

## H.2 El Salvador

### Courtesy Call to the Office for Metropolitan Area Planning (OPAMSS by its initial in Spanish)



Received by:

Arch. Margarita Minero de Leiva, OPAMSS  
Executive Director

Eng. José B. Pérez I., Coordinator of Solid wastes Unit

Date: 11/23/2009

Time: 02:30 p.m.

The Executive Director explained the reason for this organization, functions, structure and the importance this has for the urban development of the country; we highlight the important points of this visit as follows:

The Metropolitan Area of San Salvador AMSS, consists of 14 municipalities, 12 belong to the department of San Salvador and 2 belong to the department of La Libertad. AMSS is the directive center of the country's political, financial, economic and cultural aspects which accounts for 27% of the total population (according to 2007 census). In the AMSS, which is just 3% of the national territory, public investment reaches 43% of the total nationwide; moreover, private investment reaches 70% of the total nationwide.

The COMASS is the Council of Mayors of the Metropolitan Area of San Salvador. COAMSS consists of the 14 municipal councils, which make up the AMSS, and are considered a single urban unit. COAMSS is an autonomous and decentralized organization which is defined as the administrator to perform the functions related to urban development entrusted by the Municipal Councils in compliance with the Municipal Code. The statutes define the essential responsibilities of COAMSS the following:

- To coordinate actions among the municipal governments which integrate COAMSS with the purpose to achieve their harmonious and sustainable development.
- To coordinate public investment in the area and services provided to municipalities which integrate COAMSS.
- To facilitate and encourage community participation in developing the Metropolitan Area of San Salvador.

The Planning Office of the Metropolitan Area of San Salvador (OPAMSS by its initial in Spanish) is the Technical Secretariat of the Council of Mayors of the Metropolitan Area of San Salvador (COAMSS in its Spanish initials). OPAMSS is a decentralized municipal institution with its own legal status and it is responsible for providing technical support to the Council of Mayors of the Metropolitan Area of San Salvador (COAMSS). OPAMSS was created by mandate of the Law on Land Development of the Metropolitan Area of San Salvador in 1993.

The central functions of the OPAMSS are Land Management Planning and control of urban development of AMSS, i.e., OPAMSS will direct under the leadership of COAMSS all matters related to urban development of Greater San Salvador.

OPAMSS's responsibilities in more detail are:

- To direct the formulation and technical evaluation of the Metropolitan Development Plan and Land Management of AMSS and their respective sector plans, programs, and investment projects.
- To elaborate and propose to COMASS technical standards which are required to enact the Metropolitan Plan; these technical standards should be consistent with the policies, plans, and projects at the regional and local levels and they should be in agreement with the Metropolitan Development Coordination (CODEMET) and approved by the Municipal Councils of AMSS respectively.
- To initiate legal process for Qualification of the Site, Construction Line, Road revision, and zoning; additionally, OPAMSS should also grant the permits for creation of parcels, construction, and works reception for every project which meet the requirements that have been established as tools for land development by the law (DOT).

#### Experience

A decentralized organization like OPAMSS requires a consultation entity such as the Metropolitan Development Council (COMEDET which is an organization that binds the municipalities to the central government) to address metropolitan issues such as drainage system, transportation, solid wastes, risk management, etc., in order to ensure the sustainability of resources and urban growth, and, consequently, it prevents cases such as developments in agricultural areas due to road construction.

#### OPAMSS Structure

COAMSS: COAMSS will be the Directive Organism for OPAMSS and will appoint an Executive Director to satisfy OPAMSS's functions.

#### Functions:

COAMSS as the Directive Organism of OPAMSS has the functions:

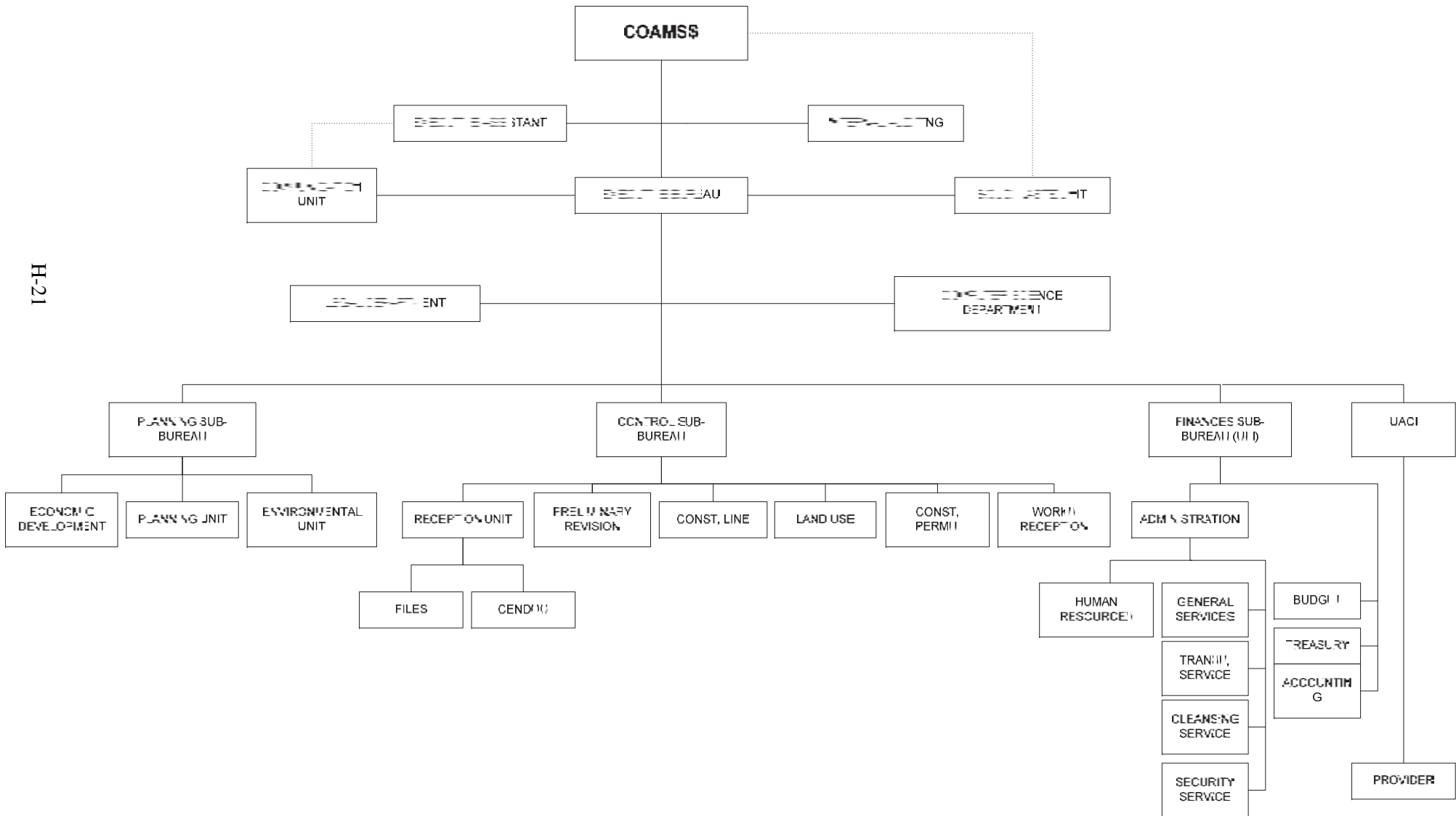
To coordinate Metropolitan Territorial Plan of AMSS and corresponding sector plans, programs, and investment projects.

To ensure that the provisions of the Metropolitan Plan were enacted in accordance with Local Plans approved by the Municipalities of the AMSS.

To coordinate through OPAMSS with the Bureau of Planning and Control of Municipalities and Institutions of the Central Government, the formulation of Local Development Plans and Municipal Sector Plans of the Central Government, in agreement with the Metropolitan Plan and Territorial Development of the AMSS.

To coordinate the implementation of the Urban Development Control of the AMSS which will be executed by the municipalities of the AMSS through OPAMSS.

# ORGANIZATIONAL FLOWCHART 2008

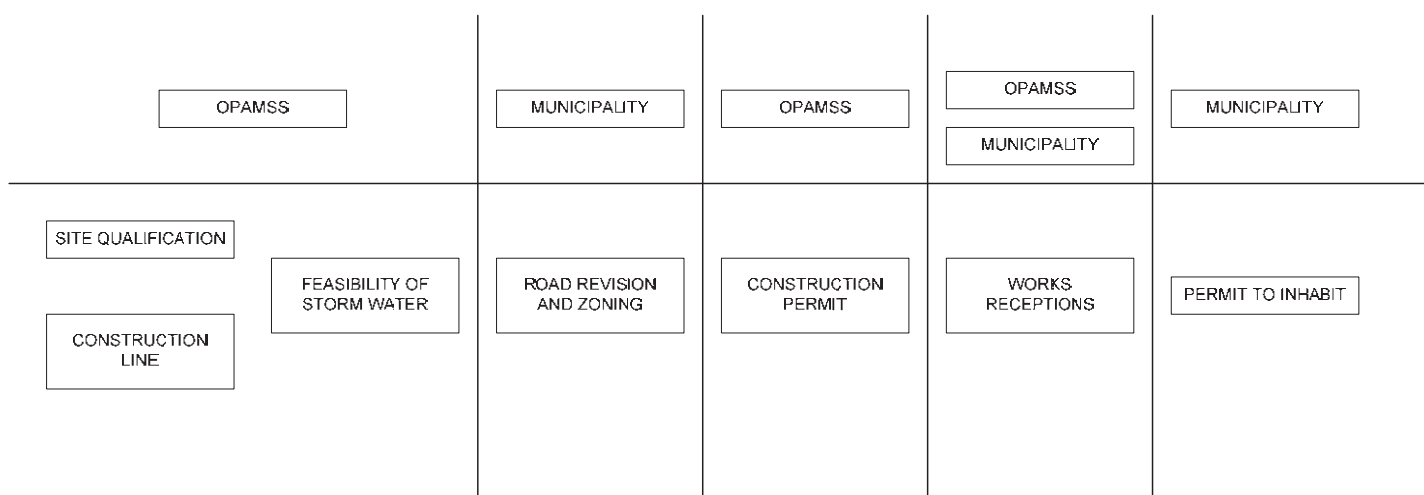


H-21

### OPAMSS Financing

- OPAMSS does not receive funds from the central nor the local government; consequently, it was defined that OPAMSS was going to be a financially self-sufficient entity which was going to be financed by its own services. However, the financial flow is not constant; as a result, the investment in research is limited.
- A strong investment in personnel and technology is required.

The collection of the following procedures and execution of the following responsibilities competences are subsistence of OPAMSS.



### The importance of an institution like OPAMSS in land development management of AMSS

- The complexity of a metropolitan urban system such as AMSS (from the political, social, economic, urban, and environmental perspective) which has a faster functional and developmental pace than the rest of the national territory requires a special attention and management.
- AMSS is the directive center of the country's political, financial, economic and cultural aspects which accounts for 27% of the total population (according to 2007 census). In the AMSS, which is just 3% of the national territory, public investment reaches 43% of the total nationwide; moreover, private investment reaches 70% of the total nationwide.
- OPAMSS is an institutional link for land management at the regional level which coordinates efforts at the central and local level.
- The strategic value that represents the associations of municipalities in terms of synergic, economic, financial, urban, environmental and political aspects.

### Observations

In this visit, we concluded that our metropolitan area, Gran Santo Domingo and neighboring municipalities, have a type of COAMSS being developed, but without defined policies because it has just recently been established. It is our understanding that this effort will be strengthened after the elections of may 2010 which would allow elected authorities to hold their post for 6 years during which they would be able to plan, conduct, review, and adjust their policies to face common problems in the urban and economic center of the country.

In this sense, as a first meeting of common interest of the Mancomunidad del Gran Santo Domingo (Federation of Greater Santo Domingo), municipalities are working on a project to strengthen the technical capacity in the sanitary landfills area with a grant fund from the Inter-American Development Bank (IDB). We estimate that it is necessary to create a technical branch which regulates the policies related to solid waste (selection of a new landfill site, its design, construction, operation, and other technical matters), but considering

the mancomunidad as a single urban demarcation. It would be a type of OPAMSS, but initially would only supervise aspects related to Urban Solid Wastes.

We recommend that as the results of the first joint effort develops (project with the IDB on landfills) and after the elections of May 2010, it should be evaluated to create a decentralized office (i.e., municipal and central governments should not have the power to change the technical personnel nor the policy of the Mancomunidad, only the power to change the executive board). This decentralized office should be in charge of Land Development Planning and Urban Development in the Mancomunidad del Gran Santo Domingo, i.e., not only issues related to SWM.

### **Technical Meeting at OPAMSS**

Received by:

Eng. José Buenaventura Pérez I., Head of Solid Wastes Unit

Date: 11/24/2009

Time: 9:00 a.m.

After ADN team went back to OPAMSS office, we met with the head of the Unit of Solid Waste (UDS), who explained the background and current situation of solid wastes management in the metropolitan area of San Salvador (AMSS) and the role played by OPAMSS with the municipalities to improve operations and decision-making process of them.



### **Background of the final disposal Site in the Metropolitan Area of San Salvador**

Efforts to dispose waste in a sanitary manner in the AMSS date back to 1969, the mayor of San Salvador and the Ministry of Health project a Sanitary Landfill (it finally became an open dumping) at the farm "Las Margaritas", Soyapango. In parallel, another project initiated in Colonia Escalon, however, it lasted only 2 years because waste was discharged at a rate of 14 truckloads per day.

Project "Las Margaritas" lasted approximately 7 years; in 1977, began the operation of another open dump in the vicinity of this same jurisdiction and lasted until 1991. In addition to the open dumps previously mentioned, at least, 12 other were operating in the AMSS. Many landslides occurred in Santa Tecla dumpsite which resulted in many victims; additionally, most of the other dumpsites already had reached the end of their service life, consequently, in 1992 the last open dump located in Mariona, jurisdiction of Apopa, initiated operations (approximately 20 municipalities discharged solid wastes in Mariona). Apopa reached the end of its service life in 1999 after 3 million tons have been discharged; the existing landfill site (MIDES SEM) began operations in May that same year. ADN team made a field visit to MIDES SEM landfill site and listened to the explanations from OPAMSS's officers; this information was complemented with the Study on SWM made for the Metropolitan Area by KOKUSAI Kogyo Co. LTD, sponsored by the Japan International Cooperation Agency (JICA) in 2000.

### Project MIDES<sup>9</sup>

Between 1978 and 1994, several studies related to SWM were conducted in the AMSS; however, their recommendations were not implemented. Among these studies, the most remarkable are the ones conducted by PAHO "Development of Urban Cleansing Services for San Salvador City" (Feb-1982) and "Solid Waste Master Plan for the AMSS" (May-1985).

Subsequently in 1994, the Canadian International Development Agency agreed to a request from the Mayor of San Salvador to finance the elaboration of the Project for Improvement of Solid Wastes Management of the Metropolitan Region, which took place in 1995.

In September 1997, a joint venture which consisted of CINTEC (Canadian), SOPRIN ADS (Canadian), and Lynmar (Salvadoran) presented a proposal to COAMSS for SWM in the AMSS.

The solutions posed by these firms in their proposal were similar to those recommended in the Project on "Improvement of Solid Wastes Management of the Metropolitan Region."

The proposed investment costs during the first five years were estimated at U.S. \$61,200,000.00 to execute the following components: communication program, education and awareness, management program, program of integration of the scavengers, new landfill, separation Center, Transfer Station, closure of two waste dumps, composting plant and guarantees, insurance and financing. These programs would be executed over a period of 5 years.

On November 14, 1997 an agreement was signed between COAMSS, represented by the Mayor of San Salvador and COAMSS's coordinator and CINTEC International Inc., a company incorporated under the laws of Barbados, represented by an officer of that company.

Agreement was signed in order to establish a Corporation under the concept of Public-Private Partnership, according to the laws of the Republic of El Salvador called "Integrated Management of Solid Wastes, Corporation of Public-Private Partnership" or simply "MIDES" with the purpose to design, build and operate its system of integrated solid wastes management and their respective facilities in the AMSS, consisting of a new landfill, transfer facilities, facilities to sort and recycle wastes, facilities for compost processing and a education center and the closure of existing landfills.

The main clauses of this agreement were:

- Capital of MIDES will be 200 actions of the public sector and 1800 private sector actions, each action of public and private sectors, a nominal value of 100 colones (the currency in El Salvador).
- MIDES's board will consist of three directors. A director elected by the public sector and two elected by the private sector.
- COAMSS agrees to purchase and make available to MIDES two sites inside the jurisdiction of the AMSS, intended, first, for installations for a Sanitary Landfill, the separation and recycling plants, composting plant and education center, and secondly, to the transfer station.
- They agree that the price for using the project facilities (assuming all and not just the landfill) will be U.S. \$ 18/ton, price to increase annually with the increment of the cost of life in El Salvador, determined by the Reserve Central Bank.

---

<sup>9</sup> Estudio sobre el Manejo de Residuos Sólidos para el Área Metropolitana de San Salvador, por KOKUSAI KOGYO CO., LTD (JICA), 2000-2001.

- The municipalities Members of the project will guarantee to deliver to MIDES for 20 years a total minimum amount of 360,000 tons per year with a minimum monthly payment of 30,000 tons times the price per metric ton which is effective on that date.
- COAMSS will be responsible for the collection of user fees through the Electricity Distribution Companies.
- COAMSS transfers to MIDES, at no cost, all equipment, machinery, vehicles and spare parts that were operating in the landfill of Apopa-Nejapa.
- CINTEC compromises to finance the project up to the maximum amount of U.S. \$ 61,200,000 as proposed.
- The term of the agreement is fixed at 20 years beginning when the landfill accepts its first discharge of solid wastes. Although no specific schedule for execution of the project is presented; the programming presented in the proposal is accepted as valid.
- In case of dispute or disagreement, arbitration will take place in Miami, Florida, USA.

#### MIDES Constitution, SEM de C.V.

On December 2, 1997 COAMSS and "CINTEC International Inc." conducted a public deed about the agreement to establish and organize "MIDES, SEM de CV, which contains most of the clauses in the agreement signed by COAMSS and CINTEC International Inc. on November 14, 1997.

Consequently, "MIDES, SEM de CV" is formed as a public/private joint venture partnership created under the law governing the formation of joint stock companies; and, therefore, under the Commercial Code of El Salvador.

Other clauses included in the public deed of incorporation are the following:

- Purpose: To design, build, and operate a new landfill, transfer station, sorting and recycling facilities for solid wastes for compost processing facilities and an educational center, for the SWM in the AMSS.
- The term of the society is undefined.
- Social Capital: two hundred thousand colones, divided into 2,000 shares with a value of 100 colones each.
- Regarding the administrators: A Board of three Directors is in charge of the directorate, management and corporate administration of the partnership (a president, a vice-president, and a secretary; one of them elected by COAMSS and two by CINTEC).
- Subscription of capital: CINTEC subscribes 1.800 shares (90%) with a value of 180,000 colones and the COMASS subscribes 200 (10%) shares worth 20,000 colones.

#### Private Documents authenticated between MIDES and Municipalities

On February 6, 1997 the mayors of San Salvador, Mexicanos, Ciudad Delgado, Ayutuxtepeque, San Marcos, Nueva San Salvador, Soyapango Ilopango Apopa, and Nejapa sign private authenticated contracts separately with "MIDES, SEM de CV" with the purpose that each of the aforementioned municipalities participates in the project of integrated solid waste management in the AMSS. The project consists of a sanitary landfill, facilities to separate and recycle solid wastes, transfer station, composting plant, and a educational center, as well as the closure of two dumps. Among other clauses, the contract determines the following:

- The ten municipalities are obliged to send all solid wastes generated from the commencement date, or the date on which the landfill is ready to receive the first discharge (24 April 1999).
- Term of agreement: 20 years from the date of commencement.

- Price: U.S. \$ 18.00/ton plus IVA. This amount will be increased on January of each year in an amount equal to the increment on the cost of living the previous year, as determined by the Reserva Central Bank.
- Payment to MIDES: Monthly, within a period of 5 days after the Municipality had received the collection payment done by the Electrical Company. Monthly payments which are not paid on time will be charged a moratorium of 2% interest per month.
- Collection: The Municipality will deposit the value collected in a bank account dedicated exclusively to the payment of this service.
- Case of default: If the overdue payment is not paid, MIDES will have the right to refuse to receive subsequent waste discharge from the Municipality to the landfill until everything is paid fully, including accumulated interest.
- The 10 Municipalities have guaranteed to MIDES to discharge a minimum amount of solid wastes at the facilities during each one of the 20-year contract. The annual total minimum amount is fixed in 360,000 tons. (30.000 ton/month).
- In case of dispute or disagreement, arbitration will take place in the city of San Salvador and must follow the rules of the Commercial Code and Commercial Procedures Act of El Salvador.

#### Opinion on MIDES Project

According to the survey in this study, the Mayors or officials interviewed stated that the biggest advantage of the project was the direct benefit related to the public health and environmental conservation. As for the biggest disadvantage, the majority felt that the high cost per ton was their most important constraint.

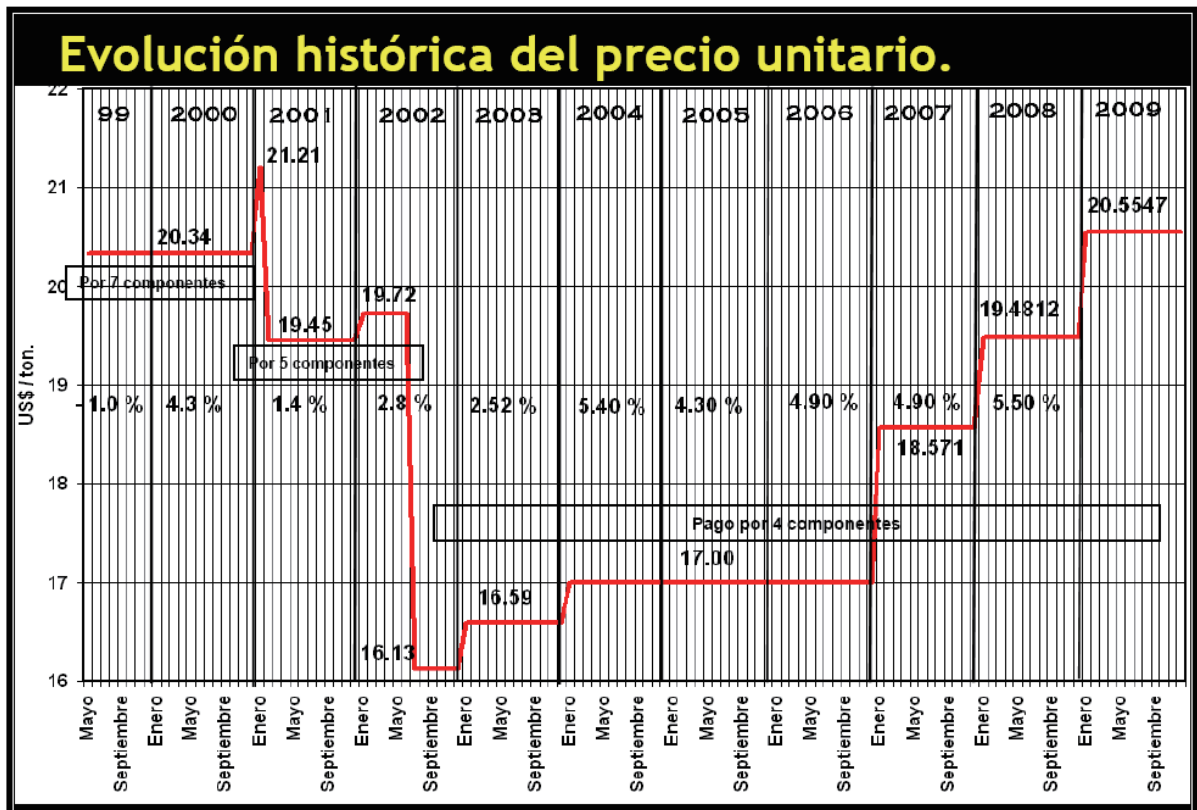
#### Findings of the technical visit

As we could appreciate, OPAMSS has a technical unit highly trained and aware of the strengths and weaknesses that possess the system of urban cleansing in the municipalities of the metropolitan area.

Something very important that contributes to the improvement of the system is that the Solid Wastes Unit measures the collection efficiency system of the AMSS as shown below:

Efficiency Indicators in the AMSS	
Loading Speed	1.63 Ton/hr/Trip
Trip per Time (going to) :	5.12 Hr.
Discharge Time	13.32 Minutes
Total Time in the Collection	3.85 Hr./Trip
Load:	6.28 Ton/Trip
Final Station Distance and Sanitary Landfill	27.91 Kms.
Distance from the Collection Site	9.52 Kms
Lineal Density of Solid Waste	0.66 Ton/Km.





After the explanation about the closure of the open-dumps, the negotiation and legal agreement, construction, operation and maintenance of MIDES's landfill which are related to the efforts of COAMSS to improve health and environmental conditions of urban demarcation, we conclude that the cost per ton is exorbitant in relation to components agreed in the contracts. Revenues from municipalities and landfill operation costs are between \$ 8.00 - \$ 10.00 per ton, as the technicians of the area explained to us. The following chart shows how the unit price falls by pressures of COAMSS due to high cost, however, MIDES also reduces the components contracted.

Through this report and as we show the waste facilities visited, we note the lack of compliance and the weaknesses that MIDES SEM has in integrated management of solid wastes.

### Visit to Transfer Station of Aragon

Received by:  
Eng. Guillermo Valencia  
Bach. Benjamin Funes  
Mr. Nelson López  
Date: 11/24/2009  
Time: 10:45 a.m.

The Transfer Station of Aragon or rather the transfer point, dispatches 8 dump trucks with capacity of 30-40 tons twice a day, i.e. handles between 500 and 550 tons per day according to experts' reports that we received. The waste received by this transfer point comes from the municipality of San Salvador.

The point is designed for direct discharge without compaction (by gravity) using the difference of level on the ground. The method is somewhat rudimentary, but it is very cheap in investment and operation, because the facility is located on private land and there are laws that limit public investment in private property. At the time of our visit a lot of waste was scattered on the site, because they were repairing the hopper 1 and working on the second phase of the point, which is the completion of a platform where two dump trucks could dump simultaneously as shown in the second image.

The access road is dangerous for loading vehicles because when they reach the site, they have to transit through a very steep path for heavy vehicles. The collection units are not weighed on admission, but in response to this limitation the municipality is in the final phase of installing a scale for that purpose.

Another disadvantage of this place, where the hopper is located has to do with the retaining wall which can collapse due to the pressure exerted by the weight of the compactor trucks and dump trucks which are operating there.

There is a small point of separation of recyclable materials operating informally on the site by the crew of the collection vehicles.

The wastes coming out of this station are destined to Nejapa Landfill operated by MIDES and the transportation of these wastes is carried out by the municipality's dump trucks and dump trucks contracted by MIDES.

Among the information obtained on this visit included the following:



- The collection of residential and ICIS (industry, commerce and institutions) waste is conducted by the same truck during the same trip.
- In San Salvador, the collection is done during daytime in residential areas and in areas where there is little commercial activity is conducted at night (e.g. Historical Center of San Salvador).
- The municipality charges the fee to ICIS by weight collected
- The concept of waste is charged in the same bill that the electricity service.
- In the Transfer Station of Aragon, the personnel consist of 32 workers who are working in three shifts, including the head of the facility, drivers of dump trucks, and assistants.
- The compactor trucks are rear-loading and have a crew of 4 persons (1 driver and 3 collectors).

### Visit to the Transfer Station of Santa Tecla

Received by:  
Cesar Flores, Head of Plant Operations  
Date: 11 /24/2009  
Time: 12:00 p.m.

This facility operates under the same concept as that of Aragon, with a discharge by gravity and a difference of ground level. Santa Tecla Station receives solid waste from the municipalities of Santa Tecla, San Jose Villanueva, Tapagualca, San Salvador and Merliot.



This station has two discharge ramps. Approximately, 7 dump trucks transport waste daily to Nejapa landfill. MIDES owns 4 of the 7 dump trucks in operation; consequently, MIDES has a bigger share of the transportation contracted to the Nejapa landfill.

When ADN team visited the Station, the operation had been detained for several days because the land is municipal, but it is managed by MIDES and we could observe that MIDES maintain differences with the mayor of Santa Tecla due to the legal agreements to transport wastes to the landfill Nejapa which is due to expire this year.

As a positive lesson from this visit, we noted that for low-income municipalities in our Mancomunidad del Gran Santo Domingo and if the landfill is located at a distance that requires an intermediate facility, this type of transfer points is a solution that would increase efficiency without making a large investment of money, although if it should take into account the procurement of vehicles for transporting wastes from the site (tractor trailers and trailers).

### Courtesy Call to the Minister of Environment and Natural Resources (MARN)

Received by:  
Mr. Herman Rosa Chávez, Minister of Environment and Natural Resources  
Mrs. Lina Pohl, Vice- Minister of Environment and Natural Resources  
Units Director MRS

Accompanied by:

Minoru Kobayashi, Deputy Resident Representative (JICA)  
Orlando Hidalgo, Program Official (JICA)

Date: 11/24/2009

Time: 02:00 p.m.



Dominican Delegation, JICA Mission, MARN Directors together to Minister Herman Rosa Chavez and Vice- Minister Lina Pohl (center)

The Vice-Minister Pohl talked of the challenges that MARN have in the field of solid wastes management and to address these challenges she has surrounded herself with highly qualified technicians of the area (most of them JICA Ex-scholars).

She spoke to us about the environmental success of the presidential decree that banned open dumps; she also mentioned that local governments are responsible for Solid Wastes Management, and the process of changing patterns by the municipalities. The two-year grace period was extended in several occasions; Mrs. Pohl also informed to us about the problems caused due to the high cost per ton charged by the administrator of Nejapa landfill.

The landfills approved by MARN are 11 and are located in the municipalities of Sonsonate Sonsonate, San Francisco Menendez Atiquizaya Ahuachapán, Nejapa of San Salvador, Suchitoto, Cuscatlan, San Vicente Tecoluca, Usulután Usulután, El Carmen / Santa Rosa de Lima of La Union, Morazan and Cinquera Meanguera Cabanas.

Additionally, the 262 municipalities complied with the creation and operation of the Municipal Environmental Units which can be considered a commitment to strengthen municipal environmental management.

The decree establishes that communities and general population, at zero hours on the 10th of September of 2007, are strictly forbidden to deposit waste in open dump-sites nor any other site which has not been legally authorized.

This prohibition applies to any person or entity, public or private, including the State and municipalities; failure to comply with this decree will cause penalties for owners of the works which can include fines of up to five thousand minimum wages according to the Environmental Law.

To comply with this mandate of Law, the Environmental Monitoring staff of MARN verifies compliance with the operational closure of open dumpsites. It has also enabled a telephone number defined as Green Line 919 for the general public to report cases of violation of the law.

As a lesson learned, we understand that our country should adopt a policy of "Zero open dumpsites" that has political, social and economic costs. However, an important step to improve environmental conditions would be to create Mancomunidades throughout the country and grant a grace period between 5 to 10 years to become adapted to the new policy. Dominican Republic is an island with very few spaces available for waste final disposal and uncontrolled dumps have spread throughout the country (in the 155 existing municipalities and also in the Municipal Districts, sections and sites).

An important point in this matter, it would be that the central and municipal government give priority in their agenda and economically to Solid Wastes Management without neglecting the green sector (tree planting, forest formation) which is currently very active by our Ministry of Environment and Natural Resources.

SEMARN, municipalities, the Dominican Federation of Municipalities (FEDOMU) and other agencies involved in Solid Waste Management must unify opinions to build a state policy in order to achieve what was stated in the preceding paragraph.

Another lesson learned is that the municipality should study well and be prepared when it compromises its solid wastes for a long period to a private sector project that might not be feasible for our municipalities.

### Visit to Nejapa landfill

Received by:

Mrs. Diana Rais, General Manager

Eng. José Echavarría

Accompanied by:

Eng. José Buenaventura Pérez I.

Date: 11/25/2009

Time: 09:00 a.m.

The Nejapa landfill administered by MIDES under the agreements mentioned in the file of "Project MIDES", receives from the San Salvador metropolitan area approximately 2,000 tons /day of municipal solid wastes, and about 200 tons of medical wastes which are treated with an autoclave.



This landfill received the first discharge on April 24, 1999, and since then has received about 4.8 million tons of wastes. Nejapa landfill is managed by a public-private partnership, 90% of the shares belong to the private sector and 10% belong to the public sector.

Nejapa landfill has a staff of 250 people, including a staff engaged in the service of collection and/or transportation. As a social component of the project, there is a clinic to treat basic health problems of the employees on the same site of the landfill.

Regarding the technical aspects we can point out the following:

- Each cell has a high density polyethylene (HDPE) geomembrane, of 1.5 mm thick. Additionally, layers of geotextile, gravel, and crushed stone are installed; this is done to prevent leachate to reach ground water table. The project has about 15 cells.
- Nejapa has an extension of 118 blocks, equivalent to about 84.5 hectares and an estimated service life of 18 years, as landfill technicians explained to us.
- There are two ponds to collect and treat leachate coming from the cells of solid wastes; in this lagoon, degradation of organic pollutants is achieved through bacterial action. Fertilizers based on Phosphate and Potassium is added to leachate to grow bacteria. Eight (8) aerators are installed to supply oxygen to the bacteria and ensure an effective mix of leachate: 5 in the lagoon 1, and 3 in lagoon 2. It is easy to orient the axes to the flexible system of machines attached on top of the cables.
- The treatment lasts about 45 days and can reduce the amount of pollutant in the leachate. After the lagoon process, the leachate is disinfected with sodium hypochlorite, which can subsequently be discharged to the local drainage network, or use for irrigation or wastes compaction, the way it is done in this landfill site, as Eng Echavarria explained to us.
- There are wells installed for gas extraction which are conducted to torches that burn gas (converting CH<sub>4</sub> into CO<sub>2</sub>), which is subsequently traded as carbon credits through a proposed Clean Development Mechanism (CDM) project. The burning of the gas plant has a capacity of 10.000 m<sup>3</sup>/hr and in the future they intend to generate electricity.
- No recycling separation plant is located in the landfill site.
- They have a treatment facility for infectious medical or pathogenic wastes, which receives 200 tons per month, and these are treated in an autoclave at a treatment cost of US \$ 220.00/ton. The tons are received in refrigerated trucks and in reusable receptacles that the landfill provides to the collectors of this special service.  
As the technician explained, the biomedical and hospital wastes has been one of the most serious problems for the environment, not only in the San Salvador metropolitan area, but across the country.  
Until June 1999, syringes, gauzes, bloody sheets, bags, catheters, among others, were sent to places that had no control and hygiene standards. In January 2000, MIDES installed the Humid Thermal Disinfection system (autoclave) to address environmental and social issues of biomedical wastes produced by hospitals and health clinics. The process consists of a boiler which produces hot steam at a temperature of 132°C. Wastes get in contact with the steam for 90 minutes in a sealed steel tank; at the end of this process, sterilization of all infectious medical wastes is completed. After wastes have been sterilized, they pose no health risk and are finally ready to be disposed in a cell with urban solid wastes.
- There is a laboratory for analysis of leachate and treatment of biomedical wastes.



### Visit to Former Mariona Landfill (Closed)

Date: 11/25/2009

Time: 12:00 a.m.

ADN team visited the old landfill in Mariona, where AMSS wastes were disposed; Mariona was closed when the agreements were signed with MIDES S.M. de CV. Mariona seems just like an empty lot because closure was not conducted appropriately in a technical manner. Gas extraction piping is insufficient (there is only one pipe in the landfill site); a leachate treatment facility is missing and it seems that there is not a tree planting recycling plan and a post-closure use of the facility (e.g. a park).

The landfill received about 3 million tons of urban solid wastes which were discharged and began to decompose under the last layer of cover material.

It is important to point out that at the landfill closure caused some social negative impacts; for example, 600 waste-pickers recycled materials to support their families and opposed the closure of Mariona, consequently, MIDES administration ordered 300 tons / day to be directed to Mariona (operating as a transfer station) to provide raw material to waste-pickers. An average of 10 to 20 tons/day of recyclable material was obtained from the waste discharged in Mariona.



### Visit Program of 3Rs "I Recycle"

Date: 11/25/2009

Time: 02:00 a.m.

Accompanied by:

Orlando Hidalgo, Program Official (JICA)

This program started on August 23, 2008, with technical support from the mayor of Santa Tecla and financial support from United Nations Development Program (UNDP), with a contribution of U.S. \$ 57,000.00, which included the purchase of a grinding machine, a plastic conveyor belt, and a small truck to collect recyclables.



The plant has a staff of 9 persons and belongs to three communities. This facility handles 5 tons a week of recyclable materials (PET, cardboard, mixed and white paper, glass bottles, cardboard egg boxes, among others which are detailed in the images presented below). The facility was designed to produce chairs, tables, among other plastic products from recycled plastic, but the machinery (conveyor, injector, and mill) which was acquired for such purpose runs with tri-phase voltage which becomes a bigger limitation to the community (there is not such electrical infrastructure).

Logistics consists on picking up the recyclables every Monday and Thursday in specific points. Subsequently, these materials are stored at the site we visited and then separated by categories and sub-categories (e.g. glass is separated; subsequently, it is crushed and categorized by colors in order to be exported to Panama and Costa Rica). Once the materials are separated in the plant, they are sold to middlemen or directly to companies that process raw materials.

An important measure we could observe is that the plant distributes reusable bags to the residents; they are used and washed after collection. Approximately 400 houses are in the project and handle approximately 5,000 bags.

The facility administrator explained to us that prices vary according to the international market and the supply and demand of local companies which purchase the products. At the time of our visit, prices were as follows:

Newspaper	— US\$7.00/quintal (100 pounds)
Paper	— US\$10.00/quintal (100 pounds)
Aluminum	— US\$6.00/quintal (100 pounds)
Iron	— US\$7.00/quintal (100 pounds)
PET	— US\$59.00/ton (100 pounds)
Plastic PEAD	— US\$8.00/quintal (100 pounds)
PC Card	— US\$3.00/lb

Here some educational materials that are used to promote the separation; these materials are used by the facility administration with the support of the Municipality of Santa Tecla.





**Santa Tecla  
MODELO de CAMBIO**

Campaña Municipal de Educación Ambiental

# "YO RECICLO"

**PLASTICO PAPEL ALUMINIO**



---

**Santa Tecla  
MODELO de CAMBIO**  
Gerencia de Gestión Ambiental

**Unidad Ambiental**

La Alcaldía Municipal de Santa Tecla, a través de la Unidad Ambiental, en el marco del Programa permanente de Separación de Desechos Sólidos, impulsa la campaña "YO RECICLO", a la cual tú puedes sumarte, ayudando a tener tu colonia más limpia, saludable y en armonía con el medio ambiente.

**Campaña Municipal de Educación Ambiental  
"YO RECICLO"**



¿Como puedes participar?

**1** Separa de la basura común y desde tu casa los siguientes materiales:

PAPEL

PLASTICO

ALUMINIO

METAL

**2** Entrega el material reciclable debidamente seleccionado al personal que pasara por tu casa debidamente identificado con gorras y gabachas de la Alcaldía.

Para facilitarte la entrega del material, la Alcaldía te proveerá un saquito para que ahí deposites todos los materiales que hayas seleccionado previamente, para lo cual es importante que leas la información contenida en el anverso de esta hoja, donde te especificamos los tipos de materiales a reciclar en cada uno de sus géneros.

**Es muy fácil!!**

---

**Santa Tecla  
MODELO de CAMBIO**  
Gerencia de Gestión Ambiental

**Estos son los tipos de materiales que puedes separar para el reciclaje**

**PLASTICOS:**

- Todos los envases retornables y no retornables de todas las bebidas gaseosas, rehidratantes, aguas embotelladas, leches, jugos y refrescos artificiales.
- Botes de aceite para cocina y de vehículo
- Botes de soluciones desinfectantes
- Todos los tapones plásticos de botellas, botes y garrafas.
- Botellas y garrafas de agua de cualquier tamaño, color y marca.
- Bolsas transparentes y de textura suave
- Botes de Shampoo y de lejía
- Jabas Plásticas
- Huacales plásticos

**PAPEL:**

- Papel Periódico Papel Bond, de contómetro y de computadora
- Agendas, Revistas, Cuadernos, libros, libretas.
- Hojas volantes, folletos, estados de cuentas
- Afiches publicitarios
- Recibos de agua, luz, teléfono, cable
- Papelitas de exámenes y evaluaciones
- Cajas de cartón y de cereales

**ALUMINIO:**

Todas las latas de aluminio de todas las marcas de:

- Jugos
- Cervezas
- Gaseosas
- Algunas de comida para gatos

**METALES:**

- Hierro
- Cobre
- Bronce
- Aluminio sólido
- Otros metales

También puedes proporcionar chatarra de electrodomésticos inservibles como: refrigeradoras, cocinas, lavadoras, etc.

Este es un proyecto ejecutado gracias a la cooperación de



Reading on Solid Wastes Management in Salvador by Eng. Mercedes Herrera

Place: JICA Office in San Salvador

Date: 11/25/2009

Time: 03:00 p.m.

Eng Mercedes Herrera a technician with extensive experience in Solid Waste Management, formerly in charge of the Wastes Unit of the Ministry of Environment and now works in the area of solid waste for a German Cooperation Agency (GTZ), explained in detail how the Solid Wastes Management has been in El Salvador over the years, and her presentation was based on the following points:

- History and Issues of MRS
- Experience of MIDES
- Current Legal Framework
- Program DAC (Decontamination of Critical Areas)
- 3Rs Activities

In September 2008, they reported 116 municipal and 20 illegal dumps, for a total of 136 open dumps. In these illegal dumps, 1188.43 Ton/day are discharged, equivalent to 37.3% of the national generation. Currently, those dumps have been closed and/or transforming them by Decree 237 of September 10, 2007, which prohibits open dumps in the country. In previous years, these dumpsites, were considered small Salvadoran environmental cancers.

Eng. Herrera explained that most of treaties signed by the State of Salvador cannot be complied because they are contrary to the internal laws of that country; for example, the treaty which regulates the access to the country of hazardous solid wastes. Additionally, Eng. Herrera presented to us a current vision and a future projection due to the problems which are generated by the prohibition or closure of dumpsites when sanitary landfills were not ready as waste final disposal sites.

Eng. Herrera predicted a drawback regarding solid waste final disposal because of the deficient negotiations conducted with the private sector. Eng. Herrera explained that the private companies have the key card in the negotiations in the final disposal area because if the Municipalities do not pay the high cost per ton, the company refuses to accept the Solid Waste.

During the visit, ADN team and Eng. Herrera discussed about the Program of Decontamination of Critical Areas (DCA) which has as main goal to help lay the foundation for environmental decontamination in the country by establishing and strengthening mechanisms for environmental management in three critical thematic areas: air pollution, water pollution and solid wastes pollution.

