付　属　資　料

１．終了時評価 M/M
２．評価報告書
３．PDM（Version 2.0）
４．活動計画表（PO）（version 2.0）
５．日本人専門家配置
６．ドミニカ共和国側カウンターパート配置
７．主な活動の達成状況
８．作成報告書・教材等

Minutes of Meeting
between
The Dominican Terminal Evaluation Team
and
The Japanese Terminal Evaluation Team
on
The Project for Appropriate Waste Management in Santo Domingo de Guzman, National District, Dominican Republic

The Japanese Terminal Evaluation Team (hereinafter referred to as 'the Japanese Team'), organized by Japan International Cooperation Agency (hereinafter referred to as 'JICA') and headed by Dr. Mitsuo Yoshida, visited Dominican Republic from January 8 to 23, for the purpose of conducting the joint terminal evaluation on the Technical Cooperation Project for Appropriate Waste Management in Santo Domingo de Guzman, National District, Dominican Republic (hereinafter referred to as 'the Project') on the basis of the Record of Discussions signed on February 25, 2009.

During the visit, the Japanese Team had a series of discussions, site visits, and exchanged views with the Dominican Terminal Evaluation Team (hereinafter referred to as 'the Dominican Team') consisting of representatives from the Ministry of Economy, Planning and Development, the Ministry of Environment and Natural Resources, and Mancomunidad del Gran Santo Domingo. The both teams worked as the Joint Terminal Evaluation Team, and discussed on the Joint Terminal Evaluation Report attached as Appendix.

As a result, the Dominican Team and the Japanese Team mutually agreed upon the attached document. The Minutes of Meeting and its Appendixes are prepared in English and Spanish. In case of any divergence of interpretation, the English version shall prevail.

Santo Domingo, 23 January, 2012

Dr. Mitsuo Yoshida
Leader,
Japanese Terminal Evaluation Team,
Senior Advisor,
Japan International Cooperation Agency (JICA)

Mr. Esmerito A. Salcedo Gavilan
Mayor,
Ayuntamiento del Distrito Nacional,
Santo Domingo de Guzman,
Dominican Republic

Ms. America Bastidas
Vice Minister of International Cooperation,
Ministry of Economy,
Planning and Development,
Dominican Republic

Ms. Zoila Gonzalez
Vice Minister of Environmental Management,
Ministry of Environment and Natural Resources,
Dominican Republic

Attachment document

(1) The Joint Terminal Evaluation Team confirmed contents of the Joint Terminal Evaluation Report attached as Appendix I and formally accepted the report.

(2) Both sides confirmed that the Project has carried out activities on capacity development in levels of Individual, Organization and Institution/Society. Through these capacity developments, the Project achieved outstanding results at the time of six months before the project completion on all outputs specified in PDM, namely; "Output 1: Capacity of ADN on Integrated SWM planning is strengthened", "Output 2: Solid waste collection system is consolidated through improvement on vehicle maintenance and public awareness" and "Output 3: 3Rs (Reduce, Reuse, Recycle) approach is introduced to divert waste from final disposal site". Both sides also confirmed that "Project Purpose: Integrated SWM in Santo Domingo de Guzman, National District is enhanced" will be accomplished if the Project activities are implemented until the project completion based on the plan of operation.

(3) Both sides express their respect for the Project member of ADN headed by Mr. José Miguel Martínez Guridy and JICA experts headed by Mr. Tadaya Yamamoto who guided to the successful implementation of the Project.

(4) The mayor of Santo Domingo de Guzman showed sincere appreciation to the continuous support provided by JICA in the field of solid waste management.

Appendix I Joint Terminal Evaluation Report

To: The Joint Coordination Committee of the Project for Appropriate Waste Management in Santo Domingo de Guzman, National District, Dominican Republic

It is confirmed that the Joint Terminal Evaluation Report on the Project for Appropriate Waste Management in Santo Domingo de Guzman, National District, Dominican Republic is prepared under the discussion and closed collaboration among the Dominica-Japan Joint Evaluation Team. Contents of the Report are fully agreed by all the evaluators of the Team.

Santo Domingo, 19 January 2012

(Japanese Evaluation Team)

Dr. Mitsuo Yoshida
Japan International Cooperation Agency

Mr. Issei Aoki
Japan International Cooperation Agency

Dr. Hideaki Higashino
RECS International Inc.

(Dominican Evaluation Team)

Mr. Julio Ortiz, Ministry of Environment

Ms. Glenys González, Ministry of Economy, Planning and Development

Ms. Paula De León, IDB Project, Mancomunidad de Santo Domingo

TERMINAL EVALUATION REPORT

ON

THE PROJECT

FOR

APPROPRIATE WASTE MANAGEMENT

IN

SANTO DOMINGO DE GUZMAN, NATIONAL DISTRICT

IN

THE DOMINICAN REPUBLIC

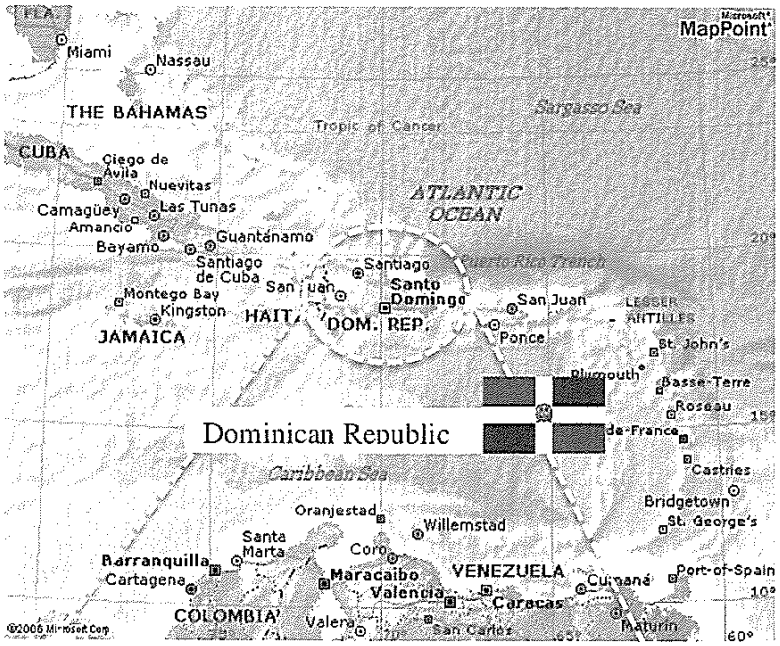
Santo Domingo, January 23rd, 2012

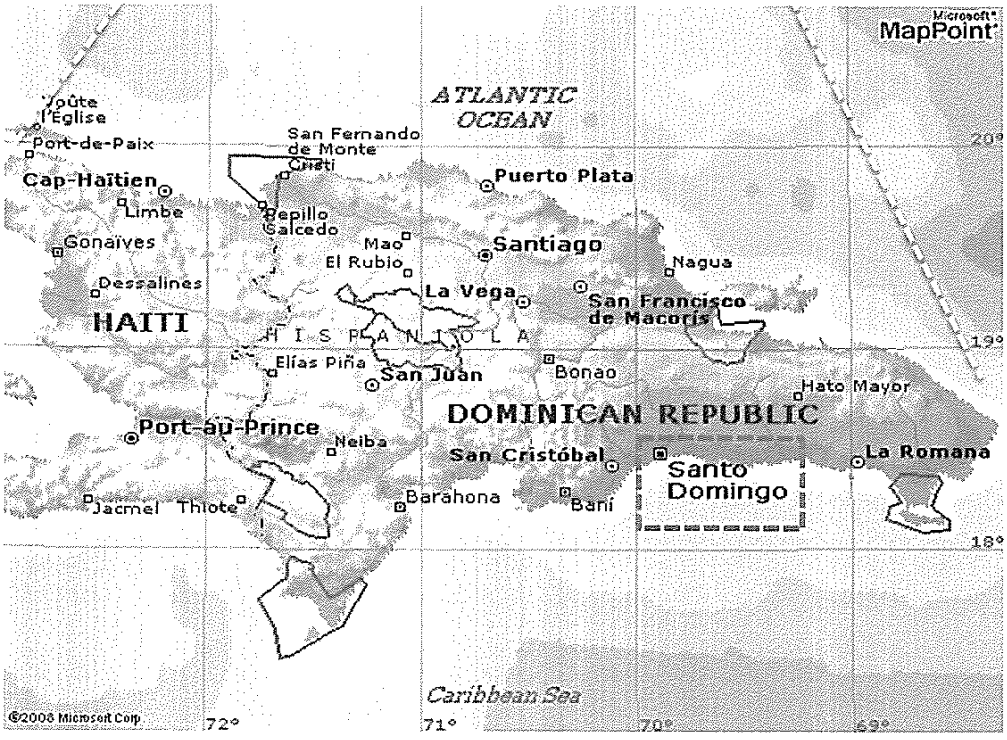
JOINT TERMINAL EVALUATION TEAM

TABLE OF CONTENTS

ANNEXES

Location Map





LIST OF ABBREVIATIONS

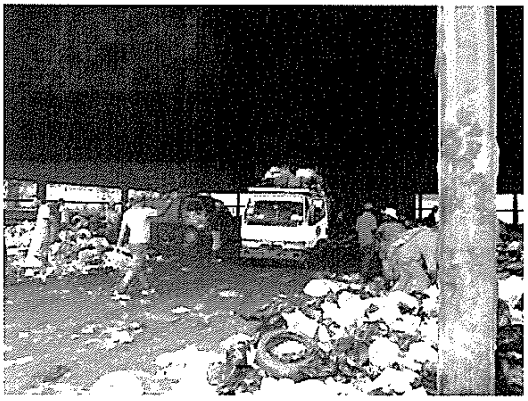
ADN	National District Municipality
C/P	Dominican Counterpart Staff
DGDH	General Directorate of Human Development
DGPU	General Directorate of Urban Planning
DIGAUE	General Directorate of Urban Cleansing and Equipment
IDB	Inter-American Development Bank
ISWM	Integrated Solid Waste Management
JCC	Joint Coordinating Committee
JET	Japanese Expert Team
JICA	Japan International Cooperation Agency
M/M	Minutes of Meeting
M/P	Master Plan
MARENA	Ministry of Environment and Natural Resources
MEPyD	Ministry of Economy, Planning and Development
MSP	Ministry of Public health and Social Welfare
PAHO	Pan-American Health Organization
R/D	Record of Discussions
SWM	Solid Waste Management
TC	Technical Committee

Photos

Interview at Invi ward (Pilot project site)

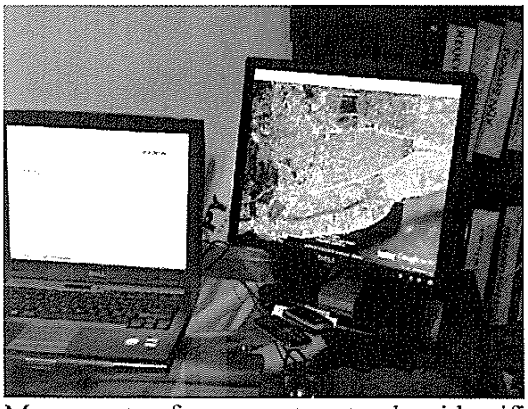
Donated chipping machine for waste reduction

Composting of chipping waste



Transfer station

Park constructed next to transfer station



Movement of compactor trucks identified with GPS

1. OUTLINE OF THE PROJECT

1.1. Background of the Project

In the Santo Domingo metropolitan area, various environment-related problems are becoming serious due to rapid urbanization. Among others, solid waste management is considered one of the most crucial issues to be tackled urgently. Daily per capita generation of solid waste amounts in the metropolitan area, where approximately 2.5 million tourists visit every year, amount to 1.26 kg/day (2005), comparable to that of higher-income countries.

The Santo Domingo National District, with population of about 1.0 million and area of 93.5km^2, is most urbanized and, at the same time, most seriously affected by solid waste problems in the metropolitan area, has been working on the waste management improvement ahead other adjacent municipalities.

Under the circumstances, in July 2005, JICA conducted the Study on Integrated Solid Waste Management Plan in Santo Domingo de Guzman National District (the Study). In the Study, in order to strengthen the capacity of Santo Domingo municipality government (ADN), Integrated Solid Waste Management Plan (Master Plan; M/P) was developed aiming at achieving the following four goals; namely, i) collection service to maintain healthy living environment (100% waste collection); ii) waste disposal in an environmentally-sound manner, iii) promotion of waste minimization through recycling and reducing (15% reduction rate), and; iv) ensuring fiscal soundness (limiting waste management-related cost to 30-40% of the general account budget) by 2015.

The Study also conducted pilot projects, including Integrated Improvement of the Collection Service, for capacity development of ADN. Furthermore, cleaning ordinance, the first in Dominican Republic, was established with support from the Study Team, which was adopted by the Council Members in August 2006.

With experiences and knowledge gained from the pilot projects, ADN re-designed the collection routes, improved collection services and terms of contract with private collection firms for higher percentage of collection. As a result, solid waste management has been contracted approximately in 80% of the area, under ADN's management and technical guidance. In addition, data collection and management system has been developed and improved on financial management system of the DIGAU[1].

Meanwhile, despite the recommendations in the M/P, some activities such as waste minimization, public awareness raising in terms of waste discharge practices, and maintenance of collection and transportation vehicles, was not fully achieved yet due to lack of knowledge, skill or experiences of ADN staff.

As for waste minimization, although some valuable resource like waste paper are recycled in limited scale, other resources identified in the M/P as key materials, including green waste and organic wastes from markets, had not been fully recycled.

For public awareness raising, there was not adequate framework to disseminate information on waste

[1] DIGAU and the Department of Transportation and Equipment were integrated into DIGAUE in October 2008.

discharging practices, such as site location to discharge the wastes, date and time of discharge and so on. In some areas, therefore, wastes are discharged in non-collection day and wastes are scattered around in the street.

Concerning collection vehicle maintenance management, there was no appropriate maintenance or repair records and there were constraints for repair tools or spare parts management system.

Under those circumstances, ADN determined that technology acquisition is necessary to realize the appropriate waste management identified in M/P, and through Government of the Dominican Republic, requested the Government of Japan to dispatch experts in waste management field to implement Technical Cooperation Project.

In response to this request, the Government of Japan carried out a preliminary study in September 2008 and developed a basic plan, implementation structure, and responsibilities of each party in terms of the Project. Those were documented as Minute of Meetings (hereinafter referred to as M/M). Subsequent Record of Discussion (hereinafter as R/D) was signed in February 2009. Based upon above-mentioned request from the Government of the Dominican Republic, the Project has been implemented since July 2009 to strengthen ADN's capacity on SWM through revision of the integrated SWM Plan (M/P), waste minimization, public awareness raising on waste discharge and improving waste collection vehicle maintenance.

1.2. Summary of the Project

The narrative summary of the Project is given in PDM (Project Design Matrix) Version 2.0 (**ANNEX 1**) revised in October 2010. Its summary is as follows:

Project Name: Project for Appropriate Waste Management in Santo Domingo de Guzman, National District
Cooperation Period: 2009.7 - 2012.7 (3 years)

Target Area: Santo Domingo de Guzman, National District

Target Group: Ayuntamiento del Distrio Nacional (ADN) (The Municipal Government of National District)

Overall Goal: Targets of the Integrated Solid Waste Management (Integrated SWM) Plan (revised M/P) are substantially achieved by 2015.

Project Purpose: Integrated SWM in Santo Domingo de Guzman, National District, is enhanced

Outputs

1. Capacity of ADN on Integrated SWM planning is strengthened
2. Solid waste collection system is consolidated through improvement on vehicle maintenance and public awareness
3. 3Rs (Reduce, Reuse, Recycle) approach is introduced to divert waste from final disposal site

Main Activities

1. Strengthen Capacity of ADN on Integrated SWM planning.

1-1 Review the current status of Integrated SWM and identify issues to be addressed.

1-2 Review and analyze the implementation status of the integrated SWM Plan (M/P).

1-3 Revise/develop targets and action programs of the integrated SWM Plan towards 2011 and 2015.

1-4 Prepare training materials on SWM planning to support other municipalities.

1-5 Conduct training and workshops on SWM planning to support other municipalities using the above-mentioned materials.

2. Consolidate solid waste collection system through improvement of vehicle maintenance and public awareness.

2-1-1 Study current situation of the maintenance operation of ADN collection vehicles.

2-1-2 Develop an improvement plan of vehicle maintenance system

2-1-3 Develop a procedure on the vehicle maintenance

2-1-4 Implement the improvement plan

2-1-5 Monitor the implementation and feedback to the maintenance procedure

2-2-1 Study the current situation of waste discharge practices

2-2-2 Develop a plan for improving waste discharge practices

2-2-3 Develop materials for public awareness on waste discharge

2-2-4 Implement the plan using the above mentioned materials

2-2-5 Monitor the implementation and feedback to the plan

3. Introduce 3Rs (Reduce, Reuse and Recycle) approach to divert waste from final disposal site(s).

3-1-1 Review the current situation of recycling activities on papers, glass, metal, plastic and organic waste

3-1-2 Study the feasibility of recycling of valuable materials

3-2-1 Design a program for 3Rs introduction.

3-2-2 Develop materials for public awareness and promotion of 3Rs.

3-2-3 Implement the program for 3Rs introduction.

3-2-4 Monitor the implementation and feedback to the program.

3-3-1 Develop a pilot project plan to expand current paper recycling activities.

3-3-2 Implement the pilot project for paper recycling.

3-3-3 Review the pilot project and develop plan for expansion of paper recycling.

3-4-1 Develop a pilot project plan for pruning waste management.

3-4-2 Implement a pilot project for pruning waste management.

3-4-3 Review the pilot project and develop a plan for expansion of pruning waste management.

2. EVALUATION OF THE PROJECT

2.1. Objectives

The objectives of the Terminal Evaluation are as follows:

(1) To confirm the progress of the Project activities based on PDM and PO (Plan of Operation; **ANNEX 2**).
(2) To identify problems and issues on any aspects of the Project implementation.
(3) To evaluate the degree of achievement of the Project based on the five evaluation criteria, namely Relevance, Effectiveness, Efficiency, Impact, and Sustainability.
(4) To make recommendations for the necessary actions and measures in order to attain the Project Purpose by the end of the Project Cooperation Period.

2.2. Methods

2.2.1. Evaluation Method

The Japanese and Dominican Terminal Evaluation Teams jointly evaluated the Project using the five evaluation criteria. The activities included in the Evaluation are report analysis, field surveys, a series of discussions and interviews with relevant officials, the Project staff and the residents of the target areas.

2.2.2. Members of the Evaluation Team

The Japanese Evaluation Team

1. Dr. Mitsuo YOSHIDA (Team Leader), Senior Advisor, JICA

2. Mr. Issei AOKI (Evaluation Planning), Assistant Director, Environmental Management Division 2, Environmental Management Group and Officer for Climate Change, Global Environment Department, JICA

3. Dr. Hideaki HIGASHINO (Evaluation Analysis), Senior Consultant, RECS International Inc.

The Dominican Republic Evaluation Team

1. Mr. Julio Ortiz, Ministry of Environment

2. Ms. Glenys Gonzalez, Ministry of Economy, Planning and Development

3. Ms. Paula De León, IDB Project, Mancomunidad de Santo Domingo

2.2.3. Five Evaluation Criteria

The Evaluation was conducted based on the five criteria listed below:

1) Relevance

The extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.

2) Effectiveness

Effectiveness measures the extent to which the activities achieve its Purpose, or whether this can be expected to happen on the basis of the Outputs.

3) Efficiency

Efficiency measures the outputs -- qualitative and quantitative -- in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results. This generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted.

4) Impact

The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators. The examination should be concerned with both intended and unintended results and must also include the positive and negative impact of external factors, such as changes in terms of trade and financial conditions.

5) Sustainability

Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable.

2.3. Schedule of the Evaluation

The Joint Evaluation Team worked for 16 days from 9 to 24 January in Santo Domingo for carrying out the following activities.

Date			Schedule
1	1/8	Sun	Higashino : 21:20 (AA-1901) Arrive at Saint Domingo Move to Hotel Santo Domingo
2	1/9	Mon	Higashino : Survey preparation, Report drafting (National Holiday in Santo Domingo)
3	1/10	Tue	Higashino : 9:00-9:30 Meeting with JICA Office 9:30 Move to ADN

			9:45-10:30 Kick-off with the Project 10:30-16:00 Interview to ADN and Ex-trainees , Site survey (Invi, Parque Mirador Sur)
4	1/11	Wed	Higashino : 8:30 -13:00 Interview to ADN 14:30-15:30 Interview to ADN
5	1/12	Thr	Higashino : 8:30-13:00 Interview to ADN p.m. Report drafting
6	1/13	Fri	Higashino : a.m. Report Drafting 14:30 Meeting with IDB Project 16:30 Follow-up of social survey (at JICA Office)
7	1/14	Sat	Higashino : Report drafting
8	1/15	Sun	Higashino : Report drafting Yoshida/Aoki : Leave Tokyo
9	1/16	Mon	Higashino: 10:00 Introduction meeting with Dominican evaluation team Yoshida/Aoki : 17:50 (AF-3568) Arrive at Saint Domingo Move to Hotel BQ Santo Domingo All : Internal meeting (with Mr. Higashino at Hotel)
10	1/17	Tue	Yoshida/Aoki/Higashino 9:00-9:30 Meeting with JICA Office 9:30 Move to AND All : 9:45 Kick-off with the Project (Joint Evaluation Team) 10:30 – 16:00 Presentation by C/P on the Project Interview to ADN (Q&A with C/P on the Project)
11	1/18	Wed	All : 9:00-11:00 Site survey (Transfer station, pruning waste chipping site (Parque Mirador Sur), and pilot project sites (Invi, Antillas)) 14:30-17:30 Discussion on draft Evaluation Report 17:30-18:30 Follow-up of social survey / review of final draft report at ADN
12	1/19	Thr	All : 10:00-10:30 Site inspection (waste collection in Invi and Antillas) 10:30-11:30 JICA-ADN periodical monitoring meeting (at ADN) 11:30-13:00 Discussion on the draft Evaluation Report and M/M consultation at ADN 14:30-16:00 Discussion on the draft Evaluation Report and M/M consultation at ADN
13	1/20	Fri	Yoshida/Aoki/Higashino 11:00-12:00 Interview to the Ministry of Environment 15:30- Discussion with JICA Office on the new project
14	1/21	Sat	M/M translation
15	1/22	Sun	Report drafting
16	1/23	Mon	All : 10:30- M/M signing, (JEC) 12:00- Report to JICA office, 14:30- Report to Japan Embassy
17	1/24	Tue	Yoshida/Aoki : 13:10 (CM-129) Move to Havana Higashino : 10:30 Interview to the Ministry of Environment (MOE)
18	1/25	Wed	Higashino : 8:30-17:00 Interview to MEPyD, FEDOMU
19	1/26	Thr	Higashino : 8:30-17:00 Wrap-up meeting
20	1/27	Fri	Higashino : 9:00-13:00 Meeting with other donors (GIZ, USAID) 14:30-15:30 Report to JICA office
21	1/28	Sat	Higashino :

			17:45 (AA-778) Leave Saint Domingo
22	1/29	Sun	Higashino : -
23	1/30	Mon	Higashino : Arrive at Tokyo

3. ACHIEVEMENTS OF THE PROJECT

3.1. Achievement of Inputs

3.1.1. The Japanese Side

1) Assignment of the Japanese Experts

In line with the R/D signed on February 25, 2009 in Santo Domingo, eight Japanese Experts (38.7 M/M) were dispatched up to January 2012. Details are as shown in **ANNEX 3**.

2) Counterpart Training in Foreign Countries

So far five training courses in foreign countries, including one in Japan, have been conducted. The course titles and the number of trainees are as shown in the table below:

Counterpart Training in Foreign Countries

Training Course	Number of Trainees	Time Period
Third Country Training Course in Argentine: Solid Waste Management in Buenos Aires Metropolitan Area and Campana Municipality	4	From November 8 to November 15, 2009 (8 days)
Third Country Training Course in El Salvador: Solid Waste Management in San Salvador Metropolitan Area, ASINORLU inter-municipality Association and Suchitoto Municipality	4	From November 23 to November 28, 2009 (6 days)
Group Training Course in Hiroshima, Japan: Integrated Solid Waste Management Technology	1	From August 25 to November 21, 2010 (4 weeks)
Third Country Training Course in Cuba: Solid Waste Management in Havana City	2	From November 21 to November 26, 2010 (5 weeks)
Third Country Training Course in Mexico: CENICA's Second International Training Course in Integral Waste Management focusing 3R's	4	From February 20 to February 26, 2011 (5 weeks)

3) Provision of Machinery and Equipment

The equipment to the value of USD 21,151 (JPY 1,763,650) was handed over to the Dominican Republic side until up to date. Main items are as shown in the table below.

Provision of Machinery and Equipment (Unit: Japanese Yen)

	Item	No.	JFY2009 (2010.1-2010.3)	JFY2010 (2010.4-2011.3)	Total
1	Laptop computer	1	114.585		114.585
2	Printer	1	122.365		122.365
3	Projector	1	61.700		61.700
4	Brush Chipper	1		1,465.000	1.465.000
	Total	----------	298.650	1,465.000	1.763.650

4) Local Expenditure

As of December 2011, local cost born by the Japanese side amounted to USD 221,411 as shown in the table below;

Local Expenditure by the Japanese Side (unit; JPY)

Major Budget Item	JFY2009<*1 (Jun-Mar 2010)	JFY2010 (April-Mar 2011)	JFY2011 (Apr-Dec 2011)	Total
Employment Cost (Interpreter/Engineer)	2,587,040	3,543,849	2,000,000	8,130,889
Consumable goods	236,210	282,387	200,000	718,597
Travel and Transport	1,034,487	599,981	300,000	1,934,468
Publishing material		548,583	230,000	778,583
Rental	978,812	1,074,894	500,000	2,553,706
Local training	304,545	769,643	300,000	1,374,188
Machinery purchase	236,950	1,454,000	0	1,690,950
Report generation	14,000	836,000	500,000	1,350,000
Total in Japanese Yen	5,392,044	9,109,337	4,030,000	18,531,381
US$	58,255	111,456	51,700	221,411
(Exchange rate)	92.56	81.73	77.95	

<*1: Japanese Fiscal Year

3.1.2. The Dominican Side

1) Allocation of Counterpart Personnel (C/P) (ANNEX 4)

The Dominican Republic side nominated seven (7) persons for Joint Coordinating Committee (JCC) members and 11 persons for Technical Committee members as described in the R/D at the commencement of the Project. As for C/P, at the beginning of the Project, the total number was 20. It increased during the implementation of the Project, and as of January 2012, 26 C/P are allocated.

2) Provision of Land, Building and Facilities

Office space is available for the Japanese Experts and the Project staff members in the 4th floor in DIGAUE, ADN

In addition, the Dominican side arranged office appliances (desks, chairs, bookshelves, etc.).

3) Allocation of Local Cost

The Dominican side allocated local cost necessary for the Project activities comprising of salary and allowances of the C/P, utilities (water and electricity).

4) Equipment

ADN procured a chipping machine in July 2011. It also has a plan to purchase dump trucks, compactor trucks, a front loader, etc., in 2012.

3.2. Achievement of Main Activities

Activities have been conducted reasonably in general. The achievement of the Main Activities is as summarized in **ANNEX 5**.

3.3. Achievement of Outputs

The achievement of the expected Outputs, over the former half of the Project period, is summarized as follows;

Output 1: ***Capacity of ADN on Integrated SWM planning is strengthened.***

Capacity of ADN C/P on Integrated SWM planning is considered strengthened to a reasonable extent according to the observation by the Third Country Evaluator (Progress Report No.4).

