Management for Municipalities in El Salvador
The Republic of El Salvador	

### I. Project Outline

Project Cost	563 million yen	
Project Period	November, 2005 – March, 2009	
Implementing Agency	Ministry of Environment and Natural Resources (MARN), Ministry of Public Health and Social Assistance (MSPAS), Salvadorian Institute of Municipal Development (ISDEM)	
Cooperation Agency in Japan	Yachiyo Engineering Co., Ltd.	
Related Projects (if any)	<ul style="list-style-type: none"> <li>• Waste Management Plan in San Salvador Metropolitan Area (Development Study, 1999-2000)</li> <li>• Follow-up cooperation for The Project for Integrated Solid Waste Management for Municipalities (follow-up, February 2010)</li> <li>• Environmental education (a total of nine JOCVs, implemented in the pilot project sites)</li> <li>• Follow-up for trainees who have participated in the Training course "Waste Management Technologies and 3Rs for Central and South American Countries"(2011)</li> </ul>	
Background	<p>The waste amount was rapidly increasing in the Republic of El Salvador due mainly to concentration of population in urban areas, increased consumption and changes in economic structure. Inadequate solid waste management created problems associated with solid wastes and exerts adverse impacts not only on public health but also on the region's ecology through contamination of solid and groundwater. In order to organize the system as well as to realize concrete policies for solid waste management, "Environment Basic Law" and "Solid Wastes Policy" were established in 1998 and 2001 respectively and "National Strategic Program for Solid Wastes" was prepared by MARN. In addition, it was regulated by the President's ordinance that inappropriate dumping sites be removed and that appropriate management be started by September 2007. However, many municipalities/local governments, which are the implementing agencies of the project, did not have enough capacity to take necessary measures and as a consequence, they were not able to solve the problems such as improper collection service of solid wastes and insanitary disposal sites. To improve this status, the government of El Salvador requested the government of Japan for a technical project that aims to solve the problems caused by insufficient capacity of above mentioned municipalities/local governments as well as to establish Integrated Solid Waste Management system within pilot municipalities as a model of proper waste disposal. In the process, it was expected that experiences gained by relevant personnel and agencies would be widely shared among local governments in El Salvador and the Central American countries.</p>	
Inputs	Japanese Side	El Salvadorian Side
	<ol style="list-style-type: none"> <li>1. Experts: 29 persons</li> <li>2. Trainees Received: 9 persons</li> <li>3. Equipments: 36 million yen</li> <li>4. Local Cost: 116 million yen</li> </ol>	<ol style="list-style-type: none"> <li>1. Counterpart Personnel: 21 persons (MARN: 8, MSPAS: 3, ISDEM: 10)</li> <li>2. Facilities including project office (e.g. facilities equipment at ISDEM)</li> <li>3. Local Cost: salary for C/Ps training cost</li> </ol>
Project Objectives	<p><b>Overall goal</b> Municipalities implement appropriate Integrated Solid Waste Management to improve environmental sanitary conditions in the Republic of El Salvador.</p>	
	<p><b>Project Objective</b> The central government, MARN, MSPAS and ISDEM strengthens its capacity to apply ISWM to municipalities in the Republic of El Salvador, and decides to implement the strategic promotion plan of ISWM within its authority.</p>	
	<p><b>Outputs</b></p> <ul style="list-style-type: none"> <li>• The central government in cooperation with ASINORLU (Inter-municipal Association of Northern Area of La Union Department) develops sustainable models in the nine municipalities of ASINORLU for ISWM.</li> <li>• The central government develops ISWM guidelines, which are feasible and adapted to the present conditions of municipalities in the Republic of El Salvador.</li> <li>• The counterpart personnel in the central government acquire the knowledge and experiences on ISWM.</li> <li>• The counterpart personnel in the central government acquire the capacities to conduct the trainings and to raise awareness on ISWM of municipal administrations, other actors of municipalities, governmental organizations and NGOs in the Republic of El Salvador.</li> <li>• The central government develops a draft strategic promotion plan of ISWM for approval to municipalities in the Republic of El Salvador.</li> </ul>	

## II. Result of the Evaluation

### Summary of the Evaluation

In El Salvador, it was an urgent task to solve problems such as improper collection service of solid wastes and insanitary disposal sites. Therefore, it was essential to strengthen the following central governmental institutes, which are responsible for waste management; i) MARN that is currently in charge of waste administration, ii) MSPAS that took the same responsibility before 1998 and currently plays a leading role in guiding waste management and iii) ISDEM that support the enhancement of municipalities'/ local governments' management capacity.

The project has achieved i) establishment of ISWM model through the pilot project by ASINORLU, ii) preparation of guidelines, which were based on trainings, for local government, and iii) formulation and approval of "Strategic Promotion Plan of ISWM (draft)" by the central government for the project objective of "the central government, MARN, MSPAS and ISDEM strengthens its capacity to apply ISWM to municipalities in the Republic of El Salvador, and decides to implement the Strategic Promotion Plan of ISWM within its authority".

The project has also achieved construction of final dumping sites with ISWM by three local government associations (23 municipalities) for overall goal, which is promoted by MARN based on "National Plan for Solid Wastes Management Improvement"

As for sustainability, problem has been observed in terms of implementation agency's institutional aspect due to change in policy priorities at ISDEM. In 2010, the waste unit was established at MARN and has been promoting the introduction of ISWM in local governments nationwide according to national program, on the other hand, policy priorities changed at ISDEM and dissemination of knowledge and experiences by trained personnel through this project is limited.