#### Visit to North Intermunicipal Association of the Union (ASINORLU) and Discussion

Received by:

Eng. Hugo Alexander Guerrero

Mr. Guillo Cruz, Landfill Head

Andarían Hernández. Representative of ASINORLU

Date: 11/26/2009

Time: 10:00 p.m.

ASINORLU is a federation or mancomunidad that concentrates 9 municipalities, founded 6 years ago (2003), and was selected by the Salvadoran Institute for Municipal Development (ISDEM) as a pilot project of Integrated Management of Municipal Solid Wastes for El Salvador Municipalities (PROMADES).

This plan focused on the primary problem facing the Mancomunidad at that time, there was not an approved landfill for final disposal. Each municipality had an open dumpsite in their jurisdiction which creates environmental and sanitary problems liabilities in every territory. However, cooperation was not limited to the final disposal area; the municipalities cooperated in other aspects of integrated solid waste management, including collection, transfer, promotion of the 3Rs, and citizenship education.



Under the cooperation of the Japan International Cooperation Agency (JICA), technical support from the Ministry of Environment (MARN by its initials in Spanish) and ISDEM, the landfill in Santa Rosa de Lima was designed, built and operated. Santa Rosa de Lima's landfill would serve the municipalities in the Mancomunidad and other 8 municipalities. The machinery for the operation of the final disposal site was donated by JICA to the Salvadoran Institute for Municipal Development (ISDEM); ISDEM would provide such equipment as a loan to the municipalities for the exclusive use in the landfill operation and not to be used for other municipal works which could have been the case if the equipment was donated to ASINORLU.

Immediately after the project would finish, the Mancomunidad would have to return the machines to ISDEM. It was considered that ASINORLU was going to become economically strong to purchase its own operational equipment through the collection fee to different municipalities which was not achieved because many municipalities have not paid their dues and investment is a little bit high, according to ASINORLU.

ASINORLU has also worked in the aspect of public awareness and promotion of the 3Rs, in order to reduce the amount of solid wastes taken to the landfill and to extend the service life of it. In this regard, the municipalities have established collection centers at various schools and colleges for separation at the source and sale of recyclables to collection centers operated by the municipality. There are currently 23 centers that contribute and are benefited by the sale of recyclable materials. There is an intention to expand the project to neighborhood associations, institutions and other community organizations through an intensive public awareness campaign.

### Visit to Santa Rosa de Lima Landfill

Date: 11/27/2009

Time: 11:30

This landfill is built under the Fukuoka methodology, Japanese method for final disposition, which seeks to reduce pollution by injecting oxygen into the landfill, thus reducing methane gas emissions and improving the quality of the leachate, i.e. liquids produced by wastes; it is a semi-aerobic method.

This site has been converted from an open dump to a controlled landfill with a capacity of 100 tons/day, but currently receives 56 tons/day.

The landfill has a geomembrane as an impermeable liner, lagoons for leachate treatment through recirculation and because of the operation with the Fukuoka method generates an insignificant amount of methane gas. Additionally,

the landfill also has a mesh around the working front to prevent the waste from being scattered by the wind to the surrounding communities. ADN Team did not observe birds at the site as a result of the requirement by the Ministry of Environment.

Service Life - The first stage is scheduled to end in 2012, but the intention is to extend it until 2014.

Charges for disposal are the following,



Members of the Mancomunidad	— US\$23.00/ton (8 Municipalities)
Santa Rosa de Lima Municipalities	— US\$17.00/ton (for having in their area environmental liabilities)
Non-Members	— US\$26.00/ton

### Visit to Salvadoran Institute of Municipal Development (ISDEM)

Received by:

Rosa Elena de Villeda, Orient Region Coordinator

Julio Roberto Ramírez, Municipal Advisor

Andrés Cristóbal Cruz, Municipal Advisor

Humberto Juandique, Municipal Advisor

Ana Miriam Salgado, Municipal Advisor

Date: 11/26/2009

Time: 3:00 p.m.

The Salvadoran Institute for Municipal Development is an entity of public law, specializing in the field of Local Government which has legal status and full capacity to exercise rights, incur obligations and participate in trials, has its own assets and autonomy in the administration of their property. Before of the foregoing, ISDEM is created properly in 1987, according to Legislative Decree No. 616, March 4 that year.



Currently ISDEM is strengthening the modernization of the municipalities, through the Technical Assistance, Administration, Finance and Planning that ISDEM provides them.

In this sense, the coordinator of the East Region and his team explained to ADN team the Project on the Comprehensive Solid Wastes Management for Municipalities in the Republic of El Salvador (PROMADES), which was related to the areas of generation, collection, intermediate processing and final disposal of urban solid wastes in this area of the country.

#### Project description

Solid wastes management is a shared responsibility between the Local Governments, the Ministry of Public Health and Welfare and the Ministry of Environment and Natural Resources.

International cooperation has taken actions directed to contribute to reduce this problem. Consequently, the Central Government supported by the Ministry of Environment and Natural Resources officially requested the support by the Government of Japan to execute the project on "Integrated Solid Wastes Management for Municipalities of El Salvador" PROMADES and obtained official approval in February 2004.

This particular project aims to achieve a high social impact since it is addressed to municipalities with the greatest needs, with the prospect of an imminent development in the east. In financial and economic terms, the proposed model aims to improve the conditions of coverage, implementing innovative treatments in the region and adopt economic and effective methods in the final disposal site.

The project was developed with the support of the Japanese team for 3.5 years (December 2005-March 2009); however, it is anticipated that the implemented model should operate for at least 15 years.

PROMADES Project focuses on the area of solid wastes of the 9 urban municipalities that belong to ASINORLU: Santa Rosa de Lima, Anamorós, Lislique, Nueva Esparta, Polorós, El Sauce, Concepción de Oriente, Bolívar and San Jose, located in the northern part of the Department of La Union, with a total population of approximately 114,000 inhabitants, of whom about 26,000 are from the urban area.

#### Funding:

Japan International Cooperation Agency JICA

#### Target Group:

Municipalities in Eastern El Salvador, Bolívar - San Jose - Santa Rosa de Lima - Anamorós - Lislique - Nueva Esparta - Polorós - El Sauce – Concepcion Oriente, with an estimated population of 114,000 inhabitants, of whom about 26,000 are for the urban area.

The Project has as an approach to develop capacities of the Central Government (MARN-MSPAS-ISDEM) for the promotion of integrated management of solid wastes (MIDS), and technical and financial support to a group of municipalities of medium and small size.

Financing:

From JICA: \$ 3.5 million for the Counterpart capacity development and development of the SRL Pilot Project.

From ISDEM: As part of the counterpart: 7 technicians members of UEP (full-time) and a member of Technical Committee (part-time), a representative to the Committee of the directorate upon request, and a member of the Joint Coordinating Committee upon request.

Counterpart institutions:

Ministry of Environment and Natural Resources MARN, Ministry of Public Health and Welfare MSPAS, Salvadoran Institute for Municipal Development ISDEM as beneficiary/executing the pilot project in North Intermunicipal Association, Department of La Union - ASINORLU.

Project results

The Central Government in cooperation with ASINORLU develop sustainable models in nine municipalities of the ASINORLU on ISWM.

The central government develops the guidelines of ISWM which are feasible and adapted to current conditions of the municipalities in the Republic of El Salvador.

The Central Government counterpart staff acquires knowledge and experience on ISWM.



The Central Government counterpart staff acquires the skills to increase awareness on ISWM of municipal administrators, other actors of the municipality, government organizations, and NGOs.

The Central Government develops the proposed strategic plan for promoting the ISWM for municipalities in the Republic of El Salvador for approval.

Observations regarding the visit

In their presentation showed us how the project has been developed through a guideline of activities with the participation of different actors responsible of different areas of solid waste management. This guideline is summarized in the following table.

We understand that this guideline by steps is an important example for decision making and policy creation regarding Integrated Solid Wastes Management, not only in the Mancomunidad del Gran Santo Domingo, but it is a good example for potential mancomunidades of small communities that might be created in our country.

Guide for PROMADES Execution	
Activity	Description
1. Participatory Methodology	Workshops with mayors Survey information Workshops with local actors Participatory workshops in all municipalities
2. Organizational, Financial and Legal Aspects	It has supported institutional strengthening of the Association. The costs per ton of final disposal of wastes have been calculated. The costs of operation and maintenance of Landfill have been calculated. Landfill ordinances are designed for solid wastes management
3. Collection and Transport	Analysis of collection routes. Waste generation. Estimated cost of collection. Proposal of improvements to collection routes in Santa Rosa de Lima. Proposal of system associated to wastes collection and transportation.
4. Social and Environmental Considerations	It has implemented a Family Care Program of Solid Wastes collectors in ASINORLU Final Disposal Site which was developed in three phases developed in 3 phases: <ul style="list-style-type: none"> <li>• Phase I Inductive and socialization</li> <li>• Phase II Training</li> <li>• Phase III Business Management</li> </ul>
5. Final Disposition	Improvement of the final disposal site. Training staff for operation and maintenance of the site. Construction of the landfill. Opening ASINORLU Landfill in Santa Rosa de Lima
6. Public Awareness and Environmental Education	
7. 3Rs and intermediate treatment	

### Visit to composting Plant of Suchitoto

Received by:

Bach. Nery Carolina Amaya, Head of Environment, Municipality of Suchitoto

Date: 11/27/2009

Time: 10:00 a.m.

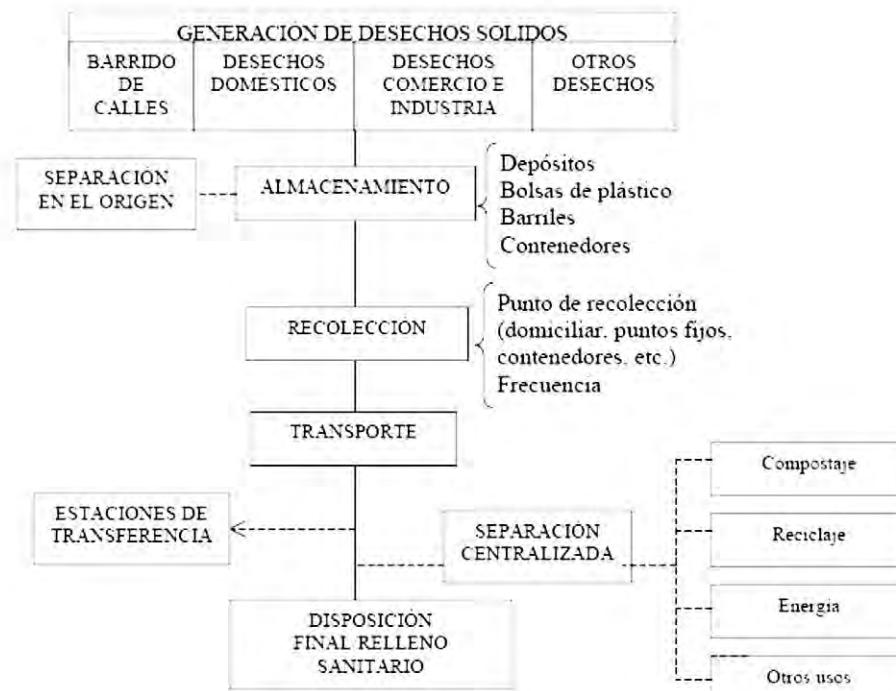
Ms. Amaya told us about the history of the city of Suchitoto in environmental matters, she explained to us that this city was devastated after the armed conflict that ended in 1992 and then was rebuilt in 1994.

After the enactment of the environmental law in 2005, the environmental unit of the municipality of Suchitoto was created which has to do with:

Monitoring of water supply operators

- Environmental Inspection
- Permits for planting, cutting and pruning trees in urban area
- Follow up of monitoring environmental commitments
- Integrated Solid Waste Management

Since 2002, the Integrated Solid Waste Management was implemented in the entire urban area, divided into six districts and four hills. The program components of solid wastes management in Suchitoto are as shown in the figure below,







In the past, there was an open dump site that was closed with the help of Decontamination Areas Program (DAC), and now in the final disposal site a combination of methods (Trenches and Area) will be used. The estimated period of operation is 20 years. In the first 10 years of operation, the trench method will be used; whereas, in the remaining 10 years, the method area will be used. According to the diagnostic on solid wastes conducted by Cesta in Suchitoto in 1999, the total generation is 3.78 tons of waste per day.

The Sanitary Landfill uses a trench-type method with an application of soil cement on the walls and the bottom. The sanitary landfill will not include a treatment lagoon for leachate, but a filter made of volcanic rocks, pipes, and gas extraction structure will be constructed for both, the landfill and the composting facility which will conduct the leachate to single deposit. Additionally, a total of four gas extraction pipes will be installed. The cost per trench is 30,000 USD and its service life is one year.



In the same place where the landfill is constructed, a composting plant operates with an annual production of 1,852 quintals of compost. We were met at the plant by the head of site Santiago Cuachin who explained to us the process.



The composting production process is aerobic between 10% to 15% of oxygen; after 48 hours that waste has been discharged, bacteria colonization begins which decompose the waste. Every 4 to 5 days waste in the piles is turned around while water is sprinkled. The piles have an internal temperature between 50 to 60 ° C where thermophilic bacteria are in charge to decompose the waste.



The complete decomposition process takes between 3 to 4 months, but the material is screened once a year between January and February; during that period, personnel are hired who screens 13 quintals for approximately US\$6.95. Four (4) separations are made with screens to verify physically if compost is ready and temperature is verified with the hand. Wastes are moved from one pile to another one every two months up to 52 weeks. The compost heaps are located in the open and during rainy season the piles are covered with a plastic that prevents water

penetration in large amount inside of them. Additionally, there is a storm drainage system with the slope with the downward gradient towards where leachate from the landfill is treated.

The compost heaps have a production capacity of 40.5 tons, and receive 5.5 tons of organic wastes on Mondays, Wednesdays, and Fridays, or about 16 tons per week.

The available area of the plant for composting is 20 m x 40 m. A total of 1850 pounds of compost are obtained every year with a yield ratio of 50%, which means that for each ton of organic waste comes out about half (0.5 ) ton as finished product (compost).



The Red Cross purchases the finished product and donates it to peasants, through a social program of this organism. Additionally, there are individuals who purchase compost condition their gardens' soil. This product is marketed at \$ 3.25 per quintal.

At the time of our visit, the store was filled with bags of compost, reflecting a low demand for it and therefore results in a bottleneck at the sieve which is closed in January due to lack of space to store the product which is already packed.

Here is one of the flyers used to achieve the source separation of different materials.

<p><b>DESECHOS ORGÁNICOS</b> Clasificación 1</p> <p>SE RECOLECTAN LOS LUNES, MIÉRCOLES Y VIERNES.</p>	<p><b>DESECHOS INORGÁNICOS</b> Clasificación 2</p> <p>SE RECOLECTAN LOS MARTES, JUEVES, SABADOS Y DOMINGOS.</p>	<p><b>BOTELLAS PLÁSTICAS Y DE VIDRIO</b> Clasificación 3</p> <p>SE RECOLECTAN EL ÚLTIMO MIÉRCOLES DE CADA MES.</p>
<p><b>EJEMPLOS</b></p> <p>Cascaras de frutas y verduras Poda de jardín Cascarones de huevo Hojas de los arboles Tuzas Ceniza Achaco de café Desperdicios de comida sin grasa</p>	<p><b>EJEMPLOS</b></p> <p>Bolsas plásticas Zapatos viejos Estopa de coco Huesos de pollo Espinas de pescado</p>	<p>Los plásticos tardan más de 500 años en descomponerse. Si los quemamos, ocasionamos un grave daño a nuestra salud y el medio ambiente.</p> <p><b>EJEMPLOS</b></p> <p>Botellas de bebidas Botellas de agua, aceite, gaseosas Botes de medicina</p>
<p><b>Si los desechos están revueltos, el tren de aseo no se lo recolectará.</b></p>		
<p>Alcaldía Municipal de Suchitoto - Si tienes dudas, llámanos a los teléfonos 2335-1120, 2335-1041 o 2335-1782.</p>		

### H.3 Cuba

#### Courtesy visit and discussions with the Provincial Direction for Community Services (DPSC its acronym in Spanish) in Havana City.

Arch. Odalys Garcia, Chief of Development and Investment Group for DPSC

Inside the framework of the courtesy visit, we discussed the expectations about our visit and received an explanation on how the cleansing system in Havana City works from its administrative organization to its operational one. We had a discussion regarding the similarity of JICA projects in both cities and how it would help to exchange experiences on common issues.

The Province Direction for Community Services in Havana City is responsible for the City's cleansing. Havana city is divided into 15 municipalities.

Havana city has a population of approximately 2,200,000 persons and a floating population of 1,000,000 persons; they live in an area of 727 km<sup>2</sup> which corresponds to 0.7 percent of the country's area for a density of 2,913.2 persons/km<sup>2</sup>. Havana is the province with the highest population density in the country; furthermore, it concentrates the main service centers, a large number of industries, and a strong touristic activity. Because of the foregoing, between 1, 500 and 1, 800 tons of waste are generated daily which are calculated by using average volume (in m<sup>3</sup>), taking into account that there is not any weighbridge in the final disposal sites.



#### Visit to Biodigester Facilities

Eng. Andrés Ruiz, Eng. Castellanos

It was conducted a visit to the Biodigester facility which operates as a pilot project since 2008; it is manufactured in China. The Biodigester generates electricity and methane gas by using between 15 to 20 m<sup>3</sup> daily of organic material.

The Biodigester receives market waste and they are mixed with tobacco chips which are brought by the national tobacco company to keep an adequate pH balance.

Currently, the plant has a generator with nominal capacity of 40 KW and biogas with a composition of 68 to 70% of methane. The energy generated is used for lighting in the workshop and methane is used for cooking.



### Visit to the Compost Plant Facility

Ing. Andrés Ruiz

Currently, the composting plant facility is not operating because it is being re-organized; subsequently, material will be taken from the dumpsite to produce compost. The plant has a grinder.

In most cases organic waste from two (2) hotels and a market is used.



Visit to Dumpsite Calle 100

Sr. Pedro V. Pérez Chief of Technical Department, Landfill Unit.



Dumpsite Calle 100 has more than 30 years of operation. It is a dumpsite with 104 hectares with similar characteristics to Duquesa. Regarding solid waste treatment, approximately 3,000 tons of wastes are discharged daily and coverage is made with materials obtained in the same dumpsite.



Currently, there is a gas extraction Plant as a CDM project which is being expanded; the dumpsite is under preparation for a new process to construct cells and to increase its service life for other 2 years until studies for a new site are finished ; this site will be located to 10 kilometers from the current site.



Visit to Workshop for Heavy Machine, Dumpsite in Calle 100  
Mr. Pedro V. Pérez, Chief of Technical Department, Dumpsite Unit



The dumpsite manages its own vehicles. They account for 3 wheel loader, 1 bulldozer, and 1 excavator. In the workshop, maintenance and repairs of heavy equipment are conducted.

### Visit to Gas Extraction Facility in the landfill (CMD Project)



Currently, the Calle 100 dumpsite has gas extraction facility with a total of 168 wells with the purpose to obtain 1,000 KW from burning, not for electricity generation until now.



### Visit and Discussion at the Central Workshop, UPPH

Eng. Raúl Aguilar, Vice-director of mechanics, Eng. Felix Abreu, Administrator of collection vehicle workshop, Eng. Fernando González, Vice-director of Securement, Eng. Nuris Cardenaz Repair and Maintenance Specialist.

The visit to Central Workshop was divided into two (2) main parts, the first one was a technical discussion about maintenance procedure and regulations in the workshop, and a second workshop included a guided visit to all workshop areas.

In the first part, we focused on several basic issues such as general workshop management.

Daily technical maintenance is conducted daily by the driver vehicle. Technical Maintenance I, II, and III are technical maintenance types which are frequent and planned.

#### **a Maintenance Planning**

##### **a.1 Annual Plan**

This plan is conducted with the purpose to plan the purchase of consumables and pieces to guarantee yearly maintenance. We were provided samples for this type of plan which would be very helpful to execute our plan.

### Monthly Plan

This plan is conducted to ensure workshop availability and prevent any negative effect on the technological flow. We implemented examples of this monthly plan.

1. Cleansing and washing.
2. Lubrication.
3. Tightening.
4. Regulation and adjustments.
5. Verify situation and stock of materials.
6. Electrotechnical.
7. Tires.
8. Panel beating, upholstery, glass, and paint
9. Complementary.



Other issue which we reviewed was documents and controls which are part for all workshop management because they use defined controls for national transportation norms.

We reviewed and implemented examples with control formats of the route sheet, maintenance control and occasional repairs, vehicle movement in the workshop for repair and maintenance, report about repair cost and spare parts used, control about gas and oil consumption, and report on warehouse spare parts flow.

Regarding management of vehicle procurement and warehouse, we observed many important issues such as:

1. Technique of equipment selection, with regards to economic and technical issues: capacity, compatibility, type of fuel, how to elaborate a TOR, guarantee, and maintenance after purchase.
2. Planning of maintenance: based on annual and monthly maintenance plan to secure adequate spare part and fuel supply for maintenance.
3. Listing of request for spare parts, based on brand and model, chassis VIN, code according to catalogue, number according to demand, and correct description of the article,
4. Warehouse treatment: existing warehouse norms, control of spare parts, reception, location and storage card. Parts such as tires, batteries, paint require a different treatment to other parts.



The second visit to the workshop was a guided visit to one of the areas:



**Fuel Service:** which is currently used in emergency cases because there is a new directive to provide cards for refueling at public gas stations.



**Tire repair (Gomera):** all the work is manual and it is very important to control tires through number of brands which would help to define the tire's service life all the time.



**Hydraulic and Electricity:** they work in similar conditions to us; the main difference is that they have equipment and personnel who is capable to conduct repairs in hydraulic pumps.



**Welding:** this is one of the main problems found in the new Chinese vehicles due to steel quality; it is one of the areas with heavier work load because there are many units out of service.

**Mechanics:** one issue to highlight is tool management; they have a tool room which is a good management example for us. It should also be noted their great capacity and ingenuity to adapt any pieces.

**Lathe and Metal-mechanical area:** they have the same limitations that we have with regards to equipment, but they also have highly qualified staff.

**Warehouses:** Due to physical space, there are 3 warehouses, one which has consumables, another one which has spare parts, and a warehouse which has spare parts not in use.



Courtesy visit and Discussions with Donation Director for International Relations and Cooperation for the Provincial Administrative Council

Mr. Gastón Gorita Mrs. Ivette Reyes Agüero

During this visit, it was submitted a letter addressed to the President of the Provincial Administration, Mr. Juan Contino Aslán. In this letter, Mayor Roberto Salcedo introduced to Cuban officers the members of ADN delegation and referred to sisterhood links between both cities.

It was studied the possibility to donate some pieces and spare parts for vehicles that ADN has in no use which could be useful for our Cuban brothers. It was reviewed the means and manners to concrete such donation.

## H.4 Mexico

Monday, february 21st

Conference: “Ecodesign and certification of green products”

Eng. Alejandro Sosa Reyes



The conference took place at the offices of the National Center for Research and Environmental Training (CENICA). The speaker emphasized the convenience to purchase green and eco-friendly products to mitigate the negative consequences to the environment. It was conducted a very interesting group dynamics in which participants could compare concepts related to sustainability, environment, sustainable production, responsible purchasing and consumption. Similarly, it was evaluated the

concept of goods consumption on the basis that they had been produced with materials from the first cycle of use and their utilization would allow subsequent recycling.

Conference: “Requirement to encourage green products and purchasing”

Eng. José Alberto Pliego Steta

This presentation was directed to raise concious awareness to those responsible to purchase in our institutions with the purpose to promote and encourage that public procurement practices are sustainable, for the case when purchasing power is compatible with the environmental protection interest.

In this sense, Mr. Pliego explained the role of the Mexican government when conducting public acquisitions with the objective to attain sustainable economic, social, and environmental results, for example:

- To prioritize and guide by example
- To prioritize the needs and effective distribution of resources
- To train personnel for acquisitions
- To eliminate financial obstacles
- To create opportunities

When this criteria are combined, we attain sustainable public acquisitions and improve the image of the public management, reaching high sustainability levels and improving the quality of life for citizens.

### Conference: "Waste Valorization"

Cristina Cortinas de Nava, PhD

Cortinas, PhD, taught us to evaluate the offer of valuable waste which has special management, beginning with the report presented by generators to the authorities related to the volume and composition of wastes that generators should show to the authorities and their possible management plans.

In her speech, Cortinas, PhD, emphasized the importance to develop a citizen culture based on waste reduction, reuse, and recycling. For that purpose, it is indispensable to account with the formal and effective comprehension of educational institutions from the elementary level to the highest level through a strategy which involves directive and administrative personnel, professionals and researchers, students, and parents with an influence toward the neighborhoods in order to implement 3Rs schemes.

When the guideline about waste valorization is produced, it is vital to identify to whom it is directed, taking into account that the most important issue is not to create the law, but the application of practical guidelines for waste valorization and attaining the comprehension of educational institutions from the elementary to the highest level.

During this conference, we conducted a practical exercise on how to produce a sustainable valorization guideline.

Tuesday, 22nd February

### Technical Visit: Pet Recycling (Pet Star)



PetStar is a Mexican company established on the 27th of June, 2006 with contribution of capital by PASA and AVANGARD in order to implement a recycling project for plastic bottles. It is a project which favors the environment in compliance with the environmental regulation and social responsibility in the supply chain.

PetStar is known worldwide due to the transformation of recycled materials through excellent manufacturing in view of sustainability, generating value continuously for the different industrial groups.

Pet Star company conducts a pet to pet process supported by a chain or pool of recovered pet material nationwide under the sponsorship of the organization Ecology and Corporate Responsibility (ECOCE, in Spanish acronym) which is the largest PET collector in Mexico (30% of the share vs 70% by others) that allows them to collect up to one million bottles per

year and recycle them to produce once again PET bottles of high quality which are required mainly by soft drink bottlers.

At the arrival to the plant, the compacted bales made of bottles (weight between 350 to 450 kg) and PVC is broken down and are prewashed before going through a rotational drum to eliminate impurities. Subsequently, the material goes through a machine to extract and filter the liquid, the impurities are taken to a waste container which compacts them. Afterwards, the material goes through infra-red detectors to verify impurities with the purpose to eliminate PVC, ferrous and non-ferrous metals which could have passed through the previous filters. Through the blowing process, impurities are extracted and it is recirculated to recover PET which has passed after blowing. The main reason to extract impurities is because they are melted at different temperatures, consequently, stains might appear in the bottles produced.

Through a floating process, caps are separated which are used subsequently to produce black plastics. Afterwards, they are washed with soda such as detergent and surfactants. With filters, the glue from labels is extracted and they are crushed, becoming plastic flakes which pass through a centrifuge to a vibrating table that separates them in different diameter sizes; in this way, food grade bottles are generated.

The supporting technology for Pet Star plant is from Italy; the equipment is AMUT (for everything related to washing) and from Switzerland there is VOHLER (extractor to produce amorphous pellets). The dry flakes are passed through mixing belts with a tolerance up to 40 parts per million of PVC as limit; it is only sought a clear blue and light blue. Subsequently, through chemical reactions pellet changes to a opaque color and increases its specific weight (resin) which is the manner how it is transported to the bottling companies. A gas and mass chromatograph is used to monitor the quality of resins which should be of natural color, rejecting those with colors.

The Pet Star company informed that it is in compliance with their own policies of environmental responsibility; going beyond national Mexican standards and it is undertaking policies of social responsibility such as actions to reduce the role of underage waste-pickers, and improving the quality of life of waste-pickers, along the supply chain. For example, it is conducting a differentiated payment to waste-pickers whose kids go to school. Pet Star is considered as a clean industry by the Mexican national norms.

Regarding environmental responsibility, the company undertakes pending actions to reduce water consumption, reduce energy consumption, eliminate gases or substances which contribute to global warming, economic optimization of non-renewable resources, development of educational projects, and development of permanent actions of social responsibility to interact with the environment.

In Mexico, the production of PET bottles from recycled material is regulated, the composition should be 60% from virgin resin and 40% from reused resin. Even though some bottles can be produced with 100% recycled material which is the most complex process.

The company defines as strategic factors, which have been taken up by its 100 employees, the following:

- To have high level clients
- To control supplies
- Reliable technology

In the current development phase of the company, 30,000 metric tons per year of natural color PET are produced; it is foreseen a second phase of 60,000 tons per year. The plant receives 3.3 tons of flake per hour and produces 2.4 tons of chrystalline pellet per hour. The plant maintenance is programed and should not exceed 16 hours. The material has a reciclable index of 7 times. 4% of recycled PET is consumed in Mexico, the rest in China.

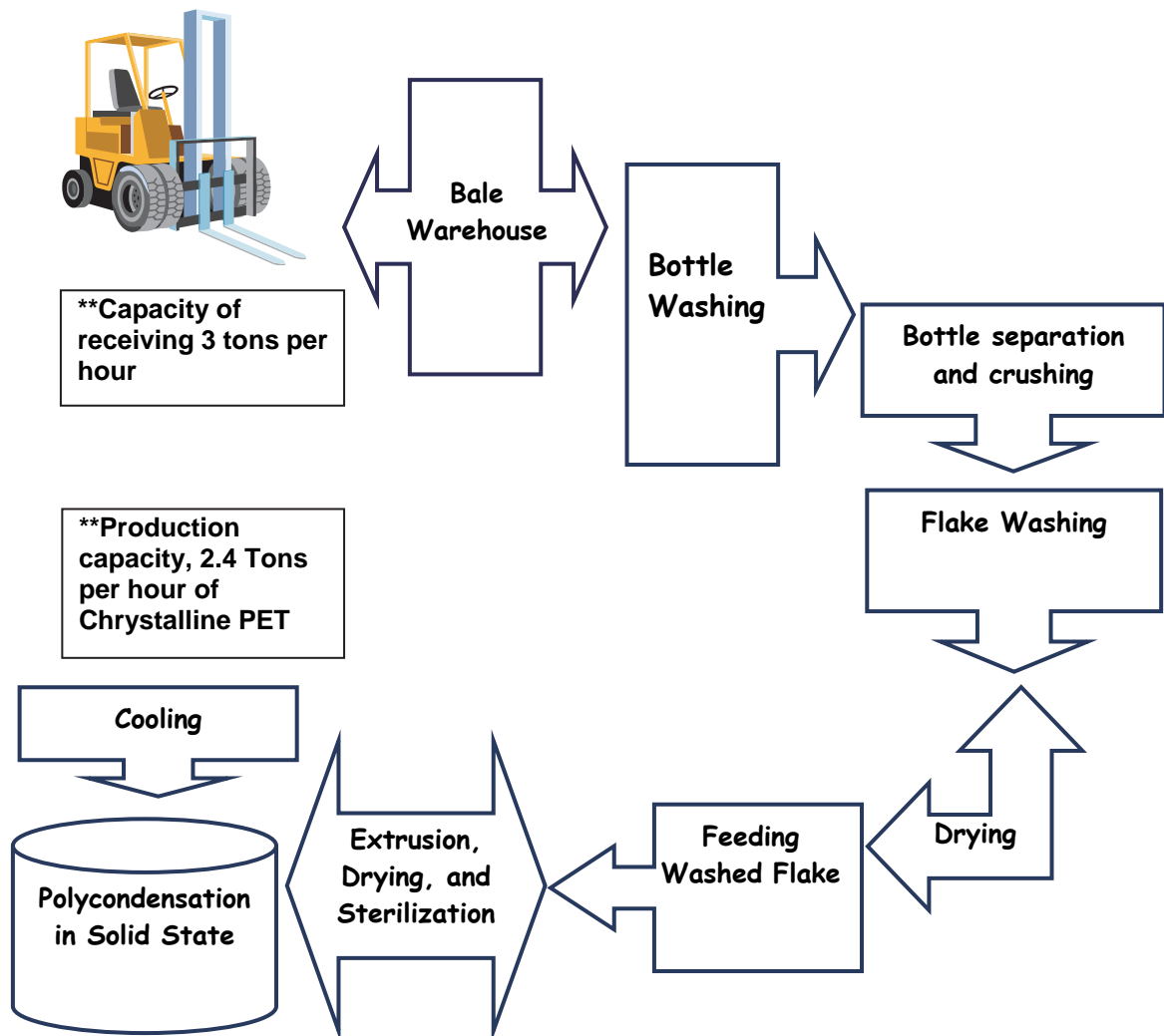
### a Objectives of PetStar

- To use non-renewable resources
- To have influence on the education and culture of new Mexicans generations
- To create projects of social responsibility in the supply chain

### b Strategic elements of the project for the success of PetStar Project:

- To have high level clients
- To control supplies
- Reliable technology

### c PET Treatment Process



Technical Visit: Glass Recycling (Vitro)

Conference: "Experience of Glass Recycling"

Eng. Javier Leal Orta



We began the visit to Toluca Glass Manufacturing S.A. in the raw material area by certifying that the main components to produce glass are silica sand, calcium carbonate, feldspar, and limestone. These materials are stored in silos of 1,400 tons capacity and mixing of these materials is conducted as a function of the material requested; for this purpose strict regulation of material quality and mixing should be followed, the company accounts with credited suppliers.

There is a weighing system very precise to elaborate mixtures which are pre-established as a function of the product to be obtained. It is required a high precision, consequently, weighbridges are calibrated twice a day. After the mixture is elaborated, it is taken to the furnace fueled with natural gas to temperatures up to 1,500 degrees.

It is used 15% of the material recovered in the same process or recovered in the market by an associated plant. Density controls are conducted to guarantee the quality of the fused which can be achieved by reducing gradually the temperature.

Established in Monterrey in 1909, it is ranked in fourth place in glass exportation to the United States and first place in flat glass. The company consumes 1134 tons per year and produces 2 millions 300 thousand containers. In 2009, it recycled 128 mil tons of glass in all Mexico. The plant only produces chrySTALLINE glass out of which 15% is recycled material and 85% is virgin material.

The process of melting the mixture goes from the silos to the furnace, 260 tons/day of material pass from the silos to the furnace to produce liquid glass which is subsequently subject of refining.

The plant consumes natural gas which is received through a pipeline, but also accounts with units of Liquefied Petroleum Gas and Diesel to guarantee the production process.

The plant has 650 employees and it is in compliance with OSSA 18000 regulation which is undertaking a LCM (Loss Control Management).

The lines of work are glasses:

- Flat glasses through the recovery of vehicle glasses (wind shields)
- From hazardous wastes
- Market glass for packages and drawings of general use.

Types of packages which are recycled

- Colored glass: amber, chrySTALLine, green, blue
- Liquors
- Package for Perfumes
- Package for Medicines

Glass recycling reached 128,000 tons per year in 2009, 107,000 tons in 2010.

The characteristics of the glass material which is more appealing has to be hygienic, transparent, and can have different colors, inert, clearness, variety of shapes and textures, and it is 100% recyclable.

The company conducts 296 recycling programs at schools, hospitals, clinics, hotels, bars and restaurants; the purpose is to separate by colors (chrySTALLine, amber, green, and blue), specifically, recovering programs such as glass to glass in hotels and restaurants should be developed.

RESICLA is a program with points awarded to a card through the contribution of glass receptacles in commercial stores that apply the economic/monetary difference in favor of homes with disadvantaged children.

Wednesday, 23rd of February

Technical Visit: "Recycling Plant for Construction Waste in the DF" (Recycled Concrete)



Recycled Concrete was established in 2004. This company has the support of the Environmental Ministry and Construction Chambers because it tries to mitigate a large urban problem as a result of debris and demolition waste. It is estimated that 5,600 tons are generated in the Federal District each year.

Local regulations force the constructors to manage 10% of these wastes in the same work site and encourages or promotes that the remaining is managed by specialized companies approved by the Environmental Ministry. These wastes in special manner can be applied to granular sub-base for roads, parkings, sub-grade, embankments, bike lanes, sanitary landfill cover, sub-base for secondary roads, parks, gardens, sport centers, and soil remediation.



These wastes are totally recyclable, save fuel by reducing the haulage distance and, consequently, associated pollution emissions and the reduction in the use of virgin material. Similarly, they contribute to the eradication of illegal dumpsites.

The total solid waste amount in Mexico is 95,000 tons per day; one third of these wastes is construction and demolition wastes (CDW); unfortunately, they are disposed at open dumps, in ravines, although in some cases, they are used to fill roads.

The CDW can be recycled adequately, but they should be without organic waste, plastic, paper, textile, and glass. Its storage in the recycling plant is done in four different groups of materials:

- Simple Concrete
- Mixed Materials
- Clay derived from excavations (it can not be silt nor sludge)
- Milling materials.

Its processing begins with crushing and classification which is done with mechanical equipment that is operated at remote control (british manufacturing). Subsequently, the material is sieved into four different grain size distribution.

During 2010, the company managed a little bit more than 500,000 tons of CDW, while for 2011 it has managed to place a significant amount in the market for the first time, almost three times the amount in sales of 2009. Although this is not the only source of income because the Mexican Federation Norm allows to charge for raw material received which is 1.5 times the value obtained through the sale of recycled material in the plant; this Norm is the 4.01.01.029, NADF about construction waste which also regulates the percentage of impurities in the recycled material generated by the plant which can not be higher than 2% of impurities. Similarly, it also restricts the use of recycled materials in construction structures and regulates the authorization of construction debris storage areas.

The company processes 500 cubic meters per day for a total of 100 tons per day. The materials recycled can be used in the production of Hot-Mix Asphalt (15-45%) and Cold-Mix Asphalt at approximately 85%.

Technical Visit: "Visit to Paper Mill San José S. A. de C.V."

Conference: "Experience of Paper and Aseptic Packages Recycling"

Eng. Pedro García Candas

To produce one ton of paper, it is required to consume 17 trees which generate three cubic meters of waste, it is consumed 1,400 liters of fuel and 26,500 liters of water.

San Jose Paper Mill initiated 10 years ago a strategic transformation to become a paper producer based on recycled material (paper and aseptic packages). These materials are obtained in dumpsites and recycling centers which are received in the plant; they are washed, crushed, and pass through a magnetic trap to extract impurities. Subsequently, they are crushed during 30 minutes; a separated process for two layered materials, aluminum glasses, and three layered materials (Tetrapak Type), but containing aluminum.

The aluminum extracted is sold in cement plants, whereas a part of plastic is burned, but low density polyethylene flakes are commercialized.

The plant began to operate 57 years ago; however, we could notice that the factory was disorganized, with low safety, insufficient signals, deficiencies in wastewater treatment. Subsequently, after passing by the mills, a pipeline system transports the cellulose without

water to the press through conveyors. A process of fibers weaving through a sieve makes the cellulose to become cohesive before it is going through the mill and press where operators regulate the weight and color.



The company can produce paper between 49 to 200 grams/m<sup>2</sup> (for example, paper Bond weighs 75 grams/m<sup>2</sup>), as well as to print up to 105 colors before the paper web goes to the cut and packing area. Ninety percent (90%) of the material consumed by the company is aseptic packaging type and the remaining 10% other type of papers.

The company began operating to change raw material in 1973, however, at a small scale. By 1994, fifty percent (50%) of the paper produced was based on recycled material, reaching 100% by 2003. Currently, forty (40) tons of waste are produced per day and owners show satisfaction for having taken the decision to change their process because recycling has saved them electricity and water; additionally, less waste is generated and has proved economically feasible. It can be summarized that a company which imported cellulose as raw material to produce white paper, currently, has as motto "From Aseptic Packages to White Paper."

The use of cellulose generates two different types of product: brownish cellulose (carboard boxes) and white paper production which requires 8 steps for whitening, as well as using sulfuric acid.

San Jose Paper mill not only uses 100% recyclables as raw materials, but it is also free of acids in their processes without affecting the quality of the finished product. Mills receive 60% of industrial packaging and 40% post-consumption. Paper can be recycled from 7 to 8 times.

#### **d Problems:**

- Shortage of Aseptic Packages
- Unfortunately, it is mixed with waste
- Only a small amount is collected post-consumption
- Resulting polyethylene is low commercially due to humidity and pollution with paper fiber

#### **e Solutions:**

- To raise concious awareness that aseptic packages can be recycled
- To use polyethylene in the same plant

Thursday, 24th of February

Technical Visit: Technological Waste Recycling Plant (e-waste) PROAMBI  
"Responsible Recycling"

The plant visited is dedicated to manage discarded electrical products. Its adequate management is very convenient for the environment due to the high risk produced by its emissions, separately or associated with other elements.

The most important emissions are mercury, cadmium, beryllium, among other heavy metals; although there are also traces of silver and gold, as well as copper. The integrated waste management law of Mexico, in the article 19 takes into account the technological waste.

However, it is not limited to electrical and electronic waste because also the chemicals previously mentioned are hazardous due to the structures which contain them that are made of PVC and they also should be disposed adequately, either if they are ferrous or non-ferrous mixtures; additionally, transformers of electricity should be disposed of adequately.

As an example of potential pollution, a ton of aluminum could mean the destruction of 4 hectares of forest and the consumption of 8 barrels of oil, but recycling aluminum could mean the consumption of 4 barrels.

During the visit, representatives of Costa Rica mentioned that as part of the general law for solid waste in their country, there are regulations for e-waste management when generation can be defined higher than 15 tons.

Conference: "Municipal Experiences on 3Rs: Case Study Cancún (Reciclato)"

Biól. Benito Morán Bañuelos



The presentation by the representative of Yucatán was based on Ecopuntos and Reciclato experiences which are conducted by an organization called sustenta.com. These eco points are storage areas for recyclable materials which are implemented in coordination with companies such as Bimbo, Coca Cola, Pepsico, and Tetra pack.

The organization of a Reciclato is done through the implementation of a massive separation campaign and discharge of recyclable materials which is done once a year in a public area in Yucatan.

As additional information, the representative of Yucatan criticized the collection service contractor called DOMOS which has been responsible for 20 years of collecting waste in the city (900 tons per day) at a cost of 30 USD per ton; this amount is considered high by the Mexican speaker, however, the Dominican representatives estimate that the fee should be higher to cover the real costs of the service.

Friday, 25th of February

Technical Visit: "Iztapalapa Transfer Station"

Mr. Cuellar



We visited one of the 11 Transfer Stations in the city and it is located next to the Central de Abastos market. We were pleasantly surprised by the Station management regarding order and safety. The Station has 4 hoppers, two of them are dedicated exclusively for organic waste. The Station operates 24 hours a day; in this period, there are 500 trips per day done by 250 trucks which are transported to the sanitary landfill, to the composting plant or the recycling plant, depending on the case by 50 trips of tractor trailers/day.

The tractor trailers are contracted to the private sector; each one has a capacity of 70 cubic tons which are equivalent to 28 tons; they are commonly of the type fixed flat floor. The time of largest traffic jam is at noon because collection begins at 5:00 am and sometimes cover large distances.