Capacity of ADN C/P of Integrated SWM Planning Group (8 persons)

Necessary Aspects in Integral SWM planning	The number of C/P members who developed his/her capacity marking "4" or above	
	2010.9	2011.8
Legal /Regulation Framework	3 persons	4 persons
Institutional/ Organizational Framework	2 persons	4 persons
Finance	4 persons	4 persons
Generation	1 person	1 person
Temporary Storage /Discharge	2 persons	4 persons
Recollection	3 persons	5 persons
Transportation (transfer station)	1 person	1 person
Recycle	0	1 person
Treatment of Compost	0	0

Grading Criteria:
5. Possible to carry out an excellent job without the Japanese Expert support.
4. Possible to carry out a satisfactory job without the Japanese Expert support.
3. A little help from the Japanese Expert is needed to reach the goal level.
2. A lot of help from the Japanese Expert is needed to reach the goal level.
1. Impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

According to the assessment in 2011, except for the composting training, ADN has at least one staff capable to execute necessary aspects without help of the Japanese Experts. As for composting, experiments using pruning wastes have been undertaken with the support of JET (Japanese Expert Team) for C/P to obtain experiences.

In addition, the Joint Evaluation Team verified the achievement based on the indicators as follows:

Indicator: 1-1) Revised M/P is drafted.

As of January 2012, the draft of the revised M/P is almost completed except for the part of the final disposal site and will be finalized during the former half of this year. Depending on the IDB study (Master Plan Study for ISWM in Great Santo Domingo) results on the waste disposal site, the following issues are to be reviewed again:

- Issues related to intermediary transportation system
- Issues related to relocation and closure of the existing landfill site

The results of the IDB study will be made public in March 2012.

Indicator: 1-2) Training materials for SWM planning are prepared.

In March 2011, all the planned materials were developed, although slightly behind the schedule in PO, as shown below.

Training Materials Prepared

Manual Title (20 copies)
1. Waste Amount and Composition (2011.3)
2. Collection Service Improvement (2011.3)
3. Inspection of Collection Service (2011.3)
4. Information Dissemination to the Community (2011.3)
5. Database System for Collection Routes (2011.3)
6. Transfer Station Weigh System-BDET (2011.3)
7. Collection Vehicle Maintenance and Management System (2011.3)

Source: ADN

Through the preparation, C/P have obtained experiences how to prepare training materials related to SWM and, at the same time, they obtained better understanding of each theme. Two more materials will be prepared before the end of the Project.

Indicator: 1-3) At least two training workshops for other municipalities are conducted by ADN.

The first workshop was conducted in July 2011 with 55 participants.

The 1st Workshop Participants

Organization	Great Santo Domingo Mancomunidad	Other Municipalities	ADN	Others (IDB, MOH, Green Belt, etc.)	JICA staff	Japanese Expert Team	Total
No. of Participants	17	3	14	7	10	4	55

Source: Progress Report No.4

Reflecting the experiences of the 1st workshop, the program for the 2nd workshop is under preparation and will be conducted before the end of the Project period. A series of meeting with IDB were conducted 4 times, so far, and 4 more will be held before the 2nd workshop mentioned above.

In addition to the above workshop, or meetings, two seminars on the Project were conducted (Jul. 2010 and Jun. 2011).

Output 2: ***Solid waste collection system is consolidated through improvement on vehicle maintenance and public awareness.***

Indicator: 2-1) Information on vehicle maintenance is systematized.

The Evaluation Team considers that the information on vehicle management has been systematized based on the following reasons:

Before the Project started, problems such as, i) inefficient repair process due to time consuming and haphazard procurement of auto parts, ii) lack of systematic recording system for vehicle management, iii) vehicle maintenance conducted on individual basis relying on personal experiences and memories, and iv) lack of manuals necessary to standardize the maintenance works, were identified.

In response to these situations, C/P team, with support from the JET developed an improvement plans for vehicle management and maintenance, and management system of equipment and auto parts in February 2010, and started to implement the plan in March 2010.

As a result:

- Information database on vehicle maintenance was established and its application started in September 2010. C/P input data into the database thereby resolving the issue of lack of the recording system.
- In addition, a database for management of spare parts inventory was established for efficient procurement of auto parts to improve auto parts management.
- A manual; Electric System Diagnosis and Repair for Compactor Truck was prepared in November 2011. In addition to the above, a Safety Manual is to be prepared by the end of the Project.
- To enhance the capacity of C/P, trainings on collection vehicle electric system, daily inspection, and compactor truck repair were conducted in November 2011.
- As of January 2012, more than 80% of the 30 collection vehicles are operational despite the fact that most of them were older than 10 years.

As regards collection service implemented by private companies on contract basis, there still remains an issue of vehicle management, and review of the contents of the contract is under progress by ADN to secure proper vehicle maintenance.

In addition to the above, Individual Capacity Assessment of C/P by the Third Country Evaluator on vehicle maintenance (Progress Report No.4) are summarized as below:

Capacity of ADN C/P of Vehicle Maintenance Group (5 persons)

Necessary Aspects in Vehicle Maintenance	The number of C/P members who developed his/her capacity marking "4" or above.	
	2010.9	2011.8
Knowledge on Master Plan	0	1 person
Repair Record in the Workshop	0	1 person
Preventive Maintenance	0	0
Storage / Purchase of Auto Parts	0	0
Breakdown Repair	0	0
Managing Work Condition/Safety	0	0

Repair Cost Calculation	0	0
Machine and Equipment Management	1 person	1 person

Grading Criteria:
5. Possible to carry out an excellent job without the Japanese Expert support.
4. Possible to carry out a satisfactory job without the Japanese Expert support.
3. A little help from the Japanese Expert is needed to reach the goal level.
2. A lot of help from the Japanese Expert is needed to reach the goal level.
1. Impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

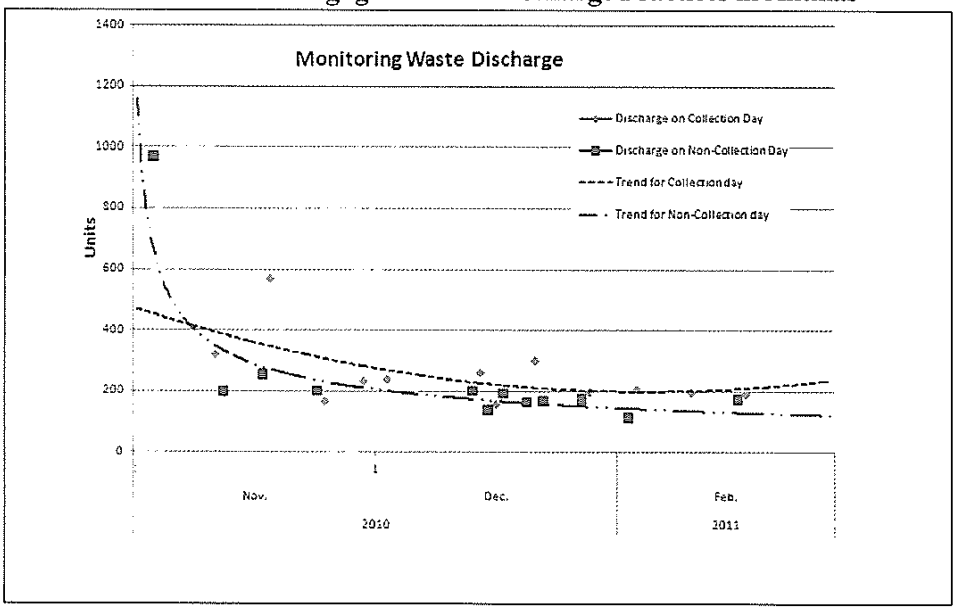
It is judged that there is a necessity for C/P in charge of vehicle maintenance to enhance the capacities in the above aspects continuously.

Indicator: 2-2) Number of records regarding negligent waste discharge<* is reduced.

C/P, with support from JET, examined the current situation of waste discharge practices by residents, and the reasons for negligent waste discharge practices were analyzed. Consequently, it was confirmed that the cause of negligent waste discharge practice was not only found in the resident side, but also in the lack of regular and designated collection service.

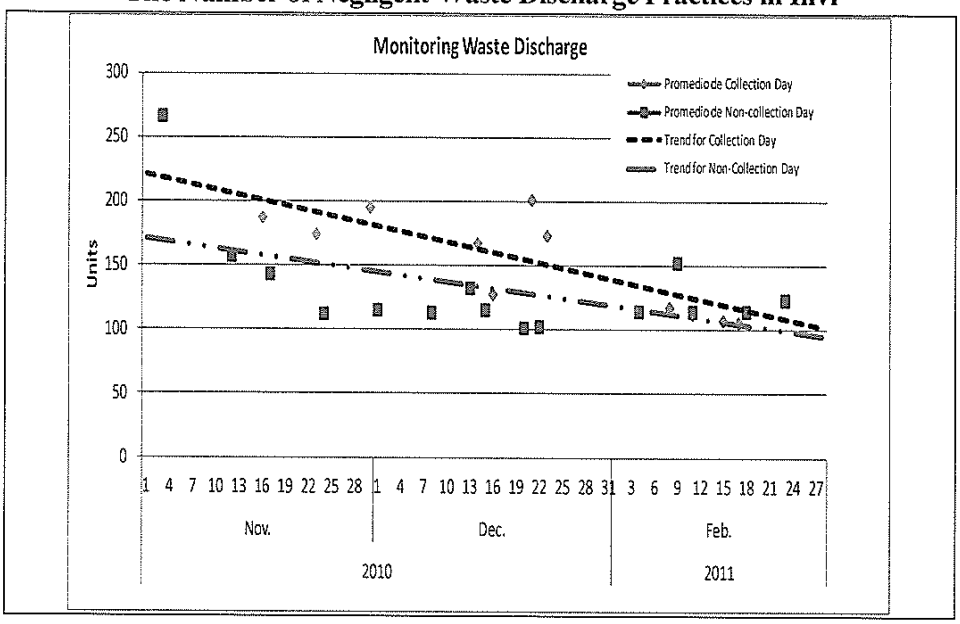
Based on the analyses, a pilot project was formulated and implemented for waste discharge practice improvement in collaboration with neighboring committees (Junta de Vecinos) in Invi and Antillas areas from August 2010 using the materials and tools developed by C/P and 4 workshops were held as regards improvement of waste discharge practices with the residents (Oct.2010, and Nov.2010).
<*'negligent' waste discharge stands for inappropriate discharge in terms of time, location, and storage.

The Number of Negligent Waste Discharge Practices in Antillas



Source: Progress Report No.2

The Number of Negligent Waste Discharge Practices in Invi



Source: Progress Report No.2

As a result, as is shown in the figures above, the number of negligent waste discharge practices reduced in the pilot project areas; namely Antillas and Invi.

As regards the enhancement of capacity development of C/P, Individual Capacity Assessment of the C/P by the Third Country Evaluator on public awareness (Progress Report No.4) are shown below:

Capacity of ADN C/P of Public Awareness Group (8 persons)

Necessary Aspects in Public Awareness	The number of C/P members who developed his/her capacity marking "4" or above	
	2010.9	2011.8
Education for Minimization	1 person	1 person
Education for Recycle in Supermarket and Convenience Store	0	0
Educación for Industrial Waste Exchange	0	0
Recycle Education for Communities and Schools	0	0
Educaction for Waste Discharge Rules	1 person	1 person
Education for Organic Waste Utilization	0	0
Education for Integrated Solid Waste Management	1 person	1 person
Short-term and Long-term Strategy for Public Awareness	0	0

Grading Criteria:
5. Possible to carry out an excellent job without the Japanese Expert support.
4. Possible to carry out a satisfactory job without the Japanese Expert support.
3. A little help from the Japanese Expert is needed to reach the goal level.
2. A lot of help from the Japanese Expert is needed to reach the goal level.
1. Impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

It is judged that there is a necessity for the C/P in charge of public awareness to enhance the capacities in the necessary aspects for public awareness, in general.

Output 3: *3Rs (Reduce, Reuse, Recycle) approach is introduced to divert waste from final disposal site.*

*Indicator: 3-1) Feasibility for other valuable resources is recognized. <**

A recycle mechanism was designed based on the results of recycling market survey and feasibility study of recycling of valuable materials. C/P conducted interview survey to collect information on recyclers, their handling items, locations, etc. to clarify current recycle process with reference to the recycle mechanism design, and input the data to a database.

It is difficult to clarify completely the recycling activities since they are frequently conducted on a small scale and individual (sometimes illegal) basis (Even in Japan, the situation of recycling market is not completely understood although an effort has been made to grasp it correctly with quantitative data).

<* Valuables other than used paper and prune waste

Indicator: 3-2) Number of communities (e.g.Juntas de vecinos) where 3Rs promotion programs are introduced.

As of January 2012, one primary school in Invi area introduced 3Rs promotion program.

For promotion of 3Rs, selection of partner recyclers and primary schools were examined for the promotion program by C/P with the support from JET. In parallel, materials and tools for public awareness and promotion of 3Rs, such as leaflet (2,000 sheets), poster (500 sheets), magnetic label (2,000 pieces), etc., were prepared and 2 workshops (Feb. 2011 and May 2011) were held with participation of residents.

In February 2011, a pilot project for waste paper recycle started in a primary school (la Escuela Víctor Garrido Puello) in Invi area as the first step to disseminate 3Rs activities. As the pilot project progressed, monitoring activities such as regular measurement of waste paper collection was commenced and issues to be addressed were identified.

Based on the experiences obtained through the pilot project, a plan was prepared to extend 3Rs activities to 11 schools in Independencia area in 2012.

Indicator: 3-3) Amount of used-paper recycling by ADN activities increased

Reference data of the paper recycling amount is as shown in the following table.

Recycled Waste Paper Amount under the Project

Time Period	Cardboard	Paper	Newspaper	Magazine	Total (kg)	Monthly Average (kg)
2010.10-2010.12	28,774	70,710	11,132	11,756	122,372	40,790
2011.1-2011.6	33,501	22,128	20,532	9,835	85,996	28,665
2011.7-2011.9	22,716	29,093	16,232	8,142	76,183	25,394

Source:ADN

The amount has not increased from 2010 to 2011probably due to high dependency of used-paper demand in the recycle market trend as well as awareness raisng activites aiming at reduction of paper consumption condcuted by the Project. The increase of used paper amount will be also dependent on the expansion of 3Rs activites.

Indicator: 3-4) Amount of pruning waste dumped at final disposal site is decreased

C/P and JET have been executing the pruning waste management pilot project (mechanical pruning waste chipping) with the purpose to reduce the final disposal volume since October 2010.

ADN collects pruning waste and transport it to a chipping project site in a park (Parque Mirador Sur), and the produced chip is used as material for mulching on the ground. An experiment for producing organic fertilizer from the chip has been undertaken too. DIGAUE recognized the effectiveness of chipping of prune wastes and procured a second-hand chipping machine by themselves in July 2011. In response to this effort by ADN, JICA decided to provide another chipping machine with a larger capacity to the Project in February 2012.

Recent data of the pilot project shows following table. The pilot project is to be expanded from current to a full scale (10 ton/day) in 2012.

Recent Chipping Amount by ADN

Time Period	Chipping amount (kg) <*
April-June/2011	2,352.0
July-Sept./2011	81,663.5

Source: ADN

<*:From April to June 2011 was an introductory period for training operators for chipping, therefore, the amount was limited.

Therefore, amount of pruning waste dumped at final disposal site will decrease through the chipping process, although the amount is marginal (0.5%) as compared to the total daily amount hauled to the site (1,925 ton/day). (Inappropriate species will be removed as was described in M/P.)

As regards the enhancement of capacity development of C/P, Individual Capacity Assessment of the C/P by the Third Country Evaluator on 3Rs approach introduction (Progress Report No.4) are summarized as shown below:

Capacity of ADN C/P of 3Rs Approach Introduction Group (7 persons)

Necessary Aspects in 3Rs approach introduction	The number of C/P members who developed his/her capacity marking "4" or above	
	2010.9	2011.8
Waste Minimization Plan in M/P	1 person	1 person
Recycle Activity Plan in M/P	1 person	2 persons
Compositing Activity Plan in M/P	0	0
Recycle Enhancement	0	0
Enhancement of Organic Waste Utilization	0	1 person
Technical Characteritics of Organic Waste Utilization	0	1 person

Grading Criteria:
5. Possible to carry out an excellent job without the Japanese Expert support.
4. Possible to carry out a satisfactory job without the Japanese Expert support.
3. A little help from the Japanese Expert is needed to reach the goal level.
2. A lot of help from the Japanese Expert is needed to reach the goal level.
1. Impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

It is expected that the C/P will continue to enhance the capacity in understanding composting activities and recycle.

3.4. Achievement of the Project Purpose

In the PDM, some indicators of the Project Purpose have not been set up quantitatively or data are not currently available. Therefore, the Joint Evaluation Team tried to verify the Project Purpose achievement through questionnaire surveys and interviews to DIGAUE staff and the Japanese Experts, site surveys, etc. As a result, the Team judged that "Integrated SWM in Santo Domingo de Guzman, National District" was enhanced to a reasonable extent.

Questionnaire Survey Results (total respondents: 11)

	Response on the degree of Achievement		
	Very much	To some extent	Hardly
Indicator 1	7 persons	0	0
Indicator 2	5 persons	2 persons	0
Indicator 3	4 persons	3 persons	0
Indicator 4	4 persons	3 persons	0

Source: Joint Evaluation Team

In the subsequent sections, possible interpretations of the achievement based on indicators with data, if available, are given for reference.

Project Purpose: ***Integrated SWM in Santo Domingo de Guzman, National District, is enhanced.***

Indicator:1) Collection rate target on revised M/P (100%)

In the revised M/P to be finalized in 2012, the collection rate target will be set at 100%.

Generally, waste collection rate defines as the collection amount divided by waste discharge amount. ADN has waste collection amount data in weight at the transfer station and the final disposal site. However, waste discharge amount cannot be clearly determined due to lack of data such as waste generation ratio and its parameters. Consequently, it is difficult to verify the actual collection rate in the target area at the moment.

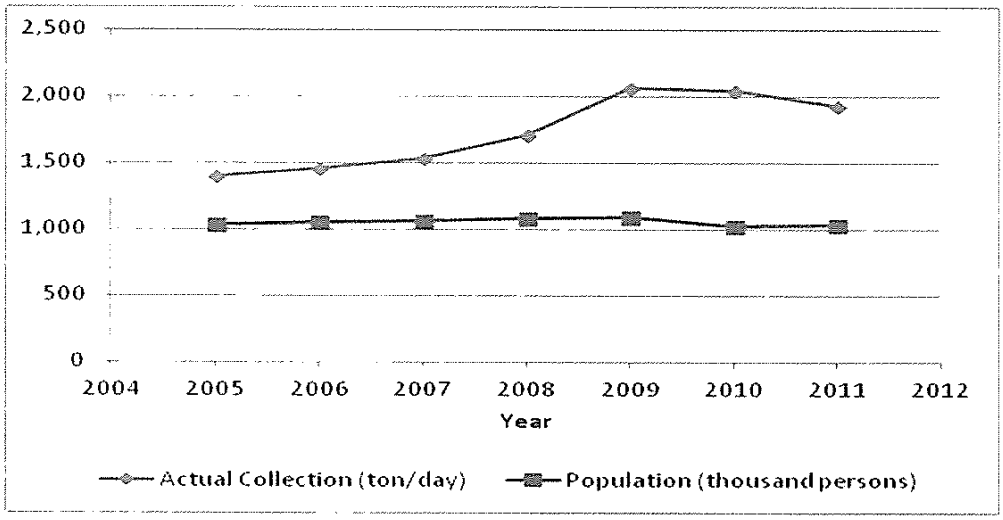
Meanwhile, according to available data of ADN, waste collection amount has shown its rapid increase from year 2006 to 2009 independently of population growth as shown in the figure and the table below. After this period, waste collection amount became stable. Form the trend, it can be judged that waste collection ratio is converging to its capacity, which is 100%.

Taking into consideration that the present ADN administration showed its commitment to keep the city clean (i.e., it can be interpreted as a commitment of provision of satisfactory collection services) by raising slogan of "Ciudad Limpia, Orgullo de Todos (Clean city; the pride of all citizens)", and that ADN is maintaining possible maximum collection rate at the moment by employing private sectors (large companies and community foundations) in addition to direct collection services, it also can be judged that, in a practical sense, almost 100% collection rate is achieved except for the areas where collecton vehicles cannot approach and small areas due to unexpected circumstances.

In 2012, ADN has a plan to introduce 18 dump trucks, 6 small-scale compactor trucks, and a front loader to enhance the collection service. The small-scale compactor will improve access to the areas where it used to be difficult to implement collection service due to narrow streets, which will result

in better collection rate. (15 inspectors cover every street everyday to provide qualified information in terms of collection service.)

Actual Waste Collection and Population Growth



Source: ADN

	2005	2006	2007	2008	2009	2010	2011
Actual Collection (ton/day)	1,405	1,463	1,533	1,709	2,062	2,043	1,925
Population (thousand persons)	1,037	1,052	1,067	1,082	1,097	1,023	1,034

Indicator:2) Waste Minimization target on revised M/P (8.5%)

Waste haulage amount to the final disposal site estimated based on the generation ratio in 2011 is 2,103 ton/day and actual being 1,925 ton/day. Actual amount is approximately 91.5% of the estimated amount. In other words, it can be interpreted that waste reduction rate of 8.5% is achieved in 2011 although it should be understood that the reduction is achieved not directly through the Project activities but also through various activities includng those of unidentified waste collectors.

At the moment, the verifiable amount of waste minimization under the Project is limited in pruning waste chipping and used paper collection activities, the total amount of which is to be approximately 11ton/day at the maximum (pruning waste and used paper recycle).

Indicator:3) Number of complaints received at the ADN call center

The number of complaints received at ADN call center from 2009 to 2011 was summarized in the table below;

The Number of Claims Received and Resolved (2009-2011)

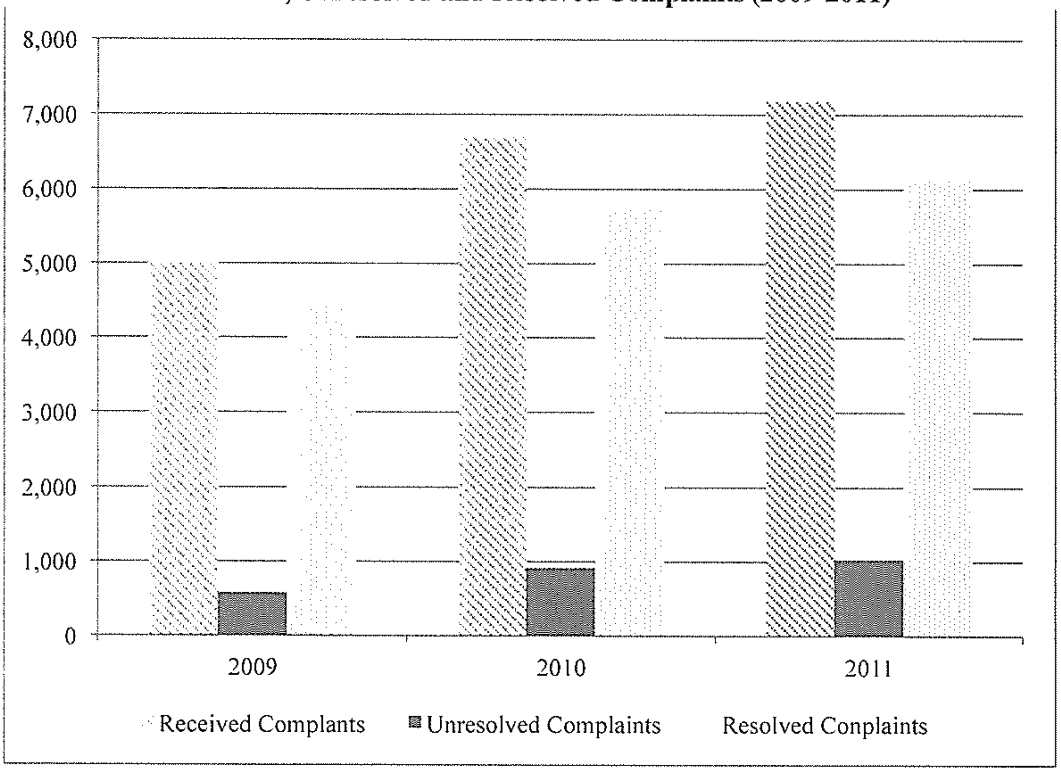
Year \ Month	Received Claims	Resolved Claims	Unsolved Claims	Rate of Resolution
2009	5,007	4,428	579	88.4%
2010	6,703	5,784	919	86.3%
2011	7,132	6,099	1,033	85.6%

Source: ADN

As is seen in the table, the number of calls increased as compared to the previous year. Generally, it is straightforward to view that the number of calls increases or decreases depending on the quality of collection service. However, in reality, other factors such as weather conditions (e.g. strong rainy season that affects the access to the final disposal site, tariff hike, etc.) might affect the number. Therefore, it is considered difficult to judge the quality of collection service of ADN by the number of claims received at the ADN call center.

Meanwhile, as shown in the graph below, the rate of resolution is stable, and nearly 90 % of the complaints were responded and resolved within 48 hours (right column), which is considered to implicate the quality of the collection services from the standpoint of claim management.

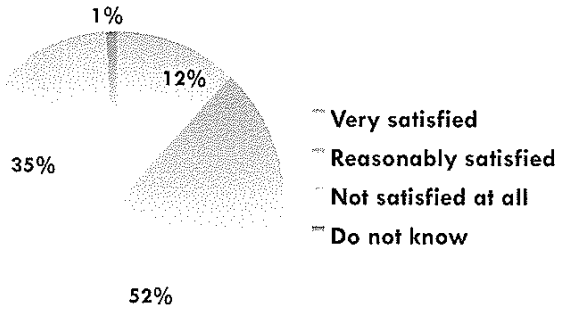
Received, Unresolved and Resolved Complaints (2009-2011)



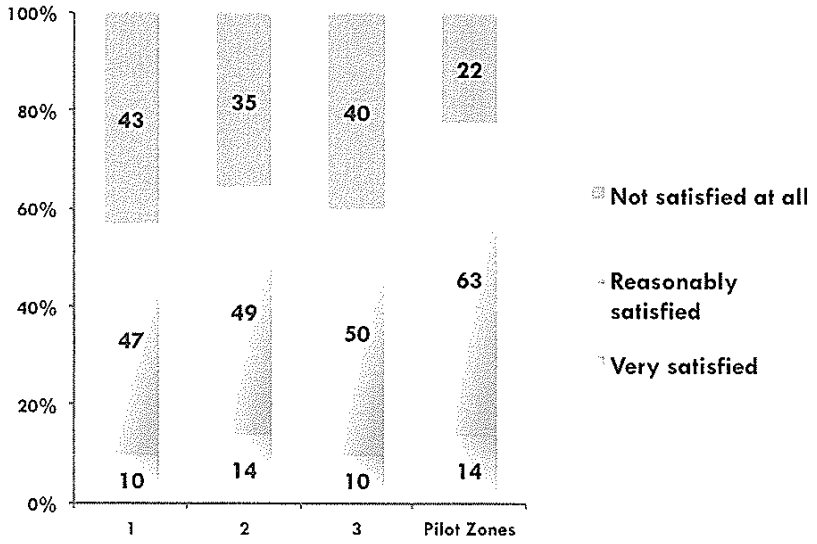
Source: ADN

Indicator:4) Satisfaction rate for collection service

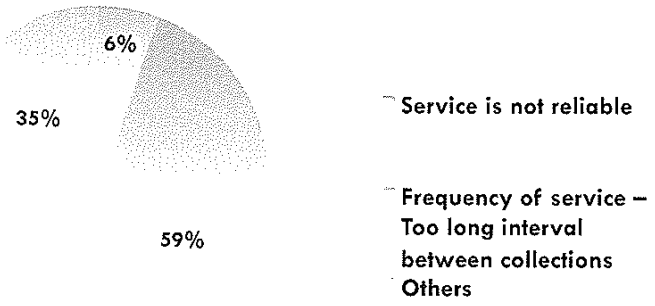
According to the Social Survey conducted by JICA in January 2012 (ANNEX 7), the satisfaction rate for collection service was as shown below. Respondents satisfied with the collection services account for 64% of the respondents, and the dissatisfied respondents account for 35%.