For relevance, the project has been relevant with El Salvador's development policy, development needs, as well as Japan's ODA policy.

For efficiency, the project period was within the plan; however, the project cost significantly exceeded the plan.

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

### 1 Relevance

This project has been highly relevant with El Salvador's "National Plan 2004-2009", development needs "environmental protection" including waste management specified in "National Environment Strategy" established by MARN, "closure of open-dumping sites" and "utilization of dumping sites with sanitary landfills approved by MARN" stated in "Legislative Decree 237" established in September 2007, as well as Japan's ODA policy "JICA Country Assistance Programme", which includes "environmental hygienic improvement programme" in the prioritized assistance area "environmental protection for sustainable development" at the time of both ex-ante evaluation and project completion. Therefore, relevance of this project is high.

### 2 Effectiveness/Impact

This project has largely achieved the project objective of "capacity strengthening of relevant organizations to apply ISWM to local governments" and "decision of implementation of "the Strategic Promotion Plan of ISWM" as well as overall goal of "improvement of environmental sanitary conditions by implementing ISWM". Regarding the project objective, guidelines and training programs were developed for local governments to apply ISWM through the pilot project by ASINORLU (e.g. collection and transportation of wastes, construction and management of dumping sites, raising public awareness, etc.). In addition, Strategic Promotion Plan of ISWM, which proposes financial and technological policies and strengthening of the cooperation of central governments with local governments' associations, was established. The plan (draft) was approved by the ministers of MARN and MSPAS as well as by the director of ISDEM. Regarding overall goal, MARN established "Plans for Solid Waste Management Improvement" in May 2010 based on the above mentioned "Strategic Promotion Plan of ISWM (draft)". It plans i) construction of six final disposal sites with sanitary landfills, ii) extension of three existing disposal sites, and iii) construction of 42 compost production factories. Currently, three final disposal sites with sanitary landfills are under construction (Department of Santa Ana: association of 13 municipalities, Department of Ahuachapán: association of six municipalities, Department of Chalatenango: association of four municipalities). In the process of the construction, decision makers of relevant municipalities (mayors and municipal assemblies) and international organizations, such as IDB and KfW, are involved.

Besides these disposal sites, 11 compost production factories were constructed nationwide in 2011 and they are managed by associations consisting of multi- local governments. In addition, after the project completion, MARN has conducted trainings for local governments by utilizing follow-up activities for returned trainees and ASINORLU has carried out site tours for other municipalities and other countries. Thus, it can be said that the project continues to draw attention, which implies the high applicability of the project outcome to other similar projects. For instance, minister of Ministry of Environment of Honduras conducted a survey at the project site and the minister requested the government of Japan for triangular technical cooperation project including technology transfer by El Salvadorians capacitated by the project. It is observed that the positive effects of the project are extended to other Central American countries and further impacts are expected to be appeared.

With regard to environmental impacts, drainage from the final disposal sites repaired and managed by the pilot project is regularly tested and so far, no problem has been observed. Also, there is no complaint from local residents concerning collection and transportation of wastes. Therefore, effectiveness/impact of this project is high.



Dumping site managed by ASINORLU



Provided equipment in operation



Site visit (disposal pond of oozed water)

### 3 Efficiency

While the inputs were appropriate for producing the outputs of the project and the project period was within the plan (ratio against the plan: 95%), the project cost was significantly higher than the plan (ratio against the plan: 160%) because of increase in the costs of dumping site construction and provided equipment. Therefore, efficiency of this project is fair.

### 4 Sustainability

The project has some problems in institutional aspect of the implementing agencies due to change in policy priorities at ISDEM. Although technical assistance regarding ISWM is provided whenever it is required, the dissemination of knowledge and experiences by trained personnel through this project is limited since more time has been spent on other prioritized areas.. On the other hand, MARN established the waste unit and its institution has been strengthened.

No problem has been observed in policy background, technical and financial aspects of the implementing agencies. Regarding policy aspect, "Five-year Development Plan 2010-2014" specifies and prioritizes ISWM. As for financial aspect, budget is secured and stable though it is not abundant. ASINORLU manages final disposal sites by collecting user fee and its financial balance has been in black for the last three years. In terms of technical aspect, there has been almost no personnel attrition at the central governmental organizations. Final disposal sites of ASINORLU are continued to be managed by using transferred technologies and skills acquired by follow-up, although current staff have some difficulties in dealing with new tasks (e.g. countermeasures to generation of methane gas caused by clogging up around venting gas pipes). Therefore sustainability of this project is fair.

## III. Recommendations & Lessons Learned

### Recommendations for Implementing agency

MARN established the waste unit and has strengthened the nationwide ISWM promotion system, while ISDEM lowered its priority for waste management at the time of the terminal evaluation and knowledge and experiences of C/Ps are not sufficiently utilized. In order to sufficiently utilize such knowledge and experiences, it is recommended to have discussions among relevant agencies so that MARN's waste unit and counterpart agencies of this project further cooperate, for instance, by always involving ISDEM personnel into training courses conducted by MARN as a trainer and by continuing technical and financial support to ASINORLU as a model case.

### Lessons learned for JICA

Follow-up, cooperation with JOCVs and follow-up activities for returned trainees contributed to the promotion of ISWM in the entire nation. It is a useful example of efficient dissemination by combining different schemes and can be applied to other similar projects.