The Station has many sprinklers which apply germicides and fresheners that eliminate greases. Dump-trucks are washed with hydro-washers to extract waste just before the area where canvas are placed. A workers crew fumigates for pest control.

The Station has 150 employees to cover 2 connected stations which manage 1,100 and 1,400 tons each one for a total of 2,500 tons.

Dump trucks have GPS service; all of them have the same color and are adequately labeled, but the Radio Frequency Identification (RFID) was not evaluated as a positive experience because of difficulties to receive the signal.

The Transfer Station has a system of air filters as well as soundproof material, through a series of panels in the structure of the lateral walls.

#### Technical Visit: "Plant to Classify Recyclable Materials"

Mr. Cuellar

We visited one of three classification plants for recyclable materials which were built by the government of president Carlos Salinas de Gortari as an integrated solution with the operation of Bordo Poniente sanitary landfill more than 16 years ago.

The plant is managed directly by a Recycling Union since its construction. This plant operates during 20 hours with four conveyors. In this plant, 1,500 persons work and processes 1,500 tons. The plant separates glass, paper, cans, and cardboards. It is recovered a 10% of recyclable materials which are commercialized directly by the administration and the 90% remaining is taken to Bordo Poniente Landfill.



This model did not seem suitable to our experience because it required a large investment for the plant construction and its operation requires subsidies permanently.

### Technical Visit: "Bordo Poniente Sanitary Landfill"

Mr. Cuellar

Bordo Poniente began to operate in 1985 just after the earthquake which shook Mexico city. It initiated:

- first phase with 70 Ha
- second phase 70 Ha
- third phase 104 Ha
- fourth phase 375 Ha
- fifth phase 427 Ha

Initially, the landfill was operated with terraces of 8 meters high; for the fourth phase, terraces from 12 to 15 meters high were constructed. The complex of areas which were occupied has wastewater treatment and geo-textile membranes to prevent leachate infiltration.

Leachate control has been a permanent concern due to an existing aquifer at 120 meters deep whereas the operation has caused subsidence between 4 to 8 meters because of plastic soils, groundwater level increases to approximately 2 meters deep due to an ancient saline lake. Gas extraction efforts are being developed which includes generation of Carbon Credits and sale of electricity with the purpose to cover landfill closure costs which is foreseen by the end of 2011.



This closure seems unlikely in spite to have been able to reduce the discharge at the landfill from 12,500 tons per day to 9,500 tons per day. As an alternative, it is being developed an alternative emergency landfill which could handle up to 50% of wastes and is located to 24 kilometers of distance.

It is evident the disagreements between the authorities of the Federal District and the State of Mexico as part of the strategy to close the sanitary landfill which is due to partisan political reasons; however, closure is an imperative task which has led the property managers to develop ideas to increase prune and market waste composting, to look for an emergency sanitary landfill, and to promote waste minimization.

#### Technical Visit: "Composting Plant"

Mr. Cuellar



The composting plant has eight hectares which handles between 200 to 300 tons per day and it is foreseen an increment up to 2,000 tons per day. It initiated in 1994 with the cooperation of JICA which provided equipment and training to the personnel.

Currently, the plant has 200 employees. In 1998, it was expanded. Equipment was also procured. The plant operates with a shredding machine with blades in two parallel lines where the organic material for the feeder goes through a conveyor to the hopper. It has a lab to control the physical and chemical variables, basically, humidity and C/N ratio.

For prune and other waste management, the plant has mini front loaders, tractor trailers; additionally, there are brush cutters, hedge clippers, and chain saws. The shredded material is transported in trailers to the degradation area where dry air and evapotranspiration in the area make them to diminish up to 50% of its volume in order to, subsequently, use the sieve to separate waste, mainly plastic.

The compost area is 16 Ha and it is considered the oldest and largest composting plant in Latinamerica and the Caribbean. The compost produced is used for parks and gardens and it is adding space for agricultural purposes. Currently, it receives 100 tons of prune waste and 100 tons of market waste (average per day), even though it can manage adequately 300 tons with existing capabilities.

The degradation piles are also used for burying and decomposing meat, animal grease, and dead animals which is achieved because internally piles reach up to 60 degrees Celsius. In the plant, 43 women work, 6 of them operating equipment which looked a result of the praiseworthy dynamism of the Director.

Currently, a sieve which is one fourth of an inch is operating; it can be regulated and is capable to handle 50 cubic meters of organic material in 8 hours. The resulting shredding produce between 4 and 6 tons of material for each 70 cubic meters of branches. Now, research is being developed about micro-organism which are favorable for decomposition.

In order to meet the target foreseen by the end of the year, it has initiated the process to procure new equipment. However, being a complex process, it is required 30 days for degradation and 90 days for maturation, it is highly unlikely to expand in the short term available.

Consequently, there is some concern of not being able to meet the 2,000 tons per day by the end of the year that the department proposes as an alternative to the closure of the actual Bordo Poniente sanitary landfill.

Conference: "State Experience in 3Rs: Experience of Jalisco Government"

Ing. María del Consuelo Correa Vela

The presentation by Eng. María del Consuelo started by explaining which organizations had the responsibility and under which criteria each of them act; the Municipalities are responsible of household waste, Federal Entities are responsible of special handling, and lastly the Federation manages hazardous waste.

In Jalisco, waste separation is mandatory since October 16th, 2008 through law NAE-SEMADES-007/2008 as a result of a mandate of the general law in which waste valorization is a responsibility of those who generate them.

It is established through a mandate that wastes should be separated and classified in the generation source promoting its reduction, facilitating its reuse, selective collection, and valorization. For primary separation: organic, inorganic, and sanitary; there is no need to locate the last one in the same area. For secondary separation, it will be included initially the container for the organic part, followed respectively with containers for paper and cardboard, metal, plastics, textile, glass, and waste which is difficult to recycle.

Currently, authorities are proposing to establish an environmental culture, as well as to involve all those informal recyclers who operated in their territory.

2012 is the target year for 100% of municipalities to have selective collection waste and achieve, at least, 50% of valuable waste is included in the recycling and composting process. There is the inconvenience that there are not regulations for construction waste management which represents 45% of the total waste (76,000 tons/year) of these materials.

Currently, there are 259 companies dedicated to waste management which are divided into 200 dedicated to storage and waste management which has already been separated to be recycled subsequently; 46 which are dedicated to recycle cardboard, plastic, metals, and glass; and 13 specialized in organic waste management.

They possess as part of their work program, tire storage centers for vehicles, batteries, cell phones, e-waste, strategic plans for vegetal oil management, and organic waste.

Round Table: (State and Municipal Government Officers) "Keys to establish a 3Rs scheme for Business Opportunities in the Central America and Caribbean Region"

M. Eng. Gustavo Solórzano Ochoa



During the Round Table coordinated by professor Gustavo Solórzano, it was given the opportunity to present to the panelists and intervention by participants. Some points that were discussed are listed as follows:

Establishment of green businesses, even if there is an adequate development, there is still time for its consolidation.

- Obviously, for the definitive establishment of these types of business, the concept of economies of scale should be taken into account.
- It was discussed that there is not enough business infrastructure with clear definitions which allow that supply and demand of recyclable products can flow smoothly.
- It was emphasized the need to reinforce the educational and training processes.
- It was agreed that there is a tendency today which favors the market for environmental services and products.
- The need to unify criteria in the sense to promote continuously conscious awareness about responsible production, responsible purchase and consumption to guarantee a responsible discharge by citizens which lead to Integrated Solid Waste Management in an environmentally sustainable manner.



# **Annex**

## **I. Capacity Assessment for individual C/P**

Individual capacity evaluation in for each group is shown from next page.

1. Individual capacity evaluation of counterpart group on “Solid Waste Management”
2. Individual Capacity Assessment of the Counterpart Group of “Vehicle Maintenance Management”
3. Individual capacity evaluation of counterpart group on “Solid Waste Education and Awareness Raising”
4. Individual capacity evaluation of counterpart group on “Waste Minimization / 3Rs Promotion

## Individual capacity evaluation of counterpart group on “Solid Waste Management”

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

### **Activities**

- 1. Review the current status of Integrated SWM and identify issues to be addressed.**
- 2. Review and analyze the implementation status of the Integrated SWM Plan (M/P)**
- 3. Review/develop targets and action programs of Integrated SWM Plan towards 2011 and 2015.**
- 4. Prepare training materials on SWM planning to support other municipalities.**
- 5. Conduct training and workshops on SWM planning to support other municipalities using the above mentioned materials.**

It was elaborated an instrument to evaluate the development of individual capacity of counterpart members in the period from July 2011 to July 2012, about:

- a) The various waste management issues raised in the Master Plan
- b) The current status in these aspects in the National District, and
- c) Issues to be reviewed in the Master Plan

The evaluation was conducted based on the comparison of the answers given in 2009, 2010, 2011 and 2012, by using an evaluation instrument similar in both cases. The evaluation was conducted using the following parameters:

- Level 5. It is possible to carry out an excellent job without the Japanese Expert support.
- Level 4. It is possible to carry out a satisfactory job without the Japanese Expert support.
- Level 3. A little help from the Japanese Expert is needed to reach the goal level.
- Level 2. A lot of help from the Japanese Expert is needed to reach the goal level.
- Level 1. It is impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

It is pointed out observations which sustain the numerical evaluation assigned and issues which should be developed to increase the capacity levels to a desirable 4 and 5 grade at the end of the project. A chart showing the capacity assessment of each of the members of the C/P team 1 on Solid Waste Management and that of all the team members is given below.

Note. Rudilerci Castillo's 2011 evaluation could not be conducted as he was on vacation.

Evaluation 2012 José Miguel Martínez Guridy

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Legal / regulatory framework	<p><b>Current Situation.</b> Unfortunately, municipal administration lacks the capacity to impose fines, which it expects to achieve if the National Congress endorses the proposed Ley de Capitalidad, currently under consideration by an ad hoc committee.</p> <p><b>Issues to be reviewed in the MP</b> I think we could review the whole resolution in order to amend or specify some of the issues being determined by the progress made, e.g., the construction of waste disposal facilities in existing apartment buildings.</p>	<p><b>Current Situation.</b> The proposed Ley de Capitalidad is now being considered by Congress. The congressman proposing it is currently the spokesman for the majority in the lower house and his party has absolute majority in the upper house, thus increasing the chances for the bill to be passed.</p> <p><b>Issues to be reviewed in the MP</b> In addition to the above, rates should be reviewed, and duties and responsibilities of large waste generators should be somewhat expanded as they are the beneficiaries of concealed subsidies.</p>	<p><b>Current Situation.</b> Unfortunately, there has been no progress regarding the proposed Ley de Capitalidad. However, ADN has not given up its discussion in Congress. DIGAUE has simultaneously opted to take actions at the municipal level that can be expected to be realized in the short term. To this effect, it has reached a consensus on the regulation concerning the temporary storage of solid wastes. A by-law is currently being considered to regulate construction and demolition wastes. Together with RENAEPa and JICA, DIGAUE will endeavor to establish a national policy about solid waste management.</p> <p><b>Issues to be reviewed in the MP</b> I do not think they should be reviewed, but supplemented instead by adding some new elements helping to improve waste management.</p>	<p><b>Current Situation.</b> There has been no progress regarding the proposed Ley de Capitalidad. However, ADN has not given up its discussion in National Congress However, there has been made several meetings with stakeholders for three fundamental Ordinances which were prepared by the DIGAUE. These are temporary storage in multi-family buildings, large generators waste collection, and construction and demolition waste. It is worked on a new Ordinance for implementation in the historic center, establishing the obligatory frame for separation at the source with the purpose of starting the recycling activities.</p> <p><b>Issues to be reviewed in the MP</b> As well as my comments in 2011, I believe that it is necessary to complement it and this is exactly what has been doing since the beginning of DIGAUE. Now with more motivation and more holistic vision and action, having the new secretariat, I believe that it should continue the work of preparing and submitting regulations to improve the application of the law.</p>	Level 5
Institutional / organizational framework	<p><b>Current Situation.</b> The Direction of Environmental Management and Municipal Hygiene was divided into the Direction of Environmental Management and the Direction of Municipal Hygiene to later establish</p>	<p><b>Current Situation.</b> The Manual of Organization and Duties of the Direction of Municipal Hygiene and Equipment, prepared by experts from the Department of Quality Management based on interviews conducted to</p>	<p><b>Current Situation.</b> The Manual of Duties is currently being reformulated as the Ministry of Public Administration is providing consulting services for ADN to adapt the internal structure to the official structure of the Dominican government. Meetings with the Ministry's consultants and with staff from the Department of Quality Management and DIGAUE have been</p>	<p><b>Current situation.</b> Now the challenge is greater, because it would be organizing a structure with a much broader framework of action. Coordination with the Ministry of Public Administration is now necessary and relevant.</p> <p><b>Issues to be reviewed in the MP</b> The creation of the new</p>	Level 5

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p>the General Direction of Municipal Hygiene and Equipment. We are working together with the Department of Quality Management in order to design a strategy fit for the changes introduced, and to clearly define the duties of each of the stakeholders.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>I think that the Plan should be thoroughly reviewed to jump-start the relationship between the Direction of Municipal Hygiene and the School of Municipal Hygiene, the Municipal School for Leadership recently founded, the Center for Environmental Information, and the sections dealing with the city's trees and risk management.</p>	<p>section heads and concerned managers, has already been completed and handed over to our Department. We are currently checking it so that it may come into force in 2011.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>Just as I pointed out above, these sections should be closely linked to our Department. Joint work with the School for Leadership and the Center for Environmental Information regarding public education and awareness has been improved. The sections dealing with the city's trees and risk management have also closed their ties with us in an operational fashion.</p>	<p>held to proceed to the complete reformulation of the structure of this Direction.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>It does not seem necessary to modify the Master Plan to allow strengthening DIGAUE's organizational structure. However, we believe that ornamentation-related activities should eventually be transferred back to the Direction of Hygiene. This will directly depend on the review of duties currently being undertaken together with the Ministry of Public Administration.</p>	<p>environmental Secretariat, with coordination in the areas of hygiene and equipment, environmental management and ornamental, risk management and public space use, it allows our team to organize an institutional and administrative structure, as it is operationally effective, efficient and timely in the provision of goods and services for the citizen.</p>	
Financing	<p><b>Current Situation.</b></p> <p>Collection has steadily improved. It is especially considerable in high-income sectors, that is, sectors R4 and R5. It is slightly lower in the medium-income sector (R3). Invoicing and collection projects have begun to be implemented in slums (Capotillo and La Zurza)</p> <p><b>Issues to be reviewed in</b></p>	<p><b>Current Situation.</b></p> <p>Payment by large debtors has certainly improved. Collection has been kept at the levels initially set up. It is especially noticeable in high-income sectors (R4 and R5), and slightly lower in the medium-income sector (R3). However, subsidy is still extremely high.</p> <p><b>Issues to be reviewed</b></p>	<p><b>Current Situation.</b></p> <p>The readjustment of the rate as of February, 2011 by increasing it by 100%, taking into account accrued inflation from June, 2004, to the present that had devalued the local currency by 106%.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>The deregulation of waste collection for large generators, tree waste and debris collection at the household level, will help to reduce current expenses (direct subsidy) by ADN. When transferring the costs incurred for the management of</p>	<p><b>Current situation.</b></p> <p>It is managed to keep pace with revenue growth. However, the invoiced amount implies a subsidy of at least fifty per cent of the cost of the service offered to them.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>My answer for 2012 would be exactly same as that 2011, and adding that the amount subsidized is reported to each customer along with the invoiced amount, which is done with water and sewerage.</p>	<p>Level 4-5</p> <p>He has a thorough understanding of the importance of tariffs in the financing of the waste management of DN, but the tariff collection does not depend on the DIGAUE.</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p><b>the MP</b> I think that the total amount being invoiced, which is considered to be too low compared to the cost of the service rendered, should be reviewed. We are subsidizing 80% of the total cost and this is not a sustainable scenario.</p>	<p><b>in the MP</b> I think that the total amount being invoiced, which is considered to be extremely low compared to the cost of the service, should be reviewed. We are subsidizing 1,000 million pesos and collecting only 200 million to cover a total cost amounting to 1,200 million. Large waste generators should be transferred to the public sector for service and billing. At present, contractors at the service of ADN are providing service and billing for it.</p>	<p>these wastes to the generators, ADN will be able to concentrate expenses on household waste collection.</p>		
Generation	<p><b>Current Situation.</b> Wastes have steadily increased by 15% a year. <b>Issues to be reviewed in the MP</b> To adjust the data related to residing population, floating population, and waste generation per person and by type of generator.</p>	<p><b>Current Situation.</b> The comparison between the data corresponding to the year 2010 and those of 2011 shows that daily waste collection seems to be decreasing. Although it is still too soon to make any accurate prediction, this trend is encouraging for our sanitation system and for municipal finances. <b>Issues to be reviewed in the MP</b> To adjust the existing data related to residing population, floating population, waste generation per person</p>	<p><b>Current Situation.</b> Waste generation exceeded 2,000 tons in 2009 and 2010. This means a 15% increase compared to 2008 and a 25% increase compared to 2007. From the middle of last year until the present, a decreasing trend is noticeable: a 1% decrease in 2010 as compared to 2009 and a 5% decrease in 2011 compared to 2010. <b>Issues to be reviewed in the MP</b> All waste generation sources should be separated so that their separated statistical management helps to improve the strategies to be implemented. At present, we handle overall data about wastes leaving the territory based on the amounts recorded at the landfill site. These values show mainly a mix of household, commercial, industrial, institutional, special, construction and demolition, even reusable, wastes. This</p>	<p><b>Current situation.</b> The generation declines from 2009. It shows a decrease of an average five percent in comparison with the previous period. <b>Issues to be reviewed in the MP</b> My comment is same as 2011 as it being a continuous task. In this sense it is worth to mention the project of pruning waste management, and about the ordinances on construction and demolition waste and on large generators waste collection, which will better define the type and quantity of waste to be managed.</p>	<p>Level 4 It is convenient to consider proposals for inclusion in the M/P .</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
		and by type of generator. Fortunately, the National Population and Housing Census will be conducted this year. We believe it would be relevant to carry out a new study on waste composition and generation as the latest study used for the Master Plan is already five years old.	separation will allow to remove from the system a number of elements not known to date that needs to be managed directly by their users, namely, tires, batteries, broken lamps, as well as newspaper and office paper, tree branches, and construction and demolition wastes.		
Temporary storage and discharge by generators	<p><b>Current Situation.</b> The lack of the capacity to impose fines administratively makes it difficult to get results in this area.</p> <p><b>Issues to be reviewed in the MP</b> As we cannot guarantee the passing of the proposed <i>Ley de Capitalidad</i>, we should focus on informing and communicating with the residents as a first priority. To this effect, we can count on the School of Hygiene, the School for Leadership, and the Center for Environmental Information.</p>	<p><b>Current Situation.</b> Fortunately, the implementation of the pilot projects for the improvement of waste disposal helps us to attempt a few activities and learn from their practical execution.</p> <p><b>Issues to be reviewed in the MP</b> Just as in 2009, to focus on informing and communicating with the residents as a first priority. To this effect, we can count on the School of Hygiene, the School for Leadership, and the Center for Environmental Information. Furthermore, the major has designed a great campaign with the slogan <b>Clean City, Pride of All...</b>, which will undoubtedly help to achieve our goal.</p>	<p><b>Current Situation.</b> Unfortunately, the Resolution for the Temporary Storage in Apartment Buildings has not been approved yet. We expect it to be approved this year.</p> <p><b>Issues to be reviewed in the MP</b> To continue to formulate by-laws to cover specific issues, e.g., on construction and demolition waste management, or eventually on tree waste management, trying to introduce roll-on roll-off containers for debris collection and tree shredding on site, the elimination of porta tanques in the city, and the impossibility for a large commercial, industrial or institutional generator to dispose of wastes along a thoroughfare for their collection by the private sector.</p>	<p><b>Current Situation.</b> We hope that proposed regulations will be adopted shortly. All three affect the waste discharge manners. The new proposed Ordinance, still in preparation for the separation at the source is added for this purpose.</p> <p><b>Issues to be reviewed in the MP</b> Same answer to that in 2011. In addition to that, it is expected to be soon adopted the Ordinances, and then proceed to its implementation.</p>	Level 4.5 He demonstrates a thorough understanding about the conditions of temporary storage and discharge by generators.

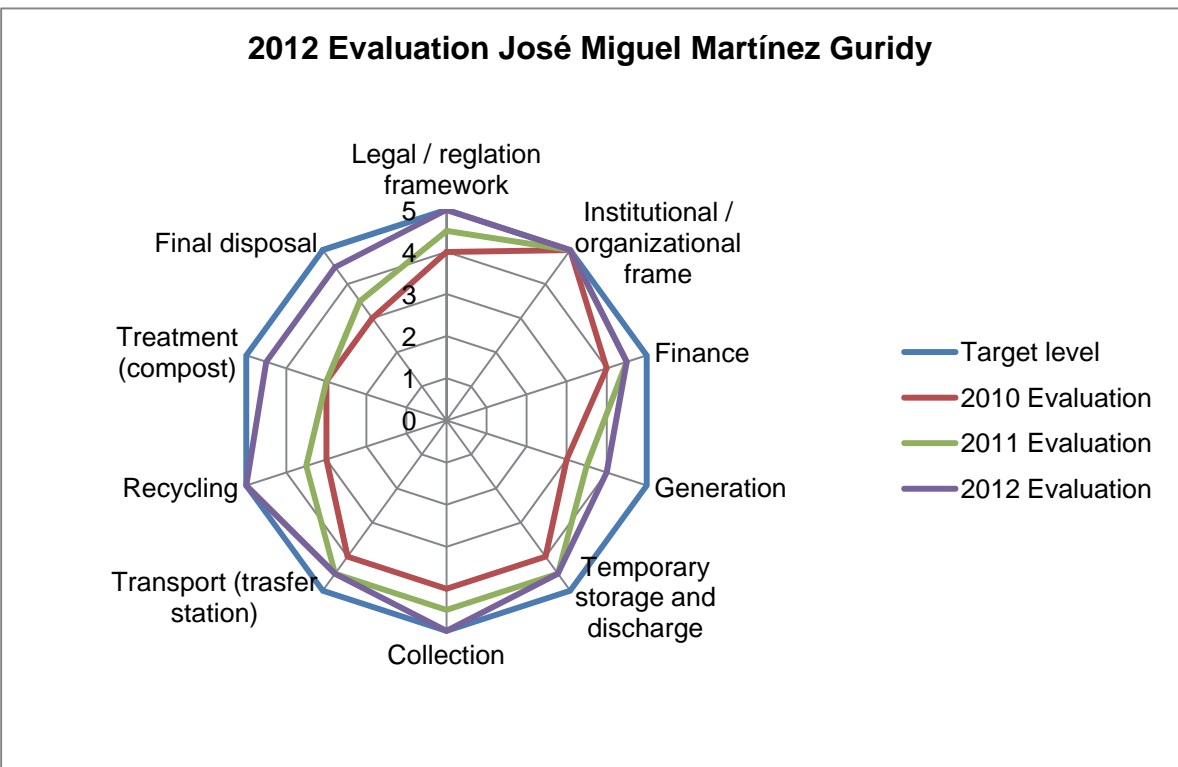
Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Collection	<p><b>Current Situation.</b> Equipment provision has greatly improved. However, there is still a long way ahead of us.</p> <p><b>Issues to be reviewed in the MP</b> To be demanding in terms of contracts.</p>	<p><b>Current Situation.</b> There continues to be some progress in terms of vehicle availability with the introduction of several small compactor trucks. However, there is still a long way ahead of us. Contractors have not been able to provide new units due to financial constraints.</p> <p><b>Issues to be reviewed in the MP</b> To be demanding in terms of contracts.</p>	<p><b>Current Situation.</b> Financial constraints still persist. However, we are waiting for the approval by the National Congress of a credit to be granted by the State Bank that will allow ADN to mitigate almost all of its debt with the service providers. In 2008, the company ADN Services acquired 20 trucks having a capacity of 20yds<sup>3</sup>. The Escoba Foundation has acquired 5 compactor trucks with a capacity of 6yds<sup>3</sup> in the last two years, the Fundsazurza Foundation purchased 1 truck, whereas the company Disposición Sanitaria Capital purchased 2 Renault trucks in 2010 and 5 Mack trucks in 2011.</p> <p><b>Issues to be reviewed in the MP</b> No changes are required in this respect, save for the decision already made in the sense that ADN will try to increase the number of units having a capacity of 6yds<sup>3</sup> from the present 30 up to 50 in order to ensure a supplementary solid waste collection capacity of its own.</p>	<p><b>Current situation.</b> One of the two major contractors companies have already completed the number of collection vehicles that is defined in the contract. Another contractor, although having required number of collection vehicles, their age is more than ten years on average.</p> <p>ADN has acquired eight dump trucks for debris collection and going to purchase three compactors (six cubic yards) for the service in the historic center.</p> <p>Community foundations have enough number of collection vehicles, though they are very damaged mostly.</p> <p><b>Issues to be reviewed in the MP</b> Same as the 2011 previous comment, adding that the Mayor is strongly in favor of this initiative. But it is recognized that the difficulties of finding providers of these units in the market.</p>	Level 5
Transport (Transfer Station )	<p><b>Current Situation.</b> The transfer station has significantly increased the wastes it handles. It has almost doubled the wastes it handled during the formulation of the Master Plan.</p> <p><b>Issues to be reviewed in the MP</b> The relevance to build a new transfer station, which is still understandable, should be reviewed. The Master Plan should review its</p>	<p><b>Current Situation.</b> The existing transfer station has steadily increased its waste handling rate. At present, it handles an average 900 tons.</p> <p><b>Issues to be reviewed in the MP</b> Its possible location, its costs as compared to the costs to develop the potential of the existing station, and the identification of the contractors with it.</p>	<p><b>Current Situation.</b> The discussion about the convenience and possible location of the transfer station envisaged in the Master Plan is still ongoing. Arrangements are currently being made to acquire the land bordering to the north on the existing transfer station in Villas Agrícolas in order to be able to differentiate between the trucks coming into the station and those going out of it to reduce the impact of the existing 400 trucks on the environment. Another action under consideration is to decrease the number of open trucks without compaction to reduce the trips to the transfer station by</p>	<p><b>Current situation.</b> It is made efforts to acquire the land adjacent to the transfer station, to cope with current incoming and outgoing trips, to fix the exit for the North. The value was already assessed and agreed with the owners. It is expected the approval by the Council.</p> <p><b>Issues to be reviewed in the MP</b> The Master Plan for Mancomunidad prepared by consultants of the IDB proposes the extension of the current transfer station to manage 1500 tons per day. It could be complemented to opt for the domestic waste and</p>	Level 4.5 He has sufficient knowledge about the problems of the current transfer station that needs to be included in the revised M/P or in the Master Plan that is being developed by IDB consultants for the Mancomunidad.



Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	possible location, its costs compared to the costs to develop the potential of the existing one, and the identification of the contractors with it as they could get involved to acquire smaller trucks.		at least 15%. Small dumping boxes were replaced with larger boxes in 80% of the dump trucks used to convey wastes from the transfer station to the landfill site. <b>Issues to be reviewed in the MP</b> The construction of a second transfer station is still recommended, not necessarily in the place initially identified as the site has already been ruled out. Its location will be reviewed in the light of the Master Plan for Sanitation sponsored by BID and the Japanese Consulting Fund, which will recommend next May three sites as candidates for new landfill sites and eventually some proposed sites to build transfer stations. It may be concluded that a transfer station can be built to serve more than one municipality. It could be built in a municipality bordering on the National District.	similar.	
Recycling	<b>Current Situation.</b> There has not been significant progress in this respect. However, the Center for the Promotion of Recycling has already begun operating. <b>Issues to be reviewed in the MP</b> The pilot projects for the segregation of paper, organic material, and market wastes will help improve the knowledge about these wastes and promote relevant actions.	<b>Current Situation.</b> Some by-products are recycled, but no records exist. <b>Issues to be reviewed in the MP</b> No answer.	<b>Current Situation.</b> Not that we are aware of. However, a tire crushing facility is expected to be installed in Pedro Brand municipality within the Greater Santo Domingo. So far its official opening has not yet been announced. <b>Issues to be reviewed in the MP</b> The recently established 3R's Network and the participation of the private sector, especially supermarkets, in waste segregation show that the Dominican society has begun to internalize the concept of the 3R's. Some initiatives for the Promotion of Systems of Clean Production and public awareness are being implemented by companies exploring, albeit timidly, the concept of extended producer's responsibility by launching waste recovery campaigns in the form of	<b>Current situation.</b> I do not think that at this moment management issues be raised by the ministries of trade and environment, regarding the extended producers responsibility. We'll see what the approach of ministerial responsibility in the new Government. <b>Issues to be reviewed in the MP</b> We will achieve the synergy of the CPR and the CIA to connect more with the citizens, as well as the business support network RENAEP with whom we have been working for a while ago, to accelerate the processes of recycling, we recognize now advances in various areas of society.	Level 5

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
			contests. This is an initiative that we acknowledge with certain reservations. The indicators to be used to measure the goals achieved should be reviewed as, notwithstanding the role we have to lay, we are not in a position to guarantee that DIGAUE's actions will be directly proportional to waste reduction. We should give a new direction to our role to rather facilitate and devise actions between the sector producing the wastes and the sector managing them.		
Treatment (composting)	<p><b>Current Situation.</b> We have not yet begun to execute these activities as they are included in the implementation project.</p> <p><b>Issues to be reviewed in the MP</b> To develop the pilot projects for organic waste and tree waste management, as well as to analyze wastes generated from street sweeping and public ornamentation in order to design appropriate actions.</p>	<p><b>Current Situation.</b> We have not yet begun to execute these activities as they are included in the Follow-up Project to be implemented following the pilot project for tree waste shredding.</p> <p><b>Issues to be reviewed in the MP</b> To develop the pilot projects for organic waste and tree waste management, as well as to analyze wastes generated from street sweeping and public ornamentation in order to design appropriate actions.</p>	<p><b>Current Situation.</b> The modification was made to the minute of meeting recently signed in order to establish that DIGAUE is not currently implementing the composting project, but it has opted to develop and expand the Pilot Project for Tree Waste Shredding, for the execution of which ADN acquired a second shredding machine.</p> <p><b>Issues to be reviewed in the MP</b> The composting project has been postponed.</p>	<p><b>Current situation.</b> The pruning waste management project has been successful. It is expected to have more staff, as well as to establish synergies with the urban forest Department, now within the framework of the new Environmental Secretariat, that covers both.</p> <p><b>Issues to be reviewed in the MP</b> We will continue learning in the demonstrative pilot works of composting that our person responsible for the pruning waste management is dedicated.</p>	Level 4.5 Under the new conditions of Environmental Secretary of the ADN, he has all possibilities to promote 3R policy in the national district.
Final disposal	<p><b>Current Situation.</b> Duquesa landfill site has improved operations. However, the amount of waste being received has dramatically increased, thus reducing its remaining service life. Revenues have increased, but they are</p>	<p><b>Current Situation.</b> Duquesa landfill site has improved its operations. However, the amount of waste being received has dramatically increased, thus shortening its remaining service life. Revenues have increased, but</p>	<p><b>Current Situation.</b> There are a Degasification Facility and a Plastics Recycling Plant within Duquesa landfill site. The operation of the landfill site has of late become stable. However, the access road continues to be its weakest point. It is so deteriorated that the landfill site was closed on August 1st due to a collapse of the road that brought about delays extending for a</p>	<p><b>Current situation.</b> The access road has been improved, six heavy equipment are acquired to reduce dependency on leased equipment and reduce costs. It will be installed the second weighbridge in a short time to improve controls. It installed a system of vigilance cameras.</p> <p><b>Issues to be reviewed in the MP</b></p>	Level 4.5 Under the new conditions of Environmental Secretariat of the ADN, there are all possibilities of participating in the project of the Mancomunidad.

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p>not proportional to waste increase. <b>Issues to be reviewed in the MP</b> This issue should be thoroughly reviewed as the remaining service life of Duquesa landfill site seems to expire in the short term.</p>	<p>they are not proportional to waste increase. ADN has slightly increased regular monthly payments in order to support the installation of a second weighbridge, next to the existing one but bigger, and a radio frequency system helping to improve operation monitoring in real time. <b>Issues to be reviewed in the MP</b> We should actively participate in the new project managed by BID for the Greater Santo Domingo as it could provide some clarification in this sense.</p>	<p>week. <b>Issues to be reviewed in the MP</b> We are waiting for the Report of the Master Plan for Sanitation in the Greater Santo Domingo sponsored by BID and the Japanese Consulting Fund, which will provide three candidate sites for the construction of sanitary landfill sites within the Greater Santo Domingo.</p>	<p>Same comment as for 2011. In two months we hope to receive the results of the IDB study.</p>	



**Evaluation 2012 Hugo Rafael Pérez Sarraff**

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Legal / regulatory framework	<p><b>Current Situation.</b> It was elaborated and approved the Regulation for Municipal Solid Waste Management.</p> <p><b>Issues to be reviewed in the MP</b> To evaluate the possibility of imposing administrative fines for standards violation and to check whether it is feasible to grant incentives for initiatives supporting their compliance.</p>	<p><b>Current Situation.</b> It was promulgated the Regulation for Non-hazardous Municipal Solid Waste Management and it was submitted to the National Congress the project of Capital Law.</p> <p><b>Issues to be reviewed in the MP</b> To achieve the capacity to apply penalties for violations to the regulations and try to establish mechanism which would allow granting incentives to the initiatives which support their compliance. To encourage a regulation framework that has a tendency to establish the Extended Responsibility of Producers.</p>	<p><b>Current Situation.</b> The approval of the proposed Ley de Capitalidad by the National Congress is still pending. It will help to impose administrative fines, thus providing the National District Major's Office with the coercive power that, together with the legitimate power and the power to reward, should strengthen municipal authority.</p> <p><b>Issues to be reviewed in the MP</b> To get the approval of some standards regulating commercial activities to ensure the appropriate management, storage, and disposal of solid wastes generated by these commercial activities. To devise a legal framework tending to establish the Producer's Extended Responsibility.</p>	<p><b>Current situation.</b> Capital law project is still pending for approval in the National Congress. The following three projects were submitted to the Sala Capitulat for further consideration and approval by the Council: Ordinance for the management of waste generated by the construction, Ordinance to regulate large generators of waste and Ordinance for temporary storage of non-hazardous solid waste at residential buildings.</p> <p><b>Issues to be reviewed in the MP</b> To ensure the adoption of laws and ordinances that have been sent to the National Congress and to the Sala Capitulat. To promote legal regulatory frame aimed to establish the extended producers responsibility.</p>	<p>Level 4 The evaluation of 2011 is maintained. He has extensive knowledge of the topic. The extended producers responsibility legislation is not possible.</p>
Institutional / organizational framework	<p><b>Current Situation.</b> There have been created work committees with different internal directions and government institutions such as Mancomunidad del Gran Santo Domingo, the Environmental Ministry and Public Health Ministry etc.</p> <p><b>Issues to be reviewed in the MP</b> No answer</p>	<p><b>Current Situation.</b> There have been created work committees with different internal directions and government institutions such as the Environmental Ministry and Public Health Ministry. It has been achieved to structure and begin to operate the Greater Mancomunidad de Santo Domingo.</p> <p><b>Issues to be reviewed in the MP</b> The establishment of a cleansing municipal company.</p>	<p><b>Current Situation.</b> There has been some progress in terms of the actions taken within the Greater Santo Domingo. By agreement with the Interamerican Development Bank (BID in Spanish) the Plan for the Integrated Management of Solid Waste will be simultaneously implemented in all the municipalities comprising the Greater Santiago.</p> <p><b>Issues to be reviewed in the MP</b> To evaluate the possibility to create an executive committee for sanitation composed of representatives from the directions of City Planning, Traffic, Public</p>	<p><b>Current situation.</b> It has continued to make progress in actions carried out by the Gran Santo Domingo Mancomunidad. The environmental secretariat has been created that has among its main functions to coordinate the work for the formulation and evaluation of municipal public policies for environmental management in accordance with the institutional development plans.</p> <p><b>Issues to be reviewed in the MP</b> To evaluate the possibility of</p>	<p>Level 4.5 The evaluation is raised from 2011 because there have been advances in the training</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
			Space Defense, Urban Animation, Environmental Management, Squares and Parks, Communications and Public Relations. On the other hand, the convenience of establishing a municipal sanitation enterprise should be assessed.	integrating an Executive Committee of Waste Management consisting of representatives from directorates of urban planning, traffic and mobility, public space defender, urban animation, environmental management, squares and parks, communications and public relations.	
Financing	<p><b>Current Situation.</b> There has been an improvement of fee collection, but it is still pending to apply the fee according to volume for ICI's and reviewing the household fee.</p> <p><b>Issues to be reviewed in the MP</b> Method to fix and establish the fee.</p>	<p><b>Current Situation.</b> There has been an improvement of fee collection, but it is still pending to apply the fee according to volume for ICI's and reviewing the household fee.</p> <p><b>Issues to be reviewed in the MP</b> To review the method to fix and establish the fee, compliance with the polluter pays principle, charge of collection for special waste and debris.</p>	<p><b>Current Situation.</b> Collection has improved mainly due to the dramatic increase in rates implemented as of January, 2011.</p> <p><b>Issues to be reviewed in the MP</b> To review the methodology used to set up the rates; to implement billing based on collection of special wastes, tree waste and construction waste; to associate invoicing and collection with other services such as water and electricity supply that can be interrupted.</p>	<p><b>Current situation.</b> It has improved the tariff collection amount, largely as a result of a substantial increase applied to rates from January 2011, as well as by the improvement in the collection service that is perceived by the citizens and is reflected in a lower resistance to the payment.</p> <p><b>Issues to be reviewed in the MP</b> Review the methodology of tariff fixation or establishment, to apply payment for collection services of special waste, pruning waste and construction waste. To make a joint billing and collection to other such as water or electricity services.</p>	Level 4.5 The evaluation is raised from 2011 It is convenient to consider proposals for the M/P revision.
Generation	<p><b>Current Situation.</b> The generation in National District exceeds the expected generation.</p> <p><b>Issues to be reviewed in the MP</b> Estimation and population data should be updated based on the National Population Census to be taken in the year 2010.</p>	<p><b>Current Situation.</b> Waste generation is still higher than generation estimations.</p> <p><b>Issues to be reviewed in the MP</b> Calculation and population figures should be updated taking into account the National Population Census which should be conducted</p>	<p><b>Current Situation.</b> There has been a 5% reduction in waste generation during the first half of 2011 as compared to the same period in 2010. However, the current waste generation levels still exceed the estimations established for the year 2011 in the 2007 Master Plan.</p> <p><b>Issues to be reviewed in the MP</b> In late 2010, the National Statistics Office took a population and housing</p>	<p><b>Current situation.</b> During the first half of 2012, we have experienced a reduction in waste generation compared to the same period in 2011, but levels still remain on the estimates set out in the 2007 master plan for 2012.</p> <p><b>Issues to be reviewed in the MP</b> At the end of 2010 the National</p>	Level 4 Good level of understanding of variations in the waste generation.

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
		soon; additionally, waste amount and composition surveys should be conducted frequently.	census. However, the official results have not been published yet. No new studies about waste amount and composition have been conducted since 2005.	Bureau of Statistics conducted a national census of population and housing, but official results have not yet been published. Since 2005 have not made further studies of quantity and composition of the waste.	
Temporary storage and discharge by generators	<p><b>Current Situation.</b> It has been established norms for the cleansing regulation, but they have not been sufficiently informed to the citizens nor have been promoted their application.</p> <p><b>Issues to be reviewed in the MP</b> Strengthening the information widespread</p>	<p><b>Current Situation.</b> It has been established norms for the cleansing regulation, but they have not been sufficiently informed to the citizens nor have been promoted their application. Collection routes have been designed, but they have not been informed widely because their compliance cannot be assured.</p> <p><b>Issues to be reviewed in the MP</b> Strengthening the widespread information of established regulations, as well as environmental and citizen education.</p>	<p><b>Current Situation.</b> Some regulations related to sanitation have been established. However, they have neither been sufficiently spread, nor their implementation has been promoted. Waste collection routes were designed, but they have not been sufficiently spread as compliance is yet to be ensured.</p> <p><b>Issues to be reviewed in the MP</b> The new regulations should be sufficiently spread, as well as environmental education and public awareness.</p>	<p><b>Current situation.</b> There has been progress in the dissemination of the rules contained in the hygiene regulation but the process is very slow and still does not work properly in the application. It is designed the collection routes and frequencies, but have not been widespread since, although it has improved the waste collection coverage and capacity, yet compliance is ensured.</p> <p><b>Issues to be reviewed in the MP</b> Strengthening the dissemination of the rules, as well as environmental education for citizen. Need to make efforts for the review, calibration and monitoring of collection routes and frequencies.</p>	Level 3 Basically it repeats the same answers in 2011, so it maintains the same evaluation
Collection	<p><b>Current Situation.</b> There is sufficient collection equipment, but in large part they are neither the adequate nor the ones required in terms of the specifications, conditions, and years of operation.</p> <p><b>Issues to be reviewed in the MP</b> No answer</p>	<p><b>Current Situation.</b> There is sufficient collection equipment, but in large part they are neither the adequate nor the ones required in terms of the specifications, conditions, and years of operation.</p> <p><b>Issues to be reviewed in the MP</b> To achieve that the equipment satisfy required technical specifications and</p>	<p><b>Current Situation.</b> The number of collection vehicles is enough. However, they are not the right ones in terms of specifications, capacity and condition. Hired companies have introduced more units, but they do not adjust to the specifications established by the Master Plan. Community foundations have also increased their vehicles, but most of them are dump trucks instead of small compactor trucks.</p>	<p><b>Current situation.</b> New equipment for the collection have been integrated. The contracted companies have incorporated new units that conform to the specifications set forth in the Master Plan better. Community foundations have also increased their fleets, but the vast majority has included dump trucks rather than small compactors.</p> <p><b>Issues to be reviewed in the</b></p>	Level 4.5 It maintains the same evaluation of 2011 because he has a comprehensive understanding on the conditions of waste collection in the National District.