Circumscription-wise, the correspondents in the pilot project area show the highest satisfaction rate of 77% (both satisfied and reasonably satisfied). The other areas (circumscription1-3) show satisfaction rate of approximately 60%.



The reason for dissatisfaction is summarized as follows:



More than 50% of the dissatisfied respondents consider that the interval between collection service is too long. However, collection service is conducted three times a week in many of the ADN service areas, and it may be difficult to increase the frequencies. Those who are not satisfied because the

collection service is not reliable count for only 6%.

4. RESULTS OF THE EVALUATION

Based on the achievements described in the previous sections, the Joint Terminal Evaluation Team conducted evaluation of the Project with five criteria, namely, **Relevance, Effectiveness, Efficiency, Impact** and **Sustainability** of the Project. The grading was made basically at three levels, namely **Low, Moderate** and **High**. The details of Evaluation results are presented in the subsequent sections.

4.1. Relevance

The relevance of the Project is considered **High** based on the following reasons;

4.1.1. Relevance with Dominican Republic Governmental Policy

In 2009, the Government of the Dominican Republic prepared its first long-term national development strategy (the National Development Strategy of the Dominican Republic 2010-2030). Environment preservation is regarded as one of the four main components in the Strategy, along with administration, social development, and economic development. Enacted by the National Congress in January 2012.

In addition, National Program for Municipal Waste Management focusing on 3Rs (Reduce, Reuse, and Recycle) in the Dominican Republic was drafted in October 2011 and launched in January 2012 aiming at 3Rs activities thereby strengthening institutional capacity for solid waste management.

4.1.2. Relevance with the Local Needs

Solid waste management is a crucial and fundamental issue directly related to safe and hygienic life of citizens. Especially in the metropolitan area, rapid urbanization has caused serious environmental pollution on top of the visits of 2 million tourists every year. Consequently, implementation of the Project is highly relevant with the needs of the local residents.

4.1.3. Relevance with Japanese Governmental Policy

Based on the results of working level meetings on economic cooperation policy to the Dominican Republic held in July 2007, it was decided to convey continuous and effective cooperation to the country in three prioritized areas; namely, poverty reduction, improvement of international competitiveness, and environmental preservation and recovery, in order to support self-sustaining development taking into consideration the recent macro-economic development in the country.

Specific contents of the area of environmental preservation and recovery are; i) antipollution control in and around the metropolitan area through enhancing environmental management capacity of relevant municipalities centering on solid waste and sewage management, ii) establishment of a participatory forestry preservation model as a global warming measures, as well as strengthening governmental capacity for CDM (clean development mechanism) implementation.

4.1.4 Relevance with JICA's Strategy

JICA, in order to support the national development strategy, has prioritized the following three areas:

1. Redressing disparity through reduction of poverty in the target fields of agriculture, public health, education, and sightseeing;
2. Strengthening competitiveness of each sector *in response to* the trade and economic treaties with European nations and the U.S. came into effect; and,
3. Improvement of living environment in urban areas and conservation and restoration of environment through sustainable use of natural resources

4.2. Effectiveness

The effectiveness of the Project (the degree of Project Purpose achievement by the end of the Project cooperation period) is considered **High - Moderate** based on the degree of achievement of Outputs and the Project Purpose described in **3.3** and **3.4**. (i.e. Enhancement of AND Capacity on ISWM in Central District but lack of data to objectively justify the achievements)

4.3. Efficiency

Efficiency of the Project is considered **High** based on the achievements of Inputs and Outputs as described in **3.1** and **3.3** (i.e. appropriate Inputs by both the Dominican and the Japanese sides, and reasonable Outputs achievements).

Summary of Inputs, Outputs, and Project Purpose Achievements

Summary of the Inputs Achievement • Overall, both the Japanese and Dominican Republic sides made inputs appropriately in terms of amounts. • As regards the Japanese side, combination of inputs, namely, allocation of the Experts for transfer of technology, training of counterpart staff in the third countries (Argentina, El Salvador, Cuba, and Mexico) as well as Japan, various training courses, provision of equipment and local cost assistance, are considered effective in the process of capacity development of Dominican Republic staff members. • The Dominican Republic side allocated 26 C/P, arranged office space, and secured necessary budget for the Project activities, which are considered reasonable. The Dominican side also purchased a brush chipper to increase the disposal amount of pruning waste.
Summary of the Outputs Achievement **Output 1:** ***Capacity of ADN on Integrated SWM planning is strengthened.*** • Capacity of ADN on Integrated SWM has been reasonably strengthened through various activities such as revision of M/P, preparation of training materials, managing workshops, etc. The M/P will be finalized in the former half of 2012. **Output 2:** ***Solid waste collection system is consolidated through improvement on vehicle maintenance and public awareness.*** • Solid waste collection system was considered to be consolidated to a satisfactory extent through systematization of collection vehicle management system and the successful results of the pilot project for manner improvement for waste discharge practices. **Output 3:** ***3Rs (Reduce, Reuse, Recycle) approach is introduced to divert waste from final disposal site.*** • 3Rs approach was introduced based on analysis of the recycle market conditions and the recycle mechanism designed under the Project. As an initial activity, a pilot project for waste paper recycle was implemented in a school in Invi and students participated in recycling. Pruning waste is disposed on daily basis by two chipping machines. Another chipping machine will be procured in February and the amount of prune waste to be disposed will be increased to10 ton/day from current 2 ton/day within this year.

Summary of Project Purpose Achievement

<Indicator 1: ***Collection rate target on revised M/P (100%)>***

- Targets of waste collection rate a considered is considered virtually satisfied but without data for verification.

<Indicator 2: ***Waste Minimization target on revised M/P (8.5%)>***

- Waste minimization target on revised M/P (8.5%) is considered virtually satisfied but without data for verification as in the case of indicator 1.

<Indicator 3: ***Number of complaints received at the ADN call center*** **>**

- Number of complaints received at the ADN call center increased as a matter of fact. However it is considered to fluctuate by various factors and not an appropriate indicator to judge the achievement of collection service. The rate of resolution of complaints during the past 3 years is nearly 90% and indicates that the response to the complaints was reasonably executed.

<Indicator 4: ***Satisfaction rate for collection service*** **>**

- According to the social survey data conducted by JICA, the rate of satisfaction is 64% and dissatisfaction rate was 35%. The main reason for the dissatisfaction is the long interval between services, although service is provided in most areas daily or every other day basis. Those who are not satisfied with the collection service because it is not reliable count for only 6%.

4.4. Impact

4.4.1. Achievement of Overall Goal (prospect)

Overall Goal: ***Targets of the Integrated Solid Waste Management (Integrated SWM) Plan (revised M/P) are substantially achieved by 2015.***

Indicator: 1) Collection rate target (2015) on revised M/P.

As was explained in **3.4**, ADN is conducting collection service to its full capacity. Therefore, it is difficult to satisfy the collection rate of almost 100% theoretically. However, it is important to make an effort to improve the collection rate toward 100 % by 2015. In addition, as in the case of the indicators of the Project purpose, currently, there are no data available to verify the achievement of the indicator. Hence, from now on, it is necessary to try to obtain data (e.g. WACS data) in order to verify the achievement, or to modify the current indicator to an easily verifiable one.

Indicator: 2) Waste Minimization target (2015) on revised M/P

As there are no data to verify the achievement of the waste minimization target, data collection or modification of the indicator will be necessary to verify the achievement as was mentioned in **3.4**.

Indicator :3) Financial soundness target (2015) on revised M/P.

Since financial soundness of ADN as a whole is highly dependent on the policy of the central government, economic conditions (tax revenue), etc., it is difficult to judge to which extent the indicators will be satisfied in the future.

As far as the fee collection rate that is under the control by ADN is concerned, it is higher than 60 % as a whole and above 75% from better-off households. In addition, collected fee amount drastically increased in year 2011 because of new tariff imposed. Furthermore, fee collection rate has increased.

Annual Collected Fee (2009-2011)

Year	Annually (RD$)	Monthly (RD$)	Ratio (annually)	Ratio (monthly) as compared with 2009	Period
2009	210,327,973	17,527,331	100.0%	100.0%	12 Month (Jan. to Dec)
2010	221,269,181	18,439,098	105.2%	105.2%	12 Month (Jan. to Dec)
2011	302,861,447	27,532,859	144.0%	157.1%	11 Month (Jan. to Nov.)

Progress Report No.4

It is also important that ADN makes an effort to a reduction of expenditure by reducing waste generation and/or discharge amount in promoting the 3Rs activities.

4.4.2 Technical Impact

As the Project progressed, new categories of waste management services were introduced, such as 3Rs activities and utilizing pruning waste in DIGAUE.

4.4.3 Institutional Impact

In September 2010, being inspired by the Project activities, the 3Rs Network Program was established in order to discuss the strategy on promotion of the 3Rs activities with participation of governmental organizations, local municipalities and private sectors as well.

4.5. Sustainability

Sustainability of the Project is considered **High-Moderate** based on the following reasons.

4.5.1. Policy Aspect

The present ADN administration showed its commitment to keep the city clean (i.e., it can be interpreted as a commitment of provision of satisfactory collection services) by raising slogan of "Ciudad Limpia, Orgullo de Todos (Clean city, it is pride of all citizens)", and that ADN is maintaining possible maximum collection rate by employing both private sectors (large companies and community foundations) and direct collection services.

Furthermore, said actions will contribute to attain those objectives of the National Strategy of Development 2010-2030 consolidating working relations among institutions responsible for Integrated Solid Waste Management.

4.5.2. Financial Aspect

Collected fee amount drastically increased in year 2011 because of new tariff was imposed. Furthermore, fee collection rate increased a little. However, the budget condition is still tight (RD$ 350 million deficit for 2011) according to the Director, DIGAUE. In addition, it is necessary to secure the budget of equipment renewal, through accumulating depreciation value account.

Therefore, there is a slight concern about financial sustainability of the Project.

ADN needs to make an effort to further improve the fee collection rate. It is also important that ADN makes an effort for reduction of expenditure by reducing waste generation and/or discharge amount in promoting the 3Rs activities.

4.5.3. Technical Aspect

C/P have improved their technical knowledge and skills reasonably through participating in various Project activities on OJT basis, trainings outside the country as well as taking guidance from the Japanese Experts.

At present, they are considered capable to conduct their waste management activities independently and share the knowledge and skills to fellow staff.

Thus, technology transfer on "Counterpart staff to other staff and stakeholders" basis is expectedly continued to a certain extent.

However, as was pointed out in 3.3, C/P in the fields of vehicle maintenance and public awareness need further capacity enhancement for securing expansion of activities.

Summary of Evaluation based on Five Evaluation Criteria

Criteria	Evaluation	Reasons/Comments
Relevance	**High**	(+) High relevance with the policies of Dominica and Japan (+) Relevance with the needs of residents
Effectiveness	**High-Moderate**	(+) Enhancement of ADN Capacity on ISWM in National District (−) Lack of data to objectively verify the achievements
Efficiency	**High**	(+) Appropriate Inputs by both the Dominica and Japan (+) Reasonable Outputs achievement
Impact (Prospect)	**Positive Impacts Expected**	(-) The prospect of Overall Goal cannot be judged clearly due to lack of data as in the case of the Project Purpose. (+) New categories of waste management services were introduced such as 3Rs and pruning waste disposal by chipping.
Sustainability (Prospect)	**High-Moderate**	(+) Commitment of DIGAUE to ISWM activities (+) Capacity enhancement of DIGAUE staff (−) Tight budget condition of ADN

5. CONCLUSIONS

Since the commencement of the Project in July 2009 up until date, both the Dominican Republic and Japanese sides have been working together to enhance Integrated SWM in Santo Domingo de Guzman, National District.

As a result, capacity of ADN on Integrated SWM planning has been reasonably strengthened through various activities such as revision of M/P, preparation of training materials, managing workshops, etc. The revision of M/P is under progress and will be completed by the end of the Project, reflecting the results of the IDB study.

Solid waste collection system was consolidated to a satisfactory extent through systematization of collection vehicle management system and more than 80% of 30 collection vehicles, older than 10 years, are still operational due to appropriate maintenance and repair. A pilot project for manner improvement for waste discharge practices was successfully executed in Invi and Antillas. The number of negligent waste discharge practices decreased in the pilot project areas and an expansion plan has been examined.

3Rs approach was introduced based on analysis of the recycle market conditions and the recycle mechanism designed. As an initial activity, a pilot project for waste paper recycle was implemented in a school in Invi and students participated in recycling. An expansion plan to 11 schools is under preparation. Pruning waste is disposed on daily basis by two chipping machines. Another chipping machine will be procured in February and the amount of prune waste to be disposed will be increased to10 ton/day from current 2 ton/day within this year.

The Project had an impact on establishment of 3Rs Network, in September 2010 for promotion of 3Rs activities involving governmental organizations, local municipalities and private sectors as well.

Taking these achievements into consideration, the Joint Evaluation Team concluded the Project to be successfully terminated in July 2012 as scheduled in R/D.

In the subsequent chapter, recommendations that will guide for better management and progress of the Project activities are summarized based on the findings by the Joint Evaluation Team.

6. RECOMMENDATIONS

(1) As regards the achievement of the Outputs, Project Purpose and Overall Goal, it is difficult to verify them due to lack of data. ADN is recommended to set up verifiable (quantitative) goals and make a plan to obtain data to verify the performances. Modification of the current indicators of PDM should be also considered.

(2) The experience and know-hows that C/P obtained through the Project, namely; ones related to collection vehicle maintenance and repair, pilot project management for waste discharge practice improvement, introduction of 3Rs activities, etc., are needed in many local municipalities for better solid waste management. ADN is recommended to transfer the knowledge and skills to them in collaboration with the Ministry of Economy, Planning and Development, the Ministry of Environment, the Ministry of Education and related institutions.

(3) It is evident that enhancement of institutional capacity has been obtained. Therefore, it is recommended to continue the capacity development in solid waste management. For assuring technology and knowledge transfer by ADN mentioned in (2), it is necessary to further enhance capacities of C/P, both in quality and quantity before the termination of the cooperation period. In particular, capacity enhancement of C/P in the field of vehicle maintenance is an urgent issue since ADN has a plan to purchase collection vehicles in 2012. JICA and ADN are requested to take necessary actions to strengthen the capacities of C/P in the fields (e.g. dispatch of a short-term expert or senior volunteer staff, etc.).

(4) Based on the social survey conducted by JICA in 2012, in order to increase the satisfaction rate of the residents in terms of waste collection services, options are either to improve service quality

or means of waste discharge from households. Therefore, public awareness raising, reducing wastes amount through expansion of 3Rs activities, as well as pruning waste disposal should be enhanced. ADN is recommended to continue and expand these activities steadily in a practical scale.

(5) In line with (4), in order to grasp the citizens' opinions toward sound solid waste management, it is recommended to ADN to conduct a similar social survey that might help further improve their services effectively and efficiently.

(6) It is recommended that the training materials prepared under the Project be updated as necessity rises in the future.

(7) In order to maintain the positive effect of vehicle maintenance system established under the Project, spare parts procurement shall be executed without delay. ADN is recommended to ensure to provide necessary budget to procure spare parts.

(8) ADN should make efforts to improve the fee collection rate and reduce unnecessary expense to secure financial soundness.

(9) Depending on the IDB study (Master Plan Study for ISWM in Mancomunidad del Gran Santo Domingo) results on the waste disposal site, the following issues are to be reviewed again:

- Issues related to intermediary transportation system; and,
- Issues related to relocation and closure of the existing landfill site

7. LESSONS LEARNED

(1) It is crucial to pay full attention to build rapport with the residents in the target area, in order to achieve a successful project for solid waste management. In case of the pilot project for waste discharge practice improvement implemented by C/P, execution of punctual and regular waste collection services were prerequisite to obtain trust and understanding from the residents. The pilot project was successfully implemented with the commitment and trust of the residents in the target areas.

(2) Setting up baseline and objectively verifiable indicators enables objective evaluation of a project.

(3) Appropriate inclusion and feedback of information from stakeholders enable achievement of project objectives.

(4) High commitment and a good teamwork contribute to success of a project.

ANNEX 1 PROJECT DESIGN MATRIX (PDM)

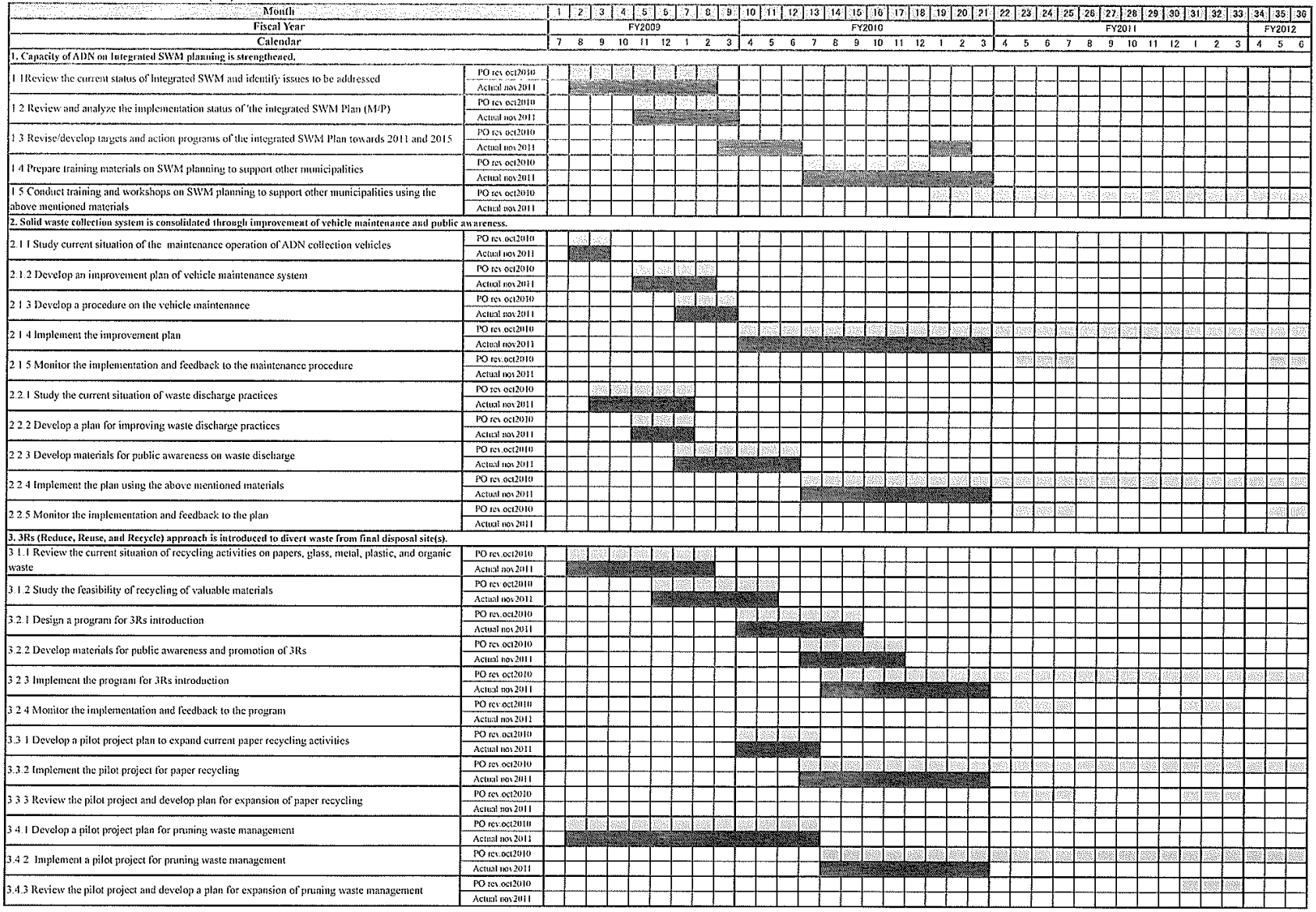
Project Design Matrix (PDM)
Project Name: Project for Appropriate Waste Management in Santo Domingo de Guzman, National District
Duration of the Project: 3 years
Target Area: Santo Domingo de Guzman, National District
Target Group: Ayuntamiento del Distrio Nacional (ADN)

Ver.2 (Revised on 08-Oct-2010)

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal			
Targets of the Integrated Solid Waste Management (Integrated SWM) Plan (revised M/P) are substantially achieved by 2015	1.Collection rate target (2015) on revised M/P 2.Waste Minimization target (2015) on revised M/P 3.Financial soundness target (2015) on revised M/P	Revised M/P Report and data by AND	
Project Purpose			
Integrated SWM in Santo Domingo de Guzman, National District, is enhanced	1. Collection rate target on revised M/P 2. Waste Minimization target on revised M/P 3. Number of complaints received at the ADN call center 4. Satisfaction rate for collection service	Revised M/P Report and data by ADN Complaints record Report on survey for satisfaction rate	Sanitary landfill operation is introduced and continued at final disposal site
Outputs			
1. Capacity of ADN on Integrated SWM planning is strengthened	1.1 Revised M/P is drafted. 1.2 Training materials for SWM planning are prepared. 1.3 At least two training workshops for other municipalities are conducted by ADN.	1.1 Revised M/P 1.2 Training materials 1.3 Training workshop reports	Natural disasters do not affect the progress of the project The government of Dominican Republic maintains or improves the current national policy principles regarding waste management Final disposal site continues receiving waste from Santo Domingo de Guzman, National District, during the project
2. Solid waste collection system is consolidated through improvement on vehicle maintenance and public awareness	2.1 Information on vehicle maintenance is systematized 2.2 Number of records regarding negligent waste discharge is reduced	2.1 Maintenance report 2.2 Inspectors report	
3. 3Rs (Reduce, Reuse, Recycle) approach is introduced to divert waste from final disposal site	3.1 Feasibility for other valuable resources is recognized 3.2 Number of communities (e.g.Juntas de vecinos) where 3Rs promotion programs are introduced 3.3 Amount of used-paper recycling by ADN activities increased 3.4 Amount of pruning waste dumped at final disposal site is decreased	3.1 Recycling Promotion Center reports 3.2 Recycling Promotion Center reports 3.3 Survey reports 3.4 Recycling Promotion Center reports	

Activities of the Project	Inputs	Important Assumptions
1. Capacity of ADN on Integrated SWM planning is strengthened. 1.1Review the current status of Integrated SWM and identify issues to be addressed 1.2 Review and analyze the implementation status of the integrated SWM Plan(M/P) 1.3 Revise/develop targets and action programs of the integrated SWM Plan towards 2011 and 2015 1.4 Prepare training materials on SWM planning to support other municipalities 1.5 Conduct training and workshops on SWM planning to support other municipalities using the above mentioned materials **2. Solid waste collection system is consolidated through improvement of vehicle maintenance and public awareness** 2.1.1 Study current situation of the maintenance operation of ADN collection vehicles 2.1.2 Develop an improvement plan of vehicle maintenance system 2.1.3 Develop a procedure on the vehicle maintenance 2.1.4 Implement the improvement plan 2.1.5 Monitor the implementation and feedback to the maintenance procedure 2.2.1 Study the current situation of waste discharge practices 2.2.2 Develop a plan for improving waste discharge practices 2.2.3 Develop materials for public awareness on waste discharge 2.2.4 Implement the plan using the above mentioned materials 2.2.5 Monitor the iimplementation and feedback to the plan **3. 3Rs (Reduce, Reuse and Recycle) approach is introduced to divert waste from final disposal site(s)** 3.1.1 Review the current situation of recycling activities on papers, glass, metal, plastic and organic waste 3.1.2 Study the feasibility of recycling of valuable materials 3.2.1 Design a program for 3Rs introduction 3.2.2 Develop materials for public awareness and promotion of 3Rs 3.2.3 Implement the program for 3Rs introduction 3.2.4 Monitor the implementation and feedback to the program 3.3.1 Develop a pilot project plan to expand current paper recycling activities 3.3.2 Implement the pilot project for paper recycling 3.3.3 Review the pilot project and develop plan for expansion of paper recycling 3.4.1 Develop a pilot project plan for pruning waste management 3.4.2 Implement a pilot project for pruning waste management 3.4.3 Review the pilot project and develop a plan for expansion of pruning waste management	**Japan side;** (1) Experts (2) Training (3)Local costs (4) Machinery, equipment and materials **Dominican Republic side;** (1) Counterpart personnel including administrator (2) Office space and meeting rooms (3) Transportation of experts (4) Local costs (5) Site(s) for composting operation	Private contractors continue providing collection services Counterpart personnels remain in their positions during the project Necessary budget for the counterpart is secured during the project **Precondition**

ANNEX 2 PLAN OF OPERATION (PO) Revised on 08-Oct-2010



ANNEX 3 Allocation of JAPANESE EXPERTS from January 2010 until December 2011

EXPERTS	Position / Assignment Field	Year	2009							2010													2011												
			6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12	
			30	31	31	30	31	30	31	31	28	31	30	31	30	31	31	30	31	30	31		31	28	31	30	31	30	31	31	30	31	30	31	
1 Tadaya YAMAMOTO	Chief Adviser, Solid Waste Management		16	30	30	14	27		18						29	28	29		27				28	5	18	10		17	18	8	3				
2 Hiroshi KATO	Deputy Chief Adviser/Waste Minimization/Promotion of 3Rs (1)			20	23			23	18	6	9					16	14			16	15		25	23			25	30		2	6	8	15	
3 Masaharu KINA	Solid Waste Education and Awareness Raising/Promotion of 3Rs (2)									7	5						11	9	15	13							21	4						
4 Ana Ximena Alegria Olivos	Solid Waste Education and Awareness Raising/Promotion of Waste Discharge Manner						16	14																										
5 Koji KUSUNOKI	Solid Waste Education and Awareness Raising/Promotion of Waste Discharge Manner									6	4					20	18			8	7								2	31				
6 Ryo HIRAGA	Vehicle Maintenance Management					9	8			14	12							130					14	12								27	25	
7 Shinsuke OKAMOTO	Vehicle and Spare Parts Data Management									23	21							5	4				15	29								30	28	
8 Tadayuki YAMANAKA	Vehicle Maintenance																															27	25	
9 S.Okamoto/R.Muranaka/ T.YAMAMOTO	Project Coordinator			20	18		12		10					23	6		26	9		17	1			3	17				9	8			23	3	
																																	19	22

NOTE: (*) The figures above the bars in the table indicate the dates of the beginning and the end of the stay in the Dominican Republic

ANNEX 4 Allocation of Dominican C/Ps from July 2009 until December 2011

		Assignment / Field / Position	2009						2010												2011											
			7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
			31	31	30	31	30	31	31	29	31	30	31	30	31	31	30	31	30	31	31	28	31	30	31	30	31	31	30	31	30	31
Solid Waste Management																																
1	José Miguel Martínez G	Director Manager of DIGAU																														
2	Hugo Pérez Sarraff	Head, Department of Programming and Control General Directorate of Urban Cleansing and Equipments																														
3	Rudilerci Castillo	Head, Department of Administration, General Directorate of Urban Cleansing and Equipments																														
4	Manuel Ramírez	Head, Department of Urban Cleansing, General Directorate of Urban Cleansing and Equipments																														
5	Francisco Martínez	Head, Control Department Division No.2, General Directorate, Urban Cleansing and Equipments																														
6	Leomaris Henríquez	Coordinator, Health Centers Collection, General Directorate of Urban Cleansing and Equipment																														
7	Oscar García Arias	Head, Department of Operations																														
8	Heisor Arias	Head, Recycling Promotion Center																														
Vehicle Maintenance Management																																
1	Oscar García Arias	Coordinator of Analyst of Operations																														
2	Genaro Rosario	Head, Department of Vehicles Maintenance																														
3	Manuel Roa	Staff in charge, Operation Unit for Compactor Trucks																														
4	Luis Checo	Coordinator Technician, Department of Maintenance																														
5	David Rodríguez	Head of Control, Division No.3, General Directorate of Urban Cleansing and Equipment																														
Solid Waste Education and Awareness Raising																																
1	Juan José Guzmán	General Director of Human Development																														
2	Luis Taveras	Head, Department of Public Education																														
3	Marianna Szabo	Coordinator, Environmental Information Center																														
4	Anyelina Aquino	Head, Department of Environmental Management																														
5	Leomaris Henríquez	Coordinator, Health Centers Collection, General Directorate of Urban Cleansing and Equipment																														
6	Massiel Moronta	Member, Department of Administration, General Directorate of Urban Cleansing and Equipments																														
7	José Nuñez	Educator, Environmental Information Center																														
8	Pablo Mejía	Coordinator of Analyst of Operations																														
Waste Minimization/3Rs Promotion																																
1	Heisor Arias	Head, Recycling Promotion Center																														
2	Amancio Pereyra	Technician, Recycling Promotion Center																														
3	Alan Alarcon	Technician, Recycling Promotion Center																														
4	Ana Beatriz Pou	Technician, Recycling Promotion Center																														
5	Fulvio Cabral	Technician, Recycling Promotion Center																														
6	Fernando Prestol	Technician, Recycling Promotion Center																														
7	Manuel Dajer	Technician, Recycling Promotion Center																														

ANNEX5 Achievement of Main Activities (1)

Outputs	Activities	Summary of the Progress				Remarks
		Progress Report No.1 (2009.12)	Progress Report No.2 (2010.10)	Progress Report No.3 (2011.3)	Progress Report No.4 (2011.11)	
I. Capacity of ADN on Integrated SWM planning is strengthened	1.1 Review the current status of ISWM (Integrated Solid Waste Management) and identify issues to be addressed.	•JET together with C/P Team reviewed the current status of ISWM and clarified the issues to be addressed.				
	1.2 Review and analyze the implementation status of the integrated SWM Plan (M/P).	•After the M/P was developed, the action program of M/P was developed and the activities were conducted reasonably. •However, the program does not include the activities such as public consultation with residents, improvement of manner related to waste discharge practices, or introduction of 3Rs.	•Dominican C/P, with support from the J/E, reviewed the contents of the original M/P and clarified its strategy how to cope with the existing issues related to ISWM. •Based on the analysis, the 1st draft of the revised M/P was prepared by C/P in October 2010 aiming at resolving the identified issued in the original M/P.	•In March 2011, Dominican C/P, with support from the J/E, prepared the 2nd draft of the M/P taking into consideration the current issues and conditions.		•In 2012, the draft revised M/P will be finalized. •For the purpose, coordination with the results of IDB Study (Master Plan Study for ISWM in Great Santo Domingo, financed by JCF) that has been conducted since June 2011 and to be completed in April 2012 will be necessary. •In the Study, the new landfill site for the metropolitan area will be selected and the plan for environmental education will be proposed.
	1.3 Revise/develop targets and action programs of the integrated SWM Plan towards 2011 and 2015.				•In November 2011, taking into consideration the findings and analyses described in Progress Report No.1-No.3, the framework of the revised M/P, involving specific approaches, was formulated.	
	1.4 Prepare training materials on SWM planning to support other municipalities.		•Dominican C/P, with support from the J/E, identified knowledge of DIGAUE available to the implementation of the activity (1.4) as well as the training needs of other municipalities. •Based on the analysis, a dissemination schedule was discussed.	•Training materials on SWM was prepared in March 2011. 1. Waste Amount and Composition 2. Collection Service Improvement 3. Inspection of Collection Service 4. Information Dissemination to the Community 5. Database System for Collection Routes 6. Transfer Station Weigh System-BDET 7.Collection Vehicle Maintenance	•Completed. •By March 2011, all the materials were developed as scheduled.	•Revision or modification of the training materials will be necessary depending on the situation.
	1.5 Conduct training and workshops on SWM planning to support other municipalities using the above mentioned materials.			•The schedule for trainings and workshops were developed. Trainings and workshops were decided to be conducted in 2011.	•In July 2011, the 1st workshop was conducted inviting officers in charge of solid waste management in neighboring municipalities. In total 55 officials, stakeholders, etc. participated in the workshop.	•Coordination may be necessary with the IDB Study results in terms of selection of the target municipalities, etc.

ANNEX5 Achievement of Main Activities (2)

Outputs	Activities	Summary of the Progress				Remarks
		Progress Report No.1 (2009.12)	Progress Report No.2 (2010.10)	Progress Report No.3 (2011.3)	Progress Report No.4 (2011.11)	
2. Solid waste collection system is consolidated through improvement on vehicle maintenance and public awareness	2.1.1 Study current situation of the maintenance operation of ADN collection vehicles	• Procurement order of necessary auto parts for repair was placed after vehicle malfunction occurred, and, consequently, repair was not executed in a timely manner. • Systematic recording system for vehicle management was lacking.				Complete: Information database on vehicle maintenance has been established. Its application has been started taking effective and timely remediation measures.
	2.1.2 Develop an improvement plan of vehicle maintenance system	• Vehicle maintenance was conducted on individual basis relying on personal experiences and memories. • Manuals necessary to standardize the maintenance works were lacking. • In order to mitigate the situation, the contents of the following documents were discussed. 1) A manual for vehicle operation and maintenance; and, 2) A manual for equipment and auto parts management In addition, improvement plans for the manuals were discussed.	The 1st draft of Vehicle Operation and Maintenance Manual and, Equipment and Spare Parts Management were prepared.			The 1st draft of the manuals is under revision. Continuous modification and revision will be made reflecting the experiences obtained from the daily operation.
	2.1.3 Develop a procedure on the vehicle maintenance		C/P team together with the JET Team developed an improvement plans for i) vehicle management and maintenance, and ii) management system of equipment and spare parts.	Based on the manuals prepared in the previous year (The 1st draft of Vehicle Operation and Maintenance Manual and, Equipment and Spare Parts Management), management was conducted and reviewed. In addition, established a database for vehicle management and maintenance.		
	2.1.4 Implement the improvement plan				Sorting and setting in order were executed in the vehicle base in order to improve the vehicle management and maintenance system, and equipment and spare parts management system. Simultaneously, the improvement plan has been conducted. A broken vehicle was repaired and became operational by C/Ps through hands-on training by JET.	Database was established for vehicle management and maintenance and management of equipment and spare parts. In addition, the implementing structure was set up and improved. Furthermore, through a hands-on training by JET, C/P in charge acquired a skill to repair a compactor made in Japan which is equipped with complicated
	2.1.5 Monitor the implementation and feedback to the maintenance procedure					

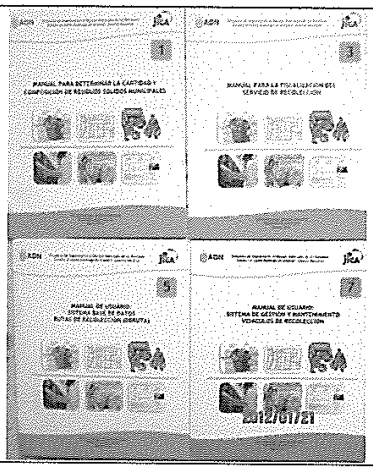
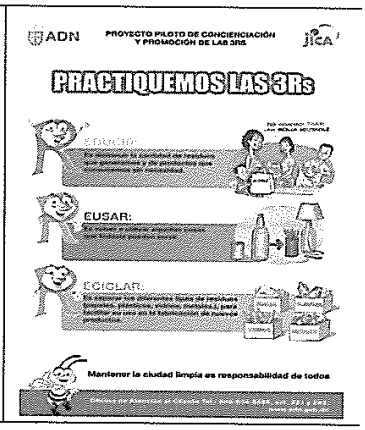
							mechanical and electrical system. However, the compactor is rather old, and difficult to procure spare parts.
	2.2.1 Study the current situation of waste discharge practices	The rule of waste discharge was not fully recognized by residents and negligent waste discharge was practiced. As a results, efficiency of garbage collection lowered and generated disfigurement of towns.				The reason for the negligent waste discharge practices became clear.	Complete under the Pilot Project. In the Pilot Project, the number of negligent waste discharge practices records reduced. It is necessary to continue the activities patiently from now on.
	2.2.2 Develop a plan for improving waste discharge practices	Based on the findings described above, improvement plan for waste discharge practice was examined by C/p and JET teams. It was concluded that residents should be fully informed on relevant rules. It is also crucial that local municipalities should be committed to offer punctual waste collection services.					An improvement plan for waste discharge practice was examined. It was confirmed that the cause of the negligent waste practice was not only in the resident side, but also in the lack of regular and designated collection service.
	2.2.3 Develop materials for public awareness on waste discharge		C/P took the initiative to examine the contents of the tools to publicize the relevant rules.				C/P has acquired the capability to prepare the tools to publicize the relevant rules in terms of waste discharge.
	2.2.4 Implement the plan using the above mentioned materials	A plan for a pilot project for waste discharge improvement was discussed with a negotiation with town neighborhood association (Junta de Vecino) and prepared.	A plan for a pilot project for waste discharge improvement was implemented.		Evaluation of the pilot project was conducted. Based on the evaluation, a plan for expansion was formulated.	Verify the results of the pilot project and expand the area for dissemination of waste discharge practice improvement.	A plan for pilot project for waste discharge improvement was discussed with a negotiation with town neighborhood association (Junta de Vecino) and prepared.
	2.2.5Monitor the implementation and feedback to the plan					The cause of the negligent waste practice was not only in the resident side, but also in the lack of regular and designated collection service. The fact was included in the revised M/P.	It was figured out that regular and designated collection service through monitoring activities. The C/P reflected the finding into the revised M/P, which is considered to show the improvement of their capacity to handle with the public awareness issues.

ANNEX5 Achievement of Main Activities (3)

Outputs	Activities	Summary of the Progress				Remarks
		Progress Report No.1 (2009.12)	Progress Report No.2 (2010.10)	Progress Report No.3 (2011.3)	Progress Report No.4 (2011.11)	
3. 3Rs (Reduce, Reuse, Recycle) approach is introduced to divert waste from final disposal site	3.1.1 Review the current situation of recycling activities on papers, glass, metal, plastic and organic waste	The results of the recycling market survey, conducted under the JICA Development Study that was implemented from 2005 to 2007 still held in general. Although the target valuable materials changed, the process of recycling maintained with only demand and supply changed due to international market circumstances.			Almost complete. It is difficult to clarify completely the recycling activities since they are sometimes conducted on small scale and individual basis. However, current (illegal) recycle process was clarified. Based on concept of "design of recycle mechanism", recyclers, and their handling items, locations, etc. were collected through interview survey and input into a database.	
	3.1.2 Study the feasibility of recycling of valuable materials		In response to the advice from JET Team, The Recycle Promotion Center gradually started its operation.	In order to realize systematic recycle activities aiming at waste reduction in the land fill site, training on design of recycle mechanism conducted on OJT basis. Specifically , C/P together with JET, reviewed the roles to be played by the municipality and residents side to achieve appropriate recycle activities in the Santo Doming National District. On top of it, they reviewed and designed an appropriate recycle mechanism.	Based on the design, with priority on CPR, started surveys on current status of recycler and recycling market. The results were data based.	Issues to be resolved when design concept is applied to the real cases, were reviewed. For promoting recycling, framework concerning roles of the municipalities and residents will be developed and applied to the real cases.
	3.2.1 Design a program for 3Rs introduction		For promotion of 3Rs, selection of partner recyclers, and primary schools were examined.	With cooperation of a primary school (la Escuela Víctor Garrido Puello), waste paper recycle pilot project started in each class of the school in February 2011.	In 2011, pilot project still continued. Its analysis and evaluation were conducted and issues against and countermeasures for expansion were examined	Completed in the pilot project. In the pilot project, students brought waste paper to the school. It is what is called "group collection" in Japan. Since the capacity to collect waste paper is limited, classified collection is still difficult. Public awareness activities are in progress.
	3.2.2 Develop materials for public awareness and promotion of 3Rs		Discussions were made as regards tools and their contents for 3R promotion. 3R promotion Tools such as magnetic label, leaflet, pamphlet, were prepared.	3R promotion tools such as magnet label, leaflet, pamphlet, etc., were prepared were distributed at public consultation meetings.	Continuation of public awareness raising using 3R promotion tools.	
	3.2.3 Implement the program for 3Rs introduction		3Rs activities in the target primary school were discussed with the school and recyclers (NGO), and decided that only waste paper would be handled. Implementation plan for waste paper recycle was examined.	Implementation plan was developed in December 2010. Based on the plan, workshops with participation of students, teachers, janitors, etc. were conducted since January 2011.	Continuation of public awareness raising activities.	
	3.2.4 Monitor the implementation and feedback to the program		Monitoring plan was formulated to evaluate 3R promotion pilot project quantitatively.	As the pilot project implemented, monitoring activities such as regular measurement of waste paper collection was commenced.	In progress/ Continuation of monitoring activities and improvement of activities based on the monitoring results.	
	3.3.1 Develop a pilot		DIGAUE and JICA Dominica Office	The Recycle Promotion Center		Almost completed as of

	project plan to expand current paper recycling activities		implemented the activity. To support them, the Project examined an expansion plan.	prepared and published a report (No.2) that referred to the progress of various recycle activities including the waste paper recycle pilot project.		January 2012.	
	3.3.2 Implement the pilot project for paper recycling		CRP started to record the amount of recycled waste paper, which they did not do before the Project.		In progress		
	3.3.3 Review the pilot project and develop plan for expansion of paper recycling				Data collection based on the recycle mechanism is implemented to prepare a plan for expansion.		
	3.4.1 Develop a pilot project plan for pruning waste management		Selection of a chipping machine for prune wastes was discussed by both the JET and C/P Team. In addition, management structure of C/P team was decided. The installation site was also decided. A plan of operation for pruning waste management activities were prepared.			Almost completed. Pruning waste that ADN collects currently is transported to pruning waste chipping project site, and the produced chip is used as material for mulching. As a result, it is not carried to a landfill site and contributed to the reduction of amount of pruning waste carried to the landfill site.	
	3.4.2 Implement a pilot project for pruning waste management			A brush chipper for pruning wastes was selected, procured and handed over to the Dominican side. A pruning waste pilot project started.		Based on the performances in the previous year, discussion will be made to expand the target areas. For the purpose, the Dominican side purchased a chipper with a larger capacity in July 2011.	
	3.4.3 Review the pilot project and develop a plan for expansion of pruning waste management				Additional provision of a brush chipper for full-scale operation was processed. In addition, plan of operation for expansion was being prepared.	In early 2012, the brush chipper will be procured by JI CA. In parallel with it, implementation plan will be prepared. Based on the plan, full-scale operation will start.	

ANNEX 6: List of Reports and Materials prepared by the Project

1. Reports	
1-1. Progress Report No.1 (2009.12) Spanish/Japanese/English	**Spanish/Japanese/English**
1-2. Progress Report No.2 (2010.10) Spanish/Japanese/English	**Spanish/Japanese/English**
1-3. Progress Report No.3 (2011.3) Spanish/Japanese/English	**Spanish/Japanese/English**
1-4. Progress Report No.4 (2011.11)	**Spanish/Japanese/English**
2. Manual Title (20 copies) **2-1. Waste Amount and Composition (2011.3)** **2-2. Collection Service Improvement (2011.3)** **2-3. Inspection of Collection Service (2011.3)** **2-4. Information Dissemination to the Community (2011.3)** **2-5. Database System for Collection Routes (2011.3)** **2-6. Transfer Station Weigh System-BDET (2011.3)** **2-7. Collection Vehicle Maintenance and Management System (2011.3)**	
3. Promotion Material for Public Awareness Raising **3-1. Poster: 500 sheets** **3-2. Magnet label: 2000 pieces** **3-3. Leaflet; 2,000 sheets** **4. Promotion Material for 3Rs Activities** **4-1. Poster: 500 sheets** **4-2. Magnet label: 2000 pieces** **4-3. Leaflet: 2,000 sheets**	 

ANNEX 7

Social Survey Report

Consulting for conducting Survey for Assessment the Environmental Knowledge and Level of Satisfaction with the Solid Waste Management by the National District Mayoralty

FINAL REPORT

Prepared by:
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Consultant
caroberas@yahoo.com

For:
Agencia de Cooperación Internacional del Japón (JICA)

Santo Domingo, D.N.
January 18, 2012

1. Introduction

In 2006, the Japan International Cooperation Agency (JICA), responding to a request from the Dominican government, developed the "Integrated Management of Solid Waste Plan in Santo Domingo de Guzmán, National District, Dominican Republic."

This Master Plan seeks to establish a "Sustainable Solid Waste Service". The plan considered that in the National District (N.D.), the most urgent issue was to improve the collection service, followed by the stable final disposition, and financial strength.

With the Master Plan, the National District Municipality (ADN) was able to adjust collection routes, improve collection services and improve the terms of contracting with private firms responsible for much of the collection.

Despite having achieved the Master Plan priorities, some recommended actions have not been completed due to the lack of experience of the ADN. These actions are: waste minimization, public awareness on how to deliver waste management and maintenance of collection vehicles.

For this reason the Dominican Government again requested support from the Government of Japan, which, through the JICA, began in July 2009 the "Project for Monitoring the Adequate Management of Solid Waste in Santo Domingo de Guzmán, National District, Dominican Republic" (the project), scheduled to be executed in 36 months.

The three expected outcomes of the project are:

1) The ADN has strengthened its capacity for planning of Integrated Solid Waste Management.
2) The system of solid waste collection got better through the improvement of the vehicle maintenance and public awareness.
3) Three R's (3R's) approach has been introduced (reduce, reuse and recycle) to lower part of the waste which reach the final disposal site.

The project is expected to end in June 2012, so the JICA started in January 2012 its final evaluation, which includes a study of perception of the target population to measure their level of environmental awareness and their level of satisfaction with the services for the waste management offered by the ADN.

This study was performed within the context presented above, which aims to provide elements contributing to the assessment of compliance with the goals established by the project. The study is based on a social survey conducted in a representative sample of the 3 circumscriptions of the National District. As well, a sample population of Invi and Antillas neighborhoods (in the circumscription 1) will participate as part of the survey; this is because such neighborhoods served as pilot zones for some project activities.

2. Objectives

The objective of the survey is to measure public perception and awareness regarding the environment and waste management.

Specifically, the items will be measured with respect to:

- Environmental awareness
- Understanding of waste generation and discharge
- Evaluation to waste collection and transportation service provided by the authority
- Awareness about final waste disposal
- Understanding and practice of 3Rs
- Perception on the executing agency of the project and the project itself
- Overall satisfaction for services on waste management provided by the authority
- Intention of people's participation to solid waste management

3. Methodology

In order to achieve the study objectives, a survey was conducted with personal interviews in households in the National District citizens between 16 and 70 years old, of both genders.

Population universe

The population universe consisted on the target population of the project, which covers all households in the National District, specifically 251,423 households according to the National Census of Population and Housing 2002.

Sample size

The size of the simple was determined by using the following formula:

n = ((k^2) * N*p*q) / ((e^2 * (N-1))+((k^2) * p*q))

Where:
N (universe): 251,423 households
K (constant depending on the confidence level, which is 95% in this case): 1.96
e (sampling error): 7%
p=q= 0.5

It was determined a sample consisting of 196 households, for a confidence level of 95% and a sampling error of 7%.

For the pilot zones it was determined (based in the amount proposed by the contractor) an additional sample consisting of 50 households, for a total of samplings of 256.

Sampling design

A stratified random sampling was performed, which distribution was based on the proportion of households per circumscription (according to Census 2002), as shown in **Table 1**:

Table 1. Proportional distribution of samples according to circumscription

Circumscription	Households amount (Census 2002)	Household proportion	Sample distribution
1	90,498	0.36	71
2	63,889	0.25	50
3	97,036	0.39	76
Total	**251,423**	**1**	**197**

In the pilot zones samples were distributed evenly, for a total of 25 households at Invi neighborhood and 25 homes in Antillas neighborhood.

Sampling method and households' selection

The National District was subdivided into its 3 political circumscriptions, and these in turn were subdivided into the neighborhoods which comprise it, as the Cartographic Updating performed by the National Statistics Office (NSO) for the National District during the period 2005-2010: 38 neighborhoods in circumscription, 14 neighborhoods in the circumscription 2 and 14 neighborhoods in the circumscription 3.

In each circumscription two neighborhoods were randomly selected, in which surveys were implemented to a total of 6 neighborhoods sampled at the level of D.N. The neighborhoods selected per each circumscription are presented in **Table 2. Appendix 1** contains maps of the sampled neighborhoods.

Table 2. Selected neighborhoods for the implementation of surveys and number of samples to be taken

Circumscription	Surveyed neighborhoods	Surveyed households
1	30 de Mayo	36
	Los Restauradores	35
2	Viejo Arroyo Hondo	25
	La Agustina	25
3	Mejoramiento Social	38
	Gualey	38
Total		**197**

As mentioned above, there were 50 additional surveys in the pilot zones of the project, with a fair sampling distribution: 25 surveyed households in Invi and 25 surveyed households in the Antillas.

Data collection instrument

The instrument used was prepared based on the example questionnaire attached in the Terms of Reference of this study, provided by the JICA. The questionnaire was modified taking into consideration the context of the application area as well as relevant information to the project, which were reviewed, specifically the Initial Report and the Progress Report 1.

The questionnaire contains 50 closed questions, mostly dichotomous and categorized, although some had an open field for further qualitative oriented objectives (see **Appendix 2.** Data Collection Instrument).

Training of field personnel (pollsters)

There were 4 pollsters trained through a workshop of 2 hours. Three of them had previous experience in performing such work, which greatly eased the completion of this activity. The workshop was conducted as of January 8 this year and was basically covering the following topics: background of the survey, introduction to the subject under study, presentation and review of the instrument, pollster's presentation and methodology for the selection of informants. As of January 9, they were given the material to be used: surveys sets, route maps and disposable materials. They were also equipped with a camera.

Note that during the review of the instrument with the pollsters, the team realized that there were some corrections and modifications to be performed, which were taken into account.

Pre-test / instrument setting

On days 08 and 09 January, the pollsters conducted a test instrument or application of pre-test with the dual purpose of testing the questionnaire (questions' structure, their level of understanding them, scales validation, etc.) and to serve as practical training, so they could become familiar with the instrument.

Each pollster performed 3 tests, whose only condition was to make them in households within the National District, with a total of 12 pre-samples. The report was that the questionnaire, in general, had a good flow.

Selection of households and informants

To select the households, there was a random walk performed from a starting point, with systematic leaps every 2 homes. If it was not possible to carry out the interview in a selected household, they would proceed to go to the next one.

The only criteria selection was that informants must be aged between 16 and 70 years.

Fieldwork

The field survey was conducted from 10 to 13 January 2012. There were no difficulties affecting the expected performance of the survey team however the journey was intense (on average 10 hours per day) given the short time that was available for the reports delivery.

Systematization of surveys

Every day the surveys were reviewed by the coordinator in order to detect any inconsistencies/errors. Once the surveys were reviewed they were daily systematized, only one day later regarding the data collection. An Excel spreadsheet designed for such purposes was used whose columns contained the survey questions and the rows represented the respondents' answers (see **Appendix 3.** Systematization of surveys – includes a list of interviewees-).

4. Results Analysis

This section analyzes the information gathered through the surveys, especially through the use of tables and figures, in order to facilitate understanding the results and help identify trends easier.

4.1 General Data of Surveyed Households

➢ Circumscriptions

Table 3 and **Figure 1** present the distribution of surveyed households in the National District circumscriptions and pilot zones of the Project.

Table 3. Surveyed households distribution per circumscription

Area	Frequency	Percentage (%)
Circumscription 1	71	29
Circumscription 2	51	21
Circumscription 3	75	30
Pilot Zone	50	20
Total	247	100

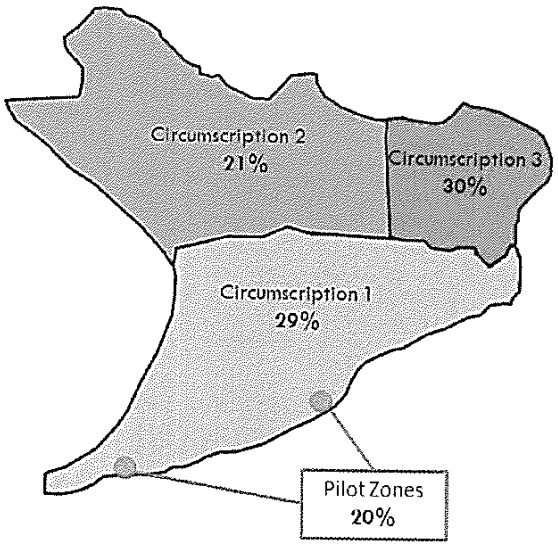

Figure 1. Surveyed households distribution per circumscription

➢ Neighborhoods

The surveyed households' distribution by neighborhood is presented in **Table 4** and **Figure 2**.

Table 4. Surveyed households distribution per neighborhood

	Sector	Frequency	Percentage (%)
Circunscription 1	30 de Mayo	36	15
	Los Restauradores	35	14
Circunscription 2	Viejo Arroyo Hondo	25	10
	La Agustina	26	11
Circunscription 3	Gualey	37	15
	Mejoramiento Social	38	15
Pilot Zones	Invi	25	10
	Las Antillas	25	10
	Total	247	100

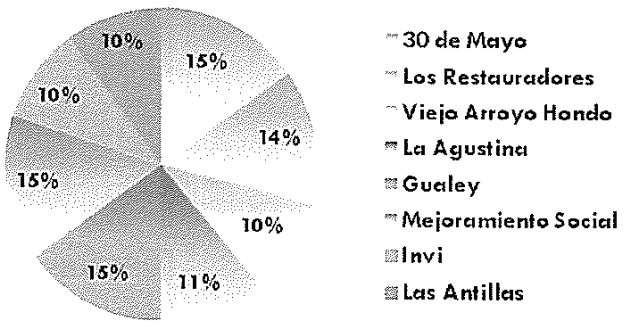

Figure 2. Surveyed households distribution per neighborhood

➢ Type of housing

Table 5. Type of housing distribution

Type of housing	Frequency	Percentage (%)
Household	196	79
Apartment	47	20
Other	2	1
Total	247	100

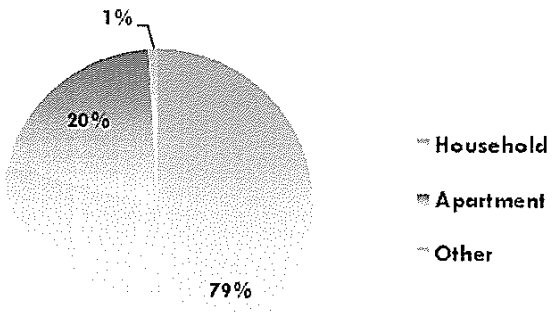

Figure 3. Type of housing distribution

4.2 General Data of Surveyed People

General variables gender and age range are presented in **Table 6** and **Figure 4**, and **Table 7** and **Figure 5**, respectively.