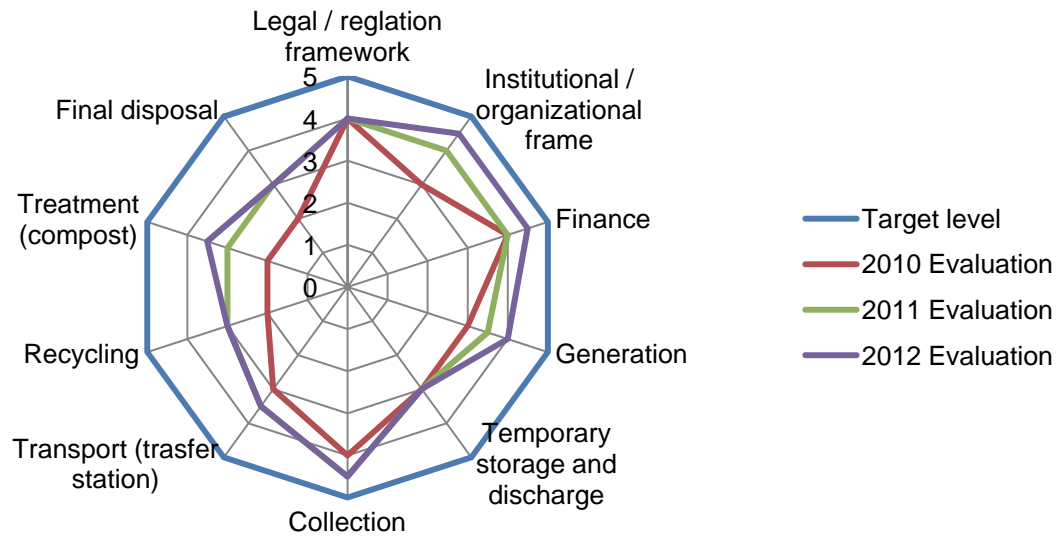
Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
		are maintained in adequate conditions to provide the service. To include a contingency plan to respond in case some trucks are out of service or there is an unexpected large generation of waste in a short time.	<b>Issues to be reviewed in the MP</b> To acquire vehicles complying with the required specifications and to try to keep them in good operational conditions for waste collection; to include a contingency plan in case of sudden, numerous breakdowns or an unexpected rapid increase in waste generation.	<b>MP</b> To ensure that all computers meet the required specifications and kept in the right conditions for the provision of the service. To include a contingency plan to respond in the event of sudden and massive operations or unexpected increase in generation in a short time.	
Transport (Transfer Station )	<b>Current Situation.</b> The existing transfer station has exceeded its operational capacity. The project for the construction of a new transfer station is still pending. <b>Issues to be reviewed in the MP</b> The construction of a second Transfer Station (southwestern part of the city)	<b>Current Situation.</b> The existing transfer station has exceeded its operational capacity. The project for the construction of a new transfer station is still pending. <b>Issues to be reviewed in the MP</b> The construction of a second Transfer Station (preferably to the southwestern part of the city)	<b>Current Situation.</b> The transfer station continues to exceed its design operational capacity averaging 800 tons a day. The project for the construction of a new transfer station is still to be implemented. <b>Issues to be reviewed in the MP</b> To evaluate the advisability of the construction of a second transfer station by making good use of the recommendations derived from the Plan for the Integrated Management of Solid Waste in the Greater Santo Domingo.	<b>Current situation.</b> It currently handles more than the design capacity of 850 tons per day, and the development of a new transfer station is still pending. <b>Issues to be reviewed in the MP</b> To assess the viability of the construction of a second transfer station taking advantage of the recommendations that are made within the Integral solid waste management plan for the Gran Santo Domingo Mancomunidad.	Level 3.5 It remains same as 2011 evaluation. It is convenient to consider proposals on the M/P revision.
Recycling	<b>Current Situation.</b> Paper and cardboard are formally recycled, whereas plastic and glass are recycled in an informal fashion. With a private initiative, a recycling plant for tetra pack packages and a building to separate and recycle materials have been installed in the Final Disposal Site. <b>Issues to be reviewed in the MP</b> To review waste	<b>Current Situation.</b> Paper and cardboard are formally recycled, whereas plastic and glass are recycled in an informal fashion. With a private initiative, a recycling plant for tetra pack packages and a building to separate and recycle materials have been installed in the Final Disposal Site. Through the Center to Promote the 3Rs, contacts have been made with organizations which work on the subject and are	<b>Current Situation.</b> Formal recycling of paper and cardboard has increased. Plastic and glass continue to be recycled informally. A recycling facility for TetraPack packages is operating as a private enterprise. Likewise, a plant to segregate materials within the landfill site continues to operate. Its disadvantage is that ADN does not avoid the costs incurred for the collection and transport of wastes recovered to be recycled. Contacts with organizations dealing with the 3R's are still ongoing and a network	<b>Current situation.</b> Formal recycling of paper and cardboard has been increased. It starts to formalize the recycling of plastic and glass. It continues to operate as a private company a tetra pack packaging recycling plant. Likewise it continues to operate a yard to separate materials at the final disposal site, it is the disadvantage that the ADN does not prevent the cost of collection and transport of waste that are recovered for recycling.	Level 3 2011 assessment is maintained because he makes the same response. It is convenient to consider proposals for the M/P revision.



Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	generation and goals.	creating a network of actors. <b>Issues to be reviewed in the MP</b> To review waste generation and goals.	of stakeholders was established. An important chain of supermarkets has set up storage centers for TetraPack packages in coordination with a company recycling them locally. <b>Issues to be reviewed in the MP</b> To organize markets to exchange and trade wastes that can be potentially recycled. To review the goals established and to define the actions required to achieve them.	It maintains contacts with organizations dealing with the issue of the 3R and it is working with a network of actors. <b>Issues to be reviewed in the MP</b> To organize market for waste exchange and commercialization of waste which have potential for recycling. Review the goals, increase the efforts being made and define the actions to achieve them.	
Treatment (composting)	<b>Current Situation.</b> It is being conducted a small pilot project in charge of the Center of Environmental Information; additionally, work is being conducted to coordinate a project in a larger scale. <b>Issues to be reviewed in the MP</b> No answer	<b>Current Situation.</b> It is being conducted a small pilot project in charge of the Center of Environmental Information; additionally, work is being conducted to coordinate a project in a larger scale. <b>Issues to be reviewed in the MP</b> To establish a composting plant and use the product to improve soils and conditioner for parks, public areas.	<b>Current Situation.</b> With JICA's support, a pilot project for tree waste shredding was executed as part of the activities included in the follow-up project to monitor the appropriate management of solid wastes. ADN purchased new shredding machines to turn the project into a large-scale project. <b>Issues to be reviewed in the MP</b> To set up a composting plant basically using market waste and use the compost produced to improve soils and as fertilizer for parks, squares, traffic islands and other public spaces.	<b>Current situation.</b> With the support of JICA, it expands the pruning waste management project. As ADN bought a shredder and another procured by a JICA, there are now three machines. <b>Issues to be reviewed in the MP</b> To develop a project of composting that uses pruning waste along and market waste, and use the compost product for the soil improvement and fertilizer to public spaces, parks and squares.	Level 3.5 The evaluation is raised because he shows greater understanding of the topic and the utilization of organic waste.
Final disposal	<b>Current Situation.</b> The operation of the landfill has been improved (soil cover, access roads), but it is still pending leachate management and identification of Final Disposal sites which will be used when the service life of the current landfill site is finished. <b>Issues to be reviewed in</b>	<b>Current Situation.</b> The operation of the landfill has been improved (soil cover, access roads), but it is still pending leachate management and identification of Final Disposal sites which will be used when the service life of the current landfill site is finished. <b>Issues to be reviewed in</b>	<b>Current Situation.</b> Landfill operation has improved (waste covering). However, access roads have further deteriorated and the leachate management is still pending. On the other hand, the place for the construction of a new landfill site once the service life of the existing landfill site expires should be identified. <b>Issues to be reviewed in the MP</b> To estimate the service life of the	<b>Current situation.</b> It has continued to improve the landfill operation and has worked on access roads. Leachate management is still pending. On the other hand, it needs to identify the final disposal place that will be used at the end of the useful life of the current landfill. <b>Issues to be reviewed in the MP</b>	Level 3 2011 assessment is maintained because he offers the same response.

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<b>the MP</b> No answer	<b>the MP</b> To estimate the service life of the current site and begin the construction of the new sanitary landfill.	existing landfill site and to begin to identify places for the construction of the new landfill site.	To estimate the service lifetime of the current site and identify locations for the construction of a new sanitary landfill.	

2012 Evaluation Hugo Rafael Pérez Sarraff



## Evaluation 2012 Manuel Enrique Ramírez Rossó

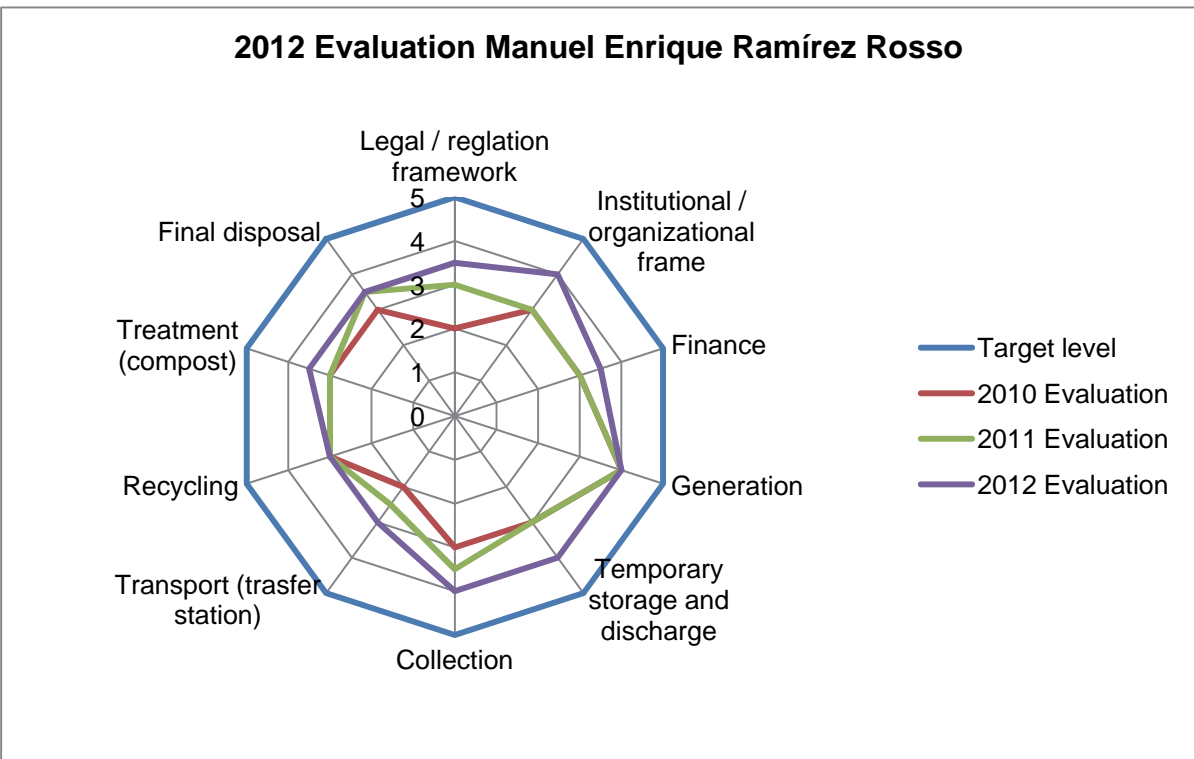
Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Legal / regulatory framework	<p><b>Current Situation.</b> It has a legal framework that is considered adequate but no fully complied.</p> <p><b>Issues to be reviewed in the MP</b> The relation between legal framework and the conditions for its compliance.</p>	<p><b>Current Situation.</b> The regulation of non-hazardous municipal solid waste management was approved by the municipal council.</p> <p><b>Issues to be reviewed in the MP</b> Although this regulation improves the application of the national norm for solid waste management, there is deficient enforcing capability through the municipal administration which becomes an obstacle for its implementation.</p>	<p><b>Current Situation.</b> Despite the fact that the current regulations are sufficient to manage non-hazardous solid wastes by means of a municipal sanitation-related set of rules established at ADN level, the progress in terms of their implementation has been slow.</p> <p><b>Issues to be reviewed in the MP</b> To strengthen the sanitation-related set of rules by means of the current national regulations so that people managing their wastes inappropriately can be penalized accordingly.</p>	<p><b>Current situation.</b> In terms of legislation and regulations, despite having these instruments to monitor the proper handling of solid waste, the advance has remained as in previous years, so even there is with them as base instruments to penalize both collector companies and generators for the improper handling of waste.</p> <p><b>Issues to be reviewed in the MP</b> The strengthening of the cleansing regulation through the national regulations in force, so that it can fulfill the objective of penalizing those who improperly handles their waste. Review the sanctions stated in the regulation and adapt them so that its application is sustainable.</p>	Level 3.5 The evaluation is maintained because progress to be made through training on the topic is not shown.
Institutional / organizational framework	<p><b>Current Situation.</b> It is developed a process to reorganize DIGAUE to improve comprehensive waste management.</p> <p><b>Issues to be reviewed in the MP</b> Relationship between DIGAUE structure and the activities to develop under the Master Plan</p>	<p><b>Current Situation.</b> ADN financial administration is directed through a good coordination among its components. Nowadays, an excellent integration of DIGAUE has been achieved with all key areas to provide resources to guarantee sustainability to the cleansing system.</p> <p><b>Issues to be reviewed in the MP</b> Strengthening of DIGAUE with Urban Planning Department to regularize the specifications which should be informed to the residents whenever a construction takes place with regards to storage of solid waste.</p>	<p><b>Current Situation.</b> ADN's organization is well established. Its strength is such that each component knows his duties allowing the system to work.</p> <p><b>Issues to be reviewed in the MP</b> Other directions within ADN related to DIGAUE should be integrated into MIRS.</p>	<p><b>Current situation.</b> There is a definition of the ADN Organization and its strengthening is such that each component defined the function in a manner such that the system works. There have been some changes in the ADN Organization favoring the interrelationship between its components.</p> <p><b>Issues to be reviewed in the MP</b> It is the integration of other directions of the ADN Organization on the DIGAUE in the ISWM of great needs. Some changes have given rise to this integration, but still need the consolidation of other areas.</p>	Level 4 Greater understanding of the relationship of DIGAUE in the ADN structure and about the Master Plan.
Financing	<p><b>Current Situation.</b> The collection rate has improved as many who</p>	<p><b>Current Situation.</b> Collection fee management has increased continuously,</p>	<p><b>Current Situation.</b> It has improved as a result of the existing contacts between the</p>	<p><b>Current situation.</b> Through the contact between the user and the company in charge</p>	Level 3.5 The evaluation is raised because

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p>did not pay for the collection service are currently paying for it. Rates for ICI's (large generators) have been established.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>No answer</p>	<p>generating billing levels up to 55% in the global sense, being higher than 75% in high income areas.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>The gap between the costs of the cleansing system and what it is recommended from what is being charged and collected. To evaluate the fee which remains the same and to charge by volume generated by large generators.</p> <p>There are still no institutional conditions to propose focusing on neither subsidies nor their reduction; ADN financial management is deficient for SWM issues vs the payment by residents.</p>	<p>users and the billing and collection company. Rates have been properly established, thus helping to increase revenues.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>To manage to persuade users to understand and request additional services such as tree waste and construction waste collection.</p>	<p>of billing, tariff collection has improved, having established a balanced tariff system, thereby it increases revenues.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>In a general sense, users should be more identified. It also needs to understand waste produced which are collected from day to day, also to understand request of additional services such as pruning waste, debris, etc.</p>	<p>he has advanced understanding on the balance between costs and generators' fee.</p>
Generation	<p><b>Current Situation.</b></p> <p>Waste generation has dramatically increased due to the existing floating population and to the fact that the city has somewhat expanded.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>Waste generation per person and the influx of visitors into the city.</p>	<p><b>Current Situation.</b></p> <p>Solid waste generation has increased substantially to exceed what was estimated in the Master Plan due to several factors, such as the number of residents who develop their activities in the National District, small growth in the city, and economic improvement, among others.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>A revision of the factors which have caused an important increment of waste with respect to what was estimated in the Master Plan should be conducted, rate of growth in the city, and floating population which goes to the National District to work.</p>	<p><b>Current Situation.</b></p> <p>Waste generation has dramatically increased exceeding the MP estimation due to several factors such as the increased number of people within the National District, a slight expansion of the city, and some economic improvement, among others.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>As was previously stated in 2010, variables such as floating population, the city's vertical growth, etc., should be reviewed.</p>	<p><b>Current situation.</b></p> <p>The waste generation exceeds the estimated amount by the Master Plan due to several factors. It has grown substantially such as the number of people who develop their activities in the National District, a small growth in the city, some economic improvement, among others. This keeps growing.</p> <p><b>Issues to be reviewed in the MP</b></p> <p>Due to the substantial growth in the waste generation, it needs to review the variables of the floating population, the vertical growth of the city, among others.</p>	<p>Level 4 2011 Assessment remains.</p>
Temporary storage and discharge by generators	<p><b>Current Situation.</b></p> <p>Companies should improve the collection service.</p>	<p><b>Current Situation.</b></p> <p>Taking into account contracted companies, they do not have the recommended collection</p>	<p><b>Current Situation.</b></p> <p>Despite the fact that the companies hired do not have the required number of collection</p>	<p><b>Current situation.</b></p> <p>One of the contracted companies has acquired new collection units recommended in the Master Plan.</p>	<p>Level 4 The evaluation is raised because there is a better</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p><b>Issues to be reviewed in the MP</b> Advice on waste disposal by residents and duties of collection companies.</p>	<p>equipment in the Master Plan; progress has not been satisfactory because clients cannot trust the system with regards to time and frequency. <b>Issues to be reviewed in the MP</b> To achieve that companies obtain necessary units to conduct the service, instruct residents on the adequate manner to discharge, and achieve an efficient and high quality service.</p>	<p>vehicles as recommended in the Master Plan, waste collection has certainly improved as the allocation of funds for community enterprises has been greater than expected, thus helping them to improve waste collection. <b>Issues to be reviewed in the MP</b> To provide the companies with the number of collection vehicles necessary to render their service; to advise the residents on how to dispose of their waste; and to achieve an efficient, high-quality waste collection.</p>	<p>Community firms have increased their collection. <b>Issues to be reviewed in the MP</b> Guide citizen on how to discharge their waste, and maintain an efficient service and quality. Also check, through the Directorate of urban planning, permission to the construction companies to monitor the handling of construction waste and other debris which are generated.</p>	<p>analysis of the relationship between the discharge conditions and collection system.</p>
Collection	<p><b>Current Situation.</b> Waste collection by hired companies is not efficient due to the limited number of of collection vehicles. <b>Issues to be reviewed in the MP</b> No answer</p>	<p><b>Current Situation.</b> Collection fee management has increased continuously, generating billing levels up to 55% in the global sense, being higher than 75% in high income areas. <b>Issues to be reviewed in the MP</b> The gap between the costs of the cleansing system and what it is recommended from what is being charged and collected. To evaluate the fee which remains the same and to charge by volume generated by large generators. There are still no institutional conditions to propose focusing on neither subsidies nor their reduction; ADN financial management is deficient for SWM issues vs the payment by residents.</p>	<p><b>Current Situation.</b> Both private and community companies, as well as the companies under ADN, have acquired a few collection vehicles. However, the number of vehicles as established by the Master Plan is still insufficient. Therefore, broken vehicles cannot be immediately replaced by operational ones to cover a designated area. <b>Issues to be reviewed in the MP</b> Companies should have the required number of collection vehicles in good operational conditions to cover the designated areas as frequently as needed.</p>	<p><b>Current situation.</b> As mentioned before, one of the companies has acquired new collection units, which gives it larger capacity to provide service in their assigned area. And the other company has met with ADN personnel related with the issue for increasing their vehicles. Community foundations and our ADN direct operation has improved some units. <b>Issues to be reviewed in the MP</b> Insist on reviewing that companies have the required units, as well as the quality of these assigned for operations, and whether they have the necessary work wears.</p>	<p>Level 4 Assessment is raised from 2011 due to his better training in the subject.</p>
Transport (Transfer Station )	<p><b>Current Situation.</b> It currently operates every day receiving a large portion of the wastes collected by the</p>	<p><b>Current Situation.</b> Solid waste generation has increased substantially to exceed what was estimated in the Master Plan due to several factors, such</p>	<p><b>Current Situation.</b> As can be seen from the increase in waste collection by the community companies and some units operated by private</p>	<p><b>Current situation.</b> It is discussed the possibilities of other transfer stations within the Gran Santo Domingo Mancomunidad, but available</p>	<p>Level 3 The evaluation is raised, but he still needs more training.</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	community company and some units operated by the private companies and ADN. <b>Issues to be reviewed in the MP</b> No answer	as the number of residents who develop their activities in the National District, small growth in the city, and economic improvement, among others. <b>Issues to be reviewed in the MP</b> A revision of the factors which have caused an important increment of waste with respect to what was estimated in the Master Plan should be conducted, rate of growth in the city, and floating population which goes to the National District to work.	companies, the amount of waste received at the existing transfer station is currently on the increase. <b>Issues to be reviewed in the MP</b> The vehicles transporting the wastes up to the transfer station should be optimized; the units conveying the wastes up to the landfill site and the condition of the roads should be improved.	sites are not found. As for the existing one, it has a greater development, so that large amount of waste are collected by the new units and transported to Duquesa. <b>Issues to be reviewed in the MP</b> Optimization of units that transport and transfer. Improvement of transfer units that have problems of trafficability to the final disposal site. Also it needs to study the feasible locations for transfer activities that depending on the surrounding population.	
Recycling	<b>Current Situation.</b> So far, recycling is carried out in an informal way at the landfill site. There exists a company involved in newspaper recycling. <b>Issues to be reviewed in the MP</b> No answer	<b>Current Situation.</b> Taking into account contracted companies, they do not have the recommended collection equipment in the Master Plan; progress has not been satisfactory because clients cannot trust the system with regards to time and frequency. <b>Issues to be reviewed in the MP</b> To achieve that companies obtain necessary units to conduct the service, instruct residents on the adequate manner to discharge, and achieve an efficient and high quality service.	<b>Current Situation.</b> There operates the Center for the Promotion of Recycling currently implementing a pilot project for paper recovery together with Empresa Moldeados Dominicanos, S.A, in institutions and residents' associations. The project is expected to be expanded to schools and other places generating paper. GREEN LOVE is a company currently cooperating with the project. <b>Issues to be reviewed in the MP</b> Environmental education should help residents be aware of the fact that their greatest benefit is their contribution to the environment. In addition, to attract companies interested in recycling; and to improve training in terms of environmental education to reduce waste disposal.	<b>Current situation.</b> Currently there is the Center for the Recycling Promotion that now has a pilot project for the recovery of paper in collaboration with the company named Moldeados Dominicanos, institutions, neighborhood associations and it is intended to expand to schools, and other generators of such material. A new company which has been integrated into the collaboration is GREEN LOVE. <b>Issues to be reviewed in the MP</b> Strengthen the training of environmental education, looking for the discharge reduction. In the legal order it must institutionalize the Centre for Recycling Promotion within the DIGAUE.	Level 3 2011 assessment is maintained because the answers are similar.
Treatment (composting)	<b>Current Situation.</b> The Center for Environmental Education	<b>Current Situation.</b> Work has been done on the feasibility study to conduct	<b>Current Situation.</b> Tree branches have begun to be shredded by DIGAUE by using a	<b>Current situation.</b> Already started shredding of pruning waste with the acquisition	Level 3.5 Assessment is raised because

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p>is currently implementing several composting projects at Mirador Sur park.</p> <p><b>Issues to be reviewed in the MP</b> No answer</p>	<p>compost which will be practiced in the prune waste pilot project next year and, subsequently, market waste will be included.</p> <p><b>Issues to be reviewed in the MP</b> The expansion of compost waste program by municipal markets and waste prune.</p>	<p>shredding machine donated by JICA. There is another shredder currently being repaired. Shredding began at Mirador Sur park and it is expected to be extended to other places.</p> <p><b>Issues to be reviewed in the MP</b> The expansion of the composting program using wastes generated by municipal markets and tree waste. Market waste should be used to avoid dumping them at the landfill site.</p>	<p>of a shredder from DIGAUE, donated by JICA, in addition to an existing one that is under repair. In the Mirador Sur Park, it has begun to expanded to other places. It adds to these other two shredders and increased shredding capacity.</p> <p><b>Issues to be reviewed in the MP</b> The expansion of the program of composting generated by municipal markets and pruning wastes. That market wastes can reduce amount to disposal site. With respect to these, it already considers the possibility of the use of waste from the market.</p>	<p>he reflects more knowledge and interest in this subject.</p>
Final disposal	<p><b>Current Situation.</b> Wastes are covered with soil. However, the landfill site is not operated under appropriate conditions to attempt to protect the subsoil.</p> <p><b>Issues to be reviewed in the MP</b> Construction of the leachate storage and treatment facility.</p>	<p><b>Current Situation.</b> The operation in the final disposal site has improved remarkably. In spite the amount of tons received daily has increased remarkably with respect to what was foreseen in the Master Plan.</p> <p><b>Issues to be reviewed in the MP</b> In view of the service life foreseen for the existing final disposal site, it is necessary to review issues about the recover, operation of the final disposal site. On the other hand, it should be reviewed for the new site, design issues such as structural stability analysis, liner analysis, and leachate and treatment storage, among others.</p>	<p><b>Current Situation.</b> In spite of the difficulties encountered in the last months as a consequence of the rains and the deterioration of the road affecting the access by collection vehicles to Duquesa, the landfill site is being operated at full capacity.</p> <p><b>Issues to be reviewed in the MP</b> In the light of the remaining service life estimated for the existing final disposal site, some aspects of the activities related to waste recovery and landfill site operation should be reviewed. On the other hand, some aspects related to the design of the new landfill site such as structural stability, site bottom covering, leachate storage and treatment, etc., should also be reviewed.</p>	<p><b>Current situation.</b> Despite the difficulties presented in these months of the year, such as the rain and the access road deterioration, which causes problems to collection and transport vehicles to Duquesa, it remains operating.</p> <p><b>Issues to be reviewed in the MP</b> In view of the remaining service life expected for existing final disposal site, it is necessary to review aspects of recovery works and site operation. On the other hand, it should be checked for the new site aspects of design, such as structural stability analysis, analysis of lining, storage and treatment of leachate, among others.</p>	<p>Level 3.5 2011 assessment is maintained because the answers are similar.</p>





**Evaluation 2012 Francisco Alberto Martínez García**

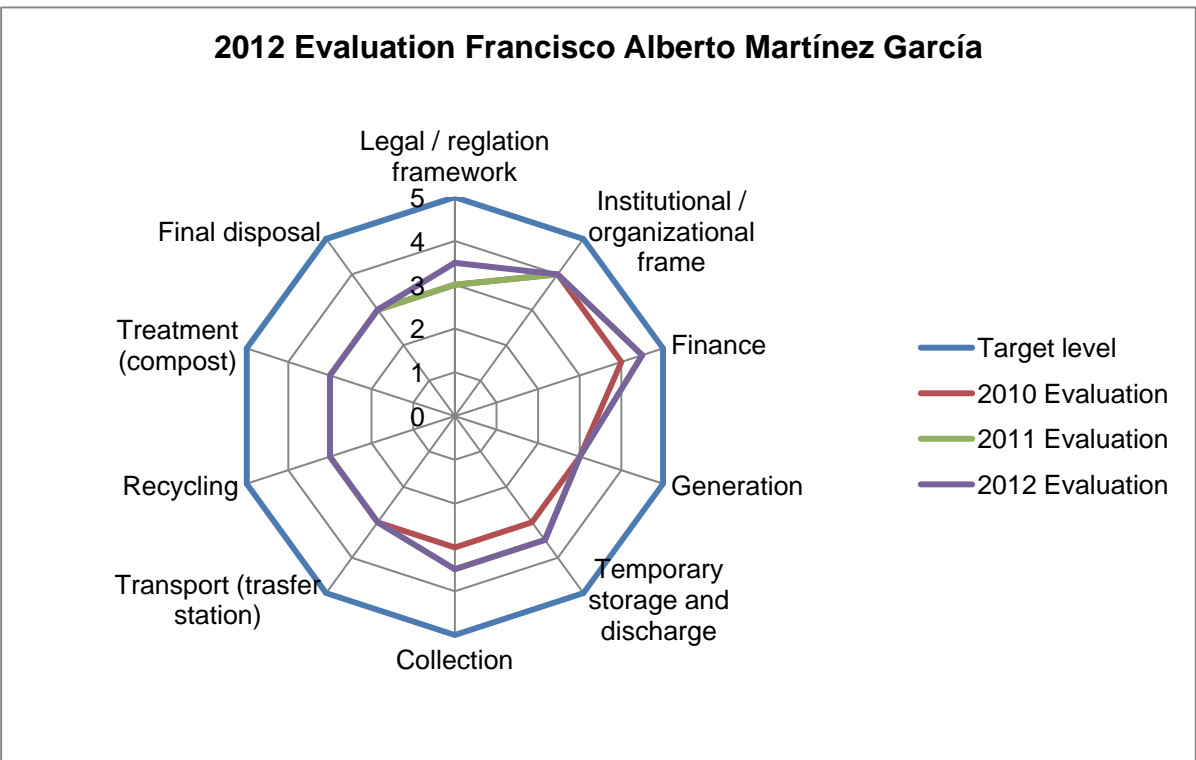
Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
Legal / regulatory framework	<p><b>Current Situation.</b> What has been established in the regulation has not being applied completely, operation has been done based on contracts which have not finished yet or some points on the regulations from the Environmental Ministry which are not being applied.</p> <p><b>Issues to be reviewed in the MP</b> Existing contracts with private companies and several aspects related to inspections. The contents of the Manual of Regulations for Solid Waste should be further circulated among the residents.</p>	<p><b>Current Situation.</b> What has been established in the regulation has not being applied completely, operation has been done based on contracts which have not finished yet or some points on the regulations from the Environmental Ministry which are not being applied.</p> <p><b>Issues to be reviewed in the MP</b> To study the causes and reasons to prevent the enactment of the "Regulation for Non-Hazardous Municipal Solid Waste Management Service" in its totality. It is also important to develop policies which promote the compliance of established regulation and rules.</p>	<p><b>Current Situation.</b> The Municipal Sanitation Regulations are not being fully implemented yet. These regulations are the representative legal reference to execute and regulate all the activities envisaged in the Master Plan.</p> <p><b>Issues to be reviewed in the MP</b> We should first implement all the regulations and gradually evaluate the results to then be in a position to identify the things that work out well and those that should be modified.</p>	<p><b>Current situation.</b> Very little has happened in the field of legislation and regulation, since they are not in practice the sanctions laid down both collector companies such as the municipal, so the Master Plan has not been able to develop fully.</p> <p><b>Issues to be reviewed in the MP</b> I think that if we evaluate the results, we realize that at this stage in the challenge as projected for this date this is due to that legislation and regulations are being applied in a passive manner.</p>	<p>Level 3.5 Assessment is raised from 2011 because he shows better understanding of the topic</p>
Institutional / organizational framework	<p><b>Current Situation.</b> Improved coordination and guidance by the staff is required to carry out waste collection more effectively.</p> <p><b>Issues to be reviewed in the MP</b> It is needed the complete support of all departments of this institution to the DIGAUE to attain the objectives of the Master Plan.</p>	<p><b>Current Situation.</b> It has been incorporated the urban planning process in the integrated solid waste management. It has been strengthen the capacity of the personnel in solid waste management through the application of measures directed to improve its performance and protection of health. It has been established an evaluation system and quality control for solid waste management service.</p> <p><b>Issues to be reviewed in the MP</b> It is needed the complete support of all departments of this institution to the DIGAUE to attain the objectives of the Master Plan. To facilitate and</p>	<p><b>Current Situation.</b> The Direction of Municipal Sanitation is responsible for the management of the solid wastes generated within the National District. City planning has been integrated into the integrated management of solid wastes. The capacity of the staff involved in solid waste management has improved with the implementation of a number of measures aiming at improving their performance and protecting their health. A system to assess and monitor the quality of solid waste management has been introduced.</p> <p><b>Issues to be reviewed in the MP</b> Total support by all the departments to the City's Direction of Sanitation is required</p>	<p><b>Current situation.</b> The participation of the fire brigade of the DN in the streets washing and cleaning of the city is noticeable. It is given to DIGAUE the control of equipment and transportation, this is something very important in carrying out operations and maintenance of the vehicles. Recently it is established the Environmental Secretariat which contributes to the improvement of the trees and pruning management of the city.</p> <p><b>Issues to be reviewed in the MP</b> It is needed the total support by all departments of this institution to address urban cleansing to enable to achieve all the objectives of the Master Plan. Facilitate and ensure citizen participation in implementing</p>	<p>Level 4 The evaluation is maintained because answers are essentially the same as those in 2010 and 2011.</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
		achieve the participation of citizens in the provision of integrated solid waste management service. To evaluate the financial and administrative operations related to the provision of solid waste management service, taking into account what it is established in the Regulation for Non-Hazardous Solid Waste Management.	to achieve the goal envisaged in the Master Plan. To facilitate and achieve public participation related to integrated solid waste management. To examine financial and administrative operations associated with solid waste management by taking into account the Regulations for the Management of Non-Hazardous Solid Wastes.	integrated solid waste management service. Examine financial and administrative operations associated with the solid waste management provision, considering regulations on non-hazardous solid waste management.	
Financing	<b>Current Situation.</b> Only 50% of residents pays the collection service. The amount collected is much less than expenditure for providing the collection service which causes that a large part is subsidized; this subsidy fund should be destined to other social action in the institution. <b>Issues to be reviewed in the MP</b> To readjust the rates in some sectors and to get all the residents to timely pay for them.	<b>Current Situation.</b> Only 50% of residents pays the collection service. The amount collected is much less than expenditure for providing the collection service which causes that a large part is subsidized; this subsidy fund should be destined to other social action in the institution. <b>Issues to be reviewed in the MP</b> ADN position is to gain the trust of clients for the service of SWM through the provision of a reliable service. Consequently, the first priority is to provide a reliable service of good quality, while simultaneously the number of clients of solid waste service who really pay for this service is increased.	<b>Current Situation.</b> The Sala Capitular recently approved an increase in billing related to waste collection. Bills for business establishments and institutions considered as large waste generators, which used to pay the same amount as households, have been readjusted. AAA company, which is responsible for billing and collection, is trying to get the residents to pay the bill. <b>Issues to be reviewed in the MP</b> To ensure a quality service by complying with the routes and the frequencies established. To set up a mechanism helping to determine the category the customer belongs to. To get all the residents to pay for the service rendered.	<b>Current situation.</b> The Sala Capitular recently approved an increase in the tariff of the collection service. It has been reset invoices to businesses and institutions that fall into the category of large generators that they paid the same as housing. The AAA company which is responsible for the billing and tariff collection, also makes efforts to ensure that the citizen pays the bill. <b>Issues to be reviewed in the MP</b> Comply with the routes and frequencies to ensure a service quality. Establish mechanisms that enable to determine which production range the client belongs to. Ensure that all citizen makes the payment for the service.	Level 4.5 It remains same as the 2011 assessment.
Generation	<b>Current Situation.</b> Waste reduction has been extremely limited due to the fact that the increase in waste generation for this period has exceeded the estimations. <b>Issues to be reviewed in the</b>	<b>Current Situation.</b> The generation of solid waste has exceeded the expected amount foreseen in the Master Plan. <b>Issues to be reviewed in the MP</b>	<b>Current Situation.</b> It is true that waste generation exceeds the level established by the Master Plan for this period. However, the City's Direction of Sanitation has been able to manage this situation as, despite	<b>Current situation.</b> It is true that the waste generation is higher than that projected by the Master Plan for this date, but DIGAUE has been able to deal with this situation, because despite all the city today is cleaner than three years	Level 3 Evaluation is maintained because the answers do not reflect advances in this topic.

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
	<p><b>MP</b> Data projected should be reviewed. To promote and support more the recycling and conscious awareness activities in the population regarding problems which cause an increment of wastes everyday in the environment and the society. Items should be reused even more before they are disposed.</p>	<p>Data projected should be reviewed. To promote and support more the recycling and conscious awareness activities in the population regarding problems which cause an increment of wastes everyday in the environment and the society. Items should be reused even more before they are disposed.</p>	<p>the current scenario, the city is cleaner than three years ago. <b>Issues to be reviewed in the MP</b> The data projected should be reviewed. To further promote and encourage recycling activities and to raise the awareness of the residents regarding the problems having an impact on the increase in waste generation. Wastes should be reused before disposing of them.</p>	<p>ago. <b>Issues to be reviewed in the MP</b> The data of waste generation projections must be reviewed. Promote and support more recycling activities and raise awareness about the problems that cause the waste increase on the environment and society every day. Things should be reused more before disposal.</p>	
Temporary storage and discharge by generators	<p><b>Current Situation.</b> Population takes out the waste at the moment it is generated, many times the truck passes and at that moment they take out waste again which does not allow measuring the quality of the service and/or does not allow having a cleaner sector when the route is finished. <b>Issues to be reviewed in the MP</b> To inform each sector about day and time of collection and mainly how to apply fines to residents when they do not follow the program.</p>	<p><b>Current Situation.</b> Population takes out the waste at the moment it is generated, many times the truck passes and at that moment they take out waste again which does not allow measuring the quality of the service and/or does not allow having a cleaner sector when the route is finished. <b>Issues to be reviewed in the MP</b> To inform each sector about day and time of collection and mainly how to apply fines to residents when they do not follow the program.</p>	<p><b>Current Situation.</b> In some sectors, the residents take out the garbage using plastic bags in the morning on the days assigned. Many dumping sites have been eliminated by complying with the routes and the frequencies established. However, there are still people who for lack of awareness, for political reasons, or for sheer laziness do not dispose of wastes in time or in the proper way. <b>Issues to be reviewed in the MP</b> To spread the information regarding the day and the time for waste collection to be carried out by each sector and, above all, to impose fines on the residents not complying with the regulations. To give talks to guide residents about waste disposal. Plastic bags should also be provided.</p>	<p><b>Current situation.</b> In some sectors the citizen discharges waste in plastic bags in the morning each day. Many waste dumps in the city have been removed through the fulfillment of routes and frequency. Although there are still people who do not collaborate with the on-time discharge of waste as required, by ignorance or by simple laziness or political reasons. <b>Issues to be reviewed in the MP</b> Disseminate information by each sector in relation to the day and time that the collection service provided and above all sanctions applied to citizen who does not follow the program rules. Provide talks in the sectors to guide people on how the waste be discharged. Plastic bags must also be provided.</p>	<p>Level 3.5 2011 assessment is maintained because the answers are the same.</p>
Collection	<p><b>Current Situation.</b> There are trucks which are necessary, but not required; most trucks are old, in bad condition, and many are not compactors. <b>Issues to be reviewed in the</b></p>	<p><b>Current Situation.</b> There are trucks which are necessary, but not required; most trucks are old, in bad condition, and many are not compactors. <b>Issues to be reviewed in the</b></p>	<p><b>Current Situation.</b> Waste collection companies have of late increased the number of compactor trucks. These are not brand new trucks, but they are certainly helping to solve existing problems. However, collection</p>	<p><b>Current situation.</b> Collection companies are interested in buying new trucks. It guarantees more efficiency in the collection service. <b>Issues to be reviewed in the MP</b> DIGAUE is the entity authorized to</p>	<p>Level 3.5 2011 evaluation is maintained because there is no evidence of progress in his training in the</p>

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
	<b>MP</b> ADN should demand to the companies to procure required vehicles in order to give the best answer to the collection problems.	<b>MP</b> ADN should demand to the companies to procure required vehicles in order to give the best answer to the collection problems.	companies have focused on acquiring large trucks instead of small ones as was stipulated in the contracts to collect wastes in those areas where access is difficult. <b>Issues to be reviewed in the MP</b> The city council should get involved in the purchasing of waste collection vehicles by the companies. ADN must not allow companies to purchase used collection vehicles that have being operated for over five years.	require private companies the number and type of collection vehicles.	topic.
Transport (Transfer Station )	<b>Current Situation.</b> No answer <b>Issues to be reviewed in the MP</b> No answer	<b>Current Situation.</b> There are plans to construct another Transfer Station, but it has not been materialized. <b>Issues to be reviewed in the MP</b> To select an adequate land for these purposes, if it is possible farther away from residential areas. Better design which allows the mobility of vehicles inside the station and does not interrupt the vehicle traffic nor pedestrian mobility outside the station.	<b>Current Situation.</b> There are plans to construct another Transfer Station, but it has not been materialized. <b>Issues to be reviewed in the MP</b> To select an adequate land for these purposes, if it is possible farther away from residential areas. Better design which allows the mobility of vehicles inside the station and does not interrupt the vehicle traffic nor pedestrian mobility outside the station.	<b>Current situation.</b> We have implemented safety measures to avoid accidents. It is expected the construction of a second transfer station. <b>Issues to be reviewed in the MP</b> Select a most suitable land for these purposes, if possible more distant from residential areas. Best design that allows the mobility of vehicles inside the transfer station and that do not interrupt vehicular or pedestrian traffic in the outskirts of the station.	Level 3 It maintains the same evaluation because the answers are the same as those in 2010 and 2011.
Recycling	<b>Current Situation.</b> It is very little what is being recycled with respect to demand, but efforts are being conducted to improve this activity. <b>Issues to be reviewed in the PM</b> Established programs should be reviewed, inform widely the benefits, and establish clear regulations which allow a regular system.	<b>Current Situation.</b> It is very little what is being recycled with respect to demand, but efforts are being conducted to improve this activity. <b>Issues to be reviewed in the PM</b> Established programs should be reviewed, inform widely the benefits, and establish clear regulations which allow a regular system.	<b>Current Situation.</b> It is very little what is being recycled with respect to demand, but efforts are being conducted to improve this activity. <b>Issues to be reviewed in the PM</b> Established programs should be reviewed, inform widely the benefits, and establish clear regulations which allow a regular system.	<b>Current situation.</b> It is very little what is recycled with regard to demand, but efforts are kept to improve this activity. <b>Issues to be reviewed in the MP</b> Established programs should be reviewed. Promote the benefits. Establish clear rules that enable to regulate the system.	Level 3 There is no progress on the issue. Same answers since 2009. It is not a topic related to his activities in DIGAUE.