- **Gender**

Table 6. Surveyed people distribution per gender

Gender	Frequency	Percentage (%)
Male	91	37
Female	156	63
Total	247	100

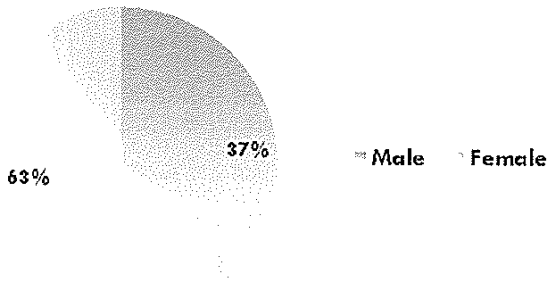

Figure 4. Surveyed people distribution per gender

➢ **Age**

Table 7. Surveyed people distribution per age range

Age range	Frequency	Percentage (%)
16-19	9	4
20-29	39	16
30-39	39	16
40-49	54	22
50-59	50	20
60-70	52	21
Did not answer	4	1
Total	**247**	**100**

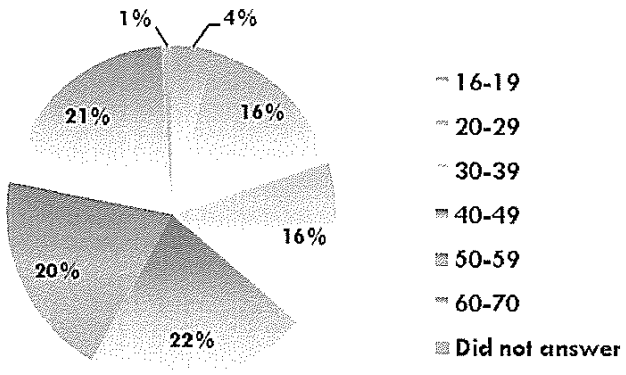

Figure 5. Surveyed people distribution per age range

4.3 Environmental Awareness

➢ **P1. Among these potential problems, which one do you consider to be the most critical for your home?**

Inadequate solid waste collection service was the most often mentioned problem as the most critical environmental problem for households (34%), followed by the noise and "I don't know" answers with 11% of cases each. See **Table 8** and **Figure 6**.

Table 8. Most critical environmental problem

Answer	Frequency	Percentage (%)
Difficult access to drinking water	25	10
Inadequate disposal of residential wastewater	18	7
Sewage into curbs, streets or common areas	14	6
Air pollution by traffic and/or smoke	18	7
Inadequate solid waste collection service	83	34
Presence of litter and illegal piles of solid waste	11	4
Odors	17	7
Noise	26	11
Other problems	9	3
Do not know	26	11
Total	247	100

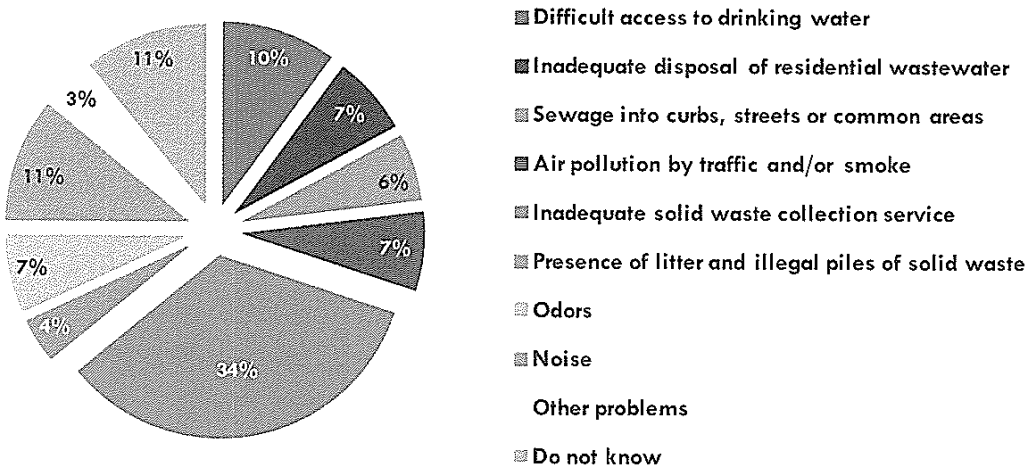

Figure 6. Most critical environmental problem

Note that the highest proportion of households which considered an inadequate waste collection service to be the most critical problem are households from the circumscription 3, mentioning it in 39% of the answers, followed by circumscription 1 with 37%. To a lesser extent, see the circumscription 2 and the pilot zones, showing 27% and 28% respectively (**Table 9** and **Figure 7**).

Table 9. Proportion of households who reported inadequate service waste collection as a more serious problem for circumscription and pilot zones

Circumscription	Frequency	Percentage (%)
1	26	37
2	14	27
3	29	39
Pilot Zones	14	28
Total	83	

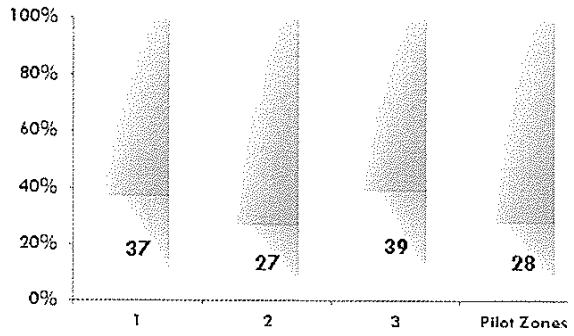

Figure 7. Proportion of households who reported inadequate service waste collection as a more serious problem for circumscription and pilot zones

Additionally, an analysis by sector regarding this question was performed, on the grounds that the differences are considerable. **Table 10** and **Figure 8** show the breakdown of the results. The sectors Gualey, 30 de Mayo and Antillas, have the largest percentage of households who reported inadequate waste collection service as the most critical problem, with 65%, 56% and 52% respectively. Invi and Mejoramiento Social were the lowest percentage, with 4% and 13% respectively.

Table 10. Proportion of households who reported inadequate service waste collection as a critical problem by neighborhood

Sector	Frequency	Percentage (%)
30 de Mayo	19	56
Los Restauradores	7	20
La Agustina	8	31
Viejo Arroyo Hondo	6	24
Gualey	24	65
Mejoramiento Social	5	13
Invi	1	4
Las Antillas	13	52
Total	83	

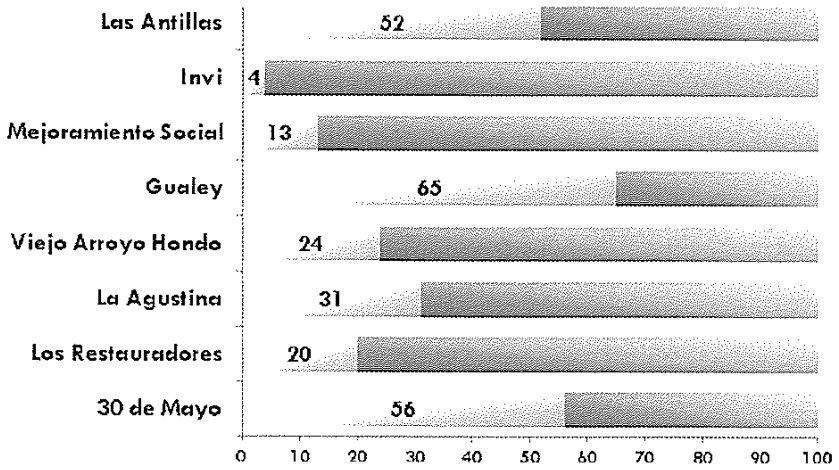

Figure 8. Proportion of households who reported inadequate service waste collection as a critical problem by neighborhood

- **P2. ¿Which do you consider to be the second most critical problem?**

The largest proportion of the interviewed (34%) answered "do not know" when asked about which they considered the second most critical environmental problem. Second and third place are the noise and poor service waste collection with 13% and 12%, respectively. See **Table 11** and **Figure 9**.

Table 11. Second most critical environmental problem

Answer	Frequency	Percentage (%)
Difficult access to drinking water	18	7
Poor quality of drinking water	11	4
Inadequate disposal of residential wastewater	10	4
Sewage into curbs, streets or common areas	9	4
Air pollution by traffic and/or smoke	10	4
Inadequate solid waste collection service	29	12
Presence of litter and illegal piles of solid waste	13	5
Odors	21	9
Noise	33	13
Other problems	9	4
Do not know	84	34
Total	**247**	**100**

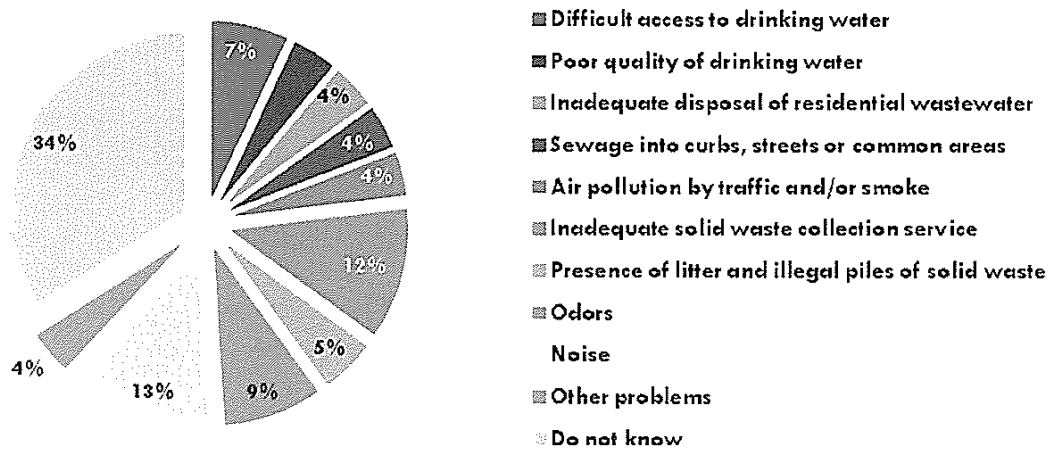

Figure 9. Second most critical environmental problem

➢ **P3. In your opinion, how critical is the problem of solid waste collection in this area?**

As shown in **Table 12** and **Figure 10**, 37% believe that the problem of garbage collection is not critical, followed by 35% considering it very critical and 26% who consider it critical.

Table 12. Population's perception about the intensity of the problem of waste collection

Answer	Frequency	Percentage (%)
Very serious	86	35
Somewhat serious	64	26
Not serious	92	37
Do not know	5	2
Total	**247**	**100**

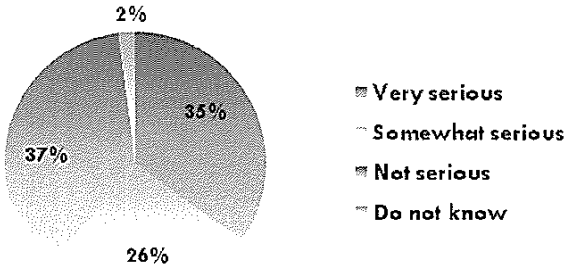

Figure 10. Population's perception about the intensity of the problem of waste collection

By analyzing this question per circumscription and pilot zones was found that, as shown in **Table 13** and **Figure 11**, circumscriptions 3 and 1 were the main areas which considered the problem of waste collection as very critical, with 44% and 42% respectively. However, the pilot zones and circumscription 2 considered the problem as not serious with 58% and 45% respectively.

Table 13. Population's perception about the intensity of the problem of waste collection per circumscription and pilot zones

	Seriousness (%)			
Circumscription	Very serious	Somewhat serious	Not serious	Do not know
1	42	27	28	3
2	26	26	45	3
3	44	29	27	0
Pilot Zones	20	20	58	2

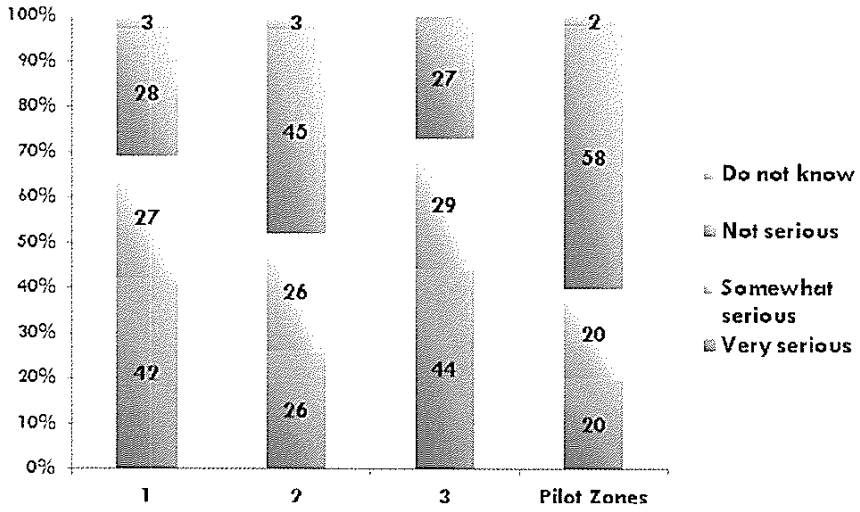

Figure 11 Population's perception about the intensity of the problem of waste collection per circumscription and pilot zones

- **P4. In your opinion, how serious is the problem of littering and illegal piles of solid waste in this area?**

Most of the interviewed people (61%) feel that the littering and illegal piles of solid waste in their area is not a critical problem, and only 23% consider it as a critical problem. Some 13% thought that is somewhat critical. See **Table 14** and **Figure 12**.

Table 14. Seriousness of the problem of trash and illegal solid waste piles

Answer	Frequency	Percentage (%)
Very serious	58	23
Somewhat serious	33	13
Not serious	150	61
Do not know	6	3
Total	247	100

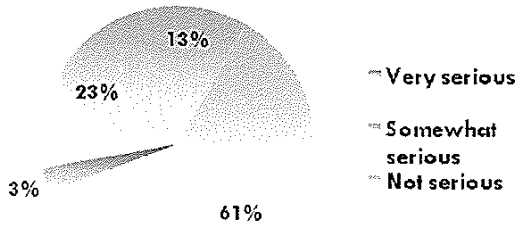

Figure 12. Seriousness of the problem of trash and illegal solid waste piles

The views are quite different if responses are analyzed by circumscription and pilot zones. 39% of the circumscription 1 and 31% of the circumscription 3 consider illegal piles of solid waste a serious problem compared to 8% and 6% for the circumscription 2 and the pilot zones, respectively. 80% of the pilot zones believe that this problem is not serious. See **Table 15** and **Figure 13**.

Table 15. Seriousness of the problem of trash and illegal solid waste piles per circumscription and pilot zones

	Seriousness (%)			
Circumscription	Very serious	Somewhat serious	Not serious	Do not know
1	39	13	45	3
2	8	14	74	4
3	31	16	53	0
Pilot Zones	6	10	80	4

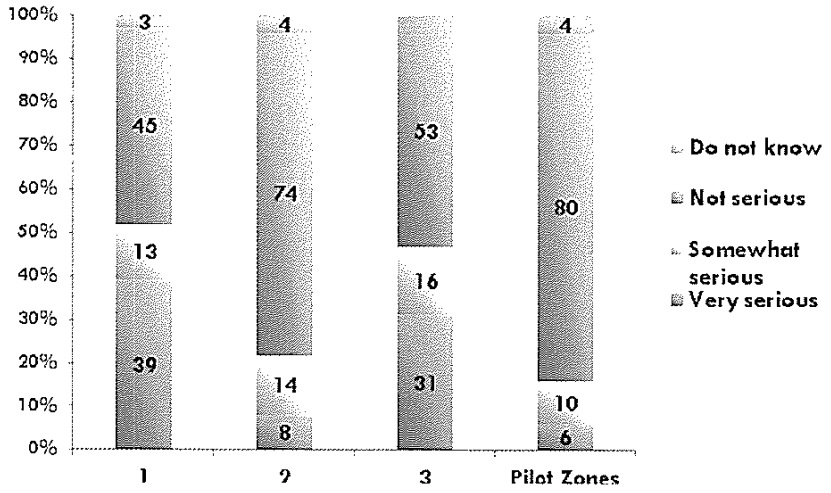

Figure 13. Seriousness of the problem of trash and illegal solid waste piles per circumscription and pilot zones

- **P5. In your opinion, how serious is the problem of nuisance from solid waste communal container points in this area?**

Seventy nine percent (79%) of the households answered that they don't have a common point with solid waste containers in their area and only 9% considers it as a very serious problem. See **Table 16** and **Figure 14**.

Table 16. Seriousness of the problem of discomfort due to the presence of common points for solid waste containers

Answer	Frequency	Percentage (%)
Very serious	21	9
Somewhat serious	10	4
Not serious	19	8
Do not exist	194	79
Do not know	3	1
Total	**247**	**100**

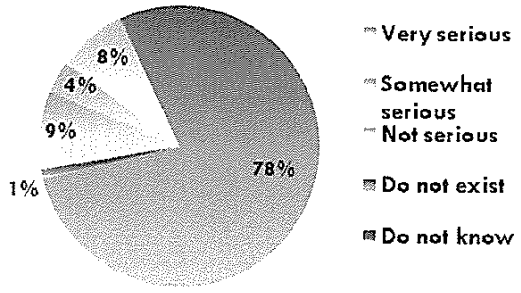

Figure 14. Seriedad del problema de molestias por presencia de puntos comunes de contenedores de desechos sólidos

- **P6. In your opinion, how serious is the problem of nuisance from solid waste disposal or dumping in this area?**

Eighty nine percent (89%) of the households answered that there are no dumping in their area and only 5% considers it as a very serious problem. See **Table 17** and **Figure 15**.

Table 17. Seriousness of the problem of nuisance by removal or solid waste dumping

Answer	Frequency	Percentage (%)
Very serious	13	5
Somewhat serious	6	2
Not serious	7	3
Do not exist	219	89
Do not know	2	1
Total	247	100

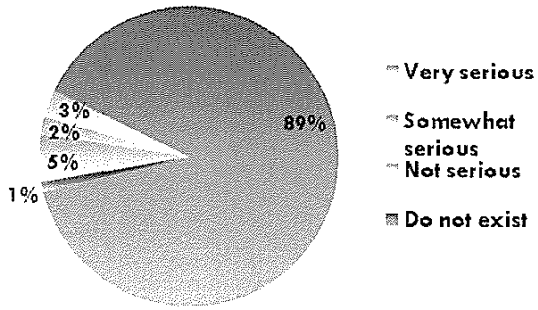

Figure 15. Seriousness of the problem of nuisance by removal or solid waste dumping

➢ **P7. Do you have any other environmental problems in your area?**

In most cases (70%), interviewed people felt that they had no other environmental problem in their area. 30% considered having another environmental problem in their area. The most commonly mentioned was noise. See **Table 18** and **Figure 16**.

Table 18. Existence of other environmental problems in their area

Answer	Frequency	Percentage (%)
Yes	74	30
No	173	70
Total	**247**	**100**

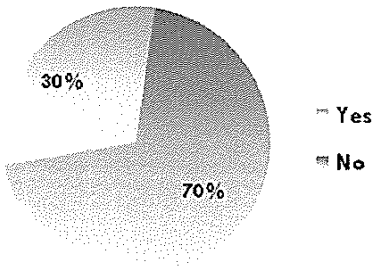

Figure 16. Existence of other environmental problems in their area

4.4. Willingness to pay for waste collection service

➢ **P8. Currently, the regular fee for waste collection service is collected. Do you know this system?**

Sixty (60%) of the interviewed answered they know the fee system for waste collection. See **Table 19** and **Figure 17**.

Table 19. Proportion of interviewed who are aware of the fee system for waste collection service

Answer	Frequency	Percentage (%)
Yes	149	60
No	98	40
Total	**247**	**100**

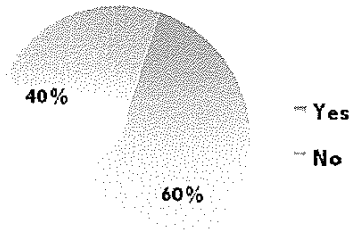

Figure 17. Proportion of interviewed who are aware of the fee system for waste collection service

The circumscription reporting the most knowledge of the fee system for waste collection service was the circumscription 1 with 82%, followed by the pilot zones (belonging to the circumscription 1) with 80% and in third place, circumscription 2 with 71%. Only 20% of circumscription 3 could recognize the fee system, showing a remarkable difference. See **Table 20** and **Figure 18**

.

Table 20. Proportion of households per circumscription who reported knowledge of the fee system

	Yes		No	
Circumscription	Freq.	%	Freq.	%
1	58	82	13	18
2	36	71	15	29
3	15	20	60	80
Pilot Zones	40	80	10	20

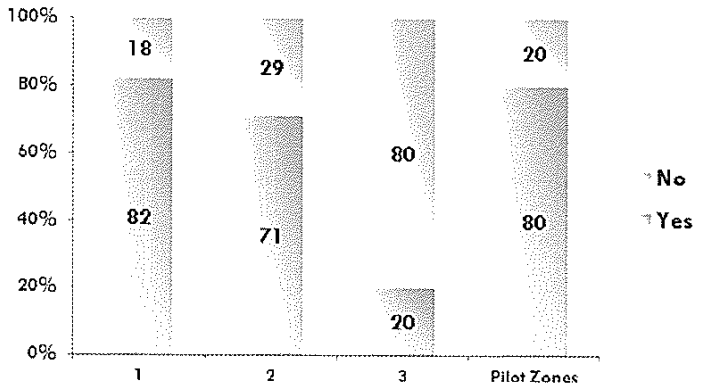

Figure 18. Proportion of households per circumscription who reported knowledge of the fee system

➢ **P9. Do you think this fee is affordable for your household?**

As presented in **Table 21** and **Figure 19**, 50% thinks that the fee for waste collection service it's affordable, while 40% thinks it's not.

There are very slight differences between circumscriptions, including the pilot zones, although we see a higher proportion (53%) who believed that the fee is not affordable in circumscription 3 and a higher proportion (56%) who believes that it is affordable lays in the circumscription 2. See **Table 22** and **Figure 20**.

Table 21. Affordability of the fee for waste collection service

Answer	Frequency	Percentage (%)
Yes	74	50
No	59	40
Do not know	16	10
Total	149	100

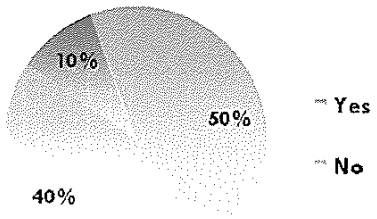

Figure 19. Affordability of the fee for waste collection service

Table 22. Affordability of the fee for waste collection service per circumscription and pilot zones

	Yes		No		Do not know	
Circumscription	Freq.	%	Freq.	%	Freq.	%
1	27	47	22	38	9	15
2	20	56	12	33	4	11
3	7	47	8	53	0	0
Pilot Zones	20	50	17	43	3	7

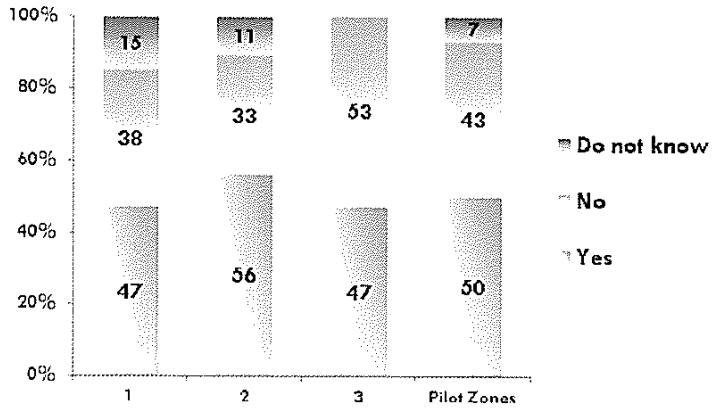

Figure 20. Affordability of the fee for waste collection service per circumscription and pilot zones

➢ P10. Have you paid this amount so far?

As shown in **Table 23** and **Figure 21**, 84% of households which answered they knew the system of fees for waste collection service, said they paid it.

Note the difference in the proportion of households in the circumscription 3 which said they paid the fee. In that circumscription, only 40% said they pay the fee, compared to 100%, 90% and 78% of circumscriptions 2 and 1 and the pilot zones respectively. See **Table 24** and **Figure 22**.

Table 23. Proportion of households with knowledge of the fee system for waste collection service which reports they pay the fee

Answer	Frequency	Percentage (%)
Yes	125	84
No	22	15
Sometimes	2	1
Total	149	100

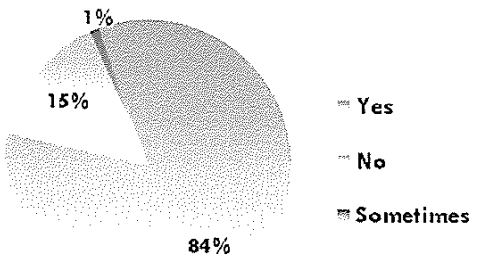

Table 21. Proportion of households with knowledge of the fee system for waste collection service which reports they pay the fee

Table 24 Proportion of households with knowledge of the fee system for waste collection service which reports they pay the fee per circumscription and pilot zones

	Yes		No		Sometimes	
Circumscription	Freq.	%	Freq.	%	Freq.	%
1	52	90	5	8	1	2
2	36	100	0	0	0	0
3	6	40	9	60	0	0
Pilot Zones	31	78	8	20	1	2

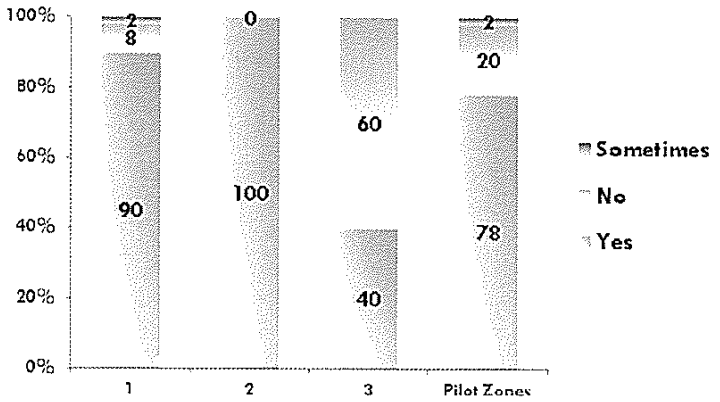

Figure 22. Proportion of households with knowledge of the fee system for waste collection service which reports they pay the fee per circumscription and pilot zones

- **P11. (If you answer was "No" or "Sometimes" in the Question 10) Why you did not paid?**

The most selected option while answering about why not to pay the waste collection fee was "Other reasons". This option presented an open field to specify those other reasons. The most common answer was the lack of resources and debts accumulated with ADN. See **Table 25** and **Figure 23**.

Table 25. Main reasons for not paying the waste collection fee

Answer	Frequency	Percentage (%)
No announcement about the fee	2	9
Insufficient information about where to pay the fee	2	9
I am not satisfied with the service	5	21
Other	14	61
Total	23	100

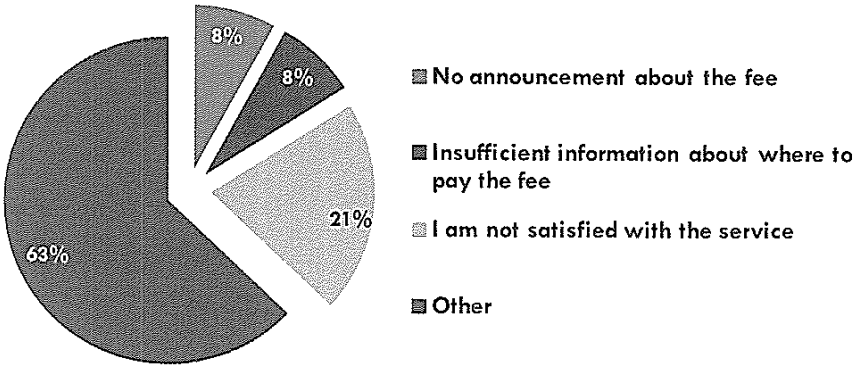

Figure 23. Main reasons for not paying the waste collection fee

- **P12. What is the maximum fee per month that your household would be willing to pay for the Solid Waste Management (SWM) service?**

This was an open question; therefore, to ease the analysis, we created ranks. **Table 26** and **Figure 24** present the results. At the highest proportion (30%), the interviewed would be willing to pay a fee between RD$ 151.00 and RD$ 300.00, and 26% between RD$ 51.00 y RD$ 150.00.

Table 26. Maximum fee per month that households would be willing to pay for the SWM service

Answer	Frequency	Percentage (%)
RD$50 or less	25	10
From RD$51 to RD$150	65	26
From RD$151 to RD$300	73	30
From RD$301 to RD$500	25	10
More than RD$500	5	2
Will not pay any fee	14	6
Do not know	40	16
Total	247	100

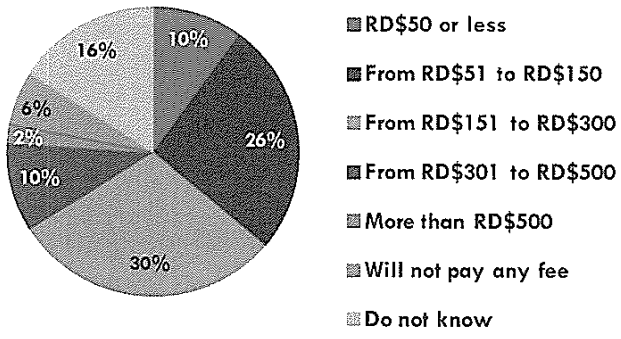

Figure 24. Maximum fee per month that households would be willing to pay for the SWM service

- **P13. (If you answer to the Question 12 "Won't pay any fee") What is your reason for not being willing to pay a fee to cover the cost of SWM service?**

From those not willing to pay a fee for the waste collection service, 43% indicated they cannot pay the total cost of the service, and 36% indicates they do not believe that the service would be trustworthy. See **Table 27** and **Figure 25**.

Table 27. Reason for not being willing to pay a fee for the waste collection service

Answer	Frequency	Percentage (%)
Can't afford to pay for the full cost	6	43
Don't believe that the service will be reliable	5	36
Don't consider the service important enough to pay	0	0
Believe that general taxes should cover the cost of this service	2	14
Other	1	7
Total	14	100

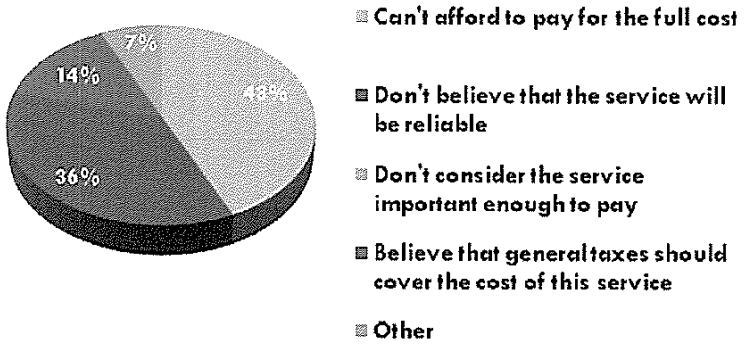

Figure 25. Reason for not being willing to pay a fee for the waste collection service

- **P14. If you are not willing to pay the fee and government cannot afford to subsidize it for you, would you be willing to dispose of your wastes according to one of the "do-it-yourself" systems described below, so that you do not pollute your neighborhood?**

From those not willing to pay a fee for the waste collection service, 71% indicated to be willing to eliminate their waste using another do-it-yourself system. Most of those who specified in an open question about what they meant by "Other", replied that they would seek a way to throw it, some cases mentioned to pay someone to do it. The remaining 29% would be willing to separate their recyclables and composting their organic waste. **Table 28** and **Figure 26**.

Table 28. Willingness to use a "do-it-yourself" system

Answer	Frequency	Percentage (%)
Separation of recyclable materials and composting	4	29
Separation of recyclable materials and organics burial	0	0
Other	10	71
No	0	0
Do not know	0	0
Total	14	100

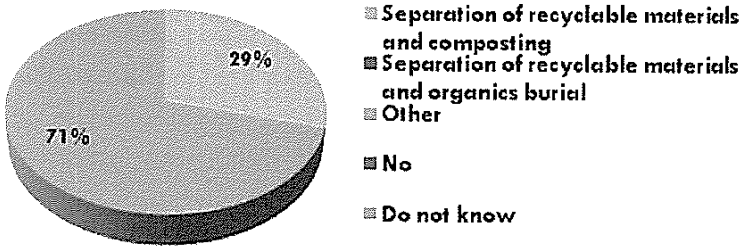

Figure 26. Willingness to use a "do-it-yourself" system

- P15. (If you answer to the Question 13 "Can't afford to pay for the full cost") If you are not able to afford to pay the fee, would you consider an alternate method that offers a lower level of service or more effort on your part? Which of the following alternatives would be most acceptable to you? (More than one answer can be checked).

As you can see it **Table 29** and **Figure 27**, among the interviewed expressing they would not pay the fee for the waste collection service because they cannot afford that cost, 50% said that they would opt for a cheaper collection service, 17% would be willing to walk a longer distance to place their waste in a common container. 33% said they don't know if they would use an alternate method.

Table 29. Willingness to use an alternate method with smaller assistant level

Answer	Frequency	Percentage (%)
Selection of an SWM method that has a lower cost	3	50
Walking a longer distance to empty or place your container	1	17
Less frequent collection of waste	0	0
Participation as a volunteer in community efforts to help with waste management service	0	0
Participation as a volunteer in community efforts to regularly clean up uncollected waste	0	0
Other cost-saving suggestions	0	0
Don't know	2	33
Total	6	100

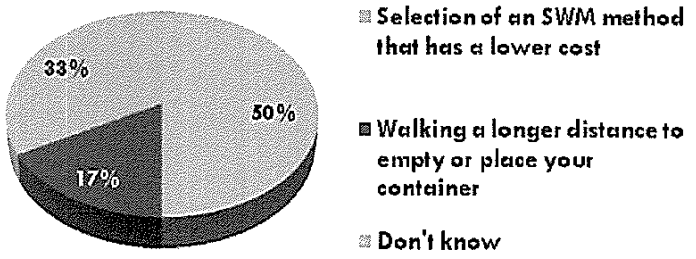

Figure 27. Willingness to use an alternate method with smaller assistant level

4.5 Knowledge of waste generation and discharge methods

- **P16. Do you carry out any in-house treatment of waste, such as home composting using kitchen waste, compacting of waste, etc.?**

Ninety six (96%) of the cases do not use any domestic solid waste treatment. The remaining 4% said they did not use a treatment, composting being the most common response of those who specified. See **Table 30** and **Figure 28**.

Table 30. Use of a domestic waste treatment method

Answer	Frequency	Percentage (%)
Yes	9	4
No	238	96
Total	247	100

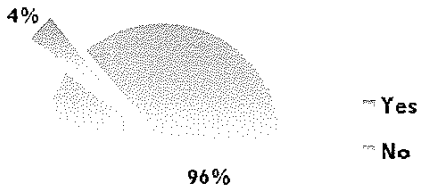

Figure 28. Use of a domestic waste treatment method

- **P31. What type of container do you use inside your household to collect and storage the waste? (More than one answer can be checked).**

In this question multiple choices could be made in order to identify all kind of containers that each household use inside. The most frequently used containers are the "supermarket bags" with 60%, followed by the "garbage bags" with 51%. The plastic containers with lid are used in 32% of the cases and the same kind, but the ones without lid were used by 20% of the households. See **Table 31** and **Figure 29**.

Table 31. Type of container used inside of the household

Answer	Frequency	Percentage (%)
Supermarket bags	147	60
Black bags ("garbage bags")	125	51
Plastic container with lid	79	32
Plastic container without lid	50	20
Metal container without lid	5	2
Other	4	2
Metal container with lid	3	1

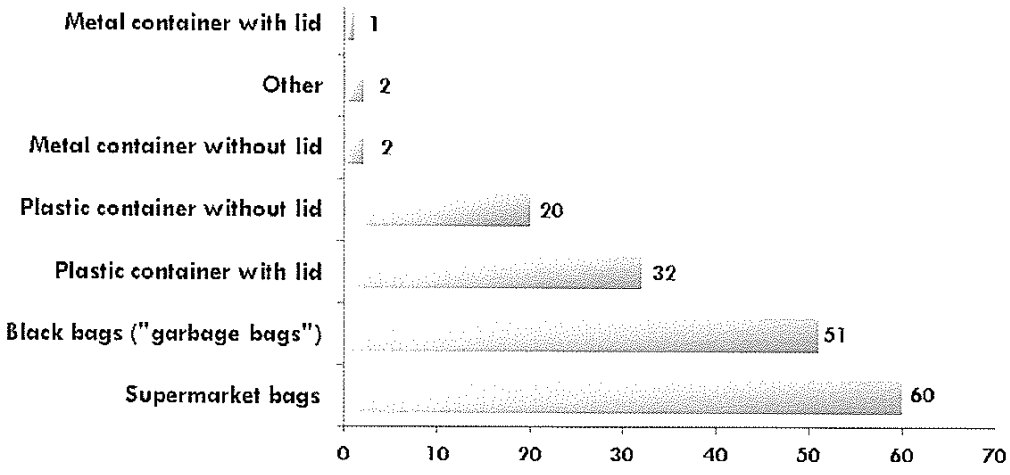

Figure 29. Type of container used inside of the household

- **P18. What type of container do you use outside your household storage the waste? (More than one answer can be checked).**

Most of the interviewed people said they did not use containers outside of their household (26%).Note that practically all of the cases providing this answer, reported in the previous question to use garbage or supermarket bags to collect the waste inside of their households. This way, this answer not necessarily implies that waste is collected in bulk or in a pile outside of the house, but that they are

collected inside of the same bags they used while collecting inside of their houses.

The second most common answer is plastic containers without a lid (22%), followed by "Others" (20%), which the most common open answers were "the backyard" and "directly to the collection truck". See **Table 32** and **Figure 30**.

Table 32. Type of container used outside of the household

Answer	Frequency	Percentage (%)
Don't use one	64	26
Plastic container without lid (particular)	55	22
Other	50	20
Black bags ("garbage bags")	29	12
Super market bags	22	9
Plastic container with lid (particular)	13	5
Plastic container without lid (common)	13	5
Plastic container with lid (common)	9	4
Metal container with lid (common)	10	4
Metal container with lid (particular)	5	2
Metal container without lid (particular)	7	2
Metal container without lid (common)	0	0

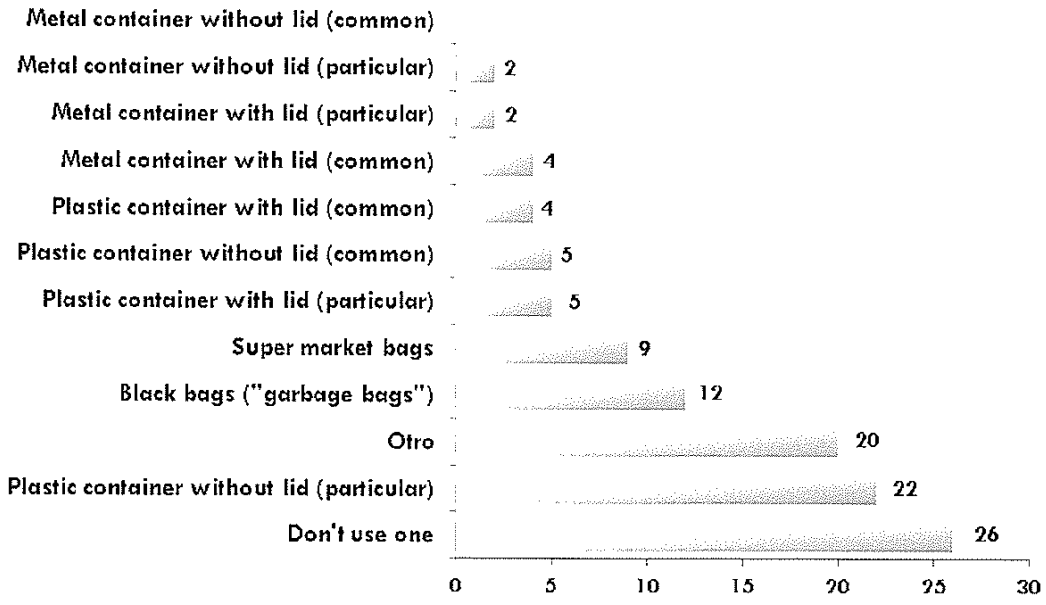

Figure 30. Tipo . Kind of container used outside of the household

- **P19. Do you know the rules patterned by ADN for the storage and discharge of solid waste (storage inside and outside the household, frequency to take out the waste, etc.)?**

A high proportion of the interviewed (89%) reported to not know the established rules by the ADN regarding the waste collection. See **Table 33** and **Figure 31.**

Table 33. Knowledge of the established rules by the ADN regarding the waste collection

Answer	Frequency	Percentage (%)
Yes	28	11
No	219	89
Total	247	100

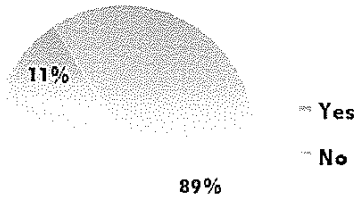

Figure 31. Knowledge of the established rules by the ADN regarding the waste collection

- **P20. (If you answer to the Question 19 "Yes") Do you practice the rules patterned by ADN for the storage and discharge of solid waste?**

A high proportion of the interviewed (93%) who reported to know the established rules by the ADN regarding the waste collection at their households, practice these rules. See **Table 34** and **Figure 32.**

This option had an open field so they could specify in a practical way how did they respect the rules. The most common answers were regarding the "adequate use of bags" and "taking out their waste only the days the collection trucks passed by".

Table 34. Practice the rules patterned by ADN for the storage and discharge of solid waste

Answer	Frequency	Percentage (%)
Yes	26	93
No	2	7
Total	28	100

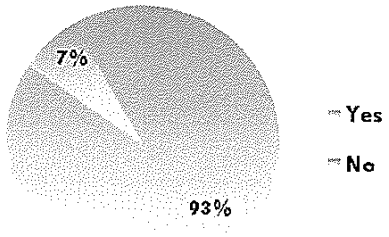

Figure 32. Practice the rules patterned by ADN for the storage and discharge of solid waste

4.6 Evaluation of waste collection services and transportation provided by the authorities

- **P21. Does your household receive a collection service of any type?**

As shown in **Table 35** and **Figure 33,** 78% of the households reported having a waste collection service of a certain kind.

The highest proportion of households with service were reported in the pilot zones, with 98%, followed by circumscription 2 and 1, with 84% and 73% respectively. The lowest proportion was reported by circumscription 3, with 64%. See **Table 36** and **Figure 34.**

Table 35. Proportion of households becoming a waste collection service

Answer	Frequency	Percentage (%)
Yes	193	78
No	54	22
Total	247	100

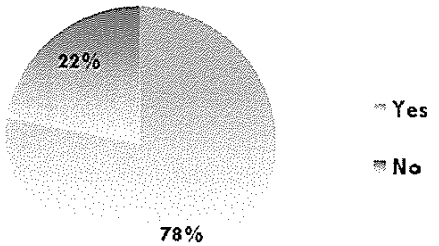

Figure 33. Proportion of households becoming a waste collection service

Table 36. Proportion of households becoming a waste collection service per circumscription and pilot zones

	Yes		No	
Circumscription	Freq.	%	Freq.	%
1	53	75	18	25
2	43	84	8	16
3	48	64	27	36
Pilot Zones	49	98	1	2

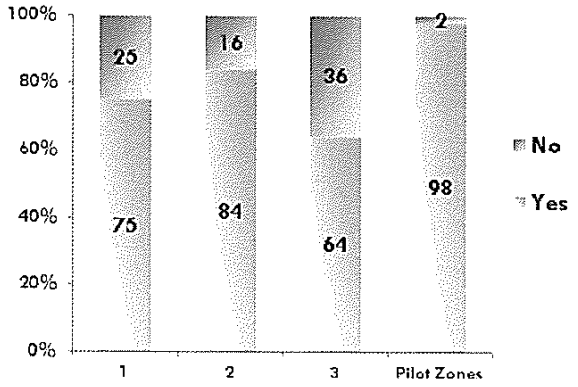

Figure 34. Proportion of households becoming a waste collection service per circumscription and pilot zones

➢ **P22. How frequently is your container usually taken out to be emptied?**

In 63% of the cases, waste containers from inside the households was taken outside on a daily basis, followed by 12% and 9% that takes them out from three to four times a week and two times a week respectively. **Table 37** and **Figure 35** offer more information regarding this case.

Table 37. Frequency which the waste is taken outside of the house

Answer	Frequency	Percentage (%)
Daily	121	63
Three to four times a week	23	12
Twice a week	18	9
Once a week	9	5
Once every two weeks	1	1
Less frequently	12	6
Don't know	0	0
Other	9	5
Total	193	100

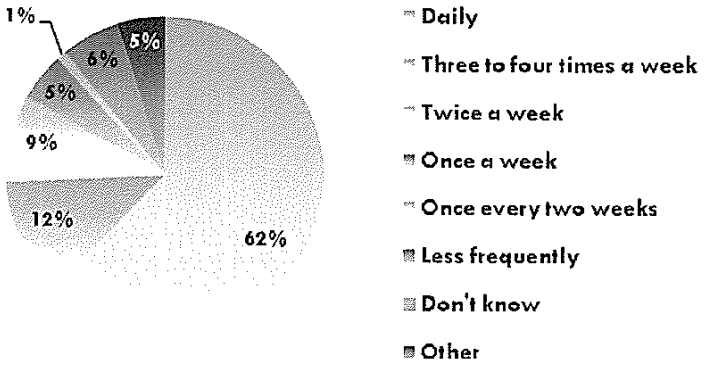

Figure 35. Frequency which the waste is taken outside of the house

- **P23. Who usually takes the household container with its waste contents out to be emptied?**

The person who regularly brings the household waste container outside of the house to be emptied is mostly the head of the family (24%), followed by the domestic aid (21%) and "Other" (19%), which in most of the cases was specified it would be "any person of the house". See **Table 38** and **Figure 36**.

Table 38. Person who usually takes the household container out to be emptied

Answer	Frequency	Percentage (%)
Head of household	47	24
Couple of head of household	20	10
Domestic worker	41	21
Another male adult	14	7
Another female adult	23	12
Any child between the ages of 13 and 18	4	2
Any child between the ages of 6 and 12	3	2
Don't know	5	3
Other	36	19
Total	193	100

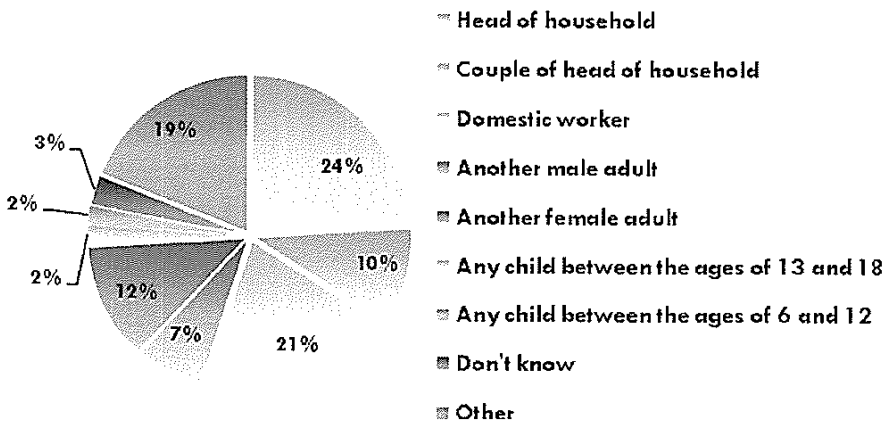

Figure 36. Person who usually takes the household container out to be emptied

➢ **P24. Where is your household container taken to be emptied?**

As seen in **Table 39** and **Figure 37**, 41% of the surveyed households emptied their waste or stored their waste temporarily outside of the house in special containers. 39% said that they emptied them in "Other", mostly being specified for this option "the truck" and "sidewalk".

9% deposited their waste in a common container of their neighborhood and 7% in an open pile of garbage.

Table 39. Place where household container taken to be emptied

Answer	Frequency	Percentage (%)
Own/particular container outside the house	79	41
Communal container in the neighborhood	17	9
Open pile of waste in the neighborhood	13	7
Community final disposal, and the waste stays there	2	1
River, creek or gully	0	0
Do not know	7	4
Other	75	39
Total	**193**	**100**

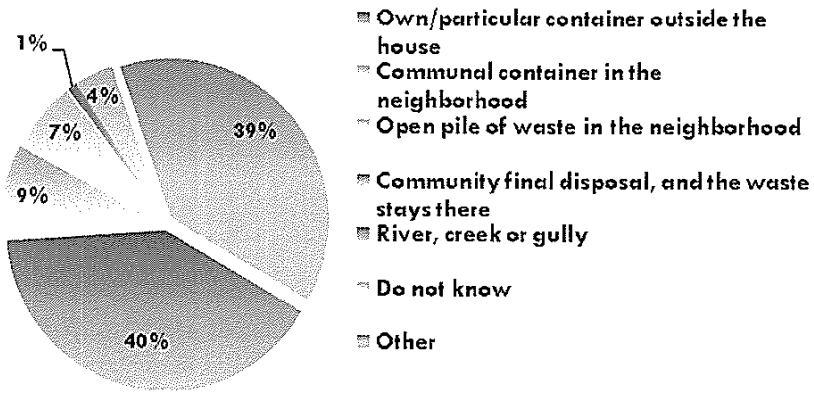

Figure 37. Place where household container taken to be emptied

- **P25. Approximately how far or how many minutes walking time one-way is it to empty your household container?**

This was an open question, and offered the possibility to answer in two different units: time and distance. The data was grouped creating ranks and they are shown in **Table 40**. The most popular answer was that it takes less than 5 minutes to get the deposit of waste outside of the house.

Table 40. Approximated time or distance required to reach the deposit of waste outside of the house

Answer	Frequency	Percentage (%)
Less than 5 minutes	127	68
6 - 10 minutes	18	10
11 - 15 minutes	1	1
Less than 10 meters	3	2
Between 11 y 30 meters	3	2
Between 31 y 50 meters	1	1
Do not know	35	19
Total	188	100

- **P26. How often is the particular container / communal container / pile of waste (depends of answer in question 24) emptied or removed?**

The waste stored outside of the house is removed and collected in 24% of cases 2 times per week, in 21% of 3 to 4 times a week, 18% once a week, and 16% daily.

To a lesser extent, they are collected once every two weeks (5%) and less than once every two weeks (1%). 16% of the interviewed did not know the frequency. See **Table 41** and **Figure 38**.

Table 41. Frequency container is emptied or removed

Answer	Frequency	Percentage (%)
Daily	30	16
Three to four times a week	40	21
Twice a week	47	24
Once a week	35	18
Less than once a week	9	5
Less than once in 2 weeks	2	1
Less than once in 3 weeks	0	0
Less than once a month	0	0
Don't know	30	16
Total	193	100

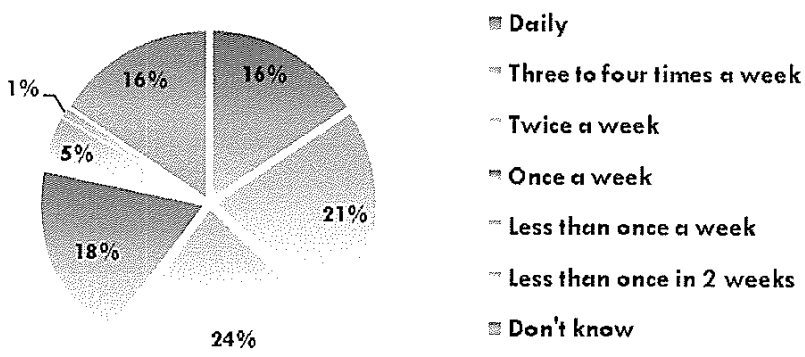

Figure 38. Frequency container is emptied or removed

- **P27. How many years has this type of waste collection service been provided to your household?**

Fifty percent (50%) of the households receives the actual waste collection system since more than 5 years, and 19% has between 1 and 2 years with it. Only 10% has less than a year with this system. See **Table 42** and **Figure 39**.

Table 42. Time service has been provided to the household

Answer	Frequency	Percentage (%)
Less than one year	19	10
One to two years	37	19
Two to five years	22	11
More than five years	96	50
Do not know	19	10
Total	193	100

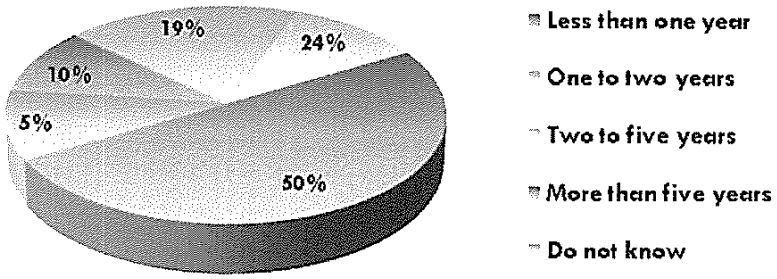

Figure 39. Time service has been provided to the household

➢ **P28. Who collects the waste from the curbside (street), communal container, or pile?**

According to **Table 43** and **Figure 40**, ADN is the one recognized by the majority of respondents (87%) as the waste collector. 5% recognized collectors subcontracted by ADN to private companies, 4% did not know which agency collected their waste and 4% answered "Other."

Table 43. Who collects the waste from the curbside (street), communal container, or pile

Answer	Frequency	Percentage (%)
ADN service	168	87
Private companies outsourced by ADN	9	5
Neighborhood group	0	0
Other	7	4
Do not know	9	4
Total	193	100

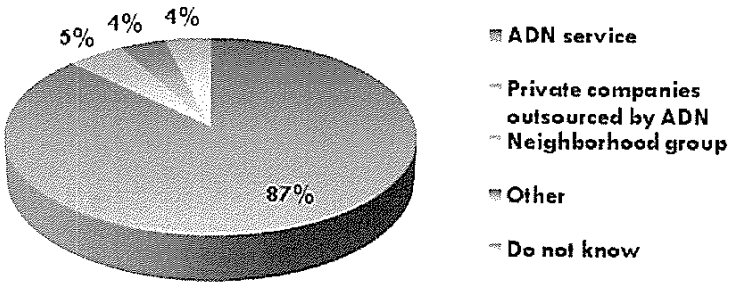

Figure 40. Who collects the waste from the curbside (street), communal container, or pile

- **P29. Are there certain times of day when you would find it most convenient to meet the vehicle when it comes to your community to collect waste?**

The majority (70%) consider the morning hours as most suitable for the waste collection vehicle's tour, specifically 31% preferred before 8:00 am and the remaining 39% at any time.