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
Treatment (composting)	<p><b>Current Situation.</b> Some pilot projects have been implemented. However, they have been extremely small-scale projects. Appropriate tree waste is available.</p> <p><b>Issues to be reviewed in the MP</b> To review the programs to try to speed up the process.</p>	<p><b>Current Situation.</b> Very little progress has been conducted in this activity.</p> <p><b>Issues to be reviewed in the MP</b> To conduct feasibility studies jointly with the selection of the site. To introduce separate storage of waste in municipal markets. To initiate and expand the composting program by establishing goals for biodegradable waste (biodegradable and grass/woods) that are generated by municipal markets and prune waste.</p>	<p><b>Current Situation.</b> Very little progress has been conducted in this activity.</p> <p><b>Issues to be reviewed in the MP</b> To conduct feasibility studies jointly with the selection of the site. To introduce separate storage of waste in municipal markets. To initiate and expand the composting program by establishing goals for biodegradable waste (biodegradable and grass/woods) that are generated by municipal markets and prune waste.</p>	<p><b>Current situation.</b> No response</p> <p><b>Issues to be reviewed in the MP</b> No response</p>	<p>Level 3 It is not a topic related to his activities in DIGAUE.</p>
Final disposal	<p><b>Current Situation.</b> Because the application of 3Rs policies has not been efficient, 100% of waste collected is disposed in the landfill. Final disposal does not satisfy with environmental regulations; consequently, service life is reduced and environmental pollution increases.</p> <p><b>Issues to be reviewed in the MP</b> Established regulations and efficient application of 3Rs.</p>	<p><b>Current Situation.</b> Because the application of 3Rs policies has not been efficient, 100% of waste collected is disposed in the landfill. Final disposal does not satisfy with environmental regulations; consequently, service life is reduced and environmental pollution increases.</p> <p><b>Issues to be reviewed in the MP</b> Established regulations and efficient application of 3Rs.</p>	<p><b>Current Situation.</b> Because the application of 3Rs policies has not been efficient, 100% of waste collected is disposed in the landfill. Final disposal does not satisfy with environmental regulations; consequently, service life is reduced and environmental pollution increases.</p> <p><b>Issues to be reviewed in the MP</b> Established regulations and efficient application of 3Rs.</p>	<p><b>Current situation.</b> Since the implementation of the 3R policies is not efficient, 100% of collected waste is delivered to the landfill, disposal does not comply with environmental regulations, it shortens the service life and increases environmental pollution.</p> <p><b>Issues to be reviewed in the MP</b> Norms are established. Need to implement 3R policies efficiently.</p>	<p>Level 3 There is no progress on the issue. Same answers since 2009. It is not a topic related to his activities in the DIGAUE</p>



Evaluation 2012 Oscar Guillermo García Arias

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
Legal / regulatory framework	<p><b>Current Situation.</b> It was achieved the approval of the urban cleansing regulation.</p> <p><b>Issues to be reviewed in the MP</b> Implementation and information about the regulation has not been satisfactory; it is an area which should be worked in more detail.</p>	<p><b>Current Situation.</b> Approval of Urban Cleansing Regulation</p> <p><b>Issues to be reviewed in the MP</b> Implementation and inform widely the regulation should be something to work in more detail, as well as to look for means to solve the problem related to the sanctioning capacity through administrative means which can achieve some improvement if it is achieved the approval of the Capital Law.</p>	<p><b>Current Situation.</b> The approval of the Sanitation Regulations. The regulations for waste storage facilities in apartment buildings are still to be approved.</p> <p><b>Issues to be reviewed in the MP</b> In addition to the answers provided for previous years, the regulations for waste storage facilities in apartment buildings and houses should be approved and implemented. Some regulations for construction waste disposal should also be established as it is directly impacting on the cost of sanitation.</p>	<p><b>Current situation.</b> Currently it being discussed 3 regulations in the Assembly Committee that would complements the waste legislation, which are the regulations for storage of waste in buildings, regulations for the collection of large generators and the regulations on demolition and pruning generated in the city. We are in the process of discussion and hope it will be approved this year.</p> <p><b>Issues to be reviewed in the MP</b> With the adoption of 3 resolutions already created, it is complemented the existing instruments in legislation that would help the development of the cleansing management. Another law that is under discussion in the Congress is the Ley de Capitalidad that would allow greater financial capacity to ADN for the tax collection and an important aspect is to find the way to solve the sanctioning capacity by administrative authority.</p>	Level 5
Institutional / organizational framework	<p><b>Current Situation.</b> Currently, collection has been the main item in budget execution and increment of collection has increased dramatically the current budget.</p> <p><b>Issues to be reviewed in the MP</b> No answer</p>	<p><b>Current Situation.</b> The work to integrate and coordinate other departments to the cleansing system has achieved great progress going from the budget execution through coordination with the Financial department to the cooperation with the coordination with citizens through the Areas of Junta de Vecino and the Municipal School of Leadership, as well as the development of activities of the Environmental Information Center.</p> <p><b>Issues to be reviewed in the MP</b> To work the area of environmental education with the Department of</p>	<p><b>Current Situation.</b> The training sessions conducted and the fact that we are now in a position to convey our knowledge to the other city councils throughout the country show that capacity development has improved since 2007.</p> <p><b>Issues to be reviewed in the MP</b> Apart from the financial and budgetary issue, I think that our organization should focus on improving communication with the residents and strengthening public</p>	<p><b>Current situation.</b> It is given training at all levels, from the managers to the operators, courses in Japan, in third countries, training to our technical experts by the project. A great achievement in this strengthening has lead to the creation of the Environmental Secretariat, which increases the range of the subject of cleansing and environmental management within the institution and seeks to help coordination among directorates.</p> <p><b>Issues to be reviewed in the MP</b> One aspect that needs to be improved is the strengthening in the area of citizen education supported by linking</p>	Level 4.5 Very good responses and proposal

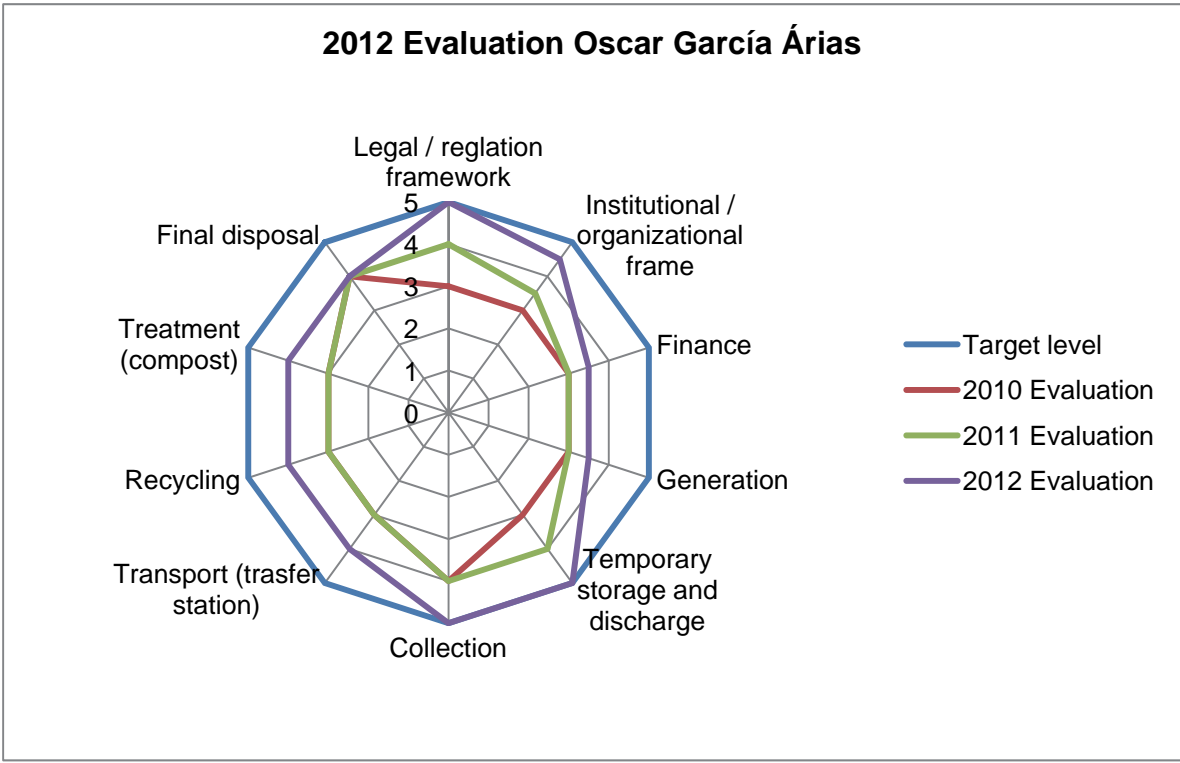
Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
		Human Development and Urban Animation to add them to important tasks such as conscious awareness program.	awareness in terms of solid waste management.	of the ADN with the neighbors association, would be a big step for the consolidation of the Master Plan.	
Financing	<p><b>Current Situation.</b> Only 50 % of citizens who are issued an invoice, actually pay for it. Increment of collection fee has not been proportional to increment of generation.</p> <p><b>Issues to be reviewed in the MP</b> Fee system should be reviewed. Modifying payment by volume and not for M<sup>2</sup> of establishment would help the collection fee goal.</p>	<p><b>Current Situation.</b> Until now the gap between waste generation and fee collection for the service is very big. Only 50% of citizens, who are issued invoice, actually pay them.</p> <p><b>Issues to be reviewed in the MP</b> The fee system should be reviewed. Modifying payment by volume and not for M<sup>2</sup> of establishment would help the collection fee goal.</p>	<p><b>Current Situation.</b> The increase in the rate has helped increase revenues. However, the number of residents who pay has not increased. Therefore, the attention should be focused on this issue.</p> <p><b>Issues to be reviewed in the MP</b> At present, there does not exist a rate based on waste volume, especially for large generators.</p>	<p><b>Current situation.</b> Revenues of cleansing service have remained similar to the previous year.</p> <p><b>Issues to be reviewed in the MP</b> It must be initiated a process of tariff system based on volume of production in large generators, and also create mechanisms to increase revenues.</p>	Level 3.5 Better answers than in 2011 but he should be more trained in the subject of cost calculation
Generation	<p><b>Current Situation.</b> The surprising increment of generation amount with relation to the forecast forces to review the models used to define those figures.</p> <p><b>Issues to be reviewed in the MP</b> To review the forecast generation and study other forecast models.</p>	<p><b>Current Situation.</b> The surprising increment of generation amount with relation to the forecast forces to review the models used to define those figures.</p> <p><b>Issues to be reviewed in the MP</b> To review the forecast generation and study other forecast models.</p>	<p><b>Current Situation.</b> The increase in waste generation has been smaller this year as compared to last year probably due to the present economic situation.</p> <p><b>Issues to be reviewed in the MP</b> To review the models used for projected waste generation.</p>	<p><b>Current situation.</b> In the last 2 years, there has been a decrease in waste generation getting closer and closer to the master plan forecasts.</p> <p><b>Issues to be reviewed in the MP</b> Forecasts have been revised and the decrease is apparently will continue to reach near the levels set forth in the master plan.</p>	Level 3.5 Better answers than in 2011 but he should be more trained in the topic.
Temporary storage and discharge by generators	<p><b>Current Situation.</b> The establishment of discharge regulations is defined in the Cleansing Regulation and, currently, Urban Planning is working to elaborate a norm to establish a temporary storage facility in each drawing which is submitted to this department.</p> <p><b>Issues to be reviewed in the MP</b> To work on the widespread</p>	<p><b>Current Situation.</b> Few activities have been implemented. The City Planning Authority is currently preparing a regulation to include in every plan submitted the place where wastes are to be disposed of. The activities of the Center for the Promotion of Recycling are being encouraged.</p> <p><b>Issues to be reviewed in the MP</b> To spread the Sanitation Regulations and the regulation for the temporary storage of solid wastes.</p>	<p><b>Current Situation.</b> The regulation for waste disposal facilities in apartment buildings has been prepared. However, it has neither been approved nor implemented, thus hindering waste collection.</p> <p><b>Issues to be reviewed in the MP</b> The approval and implementation of the regulation for waste disposal facilities and the formulation of regulations for the disposal of</p>	<p><b>Current situation.</b> The development of the 3 rules that we are discussing in the Sala Capitular and that we must get approval in the coming months, it will be the greatest advance in this sense similar to that obtained in the cleansing regulation with greater impact on generators.</p> <p><b>Issues to be reviewed in the MP</b> Achieve the approval of 3 resolutions: "waste storage in residential building", "large generators waste collection", "construction and pruning waste</p>	Level 5



Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
	information to the citizens of the Cleansing regulation and to look for a solution to the weakness as well as to look for means to solve the problem related to the sanctioning capacity through administrative means which can achieve some improvement if it is achieved the approval of the Capital Law.		special wastes such as construction waste and tires.	collection”.	
Collection	<p><b>Current Situation.</b> Currently, in areas such as residential/household sectors, new units were acquired, although they are not included in the contract; generally, they have sufficient equipment for collection.</p> <p><b>Issues to be reviewed in the MP</b> Currently, companies do not comply with what has been defined for the procurement of new units; consequently, we have enough units, but not 100% of the required units.</p>	<p><b>Current Situation.</b> Currently, there is a difference between the number of units and those which are operative; new units should be added.</p> <p><b>Issues to be reviewed in the MP</b> Currently, companies do not comply with what has been defined for the procurement of new units; consequently, we have enough units, but not 100% of the required units.</p>	<p><b>Current Situation.</b> The present financial crisis has prevented the replacement of existing collection vehicles, let alone the acquisition of new ones.</p> <p><b>Issues to be reviewed in the MP</b> It is required that companies comply with the contracts signed.</p>	<p><b>Current situation.</b> 30 units of 25yd compactors newly acquired by one of the companies, together with the 21 units acquired in 2009, will count for the required number planed in the contract. This company covers 2/3 of the collection. In addition to this, another company already acquired new units.</p> <p><b>Issues to be reviewed in the MP</b> No acquisition of smaller compactors by major contractor companies invites problems of waste collection in difficult access areas that are scope of the contract.</p>	
Transport (Transfer Station )	<p><b>Current Situation.</b> The station is managing an average of 800 tons per day which is more of what has been foreseen. To make progress on the new transfer station.</p> <p><b>Issues to be reviewed in the MP</b> To begin tasks to look for a new station.</p>	<p><b>Current Situation.</b> The station is currently managing 800 tons per day which is more than what was expected. To make progress on the new transfer station.</p> <p><b>Issues to be reviewed in the MP</b> To begin tasks to look for a new station, the process of bidding and construction.</p>	<p><b>Current Situation.</b> The transfer station is currently handling 800 tons a day.</p> <p><b>Issues to be reviewed in the MP</b> Something about the maintenance of the transfer station and the operations to be taken into account for maintenance.</p>	<p><b>Current situation.</b> Waste amount handled in the transfer station is decreasing due to that the collection company acquired new vehicles. Currently it is provided maintenance and improvement works for the transfer station.</p> <p><b>Issues to be reviewed in the MP</b> Studies carried out under the project of the master plan for the Mancomunidad seek possible sites for a new landfill, and within the study it is presented proposal for transfer stations and proper maintenance of the existing one.</p>	Level 4 The assessment is raised because he showed more trained regarding localization of the new transfer station

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
Recycling	<p><b>Current Situation.</b> Lack of actions in this sense has made it difficult to attain the proposed objectives. It should be the area targeted for waste reduction and recycling.</p> <p><b>Issues to be reviewed in the MP</b> Recycling rates and study the market (conduct a study on the variations of prices)</p>	<p><b>Current Situation.</b> Lack of actions in this sense has made it difficult to attain the proposed objectives. It should be the area targeted for waste reduction and recycling.</p> <p><b>Issues to be reviewed in the MP</b> The minimization percentage should be reviewed, recycling rates, and study the market (conduct study on the variation of prices).</p>	<p><b>Current Situation.</b> The implementation of pilot projects and the interest shown by the private sector to execute their own campaigns have helped bring this issue to the attention of the residents. However, this does not have a direct impact on the waste reduction percentages as established in the Master Plan.</p> <p><b>Issues to be reviewed in the MP</b> To review the percentages in recycling rates and to keep on monitoring the system.</p>	<p><b>Current situation.</b> They are significant progresses in monitoring and continuous evaluation of the CPR, such as the project of paper recycling in the institution, the pruning waste management project, and the works being done to improve the collection of market wastes.</p> <p><b>Issues to be reviewed in the MP</b> Review the percentages in recycling rates and maintain monitoring system.</p>	Level 4 He has participated in the pilot projects
Treatment (composting)	<p><b>Current Situation.</b> Transport and collection of branches increases the cost of solid waste, if we achieve to develop this project, it would be a good alternative to their disposal and management.</p> <p><b>Issues to be reviewed in the MP</b> The implementation of the pilot project will help to define if there is or not a market for compost.</p>	<p><b>Current Situation.</b> It is being pondered for this phase of implementation that a shredding machine would be purchased to begin the process.</p> <p><b>Issues to be reviewed in the MP</b> The implementation of the pilot project will help to define if there is or not a market for compost.</p>	<p><b>Current Situation.</b> With the acquisition of a shredding machine by virtue of the Follow-up Project and the later purchasing of a second shredder by ADN, the equipment required to begin composting is available. The place for the composting pilot project has already been identified.</p> <p><b>Issues to be reviewed in the MP</b> The results of the pilot project will help us study the options for composting.</p>	<p><b>Current situation.</b> A system that increasingly advances and 3 machines with logistical support makes it stable the pruning waste management work, now with the coordination of the directorate of environmental management for the supply of branches. They are working well in soil conditioner production with growth.</p> <p><b>Issues to be reviewed in the MP</b> Now it only needs to proceed composting works with the coordination of market wastes to start its test in municipal parks.</p>	Level 4 He has participated in the pilot projects
Final disposal	<p><b>Current Situation.</b> It is pending the installation of new weighbridge with higher capacity and the possibility to increase the amount paid for disposal in order to make it more sustainable.</p> <p><b>Issues to be reviewed in the MP</b> To verify the generation of leachate and gases.</p>	<p><b>Current Situation.</b> By creating the Mancomunidad (Federation) and the signing of cooperation agreements among different municipalities, the search for a landfill is being conducted on solid grounds.</p> <p>Currently, there is a plant to separate waste and burn gases with an investment by the private contractor of the landfill.</p>	<p><b>Current Situation.</b> The identification of new sites and the evaluation of Duquesa landfill site are the two main issues of the Master Plan currently being dealt with.</p> <p><b>Issues to be reviewed in the MP</b> To take into account the proposals included in the Master Plan as the solution for</p>	<p><b>Current situation.</b> Currently it develops a project for the development of a master plan for the Gran Santo Domingo Mancomunidad, whose central theme is the search for possible locations for the establishment of a new regional landfill and the creation of transfer stations for other municipalities, and there are three proposals for a new landfill. There is a possibility of</p>	Level 4 The assessment is maintained, because he has a good level in understanding the final disposal issue.

Concept	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2011
		<p>It is pending the installation of new weighbridge with higher capacity and the possibility to increase the amount paid for disposal in order to make it more sustainable.</p> <p><b>Issues to be reviewed in the MP</b> To work in all areas proposed and add a manner to verify the generation indexes by leachate and gases in parts where there is no operation inside the current landfill.</p>	the landfill site should be comprehensive.	<p>starting work on a possible place.</p> <p><b>Issues to be reviewed in the MP</b> Give follow-up to review our master plan and compare it with the master plan of Mancomunidad.</p>	

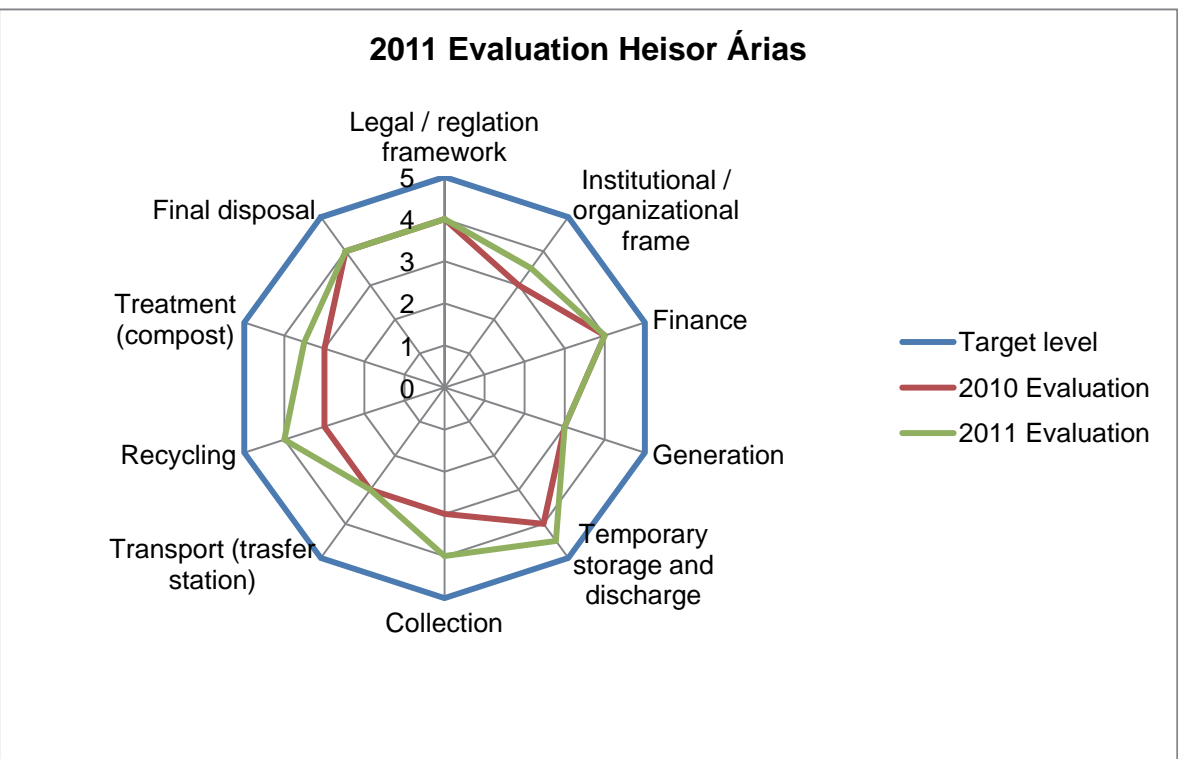


**Evaluation 2011 Heisor Vicente Arias Díaz**

<i>Concept</i>	<i>Answers 2010</i>	<i>Answers 2011</i>	<i>Evaluation 2011</i>
Legal / regulatory framework	<p><b>Current Situation.</b> The approval by the Council to enact the Regulation for Non-Hazardous Municipal Solid Waste Management Service where it is established and regulated Non-Hazardous Solid Waste Management in the National District.</p> <p><b>Issues to be reviewed in the MP</b> The means to inform widely the regulation and evaluate the possibilities to establish sanctions to those who do not comply with what is established in our regulation in order to attain the objectives defined.</p>	<p><b>Current Situation.</b> The scenario is the same in terms of the legal framework. However, there are some intentions and initiatives to pass a national law and to formulate a solid waste management policy.</p> <p><b>Issues to be reviewed in the MP</b> To consider the capacity to impose fines administratively. To review the ways to spread the Sanitation Regulations, the National Policy for Solid Waste Management and the Solid Waste Act.</p>	Level 4 The evaluation is the same.
Institutional / organizational framework	<p><b>Current Situation.</b> In this sense progress has been very satisfactory because we have achieved the support of the financial department and the active participation of the personnel from the Environmental Information Center, General Department of Quality, Municipal School of Leadership, Department of Juntas de Vecinos, and the relationship with residents of Junta de Vecinos in some sectors.</p> <p><b>Issues to be reviewed in the MP</b> To strengthen the activities related to residents' education in order to raise their awareness about the importance of appropriate municipal solid waste management.</p>	<p><b>Current Situation.</b> DIGAUE's structure is clearly defined. However, it has gone through some financial limitations in the last years. In other words, its structure is clear, its staff is qualified, it has a legal framework, the contracts with collection companies are clear, and its market is organized. However, its financial constraints have slowed down the progress.</p> <p><b>Issues to be reviewed in the MP</b> No answer</p>	Level 3.5 He is well aware of DIGAUE's financial problems.
Financing	<p><b>Current Situation.</b> In this sense, progress is significant because only 50% of clients conduct the corresponding payment to the collection service which is provided by ADN.</p> <p><b>Issues to be reviewed in the MP</b> To establish invoice based on the amount of waste which is generated by properties.</p>	<p><b>Current Situation.</b> The fees for waste collection paid by households increased by 100% this year. So, fee collection has almost doubled as compared to the year 2010.</p> <p><b>Issues to be reviewed in the MP</b> The fee system and the market release of the ICI's (institutions, shops and industries).</p>	Level 4 The evaluation is the same.
Generation	<p><b>Current Situation.</b> A drastic increment in solid waste generation, it was not foreseen in the master plan.</p> <p><b>Issues to be reviewed in the MP</b> To conduct studies to measure waste generation.</p>	<p><b>Current Situation.</b> Waste collection has remained almost the same in the last 3 years. At present, an average 1,950 tons/day are collected.</p> <p><b>Issues to be reviewed in the MP</b> Statistics from the 2010 National Census</p>	Level 3 The evaluation is the same.
Temporary storage and discharge by generators	<p><b>Current Situation.</b> Currently, there is work done on the preparation to develop the pilot project in the sector called Honduras del Oeste (INVI) with the purpose to improve the management, storage, and discharge of solid waste with the purpose to expand this experience to other areas.</p> <p>Additionally, in the Department of Urban Planning, the Municipal Regulation for Temporary Storage of</p>	<p><b>Current Situation.</b> The pilot projects aiming at improving waste disposal in Invi and Antillas sectors were implemented. Meetings with the community were held. Materials were prepared. Workshops were organized. These actions helped improve sanitary conditions and public participation. These pilot projects are expected to be spread to</p>	Level 4.5 The evaluation is higher as he is very well aware of the problems related to waste disposal within the National

Concept	Answers 2010	Answers 2011	Evaluation 2011
	<p>Non-Hazardous Solid Waste in Multi-family Households is being reviewed.</p> <p><b>Issues to be reviewed in the MP</b> The enactment of the Municipal Regulation for Temporary Storage of Non-Hazardous Solid Waste in Multi-family Households. Additionally, to establish mechanism to inform widely basic regulations to discharge waste.</p>	<p>other sectors needing a closer communication between ADN and the residents. The regulations for waste storage facilities in apartment buildings are expected to be approved. These regulations focus on space, kind of surface, containers, location, and other important issues necessary to keep optimum sanitary conditions and to help increase waste collection efficiency.</p> <p><b>Issues to be reviewed in the MP</b> To get the approval of the regulations for waste disposal facilities in apartment buildings. The implementation of such regulations.</p>	District.
Collection	<p><b>Current Situation.</b> Collection service has improved significantly due to studies conducted during the Master Plan, even with weaknesses shown by private companies contracted by ADN to provide the service which do not have required units to provide the service efficiently.</p> <p><b>Issues to be reviewed in the MP</b> Procurement of adequate units for the different areas by the companies which have been contracted.</p>	<p><b>Current Situation.</b> At present, almost all of waste collection is outsourced. Due to the financial limitations the National District's Council is going through, the companies have not been able to acquire the number of collection vehicles required to meet the needs as stipulated by the current contract for lack of liquidity. However, the existing collection vehicles cover almost all the routes designed. It should be noted that companies lack the right collection vehicles to access places having narrow streets. This situation is noticeable in certain points along some thoroughfares.</p> <p><b>Issues to be reviewed in the MP</b> Waste collection in areas where access is difficult outside the routes covered by Community Foundations. Adjustment of the collection routes that need to be modified.</p>	<p>Level 4 The evaluation is the same as he is well aware of the problems related to waste collection within the National District.</p>
Transport (Transfer Station )	<p><b>Current Situation.</b> Currently, our transfer station manages an average of 950 tons per day which is higher of what was expected.</p> <p><b>Issues to be reviewed in the MP</b> Initiate studies to identify an adequate place where to conduct operations for a 2nd Transfer Station.</p>	<p><b>Current Situation.</b> The only progress so far is the establishment of the association of municipalities as it will be the basis to discuss this issue due to the fact that the National District does not have room to build such a facility within its jurisdiction.</p> <p><b>Issues to be reviewed in the MP</b> To identify the alternative sites where the construction of a new transfer station would be more feasible, less expensive and more efficient for the operations.</p>	<p>Level 3 The evaluation is the same as the answers are similar to those of 2010.</p>
Recycling	<p><b>Current Situation.</b> Implementation of pilot projects to recover and recycle paper in companies, institutions, and schools.</p> <p><b>Issues to be reviewed in the MP</b> To review the goal defined in the Master Plan in 2005 to evaluate the present conditions.</p>	<p><b>Current Situation.</b> The goal established in the Master Plan is too high (15% of the total wastes generated by the year 2015) taking into account the fact that when the goal was set up the recycling system was handled in a very informal way. There has been a lot of progress in terms of the number of stakeholders currently being involved in waste reduction programs. The establishment of a waste segregation facility at Duquesa landfill site. Pilot projects implemented by ADN about waste recycling and</p>	<p>Level 4 The evaluation is higher because he has shown his expertise on the subject as the person responsible for the Recycling</p>

Concept	Answers 2010	Answers 2011	Evaluation 2011
		reuse. Initiatives implemented by the private sector such as the organization of recycling contests. <b>Issues to be reviewed in the MP</b> To update the waste reduction rate.	Center.
Treatment (composting)	<b>Current Situation.</b> It is defined in this stage of the project, the procurement of a shredding machine to begin composting of prune and municipal market waste. <b>Aspectos a revisar en el PM</b> The location of the shredding machine and identify sources of organic waste.	<b>Current Situation.</b> There is no experience whatsoever about composting. A tree waste shredding machine was donated by JICA and the shredded material is used in public places as for aesthetic purposes. No composting experiments have been carried out, but they are envisaged as part of this project. <b>Issues to be reviewed in the MP</b> The site where wastes will be reused. The specific sources from which organic wastes will be obtained.	Level 3.5 There is some progress in terms of training with the implementation of the pilot project for tree waste shredding.
Final disposal	<b>Current Situation.</b> The current administration of DUQUESA Sanitary Landfill installed a plant to separate recyclable materials in such a way as to extend its service life; additionally, there is work done on the installation of the weighbridge. <b>Issues to be reviewed in the MP</b> To study the possibility to construct a new sanitary landfill for Mancomunidad of Santo Domingo.	<b>Current Situation.</b> The improvement projects shown as progress in the year 2010 continue to be implemented as normal. On the other hand, it should be noted that JICA attempts to strengthen the capacity of the ministry and the councils within the Association in terms of final disposal. <b>Issues to be reviewed in the MP</b> These issues are currently being discussed within the framework of the Association project envisaging the selection of three potential sites for the construction of the new landfill site.	Level 4 The evaluation is the same as in 2010.



## Evaluation 2012 Leomaris Celeste Henríquez Díaz

Concept	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Legal / regulatory framework	<p><b>Current Situation.</b> The approval by the Council to enact the Regulation for Non-Hazardous Municipal Solid Waste Management Service where it is established and regulated Non-Hazardous Solid Waste Management in the National District.</p> <p><b>Issues to be reviewed in the MP</b> The means to inform widely the regulation and evaluate the possibilities to establish sanctions to those who do not comply with what is established in our regulation in order to attain the objectives defined.</p>	<p><b>Current Situation.</b> Legislation and regulation are lacking. Laws and regulations should be passed in order to continue to devise instruments for the integrated management of municipal solid wastes. Likewise, the <i>Ley de Capitalidad</i> should be approved and implemented as a guarantee of the progress made in the city. It would also facilitate municipal works for the public good by establishing a legal framework that will give ADN some budgetary independence enabling the residents to know whom to address to solve community problems.</p> <p><b>Issues to be reviewed in the MP</b> To include new measures to fully comply with the Regulations for Non-Hazardous Solid Waste Management; to implement education and awareness-raising campaigns throughout the city; and to devise mechanisms to impose fines on offenders.</p>	<p><b>Current situation.</b> DIGAUE, in terms of legislation and regulations, through experiences during the project, identified that which have been weaknesses in the system and it is necessary to perform or create ordinances and/or regulations for the strengthening of the system. In this sense, we are preparing the following ordinances and we are waiting for that to be approved for this year:</p> <ul style="list-style-type: none"> <li>• Ordinance for the waste collection of multifamily buildings</li> <li>• Ordinance for large generators</li> <li>• Ordinance for disposal of debris</li> </ul> <p><b>Issues to be reviewed in the MP</b> The approval and enactment of three ordinances. Establish mechanisms that allow penalize non-compliance with established regulations and ordinances.</p>	Level 4 Better response than in 2011. It reflects her advances in the understanding of waste management.
Institutional / organizational framework	<p><b>Current Situation.</b> In this sense progress has been very satisfactory because we have achieved the support of the financial department and the active participation of the personnel from the Environmental Information Center, General Department of Quality, Municipal School of Leadership, Department of Juntas de Vecinos, and the relationship with residents of Junta de Vecinos in some sectors.</p> <p><b>Issues to be reviewed in the MP</b> Consolidar las tareas relacionadas con educación ciudadana a fin de concienciar a los municipios sobre la importancia del manejo adecuado de</p>	<p><b>Current Situation.</b> With regard to last year's answer, the progress in terms of organizational strengthening is minimal as all the sections within ADN have not yet united to increase institutional capacity in order to improve solid waste management. The integration and responsible participation of the Direction of Human Development, the Municipal School for Leadership, the Direction of Planning and Institutional Development, and the Center for Environmental Information are required.</p> <p><b>Issues to be reviewed in the MP</b> To formulate and plan projects to</p>	<p><b>Current situation.</b> ADN makes progress in actions that are developed through Gran Santo Domingo Mancomunidad. It is created the Environmental Secretariat that has, among its principal functions, to coordinate the work for the formulation and evaluation of municipal public policies for environmental management in accordance with the institutional development plans.</p> <p><b>Issues to be reviewed in the MP</b> Strengthening in the area of citizenship education, supported by ADN links with community associations. it would be a big step for the consolidation of the Master Plan.</p>	Level 4 The 2011 assessment remains.



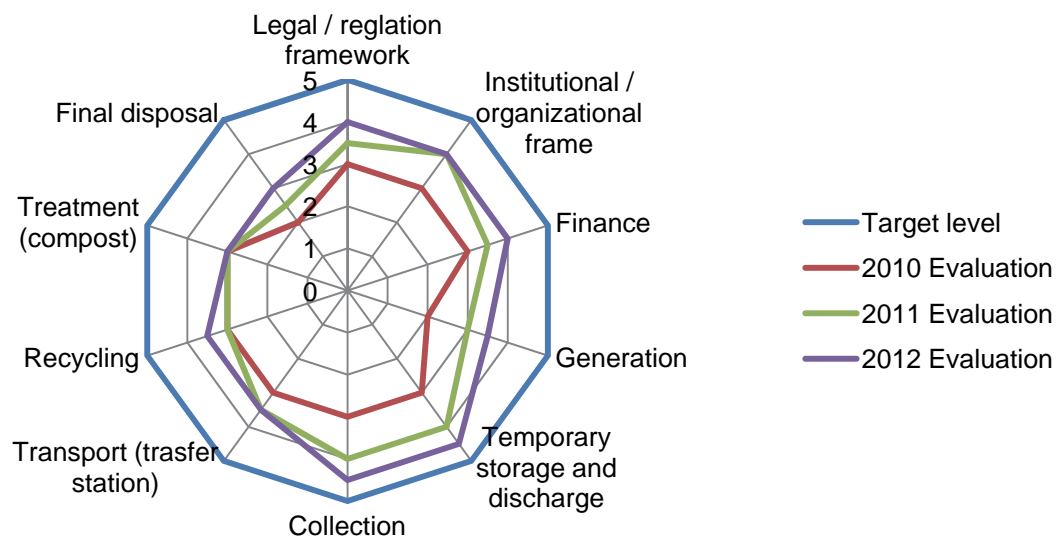
Concept	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	los residuos sólidos urbanos	involve all sections as stakeholders responsible for raising public awareness; to check vehicle management and maintenance; to discuss the need to increase the number of collection vehicles, staff, and training; to review and modify the contracts signed with the companies hired to carry out waste collection.		
Financing	<p><b>Current Situation.</b> In this sense, progress is significant because only 50% of clients conduct the corresponding payment to the collection service which is provided by ADN.</p> <p><b>Issues to be reviewed in the MP</b> To establish invoice based on the amount of waste which is generated by properties.</p>	<p><b>Current Situation.</b> The fee for waste collection was recently readjusted due to the existing inflation and the increase in operational costs. However, some other instruments should be devised to improve sanitation.</p> <p><b>Issues to be reviewed in the MP</b> Invoicing for customers taking into account waste generation, the dimensions of the house, and information collection in order to identify the number of households not paying for waste collection.</p>	<p><b>Current situation.</b> Revenues of cleansing service have remained similar to the previous year, with little variation.</p> <p><b>Issues to be reviewed in the MP</b> Review the methodology of fixation or establishment of tariff, apply tariff for collection of special waste, pruning waste and construction waste. Associate billing to other services with sanctions such as water or electricity.</p>	Level 4 It reflects more understanding on the topic.
Generation	<p><b>Current Situation.</b> A drastic increment in solid waste generation, it was not foreseen in the master plan.</p> <p><b>Issues to be reviewed in the MP</b> To conduct studies to measure waste generation.</p>	<p><b>Current Situation.</b> The amount of solid wastes being collected continues to increase. However, more specific instruments are required to understand the variations in waste generation.</p> <p><b>Issues to be reviewed in the MP</b> To identify the number of people living in the National District and the floating population working there.</p>	<p><b>Current situation.</b> In the last 2 years, there has been a decrease in generation and getting closer to the master plan forecasts.</p> <p><b>Issues to be reviewed in the MP</b> At the end of the 2010 National Census of population and housing was conducted but the official results have not yet been published. It has not made another waste amount and composition survey since 2005.</p>	Level 3.5 It reflects advances in the understanding of the waste generation topics. It is possible that the results of the Census will help the population forecast.
Temporary storage and discharge by generators	<p><b>Current Situation.</b> Currently, there is work done on the preparation to develop the pilot project in the sector called Honduras del Oeste (INVI) with the purpose to improve the management, storage, and discharge of solid waste with the purpose to expand this experience to other areas.</p>	<p><b>Current Situation.</b> With the implementation of the pilot project in Invi and Antillas, waste disposal has significantly improved by simply setting up basic rules. However, it is necessary to formulate new regulations for waste disposal (regulations for waste disposal in business establishments, apartment</p>	<p><b>Current situation.</b> DIGAUE has carried out pilot projects to promote the appropriate waste discharge in several sectors of the National District. Educational videos have been developed to strengthen the activities of environmental education. Paper recycling is carried out at ADN offices and initiated a project of pruning waste shredding with 3 machines.</p>	Level 4.5 Her participation in the pilot project of proper waste discharge allowed advances in the understanding of the problems on waste collection in

Concept	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p>Additionally, in the Department of Urban Planning, the Municipal Regulation for Temporary Storage of Non-Hazardous Solid Waste in Multi-family Households is being reviewed.</p> <p><b>Issues to be reviewed in the MP</b> The enactment of the Municipal Regulation for Temporary Storage of Non-Hazardous Solid Waste in Multi-family Households. Additionally, to establish mechanism to inform widely basic regulations to discharge waste.</p>	<p>buildings, and areas where access by collection vehicles is impossible (overcrowded areas) and to define waste disposal regulations for non-hazardous wastes generated by health centers and public markets. Such regulations should be considered as indispensable by the Direction of City Planning to grant any construction permit.</p> <p><b>Issues to be reviewed in the MP</b> To evaluate any aspects applicable to the various sectors for waste disposal; to continue to implement awareness raising campaigns focusing on waste disposal regulations; and to improve planning and coordination to comply with waste collection.</p>	<p><b>Issues to be reviewed in the MP</b> Realization of mass media campaigns, promotional activities in schools, sports and cultural clubs, companies, neighborhood groups and civil society organizations.</p>	<p>the ND and the alternatives.</p>
Collection	<p><b>Current Situation.</b> Collection service has improved significantly due to studies conducted during the Master Plan, even with weaknesses shown by private companies contracted by ADN to provide the service which do not have required units to provide the service efficiently.</p> <p><b>Issues to be reviewed in the MP</b> Procurement of adequate units for the different areas by the companies which have been contracted.</p>	<p><b>Current Situation.</b> The problems linger on. The companies hired to carry out waste collection do not have the required number of collection vehicles to improve waste collection and the organization is indebted to the companies providing this service. DIGAUE does not have the collection vehicles required to cover the areas usually neglected by waste collection companies.</p> <p><b>Issues to be reviewed in the MP</b> The National District's Council should regularize payments to waste collection companies so that they can comply with the current contract, acquire appropriate collection vehicles to cover all the areas, and improve vehicle management and maintenance. ADN should also purchase enough collection vehicles to make up for existing deficiencies in waste collection carried out by hired companies.</p>	<p><b>Current situation.</b> The recent purchase of 30 units of 25yd compactor trucks by one of the companies contracted, with 21 units acquired in 2009 reaches to the number of trucks specified in the contract, and this company covers 2/3 of the collection. In addition, the other company starts to prepare for new units purchase.</p> <p><b>Issues to be reviewed in the MP</b> Ensure that all compactor trucks meet the required specifications and be kept in appropriate conditions for the provision of the service, and DIGAUE keeps units available for any unforeseen.</p>	<p>Level 4.5 Very good understanding and information on the situation and collection problems.</p>
Transport	<b>Current Situation.</b>	<b>Current Situation.</b>	<b>Current situation.</b>	Level 3.5

Concept	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
(Transfer Station )	<p>Currently, our transfer station manages an average of 950 tons per day which is higher of what was expected.</p> <p><b>Issues to be reviewed in the MP</b> Initiate studies to identify an adequate place where to conduct operations for a 2nd Transfer Station.</p>	<p>The amount of waste handled exceeds the estimations of the Master Plan. Therefore, the construction of a new transfer station is deemed necessary.</p> <p><b>Issues to be reviewed in the MP</b> To study the feasibility of locating the new transfer station in District I, being the area farthest from the existing transfer station.</p>	<p>Waste amount handled in the transfer station is decreasing due to that the collection company acquired new vehicles. Currently it is provided maintenance and improvement works for the transfer station.</p> <p><b>Issues to be reviewed in the MP</b> Studies carried out under the project of the master plan for the Mancomunidad seek possible sites for a new landfill, and within the study it is presented proposal for transfer stations and proper maintenance of the existing one.</p>	<p>Same evaluation as in 2011. It is not her field of activity in DIGAUE, but it demonstrates her knowledge in the topic.</p>
Recycling	<p><b>Current Situation.</b> Implementation of pilot projects to recover and recycle paper in companies, institutions, and schools.</p> <p><b>Issues to be reviewed in the MP</b> To review the goal defined in the Master Plan in 2005 to evaluate the present conditions.</p>	<p><b>Current Situation.</b> With the implementation of pilot projects by CPR, paper segregation has been carried out. Other institutions are implementing initiatives to promote recycling.</p> <p><b>Issues to be reviewed in the MP</b> To evaluate the present waste generation and to determine any factors that may help achieve the goal of the Master Plan set up in 2005.</p>	<p><b>Current situation.</b> Formal recycling of paper and cardboard has been increased. It starts to formalize the recycling of plastic and glass. It continues to operate as a private company a tetra pack packaging recycling plant. Likewise it continues to operate a yard to separate materials at the final disposal site, it is the disadvantage that the ADN does not prevent the cost of collection and transport of waste that are recovered for recycling. It maintains contacts with organizations dealing with the issue of the 3R and it is working with a network of actors.</p> <p><b>Issues to be reviewed in the MP</b> Review the percentages in recycling rates and maintain monitoring system.</p>	<p>Level 3.5 Increases the assessment that in 2011 because their participation in the pilot project of recycling of paper allowed him to increase his training in this topic</p>
Treatment (composting)	<p><b>Current Situation.</b> It is defined in this stage of the project, the procurement of a shredding machine to begin composting of prune and municipal market waste.</p> <p><b>Aspectos a revisar en el PM</b> The location of the shredding machine and identify sources of organic waste.</p>	<p><b>Current Situation.</b> Current tree waste shredding works have helped improve existing conditions in parks and green areas.</p> <p><b>Issues to be reviewed in the MP</b> To review the contract for waste collection in markets and to involve market vendors through the Department of Markets in order to raise their awareness concerning the wastes generated therein.</p>	<p><b>Current situation.</b> Thanks to the support of JICA, it expands the pruning waste management project. As ADN bought a shredder and another procured by a JICA, there are now three machines.</p> <p><b>Issues to be reviewed in the MP</b> To develop a project of composting that uses pruning waste along and market waste, and use the compost product for the soil improvement.</p>	<p>Level 3 Same evaluation as in 2011.</p>
Final disposal	<p><b>Current Situation.</b> The current administration of DUQUESA Sanitary Landfill installed a plant to separate recyclable materials in such a way as to extend its service life; additionally, there is</p>	<p><b>Current Situation.</b> Even though the management at Duquesa landfill site built a facility for the segregation of recyclable materials, no progress has been made so far in this respect.</p>	<p><b>Current situation.</b> Currently it develops a project for the development of a master plan for the Gran Santo Domingo Mancomunidad, whose central theme is the search for possible locations for the establishment of a new regional landfill and the creation of</p>	<p>Level 3 She has no experience in this topic, but it meets the basic requirements.</p>

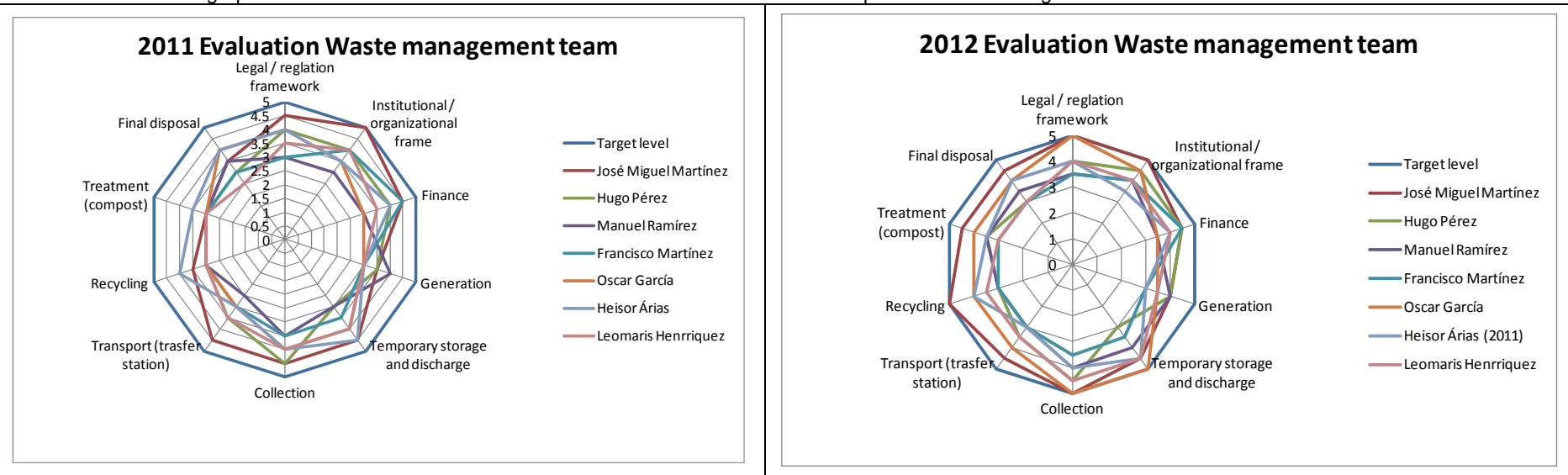
Concept	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<p>work done on the installation of the weighbridge.</p> <p><b>Issues to be reviewed in the MP</b> To study the possibility to construct a new sanitary landfill for Mancomunidad of Santo Domingo.</p>	<p><b>Issues to be reviewed in the MP</b> To improve the conditions at the present landfill site to extend its service life and to improve access roads.</p>	<p>transfer stations for other municipalities, and there are three proposals for a new landfill. There is a possibility of starting work on a possible place.</p> <p><b>Issues to be reviewed in the MP</b> Give follow-up to review our master plan and compare it with the master plan of Mancomunidad.</p>	

2012 Evaluation Leomaris Henríquez



**Summary of the 2012 evaluation 2012 of C/P team on waste management**

1. Reiterates the observation of 2011 in relation to that counterpart on waste management team developed the ability to perform the review and update of the Master Plan, with the support of JICA experts team, despite the fact that some C/P members present training deficiencies in areas that are not directly related to the activity carried out on a daily basis in the DIGAUE.
- 2 This waste management C/P team had the leadership of José Miguel Martínez Guridy, during the Project he is the Director General of DIGAUE and is recently named as the Environmental Secretary of the ADN. This circumstance together with the extensive knowledge on waste management issues will allow to expect that the Master Plan projection can be updated and to improve the waste management in the National District.
- 3 There are two especially sensitive issues in the waste management in the National District: financial difficulties and limitation of laws or regulations of the ADN and DIGAUE to carry out many activities that would improve the waste management of he National District. It needs to be especially careful with these aspects to put into practice the approach envisaged in the revised Master Plan.
- 5.-It shows below two graphs with assessments of 2011 and 2012 of all members of the counterpart on waste management team.