A smaller proportion (21%) prefers the afternoon, specifically 11% early in the evening, after 5:00 pm and 10% at any time. See **Table 44** and **Figure 41**.

Table 44. Time of the day considered as most convenient for the waste collection

Answer	Frequency	Percentage (%)
Early morning before 8 a.m.	60	31
Anytime in the morning	75	39
Anytime in the afternoon	20	10
Early evening after 5 p.m.	21	11
Other	17	9
Total	193	100

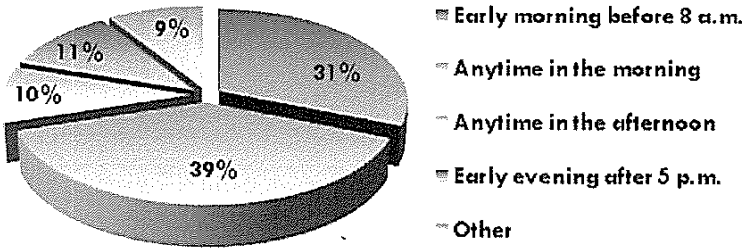

Figure 41. Time of the day considered as most convenient for the waste collection

- **P30. What is your opinion of the service that you are receiving for collection of solid waste from your household?**

Fifty two (52%) of the interviewed said to be satisfied with the waste collection service, besides, 12% reported to be very satisfied, totaling 64% of the satisfied households in general. 35% consider they are not satisfied. See **Table 45** and **Figure 42**.

Although no significant differences were seen between the circumscriptions, the pilot zones reported higher levels of satisfaction, with 63% satisfied and 14% very satisfied. See **Table 46** and **Figure 43**.

Table 45. Satisfaction level with the waste collection service

Answer	Frequency	Percentage (%)
Very satisfied	23	12
Reasonably satisfied	101	52
Not satisfied at all	68	35
Don not know	1	1
Total	193	100

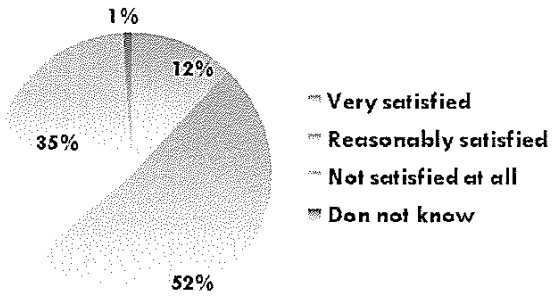

Figure 42. Satisfaction level with the waste collection service

Table 46. Satisfaction level with the waste collection service per circumscription and pilot zones

	Very satisfied		Reasonably satisfied		Not satisfied at all		Don't know	
Circumscription	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	5	10	25	47	23	43	0	0
2	6	14	21	49	15	35	1	2
3	5	10	24	50	19	40	0	0
Pilot Zones	7	14	31	63	11	22	0	0

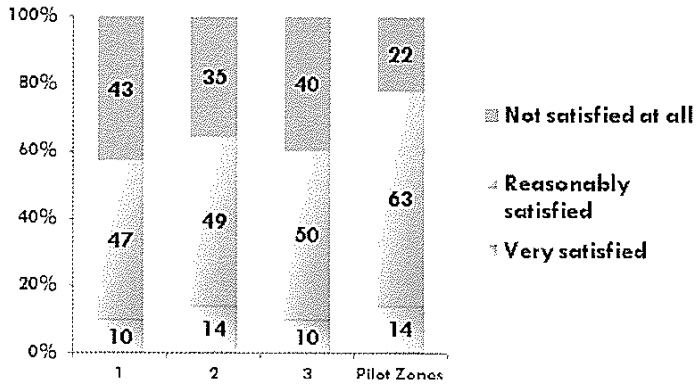

Figure 43. Satisfaction level with the waste collection service per circumscription and pilot zones

➢ **P31. If you are not satisfied with service, please identify the main reason for you.**

Those who reported dissatisfaction with the service mentioned the most common reason being the insufficient frequency of the service (59%), followed by "Other reasons" (24%), including most commonly mentioned that "we must pay the collectors". See **Table 47** and **Figure 44.**

Table 47. Reasons for dissatisfaction with the waste collection service

Answer	Frequency	Percentage (%)
Service is not reliable	4	6
Frequency of service – Too long interval between collections	40	59
Location of the communal container or pick-up point is not satisfactory	3	4
Lack of clean appearance, odors, flies or fires at the communal container	1	1
Collection workers are rude or impolite	1	1
Lack of clean appearance of the neighborhood	2	3
No answer	1	1
Others	16	24
Total	68	100

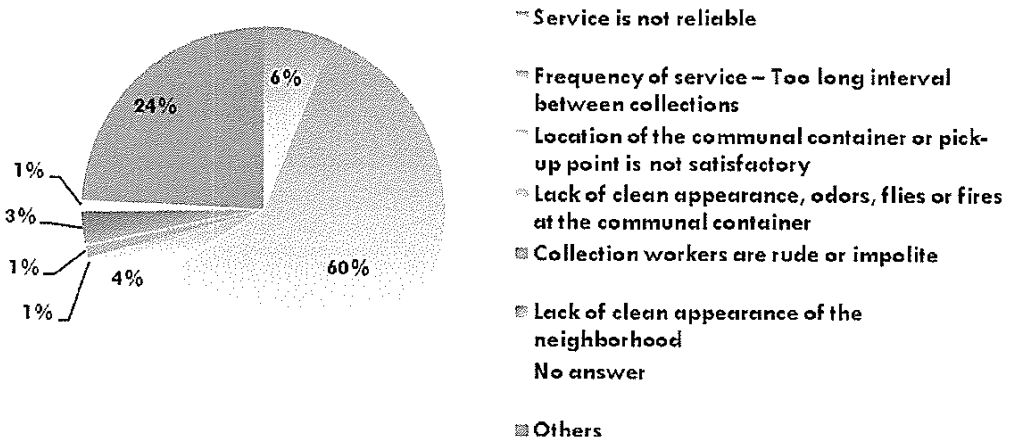

Figure 44. Reasons for dissatisfaction with the waste collection service

4.7 Waste Final Disposal

- **P32. Do you know the final disposal site for your waste?**

Only 45% said they knew where the final site where the waste is placed after collection (see **Table 48** and **Figure 45**). When asked which would be that disposal site, most of them mentioned the Duquesa dump.

Table 48. Knowledge of the final placement of their waste

Answer	Frequency	Percentage (%)
Yes	111	45
No	136	56
Total	247	100

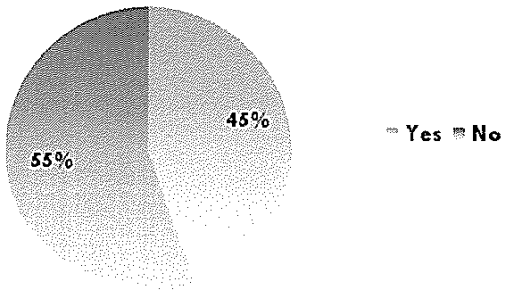

Figure 45. Knowledge of the final placement of their waste

- **P33. Are you concerned about whether the final disposal is environmentally safe and acceptable?**

From those who affirmed having knowledge about the final site for disposal of their waste, 48% considered that such place is not environmentally safe or acceptable. 27% considered it is, and 25% said they did not know. See **Table 49** and **Figure 46**.

Table 49. Perception regarding the final site for disposal of waste being environmentally safe and acceptable

Answer	Frequency	Percentage (%)
Yes	30	27
No	53	48
Do not know	28	25
Total	111	100

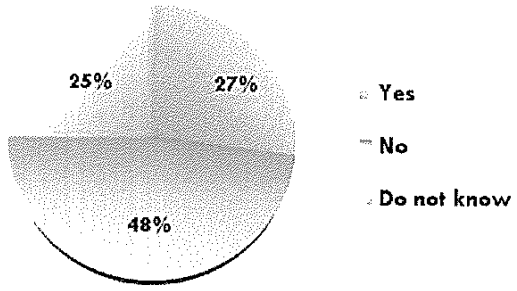

Figure 46. Perception regarding the final site for disposal of waste being environmentally safe and acceptable

4.8 Understanding and practice of recycling activities including 3Rs

- **P34. Do you know the concept of 3Rs (Reduce, Reuse and Recycle)?**

Only 9% says to know the 3Rs concept. When asked to specify what it meant, most of them answered correctly: Reduce, Reuse and Recycle. See **Table 50** and **Figure 47**.

Table 50. Knowledge of the 3Rs concept

Answer	Frequency	Percentage (%)
Yes	23	9
No	224	91
Total	247	100

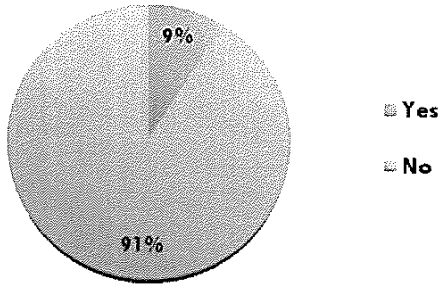

Figure 47. Knowledge of the 3Rs concept

- **P35. How beneficial to the environment de you think is the reduction, reuse and recycling of solid waste?**

Most considered that reducing, reusing and recycling of solid waste to be very beneficial (55%), followed by 41% who saw it as beneficial. 3% reported not knowing and only 1% did not consider it beneficial for the environment. See **Table 51** and **Figure 48**.

Table 51. How profitable they consider the 3Rs

Answer	Frequency	Percentage (%)
Very beneficial	135	55
Reasonably beneficial	101	41
Not beneficial	3	1
Don't know	8	3
Total	247	100

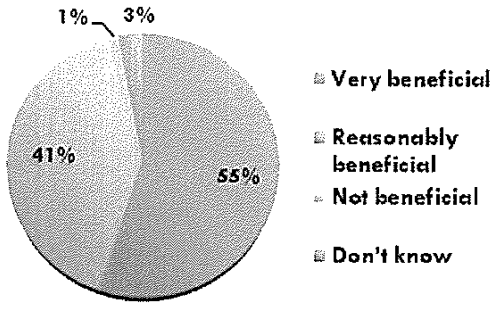

Figure 48. How profitable they consider the 3Rs

➢ **P36. Do you carry out any activities to reduce the amount of waste?**

Only 12% of the households reported to fulfill an activity to reduce the amount of waste they produce. See **Table 52** and **Figure 49**.

The offered answers while asking for an example of what they did evidenced knowledge of the concept from most of them, while some others evidenced confusion between the reduction and the concepts of reuse and recycling, as well as not knowing the terminology.

Table 52. Proportion of households depending if they fulfill any activity to reduce the waste generation

Answer	Frequency	Percentage (%)
Yes	30	12
No	217	88
Total	247	100

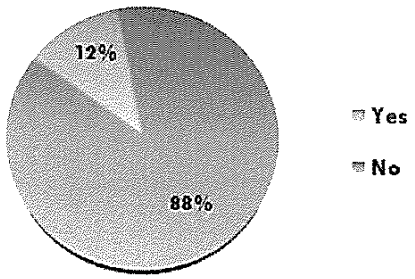

Figure 49. Proportion of households depending if they fulfill any activity to reduce the waste generation

➢ **P37. Do you carry out any activities to reuse any material instead of throwing it away?**

38% of the households reported to fulfill an activity to reuse materials instead of throwing them. See **Table 53** and **Figure 50**.

The offered answers while asking them for an example of what they did, evidence the knowledge of the concept in the generality of the cases.

Table 53. Proportion of households depending if they fulfill any activity to reuse waste

Answer	Frequency	Percentage (%)
Yes	94	38
No	153	62
Total	247	100

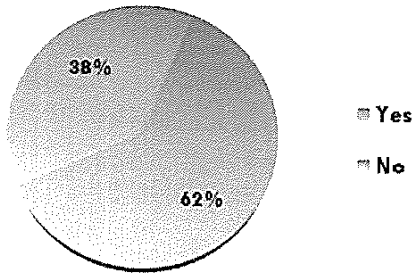

Figure 50. Proportion of households depending if they fulfill any activity to reuse waste

- **P38. Do you carry out any activities to recycle any material instead of throwing it away?**

Eleven percent (11%) of the households reported to fulfill an activity to recycle their waste. See **Table 54** and **Figure 51**.

The offered answers while asking them for an example of what they did evidenced in the majority of the cases the confusion of the recycling concept.

Table 54. Proportion of households depending if they fulfill any activity to recycle waste

Answer	Frequency	Percentage (%)
Yes	26	11
No	221	89
Total	247	100

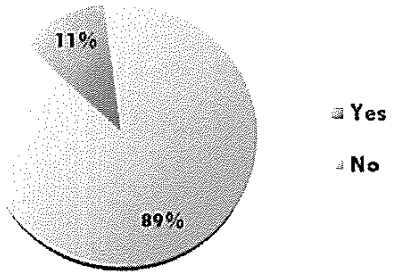

Figure 51. Proportion of households depending if they fulfill any activity to recycle waste

➢ **P39. In Invi area, in Circumscription 1, a pilot project to promote 3R activities was implemented at schools. Did you know that?**

Most of the interviewed (92%) said they did not know that there was a pilot project to promote 3R activities implemented in the schools of the Invi neighborhood. See **Table 55** and **Figure 52**.

Almost half of the people answering that they know the pilot project were inhabitants of the Invi neighborhood.

Table 55. Knowledge of the pilot project in the Invi neighborhood

Answer	Frequency	Percentage (%)
Yes	19	8
No	228	92
Total	247	100

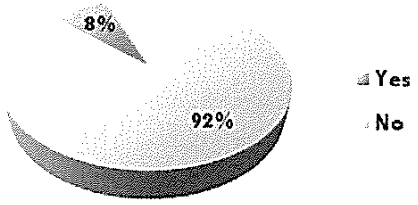

Figure 52. Knowledge of the pilot project in the Invi neighborhood

➢ **P40. Do you know Recycling Promotion Center at Mirador Sur Park?**

Only 4% said to know the Recycling Promotion Center located in the Mirador Sur Park. See **Table 56** and **Figure 53**.

From these who knew it, 70% belonged to the circumscription 1, distributed as 30% in the pilot zones, and 40% in the rest of the areas of the mentioned circumscription. See **Table 57**.

Table 56. Knowledge of the Recycling Promotion Center

Answer	Frequency	Percentage (%)
Yes	10	4
No	237	96
Total	247	100

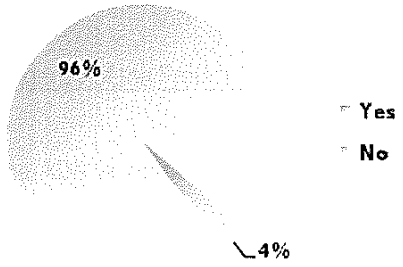

Figure 53. Knowledge of the Recycling Promotion Center

Table 57. Knowledge of the Recycling Promotion Center per circumscription and pilot zones

Circumscription	Quantity
1	4
2	1
3	2
Pilot Zones	3
Total	10

- **P41. (If you answer to the Question 40 "Yes") Do you know activities which the Recycling Promotion Center is carrying out?**

Half of those who reported to know the Recycling Promotion Center located in the Mirador Sur Park said they did not know any activity being fulfilled by the mentioned center. See **Table 58 and Figure 54.**

Table 58. Knowledge of activities from the Recycling Promotion Center

Answer	Frequency	Percentage (%)
Yes	5	50
No	5	50
Total	10	100

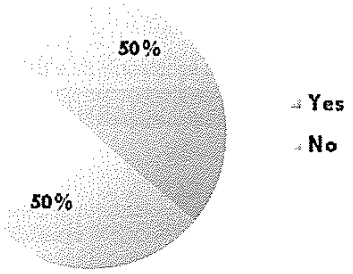

Figure 54. Knowledge of activities from the Recycling Promotion Center

4.9 Perception on the executing agency of the Project (ADN) and the Project itself

- **P42. Do you know if the ADN is responsible for the solid waste management service in your sector?**

94% of the interviewed recognizes the ADN to be the responsible to provide the services for solid waste management in their sector. See **Table 59** and **Figure 55**.

Table 59. Knowledge of the responsibility of ADN regarding the solid waste management

Answer	Frequency	Percentage (%)
Yes	232	94
No	15	6
Total	247	100

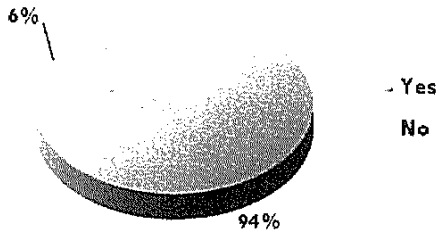

Figure 55. Knowledge of the responsibility of ADN regarding the solid waste management

- **P43. Are you aware that ADN is executing the "Project to Monitor the Appropriate Solid Waste Management in the National District"?**

As shown in **Table 60** and **Figure 56**, only 10% said to know that ADN executed the "Project to Monitor the Appropriate Solid Waste Management in Santo Domingo de Guzmán, National District, Dominican Republic".

Table 60. Knowledge of the project

Answer	Frequency	Percentage (%)
Yes	25	10
No	222	90
Total	247	100

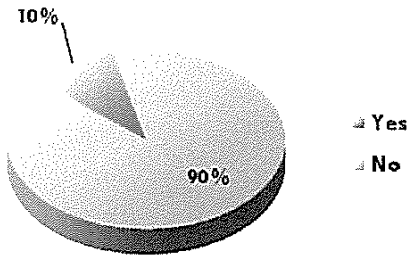

Figure 56. Knowledge of the project

For households who are living in Invi or Antillas area in Circumscription 1 only

- **P44. Do you have an experience to be involved in the Pilot Project in Invi and Antillas area, such as attending community meeting about solid waste management organized by the Project?**

20% of the interviewed of the pilot zone affirmed to have been involved in any way with the Pilot Project. See **Table 61** and **Figure 57**.

Table 61. Participation in the Pilot Project

Answer	Frequency	Percentage (%)
Yes	10	20
No	40	80
Total	50	100

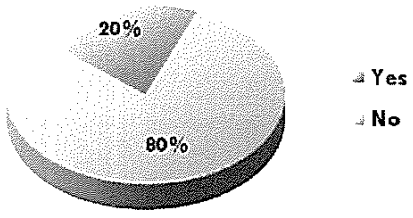

Figure 57. Participation in the Pilot Project

- **P45. (If you answer to the Question 44 "Yes") Was your perception on municipal solid waste management changed through the pilot project activities?**

80% of those who were involved in the Pilot Project confirmed that thanks to the Project, their perception regarding the solid waste management changed. See **Table 62** and **Figure 58**.

Table 62. Perception change through Pilot Project activities

Answer	Frequency	Percentage (%)
Yes	8	80
No	2	20
Total	10	100

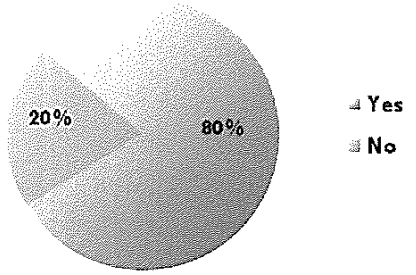

Figure 58. Perception change through Pilot Project activities

4.10 Overall satisfaction level for the services on waste management provided by the authority and intention of people in participating in the solid waste management

- **P46. Are you satisfied with SWM service in general?**

As shown in **Table 63** and **Figure 59**, 47% of the interviewed households are not satisfied with the service on waste management in general. However, 42% reported to be regularly satisfied and 10% very satisfied.

The highest levels of satisfaction were reported by the pilot zones, with 54% of households regularly satisfied and 10% very satisfied. The lowest satisfaction levels were reported by circumscription 3, with 57% on not satisfied households. See **Table 64** and **Figure 60**.

Table 63. Satisfaction with the services on solid waste management in general

Answer	Frequency	Percentage (%)

Very satisfied	25	10
Reasonably satisfied	103	42
Not satisfied at all	115	47
Don not know	4	2
Total	247	100

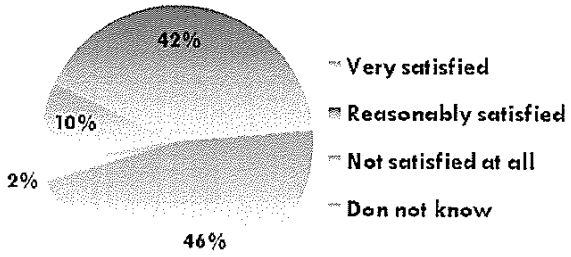

Figure 59. . Satisfaction with the services on solid waste management in general

Table 64. Satisfaction with the services on solid waste management in general per circumscription and pilot zones

	Very satisfied		Reasonably satisfied		Not satisfied at all		Don't know	
Circumscription	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	7	10	28	39	36	51	0	0
2	6	12	23	45	21	41	1	2
3	7	9	25	33	43	57	0	0
Pilot Zones	5	10	27	54	15	30	3	6

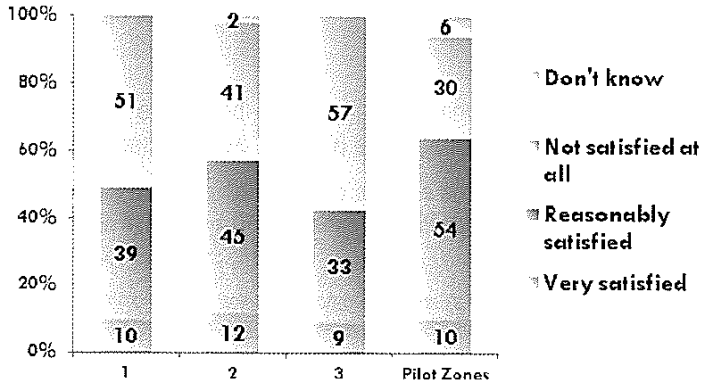

Figure 60. Satisfaction with the services on solid waste management in general per circumscription and pilot zones

➢ **P47. If you are not satisfied with service, would you state your main reason?**

Both **Table 65 and Figure 61** summarize the main reasons for dissatisfaction with the solid waste management. It can be appreciated that the main reasons have to do with the fact that "there is too much garbage" (36%), the service is inadequate (22%), as well as the collection frequency (21%).

Table 65. Main reasons for dissatisfaction with the solid waste management

Answer	Frequency	Percentage (%)
"There's too much garbage"	41	36
Collection frequency	24	21
Inadequate service	26	22
Other	19	17
No answer	5	4
Total	115	100

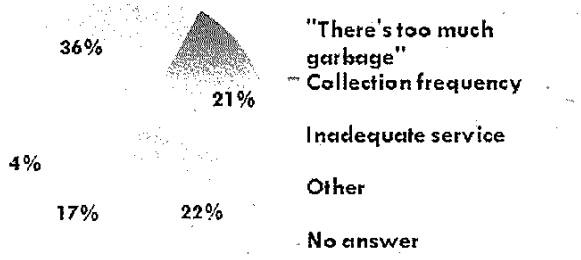

Figure 61. Main reasons for dissatisfaction with the solid waste management

- **P48. Do you know any environmental activity carried out by the ADN besides of the management of solid waste?**

Only 10% of the interviewed expressed to know of any environmental activity promoted by ADN, besides the solid waste management. See **Table 66** and **Figure 62**.

The majority of environmental activity was reported to have something to do with planting trees. Some activities mentioned, although from the ADN, were not specifically of the environmental sort.

Table 66. Knowledge of environmental activities promoted by the ADN, besides the solid waste management

Answer	Frequency	Percentage (%)
Yes	25	10
No	222	90
Total	247	100

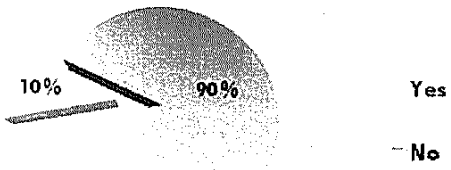

Table 62. Knowledge of environmental activities promoted by the ADN, besides the solid waste management

- **P49. Are you satisfied with those environmental activities provided by ADN?**

Those who said to know environmental activities promoted by the ADN, meant in 56% of the cases, that they were satisfied with them. 24% says to be very satisfied and 8% says not to be satisfied. 12% does not know. See **Table 67** and **Figure 63**.

Table 67. Satisfaction level with environmental activities promoted by the ADN

Answer	Frequency	Percentage (%)
Very satisfied	6	24
Reasonably satisfied	14	56
Not satisfied	2	8
Don't know	3	12
Total	247	100

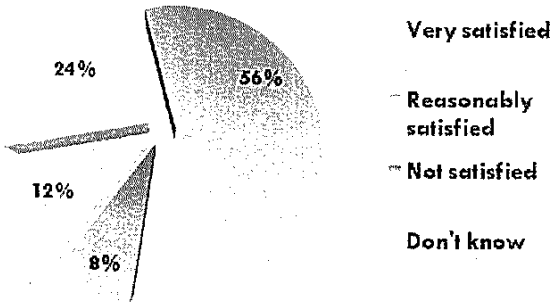

Figure 63. Satisfaction level with environmental activities promoted by the AND

- **P50. Would you be willing to participate in activities to improve the management of solid waste or other environmental type activities conducted by the ADN?**

Most of the interviewed (75%) would be willing to participate in activities to improve the solid waste management or any other environmental activity conducted by the ADN. See **Table 68 and Figure 64.**

Table 68. Willingness to participate in activities to improve the solid waste management

Answer	Frequency	Percentage (%)
Yes	186	75
No	61	25
Total	247	100

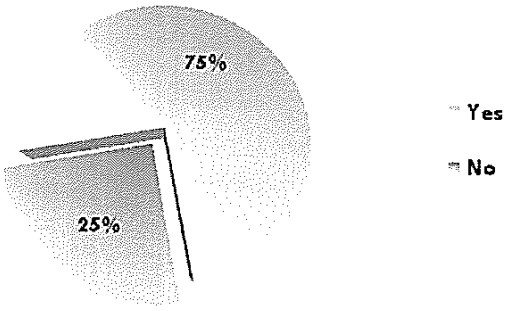

Figure 64. Willingness to participate in activities to improve the solid waste management

- **Others (requests to authorities, complaints, etc.).**

At the end of the survey, there was space left for the interviewee to express briefly their requests, comments, complaints or suggestions to the ADN. These comments were registered and are in the column "Comments" of the **Attachment/Appendix 3**.

付属資料 3 プロジェクト・デザイン・マトリックス

プロジェクト名: ドミニカ共和国サント・ドミンゴ特別区　総合廃棄物管理能力強化プロジェクト　　Ver.2 (Revised on 08-Oct-2010)

プロジェクト期間: 2009年7月～2012年7月(3 年)

対象地域: サント・ドミンゴ特別区及び首都圏を含めた周辺地域　　ターゲットグループ: サント・ドミンゴ特別区役所

プロジェクトの要約			
上位目標	**指標**	**指標の入手手段**	**指標の入手手段**
2015年までに総合廃棄物管理計画(改訂廃棄物管理M/P)における目標が実質的に達成される。	1.改訂されたM/Pの目標とする収集率(2015) 2.改定されたM/Pの目標とする廃棄物削減量(2015) 3.改訂されたM/Pの目標とする財務の健全	改訂M/P ADNによる報告書とデータ	
プロジェクト目標			
サント・ドミンゴ特別区の総合廃棄物収集システムが向上する。	1. 改訂されたM/Pの目標とする収集率 2. 改定されたM/Pの目標とする廃棄物削減量 3. ADNのコールセンターが受けるサービスへの苦情数 4. 収集サービスに対する満足度	改訂M/P ADNによる報告書とデータ 苦情記録 満足度の調査報告	最終処分場に衛生埋め立てが導入され、継続される。
アウトプット			
I. ADNの廃棄物管理計画能力が強化される。	1.1 M/Pの改定〈案〉が作成される。 1.2 廃棄物管理計画のトレーニングマテリアルが作成される。 1.3 ADNに対して少なくとも2回、他の自治体向けのトレーニングを実施する。	1.1 改訂M/P 1.2 研修教材 1.3 研修ワークショップ報告書	自然災害がプロジェクトの進捗に影響を与えない。
2. 車両メンテナンス及び住民啓発の改善を通じて廃棄物管理システムが強化される。	2.1 車両整備に関する情報がシステム化される。 2.2 不適切な廃棄物排出の記録数が減る。	2.1 整備報告書 2.2 点検報告書	ドミニカ共和国政府が廃棄物管理計画に関する現在の国の基本政策を維持または改善する。
3. 廃棄物処分量削減のための3R〈Reduce, Reuse and Recycle〉が導入される。	3.1 その他の有価物の可能性の把握 3.2 3R促進プログラムを導入するコミュニティの数(例:地域の代表グループ〉 3.3 ADNの活動により古紙のリサイクルが増加する。 3.4 最終処分場に運ばれる剪定ゴミの量が減少する。	3.1 リサイクル促進センター報告書 3.2リサイクル促進センター報告書 3.3 調査報告書 3.4 リサイクル促進センター報告書	最終処分場がプロジェクト期間中サント・ドミンゴ特別区からの廃棄物を受け入れる。

活動	投入		外部条件
1.ADNの廃棄物管理計画能力が強化される。 1.1 特別区における廃棄物管理の現状を確認し課題を抽出する。 1.2 M/Pにおける総合廃棄物管理計画の各項目の達成状況把握と分析を行う。 1.3 2011年、2015年に向けての総合廃棄物管理計画の目標と活動計画を検討・構築する。 1.4 他の市をサポートするために廃棄物管理計画のトレーニングマテリアルを作成する。 1.5 上記のマテリアルを使用し、他の自治体で廃棄物管理計画のトレーニングやワークショップを実施する。	**日本側** (1) 日本人専門家 (2) C/Pへのトレーニング (3)現地業務費 (4)供与資機材	ドミニカ側 (1) C/Pスタッフの配置 (2) 事務所と会議室 (3) JETの移動手段 (4) 現地業務費 (5) コンポスト作業場	民間委託期間が収集サービスを継続する。
2. 車両メンテナンス及び住民啓発の改善を通じて廃棄物管理システムが強化される。 2.1.I ADNの既存の収集運搬車両の管理・メンテナンス体制に関する現状を把握する。 2.1.2 車両管理・メンテナンス及び資材・部品管理手順書〈案〉を作成し改善計画〈案〉を検討する。 2.1.3 車両管理・メンテナンス及び資材・部品管理手順書を作成する。 2.1.4 車両管理・メンテナンス及び資材・部品管理体制の改善計画を実施する。 2.1.5 車両管理・メンテナンス及び資材・部品管理体制改善計画のモニタリング・フィードバックを行う。 2.2.1特別区内の都市廃棄物の排出ルールの確認及び排出状況を確認する。 2.2.2 都市廃棄物の排出に関する改善計画を検討する。 2.2.3 住民に排出ルールを周知徹底するためのツールの作成を検討する。 2.2.4上記ツールを使用して都市廃棄物の排出に関する改善計画を実施する。 2.2.5 都市廃棄物の排出に関する改善活動計画を実施しモニタリング・フィードバックを			C/Pスタッフが役職にとどまる。 C/Pに必要な予算が確保される。
3. 廃棄物処分量削減のための3Rs (Reduce, Reuse and Recycle) アプローチが導入される。 3.1.1 特別区における古紙、ガラス、金属、プラスチック、有機ゴミにかかわる既存リサイクル活動の現状を把握する。 3.1.2 リサイクルメカニズムを設計する。 3.2.1 住民に対する3R啓発活動の実施に関する検討を行う。 3.2.2住民に対する3R啓発活動で使用するツールを作成する。 3.2.3住民に対する3R啓発活動を実施する。 3.2.4 住民に対する3R啓発活動のモニタリング・フィードバックを実施する。 3.3.1 古紙リサイクルのパイロットプロジェクト実施にかかわる検討を行う。 3.3.2 古紙リサイクルのパイロットプロジェクトを実施する。 3.3.3 古紙リサイクルのパイロットプロジェクト実施結果の評価及び古紙リサイクル拡大のための計画を検討する。 3.4.1剪定ゴミのパイロットプロジェクト実施にかかわる検討を行う。 3.4.2 剪定ゴミのパイロットプロジェクトを実施する。 3.4.3剪定ゴミのパイロットプロジェクト実施結果の評価及びコンポスト化拡大計画を検討する。			**前提条件**

付属資料 4活動計画表 (PO)　2010年10月8日改訂

Month		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Fiscal Year		2009年度									2010年度												2011年度												2012年度		
Calendar		7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
1.ADNの廃棄物管理計画能力が強化される。																																					
1.1特別区における廃棄物管理の現状を確認し課題を抽出する。	PO rev.oct2010																																				
	Actual nov2011																																				
1.2 M/Pにおける総合廃棄物管理計画の各項目の達成状況把握と分析を行う。	PO rev.oct2010																																				
	Actual nov2011																																				
1.3 2011年、2015年に向けての総合廃棄物管理計画の目標を検討し活動計画作成する。	PO rev.oct2010																																				
	Actual nov2011																																				
1.4 他の市をサポートするために廃棄物管理計画のトレーニングマテリアルを作成する。	PO rev.oct2010																																				
	Actual nov2011																																				
1.5 上記のマテリアルを使用し、他の自治体で廃棄物管理計画のトレーニングやワークショップを実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
2. 車両メンテナンス及び住民意識の改善を通じて廃棄物管理システムが強化される。																																					
2.1.I ADNの既存の収集運搬車両の管理・ﾒﾝﾃﾅﾝｽ体制の現状を把握する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.1.2 車両管理・メンテナンス及び資材・部品管理手順書〈案〉を作成し改善計画〈案〉を検討する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.1.3 車両管理・メンテナンス及び資材・部品管理手順書を作成する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.1.4 車両管理・メンテナンス及び資材・部品管理体制の改善計画を実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.1.5 車両管理・メンテナンス及び資材・部品管理体制改善計画のﾓﾆﾀﾘﾝｸﾞ・ﾌｨｰﾄﾞﾊﾞｯｸを行う。	PO rev.oct2010																																				
	Actual nov2011																																				
2.2.1特別区内の都市廃棄物の排出ﾙｰﾙの確認及び排出状況を確認する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.2.2 都市廃棄物の排出に関する改善計画を検討する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.2.3 住民に排出ﾙｰﾙを周知徹底するためのﾂｰﾙの作成を検討する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.2.4 上記ﾂｰﾙを使用して都市廃棄物の排出に関する改善計画を実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
2.2.5 都市廃棄物の排出に関する改善活動計画を実施しﾓﾆﾀﾘﾝｸﾞ・ﾌｨｰﾄﾞﾊﾞｯｸを行う。	PO rev.oct2010																																				
	Actual nov2011																																				
3. 廃棄物処分量削減のための3Rs (削減・再利用・リサイクル) アプローチが導入される。																																					
3.1.1　特別区における古紙、ガラス、金属、プラスチック、有機ゴミにかかわる既存リサイクル活動の現状を把握する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.1.2 リサイクルメカニズムを設計する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.2.1 住民に対する3R啓発活動の実施に関する検討を行う。	PO rev.oct2010																																				
	Actual nov2011																																				
3.2.2 住民に対する3R啓発活動で使用するﾂｰﾙを作成する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.2.3 住民に対する3R啓発活動を実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.2.4 住民に対する3R啓発活動のﾓﾆﾀﾘﾝｸﾞ・ﾌｨｰﾄﾞﾊﾞｯｸを実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.3.1 古紙リサイクルのパイロットプロジェクト実施にかかわる検討を行う。	PO rev.oct2010																																				
	Actual nov2011																																				
3.3.2 古紙リサイクルのパイロットプロジェクトを実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.3.3 古紙リサイクルのパイロットプロジェクト実施結果の評価及び古紙リサイクル拡大のための計画を検討する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.4.1 剪定ゴミのパイロットプロジェクト実施に係わる検討を行う。	PO rev.oct2010																																				
	Actual nov2011																																				
3.4.2 剪定ゴミのパイロットプロジェクトを実施する。	PO rev.oct2010																																				
	Actual nov2011																																				
3.4.3 剪定ゴミのパイロットプロジェクト実施結果の評価及びコンポスト化拡大計画を検討する。	PO rev.oct2010																																				
	Actual nov2011																																				

付属資料 5　　日本人専門家配置　2009.7～2011.12

専門家	専門分野 \ Year	2009							2010												2011											
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		30	31	31	30	31	30	31	31	28	31	30	31	30	31	31	30	31	30	31	31	28	31	30	31	30	31	31	30	31	30	31
1 山本　糾哉	総括/廃棄物管理計画	16 30	30		14	27		18						29	28	29		27			28	5	18	10		17	18	8	3			
2 加藤　洋	副総括/廃棄物減量/3R促進 (1)		20	23			23	18	6	9					16	14			16	15	25	23			25	30			2	6	8	15
3 喜納　政治	住民啓発/3R促進 (2)								7	5						11	9	15	13						21	4						
4 Ana Ximena Alegria Olivos	ｷｬﾊﾟｼﾃｨ・ｱｾｽﾒﾝﾄ					16	14																								
5 楠　幸二	住民啓発(2)/排出マナー改善								6	4					20	18			8	7								2	31			
6 平賀　良	収集・運搬車両管理・メンテナンス				9	8			14	12							130				14	12								27	25	
7 岡本　晋介	車両・部品データ管理								23	21							5	4			15	29								30	28	
8 山中　忠之	収集・運搬車両管理・メンテナンス																													27	25	
9 岡本　晋介/村中 梨砂/山本　糾哉	業務調整		20	18		12	10						23	6		26	9		17	1		3	17				9	8			23	3
																														19	22

注: (*)　表内の数字は、ドミニカ共和国滞在開始と終わりの日付を示す。

付属資料 6　ドミニカ側カウンターパート配置 2009.7～2011.12

			2009						2010												2011											
		配置状況	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		分野/職位	31	31	30	31	30	31	31	29	31	30	31	30	31	31	30	31	30	31	31	28	31	30	31	30	31	31	30	31	30	31
総合廃棄物管理計画																																
1	José Miguel Martínez	Director, DIGAUE																														
2	Hugo Pérez Sarraff	Head, Department of Programming and Control General Directorate of Urban Cleansing and																														
3	Rudilerci Castillo	Head, Department of Administration, General Directorate of Urban Cleansing and Equipments																														
4	Manuel Ramírez	Head, Department of Urban Cleansing, General Directorate of Urban Cleansing and Equipments																														
5	Francisco Martínez	Head, Control Department Division No.2, General Directorate, Urban Cleansing and Equipments																														
6	Leomaris Henríquez	Coordinator, Health Centers Collection, General Directorate of Urban Cleansing and Equipment																														
7	Oscar García Arias	Head, Department of Operations																														
8	Heisor Arias	Head, Recycling Promotion Center																														
車両メンテナンス・管理																																
1	Oscar García Arias	Coordinator of Analyst of Operations																														
2	Genaro Rosario	Head, Department of Vehicles Maintenance																														
3	Manuel Roa	Staff in charge, Operation Unit for Compactor Trucks																														
4	Luis Checo	Coordinator Technician, Department of Maintenance																														
5	David Rodríguez	Head of Control, Division No.3, General Directorate of Urban Cleansing and Equipment																														
廃棄物教育・住民啓発																																
1	Juan José Guzmán	General Director of Human Development																														
2	Luis Taveras	Head, Department of Public Education																														
3	Marianna Szabo	Coordinator, Environmental Information Center																														
4	Anyelina Aquino	Head, Department of Environmental Management																														
5	Leomaris Henríquez	Coordinator, Health Centers Collection, General Directorate of Urban Cleansing and Equipment																														
6	Massiel Moronta	Member, Department of Administration, General Directorate of Urban Cleansing and Equipments																														
7	José Nuñez	Educator, Environmental Information Center																														
8	Pablo Mejía	Coordinator of Analyst of Operations																														
廃棄物削減・3R活動																																
1	Heisor Arias	Head, Recycling Promotion Center																														
2	Amancio Pereyra	Technician, Recycling Promotion Center																														
3	Alan Alarcon	Technician, Recycling Promotion Center																														
4	Ana Beatriz Pou	Technician, Recycling Promotion Center																														
5	Fulvio Cabral	Technician, Recycling Promotion Center																														
6	Fernando Prestol	Technician, Recycling Promotion Center																														
7	Manuel Dajer	Technician, Recycling Promotion Center																														

付属資料7　活動実績(1)

成　果	プロジェクト活動	概　要				
		2009年12月 進捗報告書第1号 活動概要	2010年10月 捗報告書第2号 活動概要	2011年3月 進捗報告書第3号 活動概要	2011年11月 進捗報告書第4号 活動概要	2011年11月の状況、今後の見通し
l. ADNの廃棄物管理計画能力が強化される	1.1 特別区における廃棄物管理の現状把握及び課題の抽出	専門家チームとC/Pチームが協働して現状把握を行い課題の抽出を行った。				
	1.2 M/Pにかかる総合廃棄物管理計画に係る各項目の達成状況の把握･分析	M/Pが策定されて以降、アクションプログラムを策定し、また満足のいく結果が得られている。ただ市民との協議、ゴミの排出マナー、３Rの紹介、収集車両の整備についてはこのアクションプログラムに含まれておらず、このプロジェクトの課題である。	専門家チームの協力の下C/Pチームが主導して抽出された課題に対して、既存M/Pは何をどのように推進する予定であったかを確認し、現状との差異に対応すべき改訂M/P第一次案を策定した（2010年10月）。	2011年3月専門家チームの協力の下C/Pチームが主導して改訂M/P第一次案を基に検討と修正を加えて、改訂M/P第２稿を策定した。		2012年には改訂M/Pの最終化の作業を行うがその際に2011年6月から10ヵ月の予定で実施されるIDB調査(JCFによる首都圏広域処分場適地選定並びに環境教育)結果との調整が必要となる。
	1.3 2011年、2015年に向けての総合廃棄物管理計画の目標と活動計画を検討・構築				専門家チームの協力の下C/Pチームが主導してPR(1)-(3)に記述した現状での達成状況や課題に関して改訂M/Pのフレームをまとめた（2011年11月中旬）。	
	1.4 他の市をサポートするために廃棄物管理計画のトレーニングマテリアルを作成する		専門家チームの協力の下C/Pチームが主導して廃棄物管理計画に関するDIGAUEの提供可能な知見を確認し、近隣他自治体が知見不足のテーマを抽出し、普及スケジュールの検討を行った。	専門家チームの協力の下C/Pチームが主導してトレーニング・マテリアルを作成した（2011年3月中旬）。教材は以下のとおり。 １．ゴミ量・ゴミ質 ２．収集サービス改善 ３．収集サービス監視 ４．コミュニティへの情報普及 ５．収集ルートデータベース ６．中継基地計量システム ７．収集・運搬車メンテナンス		トレーニング・マテリアルの改良、改訂が今後必要になる可能性がある。

	1.5 上記のマテリアルを使用し、他の市で廃棄物管理計画のトレーニングやワークショップを実施する			専門家チームの協力の下C/Pチームが主導してトレーニングやワークショップの実施時期を検討し、2011年度に実施することとした。	専門家チームの協力の下C/Pチームが主導して２０１１年７月に近隣自治体の廃棄物担当者を対象としたワークショップを実施した（2011年屋7月21日実施）。	トレーニング対象自治体の選定などIDB調査との連携が必要となる可能性がある。

付属資料 7　活動実績(2)

成　果	プロジェクト活動	概　　要				
		２００９年１２月	２０１０年10月	２０１１年3月	２０１１年１１月	2011年11月の状況、今後の見通し
		進捗報告書第1号	捗報告書第2号	進捗報告書第３号	進捗報告書第４号	
		活動概要	活動概要	活動概要	活動概要	
2. 車両メンテナンス及び住民啓発の改善を通じて廃棄物管理システムが強化される	2.1.I ADNの既存の収集運搬車両の管理･メンテナンス体制に関する現状把握	故障後に修理、修理のための部品調達に長時間を要するのが現状であり、系統だった記録管理も欠如している。				
	2.1.2 車両管理・メンテナンス及び資材･部品管理手順書(案)の作成及び同改善計画(案)の検討	車両管理･メンテ及び資材・部品管理手順書(案)及び同改善計画(案)を検討した。 手順書が欠如しており担当者の経験や記憶のみに基づき行われており、手順書の活用が課題。	専門家チームとC/Pチームが協働して車両の管理・メンテナンス及び資材・部品管理手順書の案（雛形）を検討し、これに修正を加えて管理手順書の初案を作成した。			作成した車両の管理・メンテナンス及び資材･部品管理の手順書及び管理体制の改善計画は初案を改訂中であり、今後の継続的な改善実施の中で改良を加えていくことが必要となる。
	2.1.3 車両の管理・メンテナンス及び資材･部品管理手順書を作成する			専門家チームとC/Pチームが協働して前年度作成した車両の管理・メンテナンスおよび資材・部品管理手順書に基づいた管理の実施と実施結果の見直し。 車両の管理・メンテナンスデータベースの構築（2010年9月中旬）。		
	2.1.4 車両管理・メンテナンス及び資材･部品管理体制の改善計画の実施		車両の管理・メンテナンス及び資材・部品管理体制の改善計画を専門家チームと協働して(C/Pが)策定した。		専門家チームとC/Pチームが協働して車両管理・メンテナンス及び資材・部品管理体制の改善に向け、車両基地の整理整頓を行い、これに並行して改善計画を実施中。故障で不動となっていた収集車対象として整備の実地指導を行い稼動させた（2011年11月初旬）。	
	2.1.5 車両管理･メンテナンス及び資材･部品管理体制改善の実施のモニタリングとフィードバック					

	2.2.1 特別区内の都市廃棄物の排出ルールの確認及び排出状況の確認	排出ルールが住民などに周知徹底されておらず、収集作業の効率低下を招いたり、街の美観を損ねている地区も多い。				
	2.2.2 都市廃棄物の排出に関する改善計画の検討	上記の結果に基づいて排出改善計画をC/Pチームと専門家チームが協働で検討した。 住民などに排出ルールを周知徹底し排出の改善を行うとともに、定時に既定の収集を行う自治体側のコミットを確立することが重要である。				
	2.2.3 住民へ排出ルールを周知徹底するためのツール作成に関する検討		専門家チームとC/Pチームが協働してC/Pグループが中心に排出ルール周知のツールの中身と作成を検討した。			
	2.2.4上記ツールを使用して都市廃棄物の排出に関する改善計画を実施する		専門家チームとC/Pチームが協働して排出改善パイロットプロジェクトを町内会(Junta de Vecino)と協議調整し、開始の準備をした（2010年10月）。	排出改善パイロットプロジェクトを実施した（2010年10月開始2011年1月までPPとしてモニタリングを実施）。	C/Pチームが主導的に排出改善パイロットプロジェクトの結果の評価を行い、評価結果に基づいて拡大計画を策定した（2010年8月）。	パイロットプロジェクトの実施結果を検証し排出マナー改善区域の拡大を計る。
	2.2.5 都市廃棄物の排出に関する改善実施のモニタリング及びフィードバック				専門家チームの協力の下C/Pチームが主導して排出改善のためには住民意識の向上もさることながら、定時・定期収集が必要不可欠であるので、このことを見直しM/Pに反映させた（2011年11月中旬）。	

付属資料 7　活動実績(3)

成　果	プロジェクト活動	概　　要				
		２００９年１２月	２０１０年10月	２０１１年3月	２０１１年１１月	201１年11月の状況、今後の見通し
		進捗報告書第1号	捗報告書第2号	進捗報告書第３号	進捗報告書第４号	
		活動概要	活動概要	活動概要	活動概要	
3. 廃棄物処分量削減のための3R (再利用、減量、リサイクル)が導入される	3.1.1 特別区における古紙、ガラス、金属、プラスチック、有機ゴミに係る既存のリサイクル活動の現状把握	開発調査で05年から07年に行われたリサイクル市場調査の結果と現状は大きく変わっていない。対象とする有価物が変わったものの、その過程は以前と変わらず維持されており、価格と需要だけは国際市場によるので変化している。				
	3.1.2 リサイクルメカニズムの設計		専門家チームの指導に基づきリサイクルプロモーションセンターが徐々に活動を開始した。	専門家チームの協力の下C/Pチームが主導して最終処分量の減量を指向した系統だったリサイクル活動を実現するためにOJTで「リサイクルメカニズムの設計」を行いこの設計に基づいて系統だったリサイクル活動を実践させる指導を開始した。 具体的には、C/Pと専門家チームが協働してサント・ドミンゴ特別区における適正なリサイクル推進のための公共側、民間側の役割分担を整理した。その上で適正なリサイクルメカニズムを検討し試設計を行った（2011年3月）。	C/Pチームが主導して設計結果に基づいてCPR中心にリサイクラー、リサイクル市場の動向把握を開始し、結果のDB化を開始した（2011年8月開始、現在継続中）。	試設計結果を実際に当てはめる際の問題点、課題を整理し、リサイクル推進のための公共側、民間側の役割分担の枠組みの作成並びに実務へのあてはめを行う。

	3.2.1 住民に対する３R啓発活動の実施に係る検討		３R推進に向けて、対応可能なリサイクル業者の検討(検討の結果企業として法人登録がなされている仲買人Green Love社を選定)、対象小学校(la Escuela Víctor Garrido Puello)との協議を行い、実施に向けての検討を行った。	学校(la Escuela Víctor Garrido Puello)の協力を得て、小学校の各クラスでの古紙分別回収のパイロットプロジェクトを開始した（PPとしては2011年1月から6月までの6カ月間実施、その後学校独自に継続中）。		2011年度にはパイロットプロジェクトの継続と分析、評価を実施し、拡大への課題と克服方法を検討する。
	3.2.2 住民に対する３R啓発活動で使用するツールの作成		３R推進用の効果的なツールとその内容について協議し、3R推進用ツール(マグネット、シール、リーフレット、パンフレット）を作成した。	3R推進用ツール(マグネット、シール、リーフレット、パンフレット）を必要に応じて住民説明会等で配布した（2010年10月から開始）。		3R促進ツールを用いた啓発活動の継続。
	3.2.3住民に対する３R啓発活動の実施		対象小学校における３R実施内容を、小学校、収集業（NGO)と協議し、対象リサイクル品目を紙のみと設定し、紙の回収にかかる実施計画を検討。	12月の実施計画に基づき対象学校における生徒、教員、清掃担当職員に対するワークショップを経て2011年1月より実施した。	継続中	啓発活動の継続。
	3.2.4 住民に対する３R啓発活動実施のモニタリングとフィードバック		３R推進パイロットプロジェクト（PP)を定量的に評価するために、モニタリング計画を策定。	上記のパイロットプロジェクトの実施に合わせて古紙回収量等の定期測定などのモニタリングを開始した（2011年1月より実施）。	継続中	モニタリング継続とモニタリング結果に基づく活動の改善の実施。
	3.3.1 古紙リサイクルのパイロットプロジェクト実施に係る検討		現時点ではDIGAUEの事務所及びJICA担当事務所実施中であるがこれの拡大方策を検討した。	古紙リサイクルパイロットプロジェクトを含む各種リサイクル活動の状況を示すリサイクルプロモーションセンターの報告書(第二報)が作成され、報告された（2011年3月）。		リサイクルプロモーションセンターの報告書の作成頻度（現在四半期ごと）の定着と内容の充実。
	3.3.2 古紙リサイクルのパイロットプロジェクトの実施		今まで成されていなかった、古紙リサイクル量の記録を蓄積するようになった。		継続中	

	3.3.3 古紙リサイクルのパイロットプロジェクト実施結果の評価及び古紙リサイクル拡大のための計画を検討する				C/Pチームが主導して拡大計画策定のためにリサイクルメカニズムに基づいたデータ収集を実施中。	2012年実施予定。
	3.4.1 剪定ゴミのパイロットプロジェクト実施に係る検討		専門家チームの協力の下C/Pチームが主導してJICA側での購入する剪定枝破砕機の選定を協働して実施。併せて、C/Pチームによる破砕機の運営管理体制を整備。設置場所を決定し、同時に今後のプロジェクト実施工程を作成。			
	3.4.2 剪定ゴミのパイロットプロジェクトの実施			専門家チームの協力の下C/Pチームが主導して剪定枝破砕機を選定・購入し、ドミニカ共和国側に引き渡し剪定ゴミのパイロットプロジェクトを開始した（2010年10月）。	継続中	前年度の結果に基づき対象を拡大するための検討を行う。対象拡大に関してドミニカ共和国では現在のJICA供与機材より大型の破砕機を購入した（2011年7月）。
	3.4.3 剪定ごみのパイロットプロジェクト実施結果の評価及びコンポスト化拡大のための計画を検討する				専門家チームが実用規模までの拡大に必要となる破砕機の追加調達の準備を行った。 専門家チームの協力の下C/Pチームが主導して拡大のための実施計画の策定を開始した（2011年11月）。	2012年始め（2月を予定）にJICAより破砕機調達、これに平行して実施計画策定する予定。この計画に基づいて実施用規模の操業を開始する。

キャパシティ評価(PDM非記載項目)	C/Pチームのキャパシティ	専門家チームとC/Pチームが協働して評価項目を設定し、第三国人（メキシコ人）専門家により第一回目のキャパシティ評価が実施された。	第三国人(メキシコ人)専門家と共にC/Pチームの第二回目のキャパシティ評価を実施し、評価結果について専門家チームと問題点を共有した。	-	第三国人(メキシコ人)専門家と共にC/Pチームの第三回目のキャパシティ評価を実施し、評価結果について専門家チームと問題点を共有した。	2011年度分完了。
	ADN組織と制度のキャパシティ					同　上

８．作成報告書・教材等

1. 報告書 1-1. 進捗報告書No.1 (2009.12) 1-2. 進捗報告書No.2 (2010.10) 1-3. 進捗報告書 No.3 (2011.3) 1-4. 進捗報告書 No.4 (2011.11)	 和/英/西 和/英/西 和/英/西 和/英/西
2. 技術マニュアル (20 copies) 2-1. ゴミ量・ゴミ質(2011.3) 2-2. 収集サービス改善(2011.3) 2-3. 収集サービス監視(2011.3) 2-4. コミュニティへの情報普及 (2011.3) 2-5. 収集ルートデータベース (2011.3) 2-6. 中継基地計量システム (2011.3) 2-7. 収集・運搬車メンテナンス (2011.3)	
3. 住民啓発用配布物 3-1. ポスター: 500枚 3-2. マグネット: 2,000枚 3-3. チラシ; 2,000枚 4. ３R活動用配布物 4-1. ポスター: 500枚 4-2. マグネット: 2,000枚 4-3. チラシ: 2,000枚	 


ジャイカ
JICA