**Final comments on the individual capacity evaluation of the "Solid waste management" C/P group at the end of the project in July 2012.**

Waste management C/P team did not change its composition over the three years of the project with the exception of Rudilerci Castle, who did not actually participate in the activities of the Master Plan revision, and Heisor Arias was absent from DIGAUE activities in the last year. This circumstance implies that all members could have developed the capacities through the project. Altogether, the counterpart team developed the capacity of review and update of the Master Plan, despite the fact that each member presents deficiencies in the capacity in some particular aspects of the various themes covered by the Master Plan, which is reflected in the individual assessment of their capacity. The most comprehensive capacity development in all aspects of the Master Plan revision is observed in José Miguel Martínez Guridy and Oscar Garcia Arias, while members that the more limitations seen in some areas are Hugo Pérez Sarraff, Manuel Ramirez and Francisco Martínez, which is understandable because they are in charge of specific activities carried out within the DIGAUE.

## Individual Capacity Assessment of the Counterpart Group of “Vehicle Maintenance Management”

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

**Activities:**

- 1.- Study current situation of the maintenance operation of ADN collection vehicles
- 2.- Develop an improvement plan of vehicle maintenance system
- 3.- Develop a procedure on the vehicle maintenance
- 4.- Implement the improvement plan
- 5.- Monitor the implementation and feedback to the maintenance procedure

An instrument was developed to assess the individual capacity of counterpart members in the period from September 2009 to July 2012 about:

- a) The objectives of collection system in Master Plan and its relationship with vehicles maintenance
- b) Activities are performed for vehicles maintenance in DIGAU workshop.
- c) Record of activities is carried out in DIGAU workshop.
- d) Facilities/equipments situation in DIGAU workshop.
- e) Situation regarding the spare parts procurement for repairs in DIGAU workshop.

The evaluation was carried out by comparing the answers provided in 2009, 2010, 2011 and 2012, making use of an evaluation tool which is similar for both cases. In addition to the observation and interviews conducted, more questions were done regarding activities conducted. The evaluation was conducted using the following parameters:

- Level 5. It is possible to carry out an excellent job without the Japanese Expert support.  
Level 4. It is possible to carry out a satisfactory job without the Japanese Expert support.  
Level 3. A little help from the Japanese Expert is needed to reach the goal level.  
Level 2. A lot of help from the Japanese Expert is needed to reach the goal level.  
Level 1. It is impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

Observations are shown to support the numerical evaluation assigned and issues which should be developed to increase the capacity to desirable levels such as 4 or 5 at the end of the project.

**Evaluation 2012 Oscar Guillermo García Arias**

<b>Concept to evaluate</b>	<b>External Evaluation 2009</b>	<b>External Evaluation 2010</b>	<b>External Evaluation 2011</b>	<b>Evaluation 2012</b>
Knowledge on Master Plan	Level 3 He has knowledge on Master Plan, but it is necessary to deepen knowledge on workshop and its role on collection system.	Level 3 There is knowledge about the Master Plan, but there is not enough knowledge about the workshop and its responsibility in collection.	Level 4 There is some progress in terms of the knowledge of the issues to be updated in the revision of the Master Plan. Knowledge of the relationship existing between waste collection using their own vehicles and waste collection using hired vehicles should be increased.	Level 4.5 Evaluation is higher than in 2011 due to activity developed in updating the Master Plan for this Project.
Record of repairs in the workshop	Level 2 It is required to understand more on necessary data of vehicles repair record and its role in executing maintenance program.	Level 3 There is a progress on the understanding of required data for the record of vehicles and its importance on planning maintenance.	Level 3.5 There is some progress in the formulation of vehicle repair records and their role in maintenance planning. Data bases should be completed.	Level 4 It was finalized and now it is in the process to begin implementing data base to record activities in the vehicle workshop.
Performing preventive maintenance	Level 2 Further knowledge is required on preventive maintenance activities that should be carried out in the workshop.	Level 3 There is a progress on knowledge over preventive maintenance which should be done in the workshop.	Level 3.5 Activities included in preventive maintenance and corresponding records have been established. Failure to carry out preventive maintenance should be avoided.	Level 4 Currently, preventive maintenance is being done to the collection vehicles in the workshop.
Spare parts storage/procurement	Level 2 Further knowledge is required on situation of spare parts storage/procurement in workshop.	Level 3 There has been progress to define the functions of the warehouse and the problems related to supply spare parts.	Level 3 The evaluation is the same as that of 2010 due to the fact that no progress in terms of spare parts acquisition has been made. The process for spare parts acquisition should be made to be more flexible.	Level 4 It is beginning warehouse control for widely used spare parts by the collection vehicles.
Corrective maintenance (Breakdown repair)	Level 2 Further knowledge is required on corrective maintenance (breakdown repair) activities carried out in workshop.	Level 3 There has been progress in the knowledge of corrective maintenance which is performed in the workshop.	Level 3 The evaluation is the same as that of 2010. Further training to supervise corrective maintenance should be implemented.	Level 4 It has increased vehicle workshop capacity to repair electrical and electronic systems of the collection vehicles.
Conditions of Work /safety/ environmental impact prevention	Level 2 Further knowledge is required on conditions of work /safety/environmental impact prevention in the workshop.	Level 2 The knowledge level on the conditions of work/safety/environmental prevention remains the same.	Level 3 A list of work-related hazards was formulated, and a work safety committee was established. Safety gear capacity should be upgraded.	Level 4 2011 evaluation remains because it is still required to increase occupational health and safety in the vehicle workshop.
Repairs cost calculation	Level 2 A greater knowledge is required for cost calculation for the repairs performed in the workshop.	Level 2 The knowledge on the calculation of costs in repairs which are being conducted in the workshop remains the	Level 2.5 Capacity was improved. However, cost calculation of repairs and proper recording of repairs carried out should be further improved.	Level 3.5 It can not still be included repair cost by the workshop due to problems to bill spare parts that have been used, but the data base system for repairs

Concept to evaluate	External Evaluation 2009	External Evaluation 2010	External Evaluation 2011	Evaluation 2012
		same.		in the workshop defines basis for its inclusion.
Equipment/facilities conditions	Level 2 Further knowledge is required on equipment/facilities conditions in workshop and the requirements to improve the operation.	Level 2 The knowledge on the conditions of equipment and facilities in the workshop and the requirements to improve the performance remains the same.	Level 3 Knowledge on the workshop facilities required was increased. The new arrangement of facilities based on the workshop modification, as well as the relevant works to be carried out, should be clarified.	Level 4 There are basic elements to modify facilities in the vehicle workshop, but it has not been implemented.

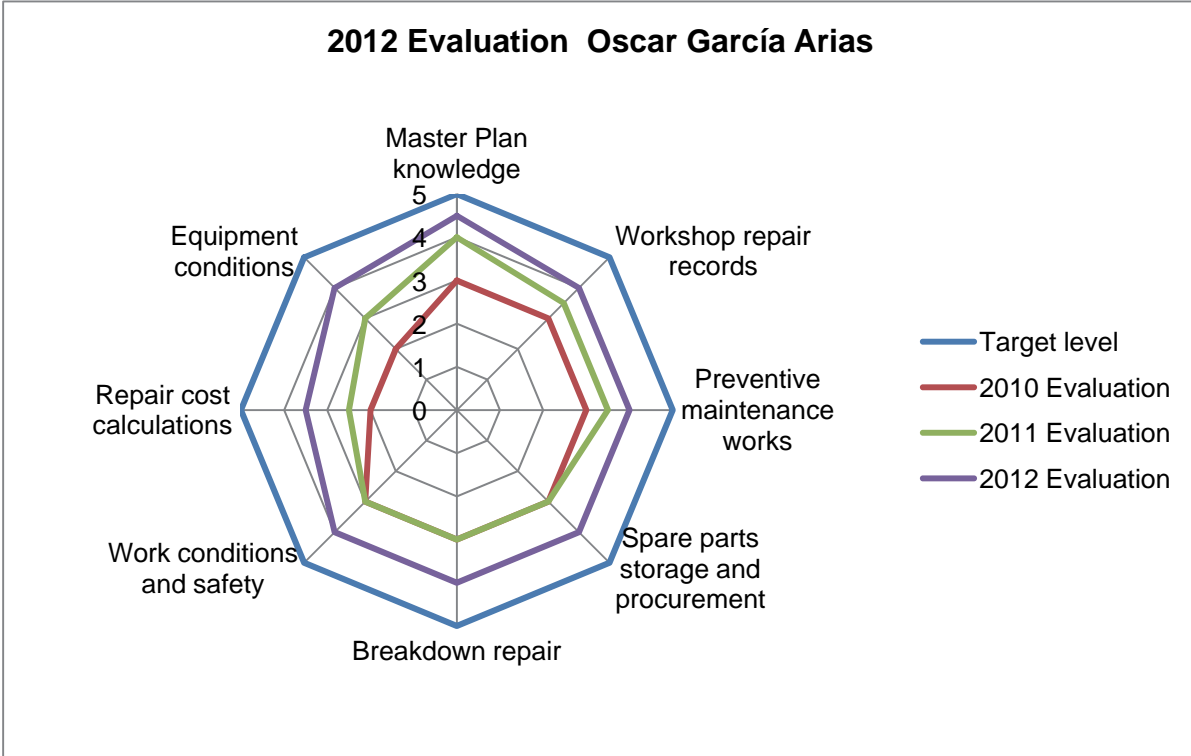
### Complementary Evaluation 2012 Oscar Guillermo García Arias

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
1.- Why is it important to have a good control in the workshop? If the same spare parts supply is maintained.	The idea is to have a warehouse with enough stock of necessary spare parts for total repairs, not only the current parts, but to have a record of parts and to purchase them similarly to the current existing stock.	All supplies and spare parts used at the workshop are stored in the warehouse regardless of the way they were acquired, be it by means of bidding or by direct purchase. This is the best way to monitor them and to record them in the data base, and it would also help improve cost control and budget formulation.	In this manner, we can define minimum and maximum available stock parts; what vehicle they were used. Cost control and efficient budget elaboration are some of the advantages.	Better answer than in 2011. It is shown progress regarding the knowledge of warehouse control system, but it is not implemented completely yet.
2.- What use can be made of vehicle corrective maintenance record for?	To know the repair which we conduct in each unit and the amount of resources which are being used (pieces and working hours)	In order to know the repairs performed to each vehicle, the repair date, as well as to help determine the number of parts and resources used, be them financial resources or human resources.	There are many advantages, it helps us to define break down frequency, repair cost, resources used, helps us to adjust the calendar for preventive maintenance.	Better answer than in 2011. It is shown progress in the use of repair record.
3.- What benefit can result of having a record of costs of repairs of vehicles?	It helps us to take decisions on maintenance. It makes us to make more efficient use of spare parts, find manners how to reduce maintenance cost and help us plan the annual budget.	It helps us to make decisions regarding maintenance, to use spare parts more efficiently, to reduce maintenance costs, and to plan the yearly budget.	Budget elaboration, efficient use of resources, and search of mechanism to reduce maintenance costs.	Better answer than in 2011.
4.- Why it is pointed out that average days of repair is between 2 to 4 days if there are vehicles out of service for longer time?	Because they are out of service, not due to repair itself, but the lack of spare parts (flow of resources)	Because the vehicles currently out of service are so due to lack of tires or other resources acquired through bidding, and not due to lack of spare parts that can be purchased using the operational fund.	There are vehicles which are in the workshop due to problems not related to its operation, but lack of resources, such as tires or spare parts which we can not procure with petty cash, for example, hydraulic pump, then we should request them to Procurement Department and it takes time.	Better answer, but it has not been possible that the problem is solved with the workshop's flow resources. It is possible that it can not be solved due situations of budget control in ADN.
5.- What issues should be	Training for fires, control of	Training to put out fires, workshop access	To continue to provide adequate	Much better answer than



Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
considered in the workshop safety?	entrance and exit from the facility, training for a safe job, safety tools.	and exit monitoring, safe work training, safety tools. Several lectures on occupational health covering critical issues such as care of and protection against cholera were held.	tools to mechanics; currently, it is mandatory to wear overalls which they did not use previously. Additionally, training in case of fire, entrance and exit control, training for a safer workplace, safety tools. This year, workshops were conducted related to occupational safety to deal with fundamental issues such as care and protection.	in 2011, it shows that there is a complete understanding about the need and convenience of occupational health and safety for the personnel in the vehicle workshop.
6.- How did training help you improve your capacity regarding the formulation of records for collector vehicles maintenance management?	Question not asked in 2010	It helped me to identify the strategic points required to properly record a management system, as well as to know the key points necessary to identify and obtain those indicators that may help in the decision-making process.	It helps me to have a larger image of the system, what issues are important to record, what indicators help to take decisions and that is important in institutions which work with limited resources. It increased my conscious awareness to increase efficiency as much as possible and define important points in vehicle maintenance management.	Very good answer which reflects the progress during training to elaborate a vehicle maintenance record. Better answer than in 2011.
7.- How did training help you improve your capacity regarding the process to define the concepts composing preventive maintenance of waste collection vehicles?	Question not asked in 2010	The concepts composing preventive maintenance are established by the manufacturer. However, the training helped me to formulate plans, to monitor them, and to evaluate the system as such.	The elaboration of programs and scheduling, follow up on assignments given to personnel, importance to comply fully each one of the tasks for preventive maintenance, classification of different types of maintenance, importance of manufacturer specifications at the moment to plan and implement preventive maintenance.	Very good answer about how useful is preventive maintenance record keeping. It shows a progress in understanding with regards to 2011.
8.- How did training help you improve your capacity in terms of the technical issues involved in preventive and corrective maintenance of waste collection vehicles?	Question not asked in 2010	We were given some training in vehicle operation, and some manuals, of which only copies in Japanese language had been provided by the time the units arrived, as well as much clarification regarding the electrical system. We hope that our knowledge of the electrical system can be further improved with the arrival of Mr. Yamanaka.	Training of the operation of vehicles, training of electrical and y hydraulic diagrams, establishment of maintenance checks and how to conduct them, training to detect break down in vehicles, training for the correct use of vehicles to prevent break down.	Good answer about the maintenance training received. Although it is required to continue training after finishing this Project which can be conducted by dispatching a senior volunteer from Japan.
9.- How did training help you improve your capacity	Question not asked in 2010	We were trained to store materials, as well as about the warehouse process and	Training of storage system, warehouse control, minimum	Good answer about how useful warehouse record

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
<i>in terms of the process to define the systems for warehouse control and spare parts acquisition?</i>		system, including warehouse control forms. At present, we are involved to input all this information into our database in order to facilitate access to that information.	requirements, what information is relevant in a warehouse control system, elaboration of formats and payroll control.	keeping is. Ware house and vehicle workshop activity record data base have been finished.
<i>10.- How did training help you improve your capacity in terms of the process to define the areas and equipment involved in the workshop renovation?</i>	Question not asked in 2010	Some important information covering from the schedule of activities for the workshop renovation to the arrangement of the various areas according to the work flow and taking into account work safety and ergonomic conditions were provided.	It is of great assistance to learn the correct work flow in the vehicle workshop, how to distribute different working areas, optimum space, issues such as safety and working conditions, from simple items like calculating the turning radio by the vehicles to be able to enter in a specific working area until the electrical supply for each machine in the working areas.	Good Answer. There is progress in the basic design to modify the facilities in the vehicle workshop.



**Evaluation 2012 David Rodríguez Santos**

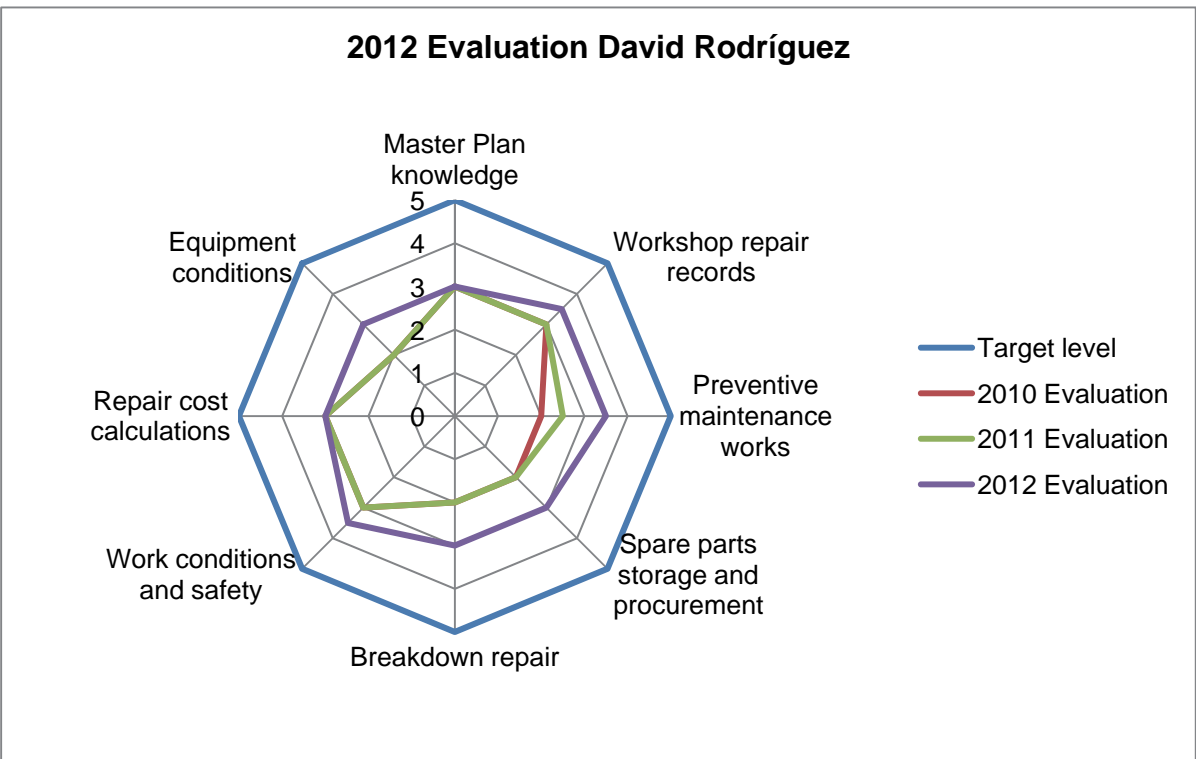
<b>Concept to evaluate</b>	<b>External Evaluation 2009</b>	<b>External Evaluation 2010</b>	<b>External Evaluation 2011</b>	<b>Evaluation 2012</b>
Knowledge on Master Plan	Level 2 A greater knowledge is required on Master Plan and the workshop role for strengthening the collection system.	Level 3 There is more knowledge about the Master Plan and about the role of workshop in strengthening the collection system.	Level 3 The evaluation is the same as there is no evidence of increased knowledge about the Master Plan.	Level 3 It remains the evaluations because there is no evidence about better knowledge of the Master Plan.
Record of repairs in the workshop	Level 2 It is required to understand more on necessary data of vehicles repair record and its role in executing maintenance program.	Level 3 There is progress in required data to register vehicle repairs and their role in planning maintenance.	Level 3 The evaluation is the same as that of 2010. Greater capacity for the better use of maintenance records is required.	Level 3.5 Evaluation is higher than 2011 because there is better understanding about data base regarding operation control in the vehicle workshop.
Performing preventive maintenance	Level 2 Further knowledge is required on preventive maintenance activities to be carried out in workshop.	Level 2 There is no evidence of progress about the knowledge of preventive maintenance activities which should be conducted in the workshop.	Level 2.5 There is some progress in terms of the knowledge of preventive maintenance activities that should be performed at the workshop. Further training for preventive maintenance is required.	Level 3.5 There is progress about knowledge of preventive maintenance activities which should be conducted in the vehicle workshop.
Spare parts storage/procurement	Level 2 Further knowledge is required on situation of spare parts storage/procurement in workshop.	Level 2 There is no evidence of progress about the knowledge related to the conditions of storage and procurement of spare parts.	Level 2 The evaluation is the same despite the fact that some progress in terms of the formulation of the computerized warehouse control has been made. The warehouse control system should be completed.	Level 3 The evaluation is higher than 2011 because it was finished and it is being implemented the data base for warehouse control.
Corrective maintenance (Breakdown repair)	Level 2 Further knowledge is required on corrective maintenance (breakdown repair) activities carried out in workshop.	Level 2 There is no evidence of progress about the knowledge of corrective maintenance activities which are conducted in the workshop.	Level 2 The evaluation is the same as that of 2010. Further training for corrective maintenance records is required.	Level 3 Evaluation is higher than 2011 because it was finished and it is being implemented the data base for recording operations in the vehicle workshop.
Conditions of Work /safety/ environmental impact prevention	Level 2 Further knowledge is required on conditions of work /safety/environmental impact prevention in the workshop.	Level 3 There is some progress about the knowledge of the conditions related to work/safety/environmental prevention in the workshop.	Level 3 The evaluation is the same despite the progress in terms of improved safety conditions. Further training to increase safety conditions is required.	Level 3.5 Evaluation is higher than 2011 because there is progress of knowledge about adequate safety conditions in the vehicle workshop.
Repairs cost calculation	Level 2 A greater knowledge is required for cost calculation for the repairs	Level 3 There is some progress about the knowledge on cost calculation of	Level 3 The evaluation is the same. Further training for repair costs calculation is	Level 3 2011 evaluation is maintained because there is no progress in

Concept to evaluate	External Evaluation 2009	External Evaluation 2010	External Evaluation 2011	Evaluation 2012
	performed in the workshop.	repairs which are being conducted in the workshop.	required.	repair cost calculation.
Equipment/facilities conditions	Level 2 Further knowledge is required on equipment/facilities conditions in workshop and the requirements to improve the operation.	Level 2 There is no evidence of enough progress about the knowledge on the conditions of equipment and facilities in the workshop and requirements to improve its operation.	Level 2 The evaluation is the same as that of 2010. Further training to speed up the design of the new facilities is required.	Level 3 Evaluation is higher than 2011 because there is better understanding about facilities and equipment conditions in the vehicle workshop.

### Complementary Evaluation 2012 David Rodríguez Santos

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
1.- Why is it important to have a good control in the workshop? If the same spare parts supply is maintained.	The idea is to improve the stock in the warehouse to provide good management and expand the supply as requested.	Same as last year.	Because this way, we have more and larger variety in the warehouse, i.e., there is no waste.	Better answer than 2011, but still a very limited answer.
2.- What use can be made of vehicle corrective maintenance record for?	In order to keep the control of vehicles with the purpose to know repairs and control resources being used.	Same as last year.	In order to have a record for each vehicle and have operational cost and time it takes each one.	Better answer than 2011. It is highlighted repair control for each vehicle.
3.- What benefit can result of having a record of costs of repairs of vehicles?	By knowing the costs and making good management of repairs, it allow us to make optimum use of economic resources, e.g., human resources and help us to plan the budget.	Same as last year.	To know costs to optimize resources, budget elaboration, etc.	Better answer than 2011, but still a complete cost repair calculation is not available.
4.- Why it is pointed out that average days of repair is between 2 to 4 days if there are vehicles out of service for longer time?	If we have the parts and necessary resources, it would take 2 – 4 days; however, some of them are out of service waiting for public bidding (tires basically) or other parts which are difficult to find in the local market.	Same as last year.	Because waiting for resources, bidding or required spare parts is not within our reach.	Better answer than 2011. It is included reference to spare parts procurement system.
5.- What issues should be considered in the workshop safety?	Training of human resource, cleansing and organization, to work with tools of good quality, adequate uniforms, boots, gloves, reflecting tapes, etc.	Same as last year.	Use of uniforms, adequate tools for each task, and making sure to be in the adequate environment, etc.	Better answer than 2011.
6.- How did training help you improve	Question not asked in 2010	In accordance with	According to the training, to	Better answer than 2011.

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
<i>your capacity regarding the formulation of records for collector vehicles maintenance management?</i>		acquired knowledge and experience.	have a wider view with the knowledge and its application.	
<i>7.- How did training help you improve your capacity regarding the process to define the concepts composing preventive maintenance of waste collection vehicles?</i>	Question not asked in 2010	By acquiring the knowledge needed for the preventive maintenance of any vehicle based on the operation manual.	Classification by type of maintenance, work scheduling, organization of the vehicle workshop, and have an operation manual facilitates the work.	Good answer, but it refers to his training related to the field of repair control and the manuals produced for activities control in the vehicle workshop.
<i>8.- How did training help you improve your capacity in terms of the technical issues involved in preventive and corrective maintenance of waste collection vehicles?</i>	Question not asked in 2010	With some technical knowledge related to motor vehicles.	Electrical diagrams Checks to detect break downs Break down prevention Operation cost minimization	Good answer which refers to the output of the training for his activities in the vehicle workshop.
<i>9.- How did training help you improve your capacity in terms of the process to define the systems for warehouse control and spare parts acquisition?</i>	Question not asked in 2010	Improved planning Identification of appropriate areas	There is better planning Better control of resource supply and procurement.	Better answer than 2011.
<i>10.- How did training help you improve your capacity in terms of the process to define the areas and equipment involved in the workshop renovation?</i>	Question not asked in 2010	In accordance with every work carried out at the workshops, and according to the affinity existing between the area and the equipment.	Better redistribution of equipment and working areas Better work flow and control	Better answer than 2011.



**Evaluation 2012 Genaro Antonio Rosario Reyes**

<b>Concept to evaluate</b>	<b>External Evaluation 2009</b>	<b>External Evaluation 2010</b>	<b>External Evaluation 2011</b>	<b>Evaluation 2012</b>
Knowledge on Master Plan	Level 2 A greater knowledge is required on Master Plan and the workshop role for strengthening the collection system.	Level 2 In spite of that there is progress, it is required more knowledge about the Master Plan and the role of the workshop in strengthening of the collection system.	Level 2 The evaluation is the same. Greater knowledge about both the Master Plan and the role of the workshop to improve the waste collection system is required.	Level 3 There is better knowledge about Master Plan update.
Record of repairs in the workshop	Level 2 It is required to understand more on necessary data of vehicles repair record and its role in executing maintenance program.	Level 3 There is progress, but it is convenient more understanding on the data requirement to repair vehicles and their role to plan for maintenance.	Level 3 The evaluation is the same. Greater knowledge enabling to complete the operation record is required.	Level 4 It is already implemented the record for repairs in the workshop and there is participation in spare parts procurement control.
Performing preventive maintenance	Level 3 He has knowledge of preventive maintenance to be carried out and its necessity, but it is necessary to be advanced.	Level 3 The knowledge about preventive maintenance done and to be done remains the same as in the previous evaluation.	Level 4 The evaluation is increased as the preventive maintenance program is already being implemented.	Level 4 It is maintained evaluation 2011 because it has been strengthened implementation of preventive maintenance.
Spare parts storage/procurement	Level 3 He has knowledge on storage conditions, but it is required to improve more about spare parts requirements.	Level 3 There has been progress about the knowledge on the storage conditions.	Level 3 The evaluation is the same. The process required for spare parts acquisition should be speeded up.	Level 4 Evaluation is higher than 2011 because spare parts procurement system has improved.
Corrective maintenance (Breakdown repair)	Level 3 It is necessary to deepen knowledge on corrective maintenance (breakdown repair) activities performed in the workshop.	Level 3 There has been progress about the activities related to corrective maintenance conducted in the workshop, but there still needs to have more progress.	Level 3.5 Training for corrective maintenance has been improved. Further training related to the electric and electronic systems of waste collection vehicles is required.	Level 3.5 The same evaluation as 2011 remains because his activity is not operational inside the vehicle workshop.
Conditions of Work /safety/ environmental impact prevention	Level 3 He has knowledge on the subject; but it is required to understand more on conditions of work/ safety/ environmental prevention in the workshop to improve their performance.	Level 3 There is progress in the knowledge, but it seems that more understanding is required about the conditions of environmental prevention in the workshop.	Level 3.5 Some progress in terms of workshop safety has been made. Safety conditions and work safety gear should be increased.	Level 4 Evaluation is higher than 2011 due to his participation in improving hygienic and safety conditions in the vehicle workshop.
Repairs cost calculation	Level 2 A greater knowledge is required for cost calculation for the repairs performed in the workshop.	Level 2 There is progress, but more knowledge about cost calculation for preventive and corrective maintenance is required.	Level 2.5 The evaluation is increased. Greater knowledge about repair cost estimation is required.	Level 3 Efforts are being implemented to include cost in the data base for operations record of the vehicle workshop.

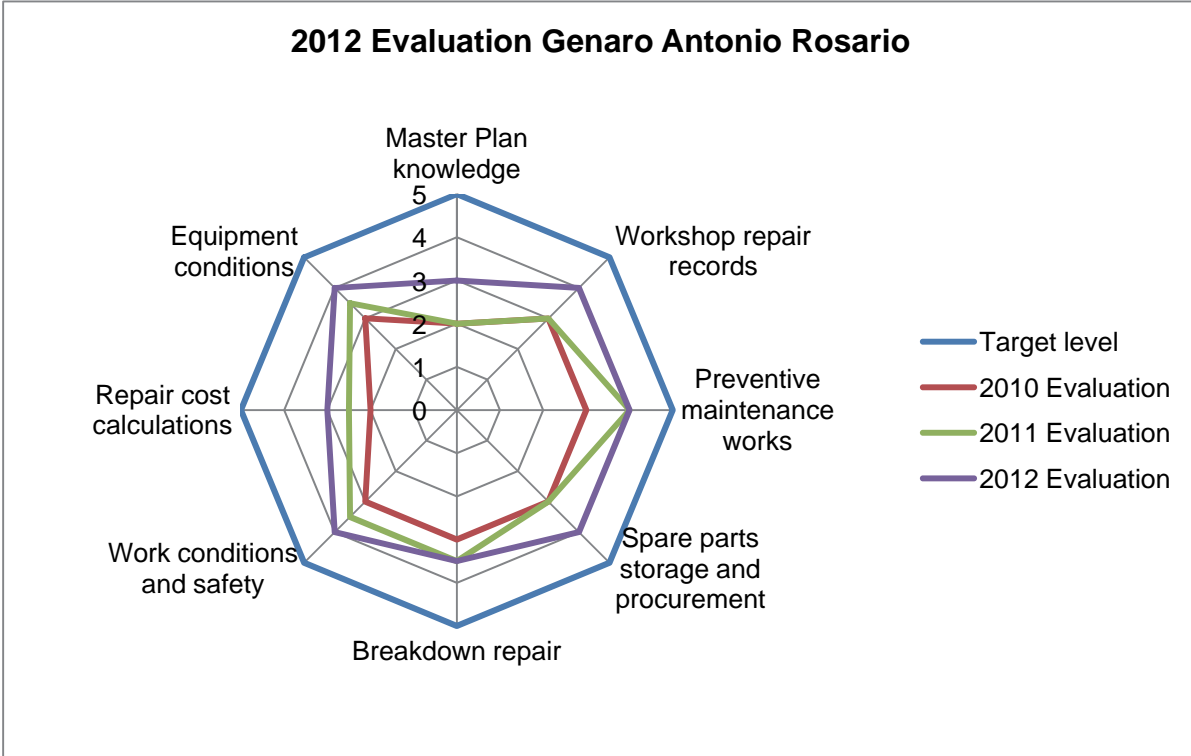


Concept to evaluate	External Evaluation 2009	External Evaluation 2010	External Evaluation 2011	Evaluation 2012
Equipment/facilities conditions	Level 3 He has knowledge on facilities/equipments conditions and on the needs for better performance.	Level 3 The knowledge level about facilities and equipment and about the needs for a better operation remains the same as in the previous evaluation.	Level 3.5 There has been some progress in terms of facilities renovation. The workshop renovation project should be completed.	Level 4 Evaluation is higher than 2011 due to his participation in the project to modify the vehicle workshop.

### Complementary Evaluation 2012 Genaro Antonio Rosario Reyes

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
1.- Why is it important to have a good control in the workshop? If the same spare parts supply is maintained.	In order to know the amount of spare parts that are being used in the units; subsequently, procurement of needed parts can be done annually.	Same answer as in 2010.	To define the cost for each vehicle taking as base the number of spare parts used and this way is able to plan necessary requirements for the year.	Better answer than 2011. It is included the planning issue.
2.- What use can be made of vehicle corrective maintenance record for?	In order to have an historical record of each vehicle; as a result, we could know how frequently repairs are being done.	Same answer as in 2010	To keep a historical record for each vehicle and this way to know which area conducts the same operations and be able to estimate operation cost for each vehicle.	Better answer than 2011. It is included the repair cost calculation issue.
3.- What benefit can result of having a record of costs of repairs of vehicles?	It can help us to plan resources to repair and maintain the vehicles.	Same answer as in 2010.	It can help to plan repair and maintenance resources for vehicles, and this way to know if it is feasible to continue operating the same vehicle or it should be replaced.	Better answer than 2011. It is included the estimate replacement of vehicles which can not be repaired.
4.- Why it is pointed out that average days of repair is between 2 to 4 days if there are vehicles out of service for longer time?	Because the vehicles are out of service due to the lack of an adequate flow of resources.	Same answer as in 2010.	Vehicles which stay longer than four days out of service is due to high repair cost and there is a waiting period to get the spare parts.	Better answer than 2011. It is pointed out that vehicle taking longer time in the workshop is due to lack of resources.
5.- What issues should be considered in the workshop safety?	Adequate clothing for the work, use of adequate tools, planning of work before its implementation to be able to conduct the work safely.	Same answer as in 2010.	It has to be confirmed that the working area is clean and organized. Adequate gear and tools should be used for the tasks to be conducted; work should be planned before implementation.	Good answer. There is participation for improving safety conditions. B
6.- How did training help you improve your capacity regarding the formulation of records for collector vehicles maintenance management?	Question not asked in 2010	On acquiring the knowledge needed to have a good maintenance record of waste collection vehicles by recording the date when oil and air filters are replaced, as well as the estimated date for	To obtain necessary knowledge to keep a good maintenance record and, this way, make sure good operation by solid waste collection vehicles.	Good answer. Better answer than 2011.

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
		the next replacement.		
7.- <i>How did training help you improve your capacity regarding the process to define the concepts composing preventive maintenance of waste collection vehicles?</i>	Question not asked in 2010	On acquiring the knowledge about the preventive maintenance of any motor vehicle from the operation manual.	Obtaining knowledge of the operations manual for preventive maintenance for any vehicle and, this way, increase its service life.	Limited answer, similar to 2011.
8.- <i>How did training help you improve your capacity in terms of the technical issues involved in preventive and corrective maintenance of waste collection vehicles?</i>	Question not asked in 2010	On acquiring the technical knowledge required for the implementation of proper preventive and corrective maintenance of any motor vehicle.	Obtaining technical know-how to establish, apply, and keep a good preventive and corrective record for any vehicle.	Better answer than 2011.
9.- <i>How did training help you improve your capacity in terms of the process to define the systems for warehouse control and spare parts acquisition?</i>	Question not asked in 2010	It has helped us improve planning of spare parts acquisition and supply.	It has helped us a better planning for procuring spare parts.	Better answer than 2011.
10.- <i>How did training help you improve your capacity in terms of the process to define the areas and equipment involved in the workshop renovation?</i>	Question not asked in 2010	It has showed us the best way to locate the equipment and to identify the appropriate areas for every work to be carried out at the workshops.	In the best manner to locate equipments and define adequate areas to conduct works inside the workshop with higher quality and safety.	Better answer than 2011.



## Evaluation 2012 Manuel Roa Castillo

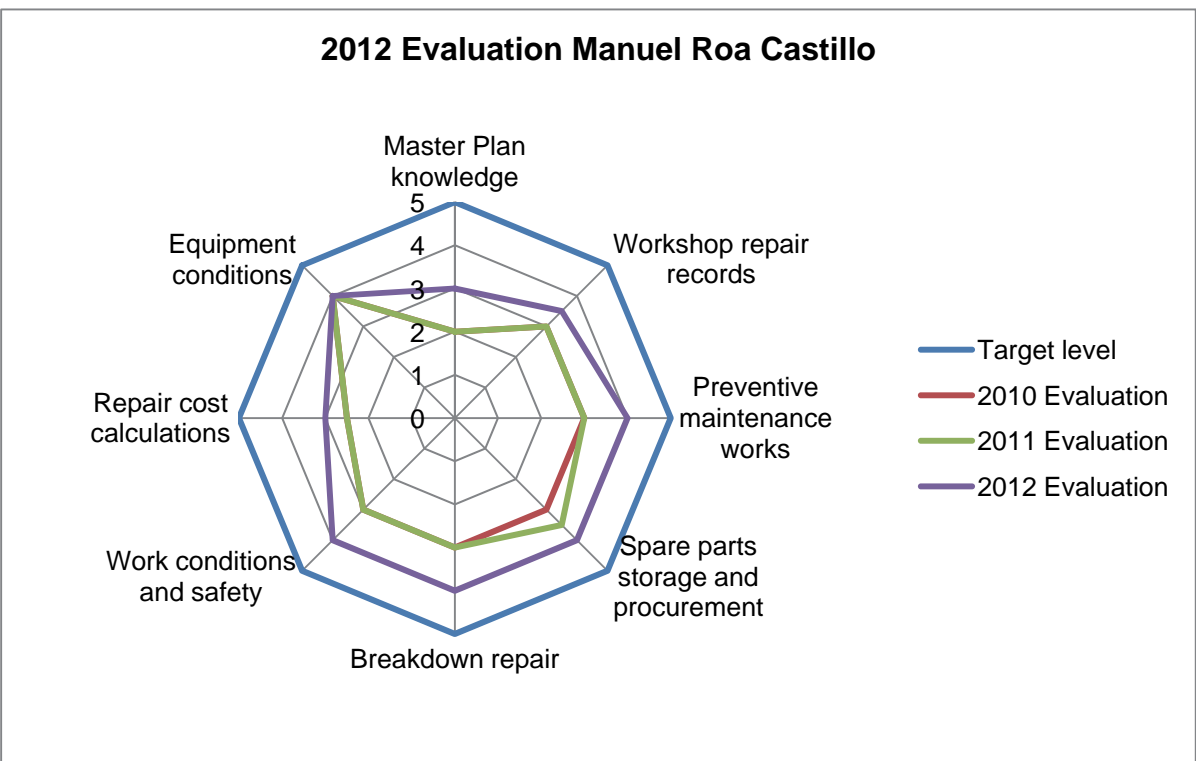
<b>Concept to evaluate</b>	<b>External Evaluation 2009</b>	<b>External Evaluation 2010</b>	<b>External Evaluation 2011</b>	<b>Evaluation 2012</b>
Knowledge on Master Plan	Level 2 A greater knowledge is required on Master Plan and the workshop role for strengthening the collection system.	Level 2 In spite of that there is progress, it is required more knowledge about the Master Plan and role of the workshop in strengthening the collection system.	Level 2 The evaluation is the same. Greater knowledge about the Master Plan and the role of the workshop to improve waste collection is required.	Level 3 It is a higher evaluation than 2011 in spite that knowledge about the master plan is limited.
Record of repairs in the workshop	Level 2 It is required to understand more on necessary data of vehicles repair record and its role in executing maintenance program.	Level 3 There is an important progress related to the understanding of required data for the vehicle repair records and their role to plan the maintenance.	Level 3 The evaluation is the same. Greater knowledge to complete the operation record is required.	Level 3.5 Evaluation is higher due to participation in conducting collection vehicle maintenance.
Performing preventive maintenance	Level 2 A greater knowledge is required on preventive maintenance activities to be performed in the workshop.	Level 3 There is enough knowledge about the preventive maintenance activities which should be conducted in the workshop.	Level 3 There is some progress related to the knowledge about preventive maintenance activities to be performed at the workshop. Further training focusing on preventive maintenance is required.	Level 4 Evaluation is higher than 2011 because he is responsible of collection vehicle preventive maintenance.
Spare parts storage/procurement	Level 2 Further knowledge is required on situation of spare parts storage/procurement in workshop.	Level 3 There is an adequate knowledge about the corrective maintenance activities which are conducted in the workshop and the spare parts which are required.	Level 3.5 The evaluation is increased as there is some progress in terms of the formulation of the computerized warehouse control. The warehouse control system should be completed.	Level 4 Evaluation is higher than 2011 due to his participation in warehouse record keeping.
Corrective maintenance (Breakdown repair)	Level 2 It is necessary to deepen knowledge on corrective maintenance (breakdown repair) activities performed in the workshop.	Level 3 There is knowledge about the corrective maintenance activities which are conducted in the workshop.	Level 3 The evaluation is the same. Further training on the electric and electronic systems of waste collection vehicles is required.	Level 4 Capacity increased to repair electrical and electronic system of collection vehicles.
Conditions of Work /safety/ environmental impact prevention	Level 3 He has knowledge on the subject; but it is required to understand more on conditions of work/ safety/ environmental prevention in the workshop to improve their performance.	Level 3 The same level of knowledge is maintained in this issue, but it is required to go deeper with regards to safety and environmental prevention in the workshop.	Level 3 The evaluation is the same despite the progress made in terms of safety conditions. Further training to improve safety conditions is required.	Level 4 He has participation in safety conditions for the workshop.
Repairs cost calculation	Level 2 A greater knowledge is required for cost calculation for the repairs performed in the workshop.	Level 2 There is progress, but it is required to have more knowledge about the repair cost which is conducted in the workshop.	Level 2.5 The evaluation is higher. Greater knowledge about repair cost estimation is required.	Level 3 It has not achieved completely repair cost calculation.

Concept to evaluate	External Evaluation 2009	External Evaluation 2010	External Evaluation 2011	Evaluation 2012
Equipment/facilities conditions	Level 3 He has knowledge on facilities/equipments conditions and on the needs for better performance.	Level 4 There is knowledge about the conditions of facilities and equipment and with regards to the needs for a better operation.	Level 4 The evaluation is the same despite the progress in terms of the design of facilities renovation. The workshop renovation project needs to be completed.	Level 4 It remains the same evaluation as 2011.

### Complementary Evaluation 2012 Manuel Roa Castillo

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
1.- Why is it important to have a good control in the workshop? If the same spare parts supply is maintained.	A good control is good, especially when we have all the supplies, taking into account the limitations it is being controlled only some items. Other parts are acquired according to our needs. However, in the long term, the idea is that all parts are available in the warehouse.	To improve safety and operational and administrative management.	To guarantee availability and number of spare parts to be used.	The answer is limited and does not reflect the progress due to training.
2.- What use can be made of vehicle corrective maintenance record for?	That way, we can foresee more relevant situations and realize if the equipment is used adequately to extend its service life and good management.	In order to know spare parts consumption of every unit, as well as spare parts availability.	To guarantee the good condition of vehicles in operation and prevent more damages and repair costs.	Better answer than in 2011.
3.- What benefit can result of having a record of costs of repairs of vehicles?	In this way, we can conclude the benefit of the operation is higher than maintenance cost and evaluate the working conditions that the equipment suffers when it is operated by different persons.	Same answer as in 2010.	It can be controlled operation cost for each vehicle and resources can be defined and optimized.	Better answer than in 2011. Reflects progress of training.
4.- Why it is pointed out that average days of repair is between 2 to 4 days if there are vehicles out of service for longer time?	None of the vehicles are out of service due to technical deficiency, but lack of spare parts.	It depends on the flow of resources.	Due to resources flow and operation cost of some vehicles.	The answer shows excessive amount of time for repairs which is due to lack of spare parts or resources for repairs.
5.- What issues should be considered in the workshop safety?	1) Cleansing 2) Tools 3) Organization 4) Knowledge of good use of each tool.	To identify and prevent any work-related incidents such as work-related accidents.	Every measure related to the job before, during, and after each work.	The answer is very limited and reflects that there is sufficient progress in training in this regard; it does not reflect the progress due to training.
6.- How did training help you improve your capacity regarding the formulation of records for collector vehicles	Question not asked in 2010	By increasing both knowledge and organization related to record formulation	Due to different type of cases in the vehicles; they show new failures every day, it	Good answer which reflects his participation in collection vehicle repair process.

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
<i>maintenance management?</i>		as decision-making indicators.	helps me to keep control of the record for each vehicle.	
<i>7.- How did training help you improve your capacity regarding the process to define the concepts composing preventive maintenance of waste collection vehicles?</i>	Question not asked in 2010	La experiencia del trabajo continuo.	In the application of maintenance manual for checking and replacement.	In spite that the answer is limited, it shows his training in workshop operations.
<i>8.- How did training help you improve your capacity in terms of the technical issues involved in preventive and corrective maintenance of waste collection vehicles?</i>	Question not asked in 2010	By acquiring the knowledge necessary for everyday work. It also helps identify different scenarios in the various units.	In the methods learned during the training about functions for mechanics and electricians	Good answer about his progress in training.
<i>9.- How did training help you improve your capacity in terms of the process to define the systems for warehouse control and spare parts acquisition?</i>	Question not asked in 2010	By ordering items based on existing needs, and by grasping the warehouse control and organization process as a whole.	It has helped us for a better procurement of spare parts.	Good answer.
<i>10.- How did training help you improve your capacity in terms of the process to define the areas and equipment involved in the workshop renovation?</i>	Question not asked in 2010	No answer	Distribution of working areas for different type of activities in the vehicle workshop for each repair and location of equipment.	Answer is very limited and does not show his participation in the workshop modification project.



**Evaluation 2012 Luis Antonio Checo Batista**

<b>Concept to evaluate</b>	<b>External Evaluation 2009</b>	<b>External Evaluation 2010</b>	<b>External Evaluation 2011</b>	<b>Evaluation 2012</b>
Knowledge on Master Plan	Level 2 A greater knowledge is required on Master Plan and the workshop role for strengthening the collection system.	Level 2 In spite of the progress, it is required more knowledge regarding the Master Plan.	Level 2 The evaluation is the same. Greater knowledge regarding both the Master Plan and the role played by the workshop to improve the waste collection system is required.	Level 3 There has been progress, but it still requires more training to understand fully the role of vehicle workshop in the cleansing system.
Record of repairs in the workshop	Level 3 He has knowledge on the repair records, but it is desirable to improve in the subject for maintenance scheduling.	Level 3 Knowledge about the level of the repair record remains the same, but it would be convenient to go deeper into the subject.	Level 3 The evaluation is the same. Greater knowledge is required to complete the operation record.	Level 4 He has had an important role related to operations record in the workshop.
Performing preventive maintenance	Level 3 He has knowledge on preventive maintenance to be performed and its necessity, but it is needed to improve.	Level 3 There is a good level of knowledge about the preventive maintenance which is conducted and to be conducted.	Level 3.5 The evaluation is higher as there is some progress in terms of the knowledge acquired regarding preventive maintenance works. Further training is required to continue to perform preventive training.	Level 3.5 It still remains the same evaluation as 2011 because he does not conduct operations related to preventive maintenance.
Spare parts storage/procurement	Level 2 Further knowledge is required on situation of spare parts storage/procurement in workshop.	Level 3 There is a good level of knowledge about spare parts which are required for maintenance.	Level 3 The evaluation is the same despite the fact that there is some progress in terms of the formulation of the computerized warehouse control system. The warehouse control system needs to be completed.	Level 4 He has played an important role in the warehouse control system.
Corrective maintenance (Breakdown repair)	Level 3 He has experience on corrective maintenance (breakdown repair) of collection vehicles, but it is desirable to improve through their training.	Level 3 Knowledge level is maintained with regard to corrective maintenance for collection vehicles.	Level 3 The evaluation is the same. Greater training targeting the electric and electronic systems of waste collection vehicles is required.	Level 3 It remains the same evaluation as 2011 because he does not have an important role regarding corrective maintenance implementation.
Conditions of Work /safety/ environmental impact prevention	Level 3 He has knowledge on the subject; but it is required to understand more on conditions of work/ safety/ environmental prevention in the workshop to improve their performance.	Level 3 A good level of knowledge is maintained on this issue.	Level 3 The evaluation is the same despite the fact that there is some progress in terms of safety conditions. Greater knowledge is required to improve safety conditions.	Level 4 He has had an important role regarding the establishment of basic conditions for safety and occupational health in the vehicle workshop.
Repairs cost calculation	Level 2 A greater knowledge is required for cost calculation for the repairs	Level 3 There is progress on the knowledge about cost	Level 3 The evaluation is the same. Greater knowledge about cost calculation of repairs	Level 3.5 He has developed the capacity for repair cost estimate.

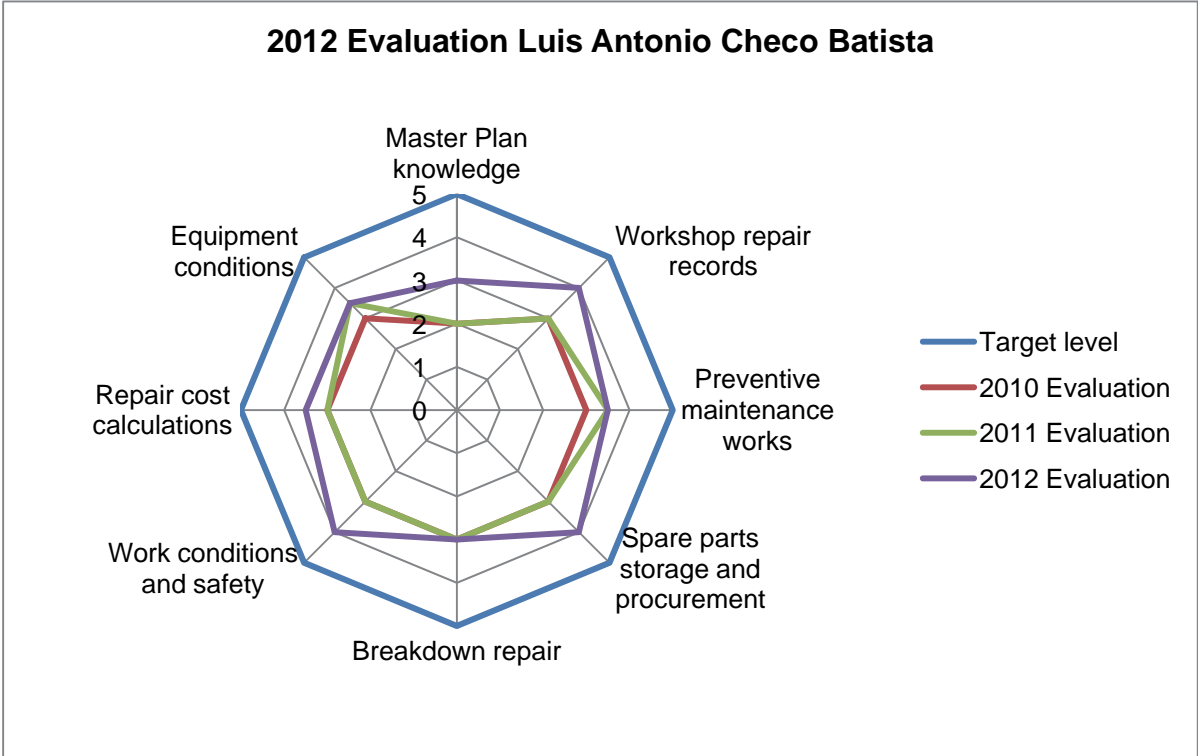


Concept to evaluate	External Evaluation 2009	External Evaluation 2010	External Evaluation 2011	Evaluation 2012
	performed in the workshop.	calculation of repairs.	is required.	
Equipment/facilities conditions	Level 3 He has knowledge on facilities/equipments conditions and on the needs for better performance.	Level 3 Knowledge level is maintained regarding facility and equipment conditions.	Level 3.5 There is some progress in terms of the design for the workshop facilities renovation. The workshop renovation project needs to be completed.	Level 3.5 Evaluation remains the same as 2011.

**Complementary Evaluation 2012 Luis Antonio Checo Batista.**

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
1.- Why is it important to have a good control in the workshop? If the same spare parts supply is maintained.	Because with a good control we can fight to obtain a good supply of parts which are necessary to repair all compactors; in addition, to oil, tires, and batteries.	The same as in 2010	Because good warehouse management and control depends on a better oil, tire, and battery supply, among others.	Good answer which shows his role as part of the warehouse control.
2.- What use can be made of vehicle corrective maintenance record for?	Beginning from the fact that medicine that saves is preventive, i.e., the equipment that is repaired on time is less likely to increase repair costs and time. We also guarantee units in optimum condition. Consequently, preventive maintenance should be mandatory.	The same as in 2010	Because corrective maintenance prevents higher repair cost and additional time. Preventive maintenance should also be mandatory.	Good answer which shows his role in vehicle workshop operations control.
3.- What benefit can result of having a record of costs of repairs of vehicles?	Because with this mechanism, we can grasp repair conditions and can control the quality of repairs; consequently, we reduce costs by conducting them on time.	Previous answer	To define if it is feasible to continue investing in equipment and define operation cost.	Good answer which shows his role in cost estimate for vehicle workshop operation.
4.- Why it is pointed out that average days of repair is between 2 to 4 days if there are vehicles out of service for longer time?	Many times because budget to procure parts is not prepared (due to lack of resources), for example, tires, etc. Some other times, the required part is not found in the local market.	Previous answer	Answers 2010 and 2011.	Same answers as in previous evaluations.
5.- What issues should be considered in the workshop safety?	To improve conditions in the facilities and some other times some type of tools and others.	Wearing appropriate clothing, and using the right tools, for the works to be performed.	To use adequate tools to conduct the tasks. To improve conditions in the vehicle workshop (its facilities).	Good answer.
6.- How did training help you improve your capacity regarding the formulation of records for collector vehicles maintenance management?	Question not asked in 2010	It helped us to update the various records based on everyday events.	To maintain updated news which take place every day.	Good answer, but very limited.

Questions	Answers 2010	Answers 2011	Answers 2012	Remarks
7.- How did training help you improve your capacity regarding the process to define the concepts composing preventive maintenance of waste collection vehicles?	Question not asked in 2010	The training not only helped me understand the concepts implemented in our units, but also to grasp the concepts used for other types of equipment.	This training is not only applicable for our collection vehicles, but also for general application.	Good answer. It shows the progress with training that was received.
8.- How did training help you improve your capacity in terms of the technical issues involved in preventive and corrective maintenance of waste collection vehicles?	Question not asked in 2010	The training helped us both prevent serious breakdowns and minimize repair costs.	Training helped us to prevent important break downs and also to minimize time to repair the vehicle.	Good answer.
9.- How did training help you improve your capacity in terms of the process to define the systems for warehouse control and spare parts acquisition?	Question not asked in 2010	The training has helped us improve purchase planning and warehouse monitoring.	This tool helped us to develop a plan for procurement and general control.	Good answer. It shows his progress due to the training for activities conducted in the vehicle workshop.
10.- How did training help you improve your capacity in terms of the process to define the areas and equipment involved in the workshop renovation?	Question not asked in 2010	Some areas to be used to install the various pieces of equipment have been identified, thus helping us improve some technical issues.	This training has allowed us to identify some areas which have served to locate different working units.	Good answer.



## 2012 General Evaluation of the counterpart team for Vehicle Maintenance Management

1.- It is reiterated the remark made in 2010 and 2011 with regards that some members in the vehicle maintenance management counterpart have technical knowledge and other have management skills. With the training works by JICA team, it was reduced the gap in the counterpart team and the technical members made progress in their administrative knowledge about record keeping activities in the workshop and warehouse control, whereas members with administrative knowledge made progress in their knowledge regarding preventive and corrective maintenance for collection vehicles.

This situation is shown in the limited answers given by counterpart team members in the evaluation tools used; consequently, most of the information for individual and team evaluation was obtained through interviews and meetings with the counterpart team.

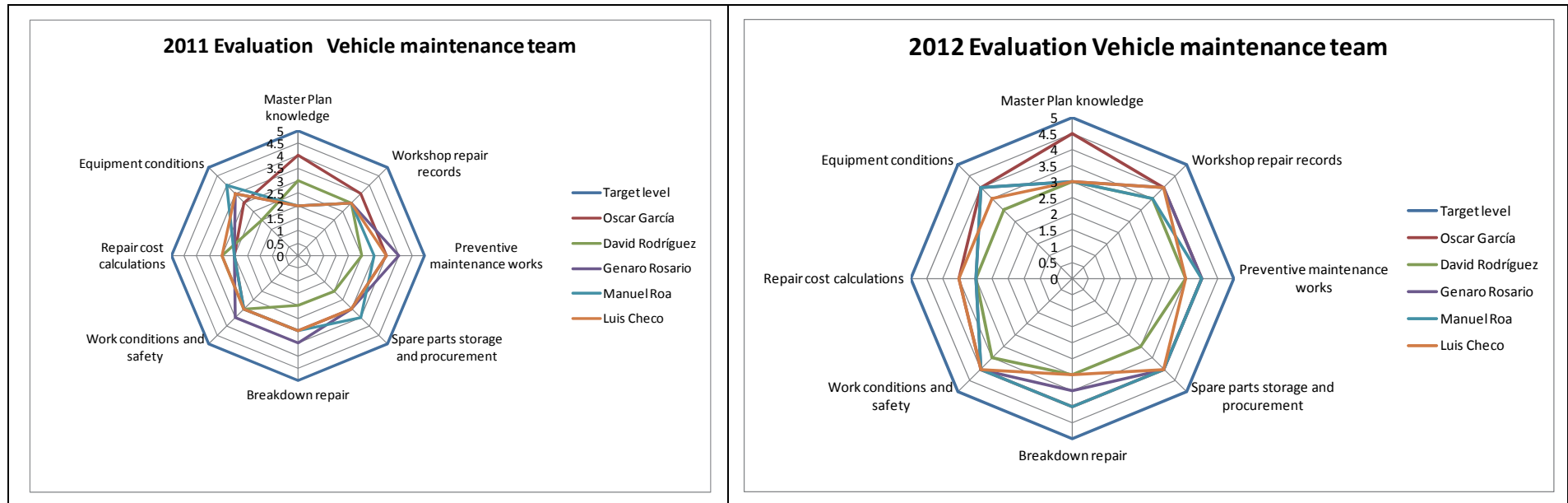
2.- After joining personnel who worked in DIGAU and that one who worked in Equipment Department, it was created DIGAUE which conducted an integrated process in just one entity and location; consequently, it has not been defined clearly the functions nor recorded sufficiently vehicle workshop organization as well as responsibilities nor hierarchy, but they should be implemented to improve activities in the workshop and strengthen achievements attained during this Project.

This situation with undefined functions and hierarchy in the vehicle workshop was solved temporarily under Mr. Oscar Garcia leadership in the vehicle workshop, but his appointment as DIGAUE Director, surely, will generate that he will no longer be concentrated only in the vehicle workshop; consequently, he will have to define a new director in the vehicle workshop and, additionally, the need to define an organizational structure and adequate hierarchy

3.- During the Project's period, fundamental difficulties for adequate collection vehicle maintenance were due to lack of resources and complicated administrative proceedings which delayed procurement. If this situation continues, it can be a factor which delays or prevent strengthening the progress for capacity building on the counterpart attained during this Project. It should be emphasized before DIGAUE, even to higher ranking officers, that it is important to provide the vehicle workshop with resources and equipment for its operation. For that purpose, it can be used data obtained through the implementation of preventive maintenance plan, corrective maintenance record, and warehouse controls which are being implemented.

4.- The output of the evaluation by the end of the Project shows that there is significant progress by the counterpart team and the capacity by the vehicle workshop to conduct preventive and corrective maintenance of collection vehicles which have allowed to cover some routes and deficiencies by the private contractor. Similarly, there is progress in preventive maintenance planning and elaboration of record keeping for activities in the vehicle workshop and warehouse.

5.- Next, there are two graphs with evaluations 2011 and 2012 for all counterpart team members related to Vehicle Maintenance Management:



**Final Comment about individual capacity for counterpart team related to “Vehicle Maintenance Management” by the end of the Project, July 2012.**

The counterpart team for vehicle management was practically the only team which had all members participating in the Project during these three years of the Project; no member was replaced during this period. This situation allowed evaluating members capacity during all the Project.

Even if the counterpart team members remained during the three year period, there were difficulties to conduct capacity evaluation which would be convenient to take into account for future Projects; they are:

- One of the counterpart team members, David Rodríguez, does not work in the vehicle workshop facilities, but in the transfer station which made it difficult to identify progress in his development. On the other hand, some vehicle workshop members received technical training with regards to collection vehicles, but their development was not evaluated because they were not part of the counterpart team.
- When the Project began, counterpart team member functions were not identified clearly, either inside the vehicle workshop or collection vehicle maintenance; consequently, initial and some intermediate evaluations were conducted in general terms to the counterpart team members; it was not taken into account that due to their specialty, some of them received training aiming to control of operation in the vehicle workshop and others received technical training targeting preventive and corrective maintenance for collection vehicles.

## Individual capacity evaluation of counterpart group on “Solid Waste Education and Awareness Raising”

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

**Activities:**

- 1.- Study the current situation of waste discharge practices
- 2.- Develop a plan for improving waste discharge practices
- 3.- Develop materials for public awareness on waste discharge
- 4.- Implement the plan using the above mentioned materials
- 5.- Monitor the implementation and feedback to the plan

An instrument was developed to assess the individual capacity of the C/P team members for the period from September 2009 to July 2012 about:

- a) Various aspects on discharge practices and public education/awareness in the Master Plan and its current status in the National District.
- b) Education/awareness on comprehensive wastes management and the 3Rs.
- c) Education/awareness on waste discharge practices to consolidate the collection system.

The evaluation was conducted based on the comparison of answers given in 2009, 2010, 2011 and 2012, making use of a similar evaluation tool for both cases. In addition to observation and interviews conducted, questions were made about activities conducted. The evaluation was conducted making use of the following parameters:

- Level 5. It is possible to carry out an excellent job without the Japanese Expert support.
- Level 4. It is possible to carry out a satisfactory job without the Japanese Expert support.
- Level 3. A little help from the Japanese Expert is needed to reach the goal level.
- Level 2. A lot of help from the Japanese Expert is needed to reach the goal level.
- Level 1. It is impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

It is pointed out the observations which sustain the assigned number of evaluation and issues which should be developed to increase the capacity to the desirable levels 4 or 5 at the end of the project. A table showing the capacity evaluation of each of the members of the counterpart group 2 on Solid Waste Management Education and Awareness Raising, as well as that of all the members of the C/P team, is also given below.

NOTE.- Three of the counterpart member, Luis Taveras, Anyelina Aquino, and Juan José Guzmán, are not part of DIGAUE and their activities do not have any relationship with integrated solid waste management. This situation caused that capacity evaluation was not conducted for them. Nor was Mariana Szavo's evaluation conducted as she was on vacation. In 2012, capacity evaluation was not conducted for Massiel Moronta as she is transferred from DIGAUE to another department.

Evaluation 2011 Leomaris Celeste Henríquez Díaz

Concepts	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Education / raising conscious awareness on waste generation minimization	<p><b>Current Situation.</b> The increment of solid waste generation which was not foreseen in the MP.</p> <p><b>Aspects to be reviewed in the MP</b> To strengthen policies for informing widely and raise public conscious awareness for issues related to the adequate management and minimization of solid waste.</p>	<p><b>Current Situation.</b> In spite the surprising increment of waste generation during the last months, I can say that we have made significant progress in education for the minimization of wastes. Currently, we are finishing preparation activities for the development of a pilot project within the framework of the follow-up project for the adequate management of urban solid waste management in the area known as Honduras del Oeste (Invi). This project includes education and raising conscious awareness to improve the discharge of wastes and the introduction of 3Rs in the school in the sector. It is also included the procurement of a shredding machine for prune waste. Additionally, there will be the beginning of paper separation in schools, companies, and institutions to be recycled subsequently.</p> <p><b>Aspects to be reviewed in the MP</b> To establish the mechanism to strengthen the widespread information on matters related to education and raising public awareness in clients, always thinking about waste reduction.</p>	<p><b>Present situation.</b> We can point out this time that there has been some significant progress in terms of environmental education. The implementation of the pilot projects has helped us involve the community in training workshops targeting environmental education organized by the Center for Environmental Education and the technical team of Municipal Sanitation aiming at raising people's awareness regarding the importance of an appropriate solid waste management by disposing of wastes only on the date and time established by DIGAUE in order to improve collection efficiency. Other workshops targeting school students were also held so that they may become project agents by disposing of wastes correctly and by segregating paper waste at home. In Antillas and INVI, the residents show the progress made with the implementation of training events in which they are lectured on why solid wastes should be managed correctly and the advantages of so doing. However, the central government should pass laws to promote waste reduction as a sustainable practice.</p> <p><b>Aspects to be reviewed in the PM</b> Despite the fact that pilot projects have been implemented in two areas, namely, Antillas and INVI, where environmental education workshops were held to encourage waste reduction, we consider that at the institutional level we should improve promotion and awareness-raising activities focusing on environmental education by involving all stakeholders, not only those residing within the pilot project area. Training should be targeted to cover not only the people residing within the planned pilot project areas, but other sectors as well, in order to increase the</p>	<p><b>Current Situation.</b> We can point out that our city begins to reflect the efforts which have been materialized regarding the issue of environmental education, mainly related to collection and chipping of prune waste, which minimize the amount of waste being discharged in the final disposal site. We are forced as municipality to present as an agenda item to the Environmental Ministry, Education Ministry, and other stake holders with the purpose to generate with the purpose to create a Law for Integrated Solid Waste Management. Previous to the implementation of pilot projects, we as technical team from DIGAUE should contact to neighborhood committee (Junta de Vecinos) to present them our proposal; however, currently, neighborhood committees are the ones which approach the municipality with the purpose to request training in its sector with regards adequate solid waste management and paper separation at the source. The residents feel identified with the positive outcome in the areas where we have worked which encourage them to be part of the project and give continuity to it.</p> <p><b>Items to be revised in the MP</b> I believe it is necessary to produce a bill demanding an adequate solid waste management, as well as waste separation and minimization for an integrated waste management at the national level (bill which should be based on our reality). It is necessary that the Education Ministry includes in the academic program a class of environmental education. From ADN, we should strengthen the tools to broadcast and provide conscious awareness environmental education.</p>	<p>Level 4.5 There is important progress in their concept about 3Rs and about waste generation minimization.</p>

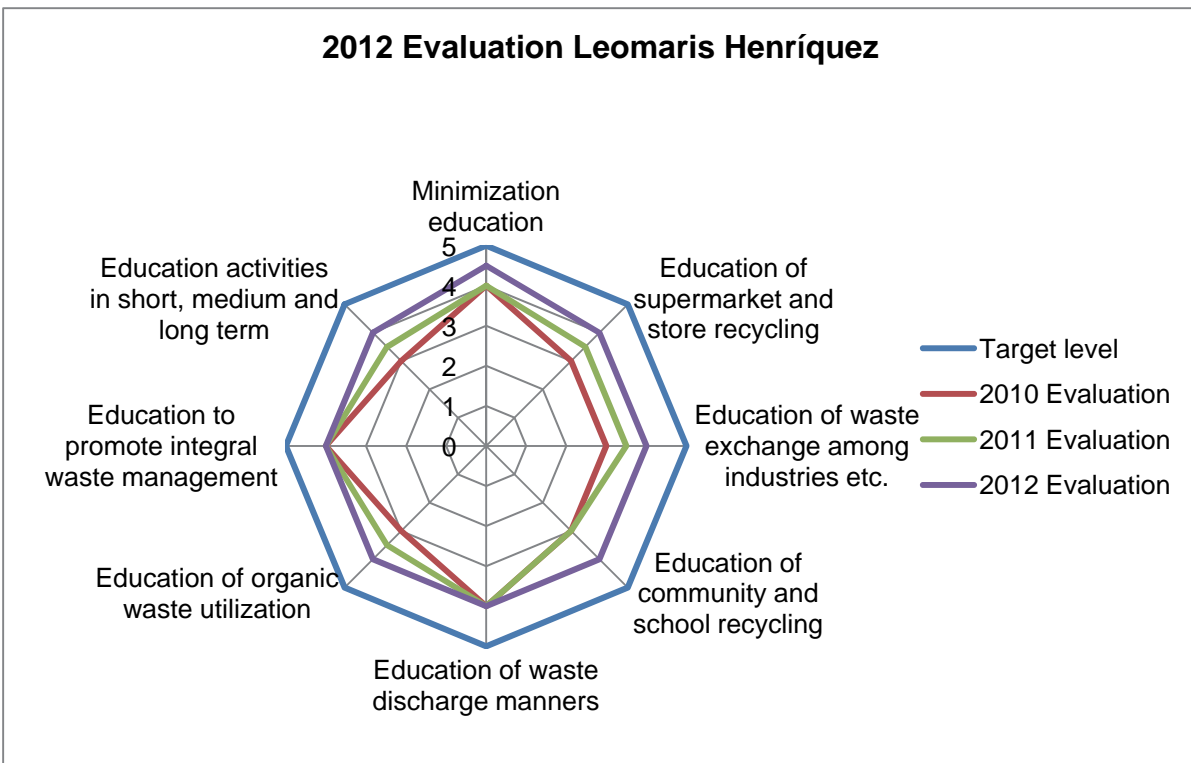
Concepts	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
			<p>pace of waste reduction. Consequently, bills aiming at enforcing the appropriate management of solid wastes, including waste segregation, need to be passed by the Ministry of the Environment and Natural Resources. In February, 2011, I attended a training seminar in which they lectured on the mechanisms used by the Mexican government to implement an appropriate waste management and waste reduction, i.e., sustainable public purchasing, segregation of electronic waste, concrete, plastic, paper, whereas organic wastes are conveyed to the compost plant..</p>		
<p>Education / raising conscious awareness to promote recycling in supermarket and grocery stores</p>	<p><b>Current Situation.</b> It is necessary to implement strategies more clearly to control the discharge in supermarkets and grocery stores. <b>Aspects to be reviewed in the MP</b> To develop activities which include the participation of managers of supermarkets and grocery stores.</p>	<p><b>Current Situation.</b> We have not been able to comply with what was established in the Master Plan to make recycling easier through the control of discharge in the supermarkets. <b>Aspects to be reviewed in the MP</b> To ponder incentives to encourage residents to support an initiative to recycle. Some commercial chains have initiated the sale of reusable bags, but it is insufficient because incentive should be generated to give something back to the persons who purchase them and make frequent use of them when they go shopping.</p>	<p><b>Current Situation.</b> We still undergo the same difficulties in terms of environmental education to facilitate recycling by controlling waste disposal at the supermarkets because we have failed to formulate a plan to devise an institutional educational campaign covering these stakeholders. Some supermarket chains have on their own initiative slightly implemented a campaign to segregate plastic, tetrapak, paper, and organic waste. However, a law requiring waste segregation, reuse, and valorization needs to be passed in order to reach the waste reduction indicators envisaged in the Master Plan Study. <b>Aspects to be reviewed in the MP</b> It is important to identify existing recycling companies, their storage capabilities, and willingness to collect. Training of the staff at the supermarkets and colmados to show them the proper way of segregating and disposing of the wastes generated, and to explain to them the need to implement proper waste segregation and disposal to improve our living standards and extend the service</p>	<p><b>Current Situation.</b> The progress on this issue to facilitate recycling through discharge control in supermarkets and colmados are minimal, although some supermarket chains have begun campaigns with the purpose to replace the plastic bags with reusable bags; however, this measure has not been expanded taking into account that supermarkets continue to issue plastic bags. It is required to produce a broadcast and conscious awareness plan focused on these actors of the society. <b>Items to be revised in the M/P</b> Elaboration and implementation of laws, norms, and regulations which facilitate recycling through discharge control in supermarkets and colmados, creating conscious awareness among citizens to use products which use less packaging.</p>	<p>Level 4 The evaluation increases with respect to 2011 because the answers given are better and training on this issue has advanced.</p>



Concepts	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Education / raising conscious awareness to promote waste exchange among ICI's	<p><b>Current Situation.</b> ADN has units which provide collection service to commercial establishments.</p> <p><b>Aspects to be reviewed in the MP</b> To organize the service collection market.</p>	<p><b>Current Situation.</b> We have managed that some residents use the recommended containers for the Master Plan, but they do not comply with basic sanitary conditions for waste storage.</p> <p><b>Aspects to be reviewed in the MP</b> To establish the use of containers in accordance to waste generated. The compliance of rules to discharge waste, keeping containers in appropriate areas, and take out the container when the collection truck arrives to the collection area.</p>	<p>life of the landfill site.</p> <p><b>Current Situation.</b> I think that the progress made in terms of environmental education aiming at encouraging exchange among the ICI's is minimal. Some companies are interested about it, but their endeavors related to environmental education in order to create an appropriate framework to strengthen environmental education and foster organizational responsibility designed to have a clean city are neither steady nor committed.</p> <p><b>Aspects to be reviewed in the MP</b> I believe that an environmental education plan should be designed to be implemented by the CPR in order to promote the exchange of wastes among the ICI's and their valorization. Such a plan should also promote the use of appropriate containers based on the daily waste generation.</p>	<p><b>Current Situation.</b> The progress on this issue is minimal because it is required active participation of stake holders and enactment of bill which regulates the exchange of waste among ICIs.</p> <p><b>Items to be revised in the MP</b> I emphasize my opinion from 2011 that taking into account that in this issue we should include all items regarding education and conscious awareness which are necessary to develop the exchange of wastes among IC, it should also be exchanged all information related to stake holders.</p>	<p>Level 4 The evaluation is higher than in 2011 because there has been more training on this issue and their answers show more realistic approach to promote recycling in ICIs</p>
Education / raising conscious awareness to promote recycling in communities and schools	<p><b>Current Situation.</b> From our recycling center (RECICLADIN), recycling activities have been carried out in schools and juntas de vecinos in some sectors with the purpose to create consciousness about the importance of recycling.</p> <p><b>Aspects to be reviewed in the</b></p>	<p><b>Current Situation.</b> We are coordinating recycling activities with community and schools where the pilot project to introduce the 3Rs will be developed.</p> <p><b>Aspects to be reviewed in the MP</b> Mechanism to stimulate persons which are identified with recycling activities and conduct a survey with the purpose to know the different types of recyclable materials which are generated in communities and schools; additionally, to know interested parties which would like to commercialize these products.</p>	<p><b>Current Situation.</b> In spite of the fact that various pilot projects are being implemented in several schools within the National District by the public sector, and by the DGAUE, specifically at "V́ctor Garrido" school, the progress made is minimal.</p> <p><b>Aspects to be reviewed in the MP</b> Evaluate DGAUE's capacity to devise a plan for awareness-raising and education focusing on recycling. The City Hall as an institution should involve the civil society, the Ministry of the Environment, and the public sector so that recycling within the National District does not become a goal to be fulfilled 100 years from now.</p>	<p><b>Current Situation.</b> In this regard, progress is very little, since ADN began the project expansion to separate paper which was conducted in V́ctor Garrido Puello school to other schools in the National District, but in the area of environmental education progress has not been significant.</p> <p><b>Items to be revised in the MP</b> To involve more residents in recycling activities which are conducted by ADN through the Environmental Information Center and Center for the Promotion of Recycling. To coordinate with the Ministry of Environment and Natural Resources and the Education Ministry in order to conduct projects both to municipal and national level in schools and communities about importance of 3Rs. Additionally, a class related to</p>	<p>Level 4 Evaluation from 2011 is higher due to better understanding of the role of education in promoting recycling in the schools.</p>

Concepts	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	<b>MP</b> The tools to be used to increase conscious awareness in residents.			environmental protection should be included in the academic program.	
<i>Education / raising conscious awareness to comply with the norms of discharge by generators.</i>	Through a good environmental education conscious awareness is attained by residents and, consequently, waste minimization is achieved as well as environmental decontamination and the control of scattered waste discharged by the citizens.	With regards to the change of culture, residents currently are not used to keep their waste inside their property until the collection truck arrives, but as wastes are being generated, the residents discharge them directly on the sidewalk, curbside or drums. Within the framework of our follow-up project for the adequate management of solid wastes, we are developing workshops to raise conscious awareness for residents in areas where we will begin the pilot projects to keep wastes inside the properties until the collection truck passes. Consequently, it may prevent vectors to proliferate and will help to beautify the sector. The goal is to expand the plan to all the territory of the National District.	During the implementation of our pilot project we confirmed that we can help change users' habits for waste disposal. To this effect, community meetings should be held, an intensive educational campaign using educational materials through the mass media, billboards, etc. to advertise collection date and time should be devised, the number of waste collection trucks should be increased, and maintenance management should be improved, in order to improve our collection system.	Environmental education is fundamental for sustainable development of a healthy ecosystem. An educated discharger in this regard knows which materials can be of benefit, consequently, when he/she discharges, it is done adequately; recyclable materials are placed separately and, subsequently, traded.	Level 4 Evaluation from 2011 remains the same. More training is required for an adequate evaluation of the outcome of the pilot project, the expansion to new areas, and to promote an adequate discharge in all the National District.
<i>Education / raising conscious awareness to make use of organic wastes</i>	To conduct composting practices in public and private educational centers, as well as households.	In the beginning, I believe that we should involve community members in the pilot project of organic fertilizer in which market organic waste will be used. Through the training of retailers with regards to short and long term benefits of composting.	By holding workshops attended by Residents' Associations and community companies targeting farmers, mothers, nursery owners, and all those people looking for a way to make a living and who may be interested in making compost to be marketed. The use of organic waste and tree waste helps to significantly reduce the volume of waste to reach the landfill site.	To create new incentives for those who generate this type of compost is a joint task between the Ministry of Environment and Ministry of Industry and Commerce.	Level 4 Evaluation compared to 2011 is higher because there is progress on this item.
<i>Relevant issues in education / raising conscious</i>	To use tools and mechanism close to our community where residents	To explain the service life of the current landfill because the city does not have enough area which satisfies the control measurements and safety for a sanitary landfill.	Prior to the implementation of environmental education-related activities, a survey should be conducted in the area in order to get to know both social aspects (residents' association,	To promote Green Purchase, the importance of applying 3Rs on a daily basis, and emphasizing recycling behavior in each one of the residents in their daily life.	Level 4 2011 evaluation remains the same

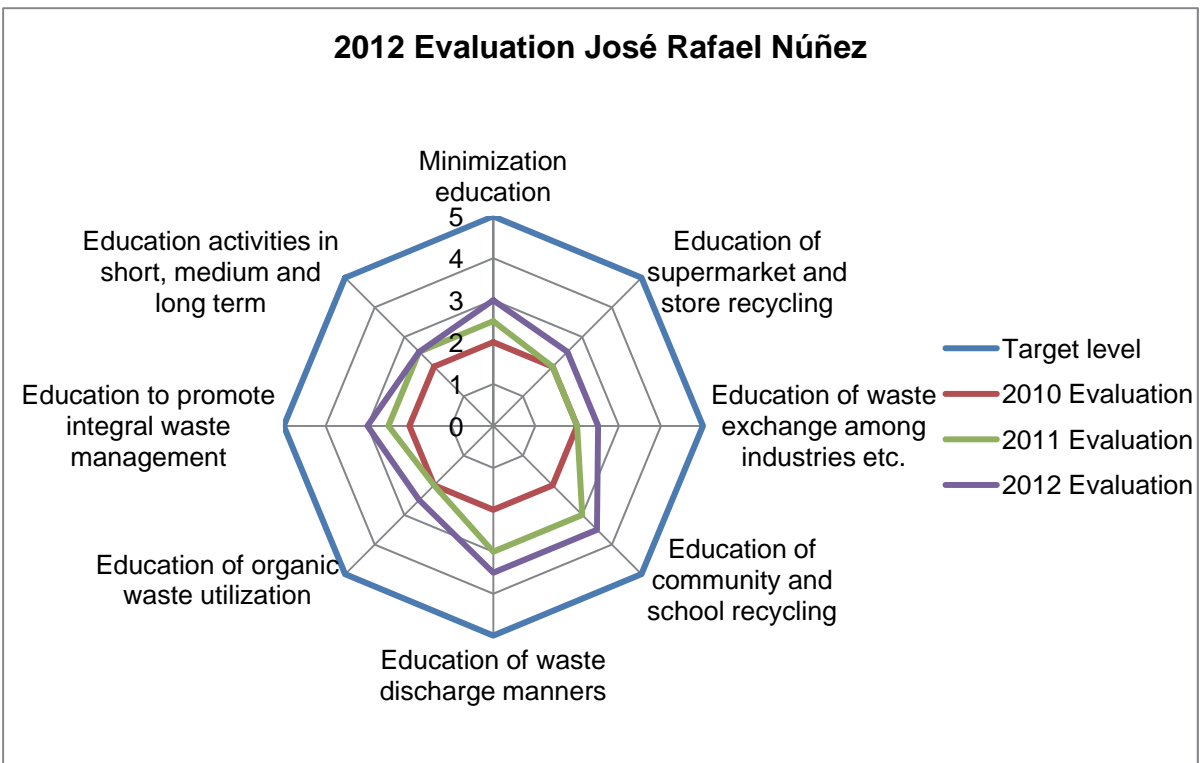
<b>Concepts</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers 2012</b>	<b>Evaluation 2012</b>
<i>awareness to promote integral solid waste management</i>	feel identified with this activity.	Reduction of expenditure in the municipality expenditures due to the services which are being offered by DIGAUE for the integrated solid waste management. Beautification of different sectors. Elimination of contamination vectors, among others.	schools, churches, community leaders), and physical aspects (number of business establishments, households, etc.). We should present the generalities of our pilot project adapted to existing requirements; comply with the waste collection service; beautify the area; and extend the service life of the landfill site.		because there is a better understanding about the role of education to promote integrated solid waste management .
<i>Educational Activities / raising conscience awareness in the short, medium, and long term</i>	More promotion of citizen participation.	To implement a plan to inform widely and raise conscious awareness directed to residents with the main objective to reinforce the compliance of the storage regulation and the discharge of wastes.	To integrate the proper way to dispose of solid wastes, the importance of waste segregation, the promotion of the 3R's, the handing over of manuals prepared during the Follow-up Project for the Proper Management of Solid Wastes, and the training of the staff composing the Equipment Department into the ongoing campaign "Clean City Pride of All".	Firstly, in the short term, it should be promoted and regularized responsible purchase by each one of the stakeholders. Similarly, products previously purchased responsibly should be disposed in an adequate manner to be collected by a unit in charge of recycling them. On the other hand, adequate urban solid waste discharge is important for an adequate waste management. After a responsible discharge, application of 3Rs is implemented.	Level 4 Evaluation from 2010 is higher because there is better understanding of activities to be conducted in the short term.



Evaluation 2011 José Rafael Núñez

Concepts	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Education / raising conscious awareness for minimization in solid waste generation	<p><b>Current Situation.</b> The Environmental Information Center of ADN has an educational program to promote the reduction of wastes in Public Schools, Private Schools, Juntas de Vecinos, and other communities.</p> <p><b>Aspects to be reviewed in the MP</b> To expand the reach of environmental programs and follow up them; to produce educational materials which can have an impact.</p>	<p><b>Current Situation.</b> Contamos con material educativo que no teníamos y se están ejecutando programas en las escuelas que promueven la minimización.</p> <p><b>Aspects to be reviewed in the MP</b> To prepare wide-ranging programs strategically designed to convey the appropriate message to the targeted audience.</p>	<p><b>Current Situation.</b> Other educational materials have been elaborated which teach the importance to minimize focused on early age residents to promote a change of behavior in coming generations.</p> <p><b>Items to be revised in the MP</b> To design educational programs which deals adequately with minimization practices in the residents' reality.</p>	<p>Level 3 There is an increment of knowledge in waste area, but it is still required an increment of capacity about waste generation minimization.</p>
Education / raising conscious awareness to promote recycling in supermarkets and grocery stores	<p><b>Current Situation.</b> There has been very little because there has not been environmental education directed to supermarkets and grocery stores.</p> <p><b>Aspects to be reviewed in the MP</b> To make environmental education programs for supermarkets and grocery stores which facilitate recycling through discharge control.</p>	<p><b>Current Situation.</b> As a consequence of the promotion and importance of this issue, some supermarkets have implemented related programs.</p> <p><b>Aspects to be reviewed in the MP</b> The promotional environmental campaign should help establish recycling companies that can make use of the wastes disposed of by the supermarkets.</p>	<p><b>Current Situation.</b> Although this issue is being promoted by some supermarkets with their own discharges (including colmados), recycling is not fully implemented.</p> <p><b>Items to be revised in the MP</b> Programs to facilitate recycling should be implemented through discharge control in supermarkets and colmados where it should be promoted the creation of recycling companies.</p>	<p>Level 2.5 Knowledge and experience increased related to waste, but it is required to increase its capacity to promote recycling in supermarkets and colmados.</p>
Education / raising conscious awareness to promote the exchange of wastes among ICIs	<p><b>Current Situation.</b> The Environmental Information Center has achieved to educate part of the personnel of some members of ICI to develop waste exchange. There are two companies established making use of paper and cardboard waste of some ICI.</p> <p><b>Aspects to be reviewed in the MP</b> There should be produced a more specific and generalized program to work with ICIs and guarantee an expanded exchange.</p>	<p><b>Current Situation.</b> Existing recycling companies have been significantly strengthened. At present, the territory covered by them has extended.</p> <p><b>Aspects to be reviewed in the MP</b> To support recycling companies by encouraging them to handle a larger waste volume.</p>	<p><b>Current Situation.</b> Every day it is better understood the importance to exchange wastes among ICI.</p> <p><b>Items to be revised in the MP</b> To develop the exchange of wastes among ICI, it should be informed all related information in order to add new members and strengthen the existing ones.</p>	<p>Level 2.5 The evaluation of 2011 remains the same because their knowledge and experience are limited about the manner to promote recycling in ICIs</p>
Education / raising conscious	<p><b>Current Situation.</b> Environmental Information Centre has</p>	<p><b>Current Situation.</b> Over 100 school centers have</p>	<p><b>Current Situation.</b> New programs are being implemented</p>	<p>Level 3.5 Increased the knowledge to</p>

Concepts	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
<i>awareness to promote recycling in communities and school</i>	given workshops about recycling in more than 100 school centers in the N.D. <b>Aspects to be reviewed in the MP</b> Workshops given by CIA have been simple and should be directed to teach schools and communities to make a strong link of exchange of waste for recycling with industries dedicated to these endeavors.	acted as storage facilities for paper and plastic recycling. <b>Aspects to be reviewed in the MP</b> To educate communities so that schools may be used as permanent storage facilities for paper and plastic recycling.	which promote the creation of community companies which work with SW recycling. <b>Items to be revised in the MP</b> To develop recycling in communities and schools, we have to develop programs which highlight positive values of this activity according to interests in those communities and schools (values: environmental, economic, social, and health).	produce educational materials to expand recycling.
<i>Education / raising conscious awareness to meet the discharge regulations by generators</i>	Showing big generators the benefits which mean the compliance of these regulations.	To efficiently promote existing regulations through the environmental education campaign.	Conducting educational programs where discharge regulations are informed to residents and their importance.	Level 3.5 They have increased their knowledge to produce educational material for adequate discharge.
<i>Education / raising conscious awareness to promote the use of organic wastes</i>	Designing a model easily to be assembled where generators can use organic wastes for compost. Similarly, school and communities can use organic wastes to sell them as fertilizer.	By designing programs targeting both residents and organizations that may make use of these wastes.	It is highlighted the benefits that this practice has for both, minimization and compost.	Level 2.5 Evaluation is higher from the previous year, but their knowledge and experience are limited in the waste area, consequently, it is required to increase their capacity on this issue.
<i>Relevant aspects in education / raising conscious awareness to promote integrated solid waste</i>	The big benefits in health which could have an integrated waste management.	All the benefits involved in integrated waste management.	It is a joint task of all society and it is necessary that we all participate positively.	Level 3 Evaluation is higher than 2011 because they showed progress on the production of graphic materials to support the campaign for adequate discharge and 3Rs, however, it is required to increase their knowledge regarding integrated solid waste management.
<i>Educational Activities / raising conscious awareness to be implemented in the short, medium, and long term</i>	All those involved in the policy of the 3Rs.	Promotion and implementation of the 3R's.	Practices of 3Rs which are focused on solving specific problems of different groups.	Level 2.5 It remains the same evaluation as of 2011, consequently, it is required to increase their knowledge on planning activities of training.



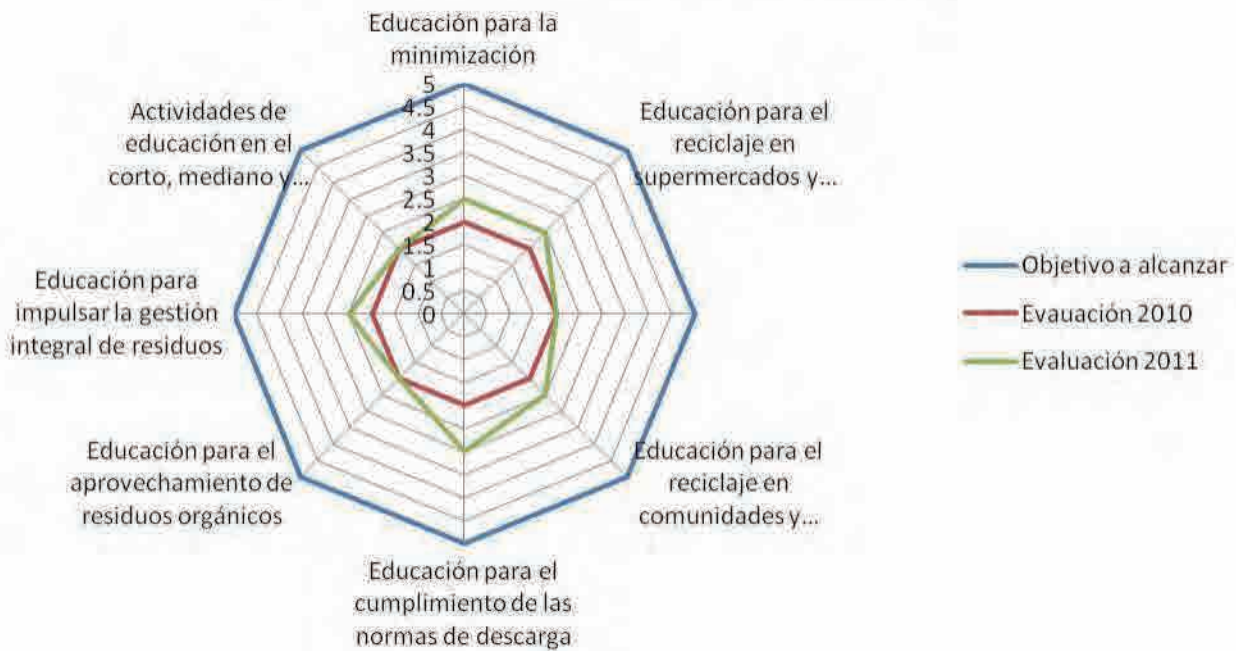
## Evaluation 2011 Massiel Moronta

Concepts	Answers 2010	Answers 2011	Evaluation 2011
Education / conscious awareness to minimize waste generation	<p><b>Current Situation.</b> It was created the environmental information center which is in charge until now of conducting workshops. <b>Aspects to be reviewed in the MP</b> To establish if ADN is in charge exclusively of the issue or needs to support the Ministry of Education.</p>	<p><b>Current Situation.</b> Uninterrupted monitoring of the workshops held by the Environmental Education Center to involve Residents' Associations from different parts of the city. The distribution of educational materials has also been included. <b>Aspects to be reviewed in the MP</b> To review the need to involve other sectors that may support the implementation of the Plan.</p>	<p>Level 2.5 His capacity in terms of education/awareness raising has improved. However, his expertise related to waste generation reduction should be increased.</p>
Education / conscious awareness to promote recycling in supermarkets and grocery stores	<p><b>Current Situation.</b> There has not been conducted too much about it. Except for the companies which promote the use of less package, like supermarkets and big warehouses like PriceSmart. <b>Aspects to be reviewed in the MP</b> To give more participation to the Environmental Information Center, as well as the involvement of citizens in these activities.</p>	<p><b>Current Situation.</b> The use of recycling stations in parking lots and other areas is already being promoted by large chains of supermarkets such as CCN. Regarding grocery stores, there has not been any significant progress. <b>Aspects to be reviewed in the MP</b> To hold talks with employees and executives from large supermarket chains, as well as with community leaders. Education/awareness will never be excessive to expand the project to cover the entire city. The more citizens know about it, the easier it will be to educate them and to spread the project.</p>	<p>Level 2.5 His capacity in terms of education/awareness raising has improved. However, his expertise related to recycling boost in supermarkets and grocery stores should be increased.</p>
Education / conscious awareness to promote the exchange of wastes among ICIs	<p><b>Current Situation.</b> There has not been too much what has been done about it. <b>Aspects to be reviewed in the MP</b> To promote it among related industries on this issue.</p>	<p><b>Current Situation.</b> An increasing number of companies are interested in the subject. They have come up with new ideas to improve citizens' awareness. <b>Aspects to be reviewed in the MP</b> To strengthen the link with citizens and companies by informing them about collection date and time to minimize collection difficulties. Collection problems will be more easily reduced if collection date and time is established and enforced.</p>	<p>Level 2 His expertise in the field of education/awareness raising is limited. However, his capacity related to recycling boost at the ICI's should be improved.</p>
Education / conscious awareness to promote recycling in communities and schools	<p><b>Current Situation.</b> Until now very little because recycling is done mostly by private companies. <b>Aspects to be reviewed in the MP</b> More participation to schools and community associations should be given because nowadays it is an issue mainly for big industries.</p>	<p><b>Current Situation.</b> Lectures and workshops have been held in both public and private schools and in community organizations. Residents' associations should provide advice and guidance for waste generators, and community leaders should help improve waste management. <b>Aspects to be reviewed in the MP</b> The promotion of the effect of a proper waste disposal on recycling activities should be reviewed.</p>	<p>Level 2.5 His capacity in the field of education/awareness raising has improved. However, his capacity related to the way to boost recycling in schools and communities should be increased.</p>
Education / conscious awareness to	<p>Very Much because these norms are not complied by most of residents because citizens do not know them.</p>	<p>It has a positive effect on solid waste disposal by waste generators.</p>	<p>Level 3 His capacity has improved. However, his</p>



<b>Concepts</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Evaluation 2011</b>
<i>comply with the discharge norms by generators</i>			expertise related to education/awareness activities for the enforcement of waste disposal regulations should be increased.
<i>Education / conscious awareness to promote the use of organic wastes</i>	Through visits by students to the compost plant, it was explained the importance of this activity.	By conveying to the residents the knowledge required for compost production from organic waste by conducting tours to existing compost facilities.	Level 2 His expertise in terms of education/awareness is limited. Therefore, his capacity should be improved.
<i>Relevant issues on education / conscious awareness to promote integrated solid waste management</i>	About the benefits which result of a better waste management. Additionally, citizens should be informed that they are the main beneficiaries or harmed as a result of a bad or good management of these wastes.	The increase in terms of living standards of all the residents as a result of their active involvement in the process and through an egalitarian service with differentiated tariffs.	Level 2.5 His capacity related to education/awareness has improved. However, his expertise in terms of the integrated management of solid waste should be increased.
<i>Education activities / conscious awareness to be conducted in the short, medium, and long term</i>	Programs directed to the population, informative workshops, provision of informative brochures, etc.	Guidance and communication programs for the community, as well as the organization of the markets.	Level 2 His expertise in the field of education/awareness is limited. Therefore, his capacity related to planning of educational activities should be improved.

## Evaluación 2011 Massiel Moronta



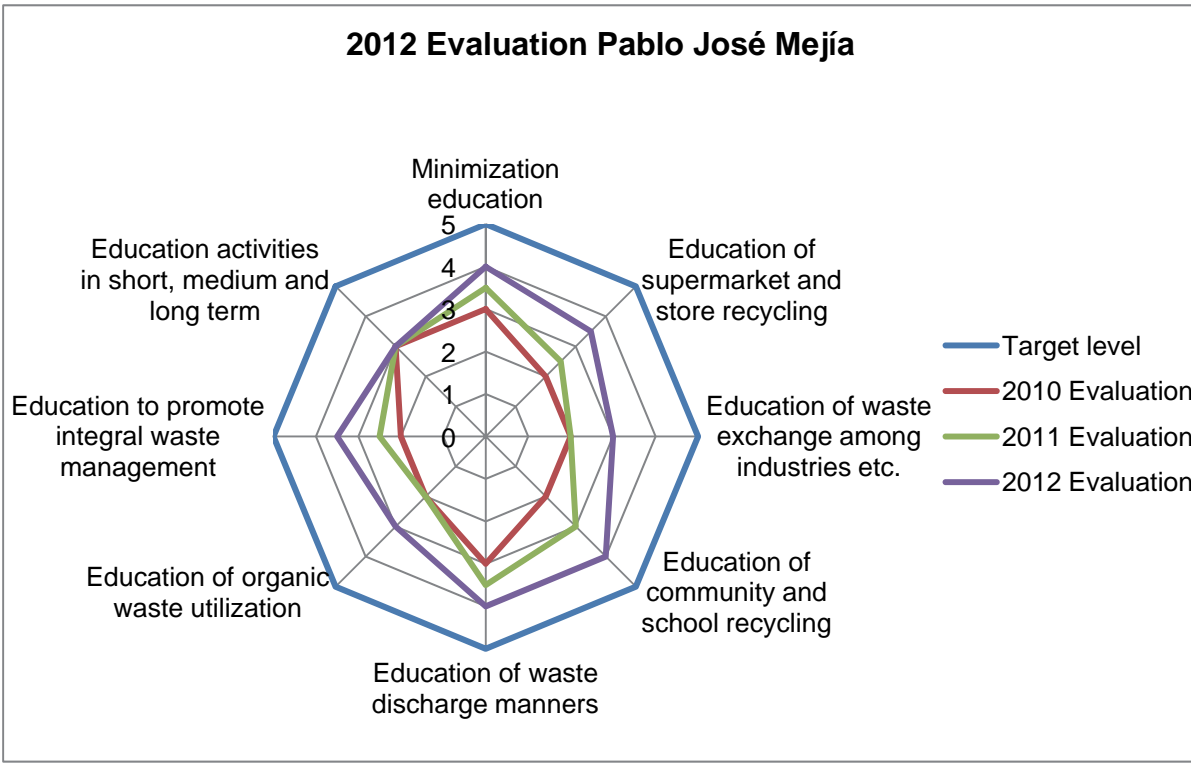
Evaluation 2011 Pablo José Mejía

Concepts	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Education / conscious awareness to minimize waste generation	<p><b>Current Situation.</b> Progress is little or non-existent because, currently, more than 2,000 tons are being collected of which 800 tons pass through the Transfer Station; this amount is a considerable increment with regards to the Master Plan in the second phase.</p> <p><b>Aspects to be reviewed in the MP</b> To conduct environmental education programs (directed to minimize wastes and adequate solid waste management) by the Ministries of Education and Environment in cooperation with ADN. These programs should be conducted permanently until the educational objective to the population is attained.</p>	<p><b>Current Situation.</b> At present, waste collection has barely been reduced by 6% compared to the first half of the year 2010. From my point of view, this reduction is not the result of the implementation of the environmental education campaign targeting waste reduction, but a consequence of other factors. A pilot project focusing on paper recycling is currently being implemented in a school within the National District. However, waste volume recycled is not enough to minimize the tons of waste daily conveyed to Duquesa landfill site.</p> <p><b>Aspects to be reviewed in the MP</b> In order to strengthen waste reduction, the executive power and the legislators should propose bills encouraging waste reduction and establish regulations to enforce the reuse of construction waste, as well as that of glass, paper, plastic, and electronic wastes, as it is done in Mexico.</p>	<p><b>Current Situation.</b> Until there is not an integrated solid waste law, the percentage defined in the Master Plan is difficult to attain. Up to now, ADN is conducting pilot projects such as pruning waste management which consists of pruning waste collection and chipping which helps to minimize the amount disposed in the landfill and the plan to improve waste storage and discharge which raises conscious awareness regarding waste with committee neighbors and residents in the areas where it is implemented.</p> <p><b>Items to be revised in the MP</b> The enactment of an integrated solid waste law as well as the inclusion of courses related to environmental education in schools and universities.</p>	<p>Level 4 There is more knowledge in education / conscious awareness and there is progress on theoretical knowledge on this issue.</p>
Education / conscious awareness to promote recycling in supermarkets and grocery stores	<p><b>Current Situation.</b> This area, even at a small level, is being practiced for some time. There are grocery stores which work as storage sites by collecting all glass bottles which are subsequently collected and reused by the companies. Regarding supermarkets, we have examples of publicity campaigns which promote the use of reusable bags which help the reduction of plastic bags that affect our environment.</p> <p><b>Aspects to be reviewed in the MP</b> To develop publicity campaigns which promote the use of reusable bags; to dismiss the use of plastic bags by grocery stores and supermarket by creating new means to carry new products; in this manner, retailers will be satisfied because their costs will be reduced due to a reduction in the use of</p>	<p><b>Current Situation.</b> In order to support the statement above, the country's largest supermarket chain has begun to implement awareness raising programs at some of its branches. The promotion of the use of reusable bags and the installation of storage facilities for paper, plastic and glass recycling at some supermarkets for customers to put the 3 R's into practice are some of the actions taken . In the case of grocery stores, the progress is the same as that of the year 2010.</p> <p><b>Aspects to be reviewed in the MP</b> In addition to the above, to pass laws and/or regulations helping to reduce the use of plastic bags in supermarkets and grocery stores, thus promoting the use of reusable bags. Shopping centers, in coordination with the Ministry of the Environment and municipal councils, should educate the residents regarding the importance of these measures.</p>	<p><b>Current Situation.</b> Although there is the willingness, there is not an initiative at a large scale. A small group of Supermarkets in the country promotes environmental education and this viewed as a social commitment rather than an environmental impact that with time will affect the planet. These supermarkets promote the use of reusable plastic bags, but they are sold and plastic bags are still in use, although there is the proposal the initiative is stuck. Regarding the Colmados, it seems to be an utopia.</p> <p><b>Issues to be revised in the MP</b> To enact laws, regulations, and norms related to this issue as well as a wide educational campaign.</p>	<p>Level 3.5 There is an increase in the capacity in the area of education / conscious awareness, but it is still required to increase their capacity about recycle activities to promote recycling in supermarket and colmados.</p>

Concepts	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	plastic bags.			
<i>Education / conscious awareness to promote the exchange of wastes among ICIs</i>	<p><b>Current Situation.</b> There are big Generators which recycle materials which are remnants of the operational activities which are conducted by them, in spite of this, progress is almost non-existent. There are companies which have a reduction and minimization policy; regrettably, these strategies are practiced only internally.</p> <p><b>Aspects to be reviewed in the MP</b> To compromise several institutions like CONEP (National Council of Private Enterprises) to take measures related to waste minimization by big generators. To coordinate with the Environmental Ministry monitoring these activities and promoting big generators that conduct this endeavor.</p>	<p><b>Current Situation.</b> Preogress as of 2010 is negligible. Some companies have shown their interest in the subject this year. In my opinion, this is just a marketing strategy to gain new customers. Businessmen should get involved so that they may help public institutions to raise citizens' awareness to make our country cleaner.</p> <p><b>Aspects to be reviewed in the MP</b> In addition to the answer of 2010, I can point out that there has been some progress. For example, it should be noted that the 3R's Network was established. The network is composed of members of private and governmental institutions, a representative from the Ministry of the Environment, a representative from the Ministry of Education, a representative from CEDAF, and representatives from various major's offices. Its goal is to boost the use of solid wastes both in the public and private sectors.</p>	<p><b>Current Situation.</b> In addition to the previously mentioned, until the environmental ministry does not focus on issues such as this one, we will not manage to make progress. ADN conducts activities and projects in recycling, but it is an issue which should cover all the country.</p> <p><b>Issues to be revised in the MP</b> More actions should be taken on this issue, involve more stake holders, as well as to make it mandatory to provide environmental education in schools as courses.</p>	<p>Level 3 There is progress in the last year related to theoretical knowledge about this issue, but it is still required to have more knowledge to promote recycling in the ICIs.</p>
<i>Education / conscious awareness to promote recycling in communities and schools</i>	<p><b>Current Situation.</b> Minimum, there are educational centers which are conducting recycling activities promoted by private companies.</p> <p><b>Aspects to be reviewed in the MP</b> To involve even more the Ministry of Education to make recycling activities practicable in educational centers, for example, Tetra Pak packages can be used and, in this manner, we would be involving the company which supplies the school breakfast in this type of package.</p>	<p><b>Current Situation.</b> After the completion of the pilot project at "V́ctor Garrido" school within the INVI sector, I think that we have moved forward with these initiatives. Companies such as Banco Popular and Coca Cola have organized contests in several schools about best practice such as recycling. Progress might not be dramatic in quantitative terms, but we are certain that we will achieve our goal.</p> <p><b>Aspects to be reviewed in the MP</b> In addition to the above, the Ministry of the Environment and the municipal councils should get involved to provide further support to schools and other sectors.</p>	<p><b>Current Situation.</b> Progress is still small; there is willingness, but there are not many initiatives in spite there are private companies involved and ADN activities. There is a lot of educational work that which should be conducted before recycling is implemented.</p> <p><b>Issues to be revised in the MP</b> The ministries of environment and education should include in their academic program environmental education for students. It should also involve other ministries and municipalities to develop initiatives and educational campaigns to educate residents.</p>	<p>Level 4 During the development of recycling pilot project, C/P capacity on this issue increased, taking into account that during last year the C/P coordinated education activities to promote recycling in schools and the community in the project area.</p>
<i>Education / conscious awareness to comply with</i>	It might influence significantly because through education, we can educate the population about adequate waste management.	In order to reinforce the answer given in 2010, it should be noted that education plays a significant role as residents may learn to segregate useful wastes, thus facilitating waste	Education is fundamental for an adequate waste discharge; the generators should discharge their waste correctly. The generator with	<p>Level 4 There is more knowledge in education / conscious awareness and more</p>

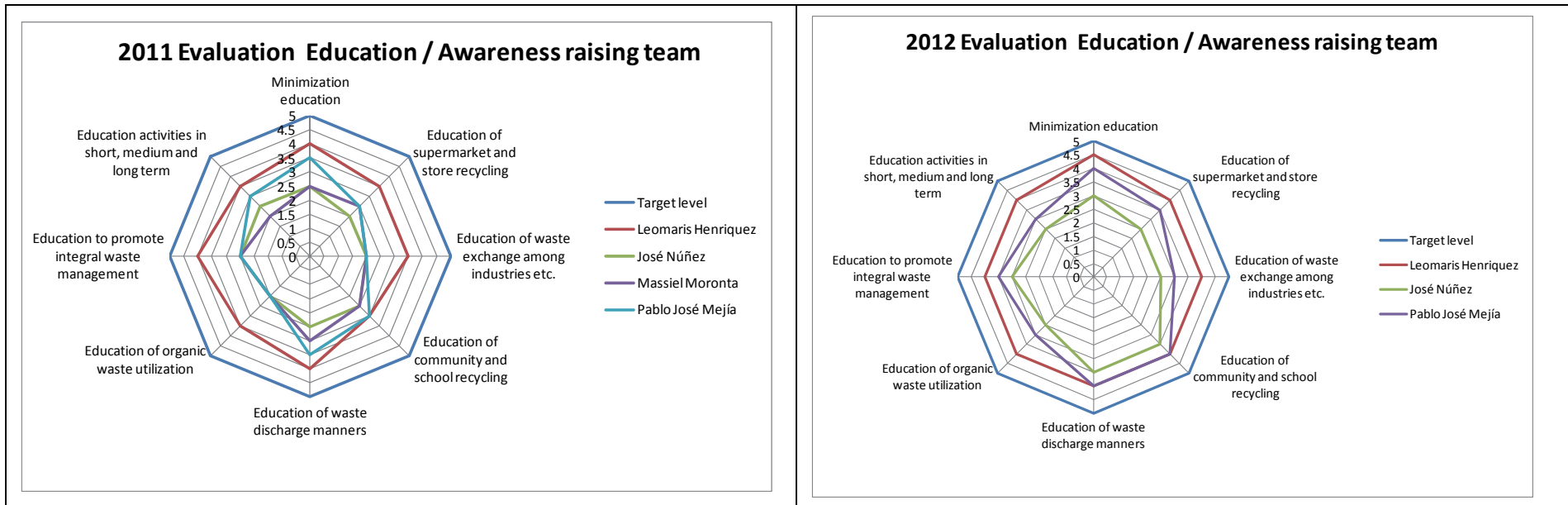
<b>Concepts</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers 2012</b>	<b>Evaluation 2012</b>
<i>the discharge norms by generators</i>	To establish discharge regulations to inform residents about collection days, to monitor that these regulations are complied with and maintain a communication citizen-ADN to correct, obtain suggestions, and/or complaints by citizens; all of them are needed actions that with adequate education conduct to compliance and adequate management of wastes.	separation conducted by informal segregators. It should also be noted that if construction companies complied with existing regulations and reused construction waste, the volume of this type of waste being conveyed to the landfill site would be reduced. Regarding environmental education, I think that the major's office and the Ministry of the Environment, in coordination with CODIA (Dominican Association of Engineers, Architects and Surveyors) should work together to regularize waste construction management.	education knows what material has value and what material does not. The generator educated also facilitates the work of collection workers.	knowledge about theoretical knowledge on the issue, taking into account that during last year the C/P coordinated education activities to promote recycling in schools and the community in the project area.
<i>Education / conscious awareness to promote the use of organic wastes</i>	Through compost production, farmers could obtain their own organic fertilizer for their crops; in this manner, purchase and use of inorganic fertilizer will be reduced. Furthermore, it will contribute to waste minimization because of this and other reasons, composting is considered as a mean to recover resources.	By means of the spreading of educational information about the importance of waste generation reduction, we can teach the residents, especially mothers, how to produce compost to be used for gardening. Compost making can also be taught to farmers to help them reduce purchasing of chemical fertilizers.	The environment ministry in coordination with the ministry of industry and commerce can join efforts to promote compost production. These initiatives can bring about to obtain incentives for the producers by reducing the tax fee and/or implementing economic green bonds for producers, as well as to promote the use of this product.	Level 3 There has been progress regarding knowledge and experience about this issue, however, it is required to increase the capacity on this issue.
<i>Relevant issues on education / conscious awareness to promote integrated solid waste management</i>	The positive results which could bring to society an adequate solid waste management by improving natural resources and environment. Society must be instructed and should be informed about the consequences which bring a bad solid waste management.	Residents should be aware of the fact that the worst consequences of the inappropriate management of solid wastes is the spreading of pests, the negative visual impact on the affected area, and the reduction of the service life of the landfill sites due to the large amounts of wastes being generated.	Discharge practices, responsible purchase, 3R application.	Level 3.5 In this last year, there has been an increment in the capacity of education/conscious awareness, but it is still required more training on the issue to lead expansion of integrated solid waste management of the pilot project to other areas in the National District.
<i>Education activities / conscious awareness to be conducted in the short, medium, and long term</i>	In the short term, educational activities, workshops, solid waste management and application of 3Rs courses. In the medium term to develop and begin the implementation of minimization and reuse projects as well as management and adequate discharge of wastes by residents. In the long term, to achieve the highest possible reduction of wastes	In addition to my answer of last year, the residents should be made aware of the importance of purchasing responsibly, reusing those items that can be used for other purposes, and eventually recycling some materials.	First, responsible purchase should be conducted and discharge improvement, subsequently, 3Rs have to be applied, and later these activities should be maintained and expanded.	Level 3 2011 evaluation remains the same because in spite of an advanced theoretical knowledge about this issue, it is still required to increase the C/P experience and capacity in planning educational

Concepts	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	by recycling plastics, glass, paper, to make compost, and other products which can be utilized.			activities.



### Summary for 2012 Evaluation of the counterpart team for Solid Waste Education and Awareness Raising.

- 1.- It is emphasized what has been mentioned in evaluations 2010 and 2011 in the sense that the counterpart team of Education/Awareness Raising has five persons who do not belong to DIGAUE and only cooperate for the pilot project in producing educational materials, developing educational activities with the community, and serving as link with other community organizations. This has allowed conducting adequately the waste adequate discharge pilot project, but it has not allowed to evaluate the capacity of all members of the counterpart team.
- 2.- The counterpart team has increased remarkably their capacity with the implementation for adequate discharge pilot project, improving their knowledge on integrated solid waste management, on educational activities which should be conducted in the community and the relationship between and adequate provision of collection service to achieve an adequate waste discharge to the collection system by dischargers.
- 3.- One of the outputs of the pilot project for adequate discharge is related to compliance with routes and frequencies by the collection system. It is required to evaluate adequately this factor when implementing new projects in other sectors, mainly taking into account current conditions when overdue payment to collection contractors has been paid recently; additionally, these contractors have procured new vehicles which allow operating satisfactorily. All the foregoing allow to request better conditions for the compliance of routes and frequencies contracted out.
- 4.- It is required to increase the capacity regarding the adequate parameters to evaluate the output of the pilot project for adequate waste discharge, as well as the conditions which would allow to expand the pilot project for adequate discharge to other sectors of the National District and on the conditions which should be attained to improve adequate waste discharge in all the National District.
- 5.- In the medium term, DIGAUE or the new Environmental Management and Risk Secretariat should evaluate the possibility and convenience to modify the current collection system in the National District to a new system based on the distribution of standardized containers where wastes would be discharged; these containers will be placed strategically in public areas. On the other hand, it can be established a collection system door to door where dischargers store their wastes inside their premises and discharge them directly to the collection service through a system which announces discharge time with sound (bell, music, etc.) or another system with fixed schedules and discharge points.
- 6.- Next, two graphs are shown with the evaluations of 2011 and 2012 for all members of the counterpart team for Solid Waste Education and Awareness Raising:



**Final thoughts about the evaluations of individual capacity for the counterpart group about “Solid Waste Education and Awareness Raising” by the end of the project in July 2012.**

By the end of the project, it was only possible to conduct an evaluation of capacities for three members of the counterpart team about “Solid Waste Education and Awareness Raising” because some of the original members in the counterpart team did not belong to DIGAUE and their participation in the activities was very limited, it was reduced to support activities, but without integrating fully to the works. That was the case of Luis Taveras, Anyelina Aquino, Juan José Guzmán, and Mariana Szavo. It is suggested that for future JICA international cooperation projects, the counterpart team is integrated by member who will effectively participate in the activities to be developed and who should be object of training by JICA technical staff, in that manner, the development of their capacity can be evaluated during the project and at the end of the project, it can be evaluated if the objective of the increment in capacity by counterpart team members has been attained.

Other important issue which should be highlighted during this project was that the counterpart team was composed of some members who were not included at the beginning of the project such as José Rafael Núñez which makes it difficult to evaluate effectively capacity development because training period was less than project duration. Similarly,



some persons stopped conducting activities with the counterpart team because they do not work for DIGAUE anymore such as Massiel Moronta which caused that training received during the project will not have continuity after the end of the project.

Of course, it is difficult to foresee that all members of counterpart who participate at the beginning in the counterpart teams remain in their post during the project and continue to work when the project finishes in the same activities with the purpose to give continuity to training which can result in improvement of solid waste management conditions in the target population. However, this adverse situation can be reduced if adequate persons are selected to integrate the counterpart team since the beginning of the project; high ranking counterpart members should be informed about the need that training received by persons in the counterpart team should have continuity in the activities where training is provided in order to increase capacity building which can have impact on waste management improvement conditions.

In the particular case of continuity of achievements obtained in training of counterpart about Solid Waste Education and Awareness Raising, it is suggested that in the new conditions where an Environmental Management and Risk Secretariat has been created and a new DIGAUE director has been appointed, it should be established a committee to expand achievements of the pilot project about adequate waste discharge, developed in this cooperation project, to other areas of the National District under the direction of the Secretariat for Environmental Management and Risk, and the participation of Center for Environmental Information, and Department of Human Development. The activities of this committee will be to define new expansion areas for pilot project about adequate waste discharge, elaborate materials and conduct information activities and environmental education for waste adequate discharge, calling for meetings to Neighborhood Committees and other stakeholders in the areas to participate of the projects, and ensuring a regular collection service in the routes which service the selected areas.

This committee will be responsible to expand the achievements of the pilot project about adequate discharge to other areas in the National District and the evaluation of progress achieved on the improvement of the general system of adequate waste discharge in the National District, until the total extension of the district area has been covered at the medium or long term.

## **Individual capacity evaluation of counterpart group on “Waste Minimization / 3Rs Promotion”**

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

### **Activities**

- 1.1.- Review the current situation of recycling activities on papers, glass, metal, plastic and organic waste**
- 1.2.- Study the feasibility of recycling of valuable materials**
- 2.1.- Design a program for 3Rs introduction**
- 2.2.- Develop materials for public awareness and promotion of 3Rs**
- 2.3.- Implement the program for 3Rs introduction**
- 2.4.- Monitor the implementation and feedback to the program**
- 3.1.- Develop a pilot project plan to expand current paper recycling activities**
- 3.2.- Implement the pilot project for paper recycling**
- 3.3.- Review the pilot project and develop plan for expansion of paper recycling**
- 4.1.- Develop pilot project plan for composting**
- 4.2.- Implement pilot project for composting**
- 4.3.- Review the pilot project and develop plan for expansion of compost operation**

An instrument was developed to assess the individual capacity of the C/P team members for the period between September 2009 to July 2011 about:

- a) Various aspects on 3Rs (recycling/composting) in the Master Plan and its current status at National District.
- b) Promotion of recycling at National District and development of pilot Project for paper recycling.
- c) Promotion of composting in the National District and development of composting pilot Project.

The evaluation was conducted based on the comparison of answers given in 2009, 2010, 2011 and 2012, making use of a similar evaluation tool for both cases. In addition to observation and interviews conducted, questions were made about activities conducted. The evaluation was conducted making use of the following parameters:

- Level 5. It is possible to carry out an excellent job without the Japanese Expert support.
- Level 4. It is possible to carry out a satisfactory job without the Japanese Expert support.
- Level 3. A little help from the Japanese Expert is needed to reach the goal level.
- Level 2. A lot of help from the Japanese Expert is needed to reach the goal level.
- Level 1. It is impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

It is pointed out the observations which sustain the assigned number of evaluation and issues which should be developed to increase the capacity to the desirable levels 4 or 5 at the end of the project. A table showing the capacity assessment of each of the members of Team 4 Waste Minimization/3R's Promotion, as well as the evaluation of the team as a whole, is given below.

NOTE.- Mr. Manuel Dajer left C/P Team 4 and Mr. Fulvio Cabral and Mr. Fernando Prestol joined it. The initial evaluation was conducted for them. We were informed that Mr. Heisor Vicente Arias Díaz would leave DIGAUE for a year to undertake some post-graduate studies abroad. His capacity assessment was conducted anyway.

Evaluation 2012 Ana Beatriz Pou

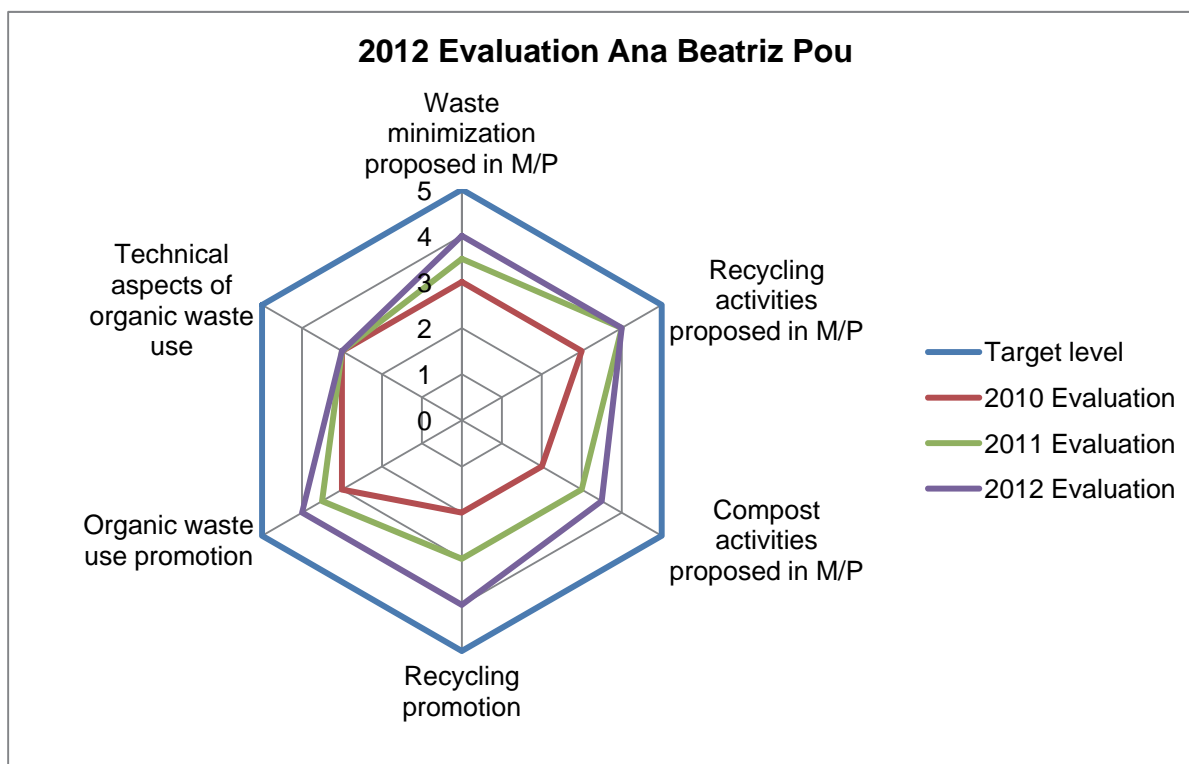
Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Minimization of wastes foreseen in the Master Plan	<p><b>Current Situation.</b> This average has not been reached, because the daily tonnage is recorded an increase, being at present in an average of 2000 tons per day, which far outweighs what is involved in the Master Plan.</p> <p><b>Aspects to be reviewed in the MP</b> Evaluate through the Secretariat of State of Environment and Natural Resources the possibility to implement awareness programs (in collaboration with the ADN) to businesses and citizens in order to educate the population about the importance of waste reduction, both solid and organic.</p>	<p><b>Current Situation.</b> There is still problems regarding the daily collection average which is increasing, generally we are at 2, 050 tons per day. In this regard, we can point out that in this project we could define in more detail the recycling rate, because we are dealing with an informal recycling market, it is difficult to define how much is being recycled in the National District. We can mention that there are companies which have seen opportunity in recycling, have become interested on the subject, and have created reductions by managing paper, cardboard, and other materials which are subsequently recycled.</p> <p><b>Aspects to be reviewed in the MP</b> We should take into account that the Ministry of Environment and National Resources should promote through laws and regulations a reduction on solid wastes which we generate, regulating the use of several materials which pollute in large degree our environment, as well as to stimulate the companies which recycle.</p>	<p><b>Current Situation.</b> Even now average waste collection exceeds what was stipulated in the Master Plan. Despite the fact that a direct strategy for waste reduction is not currently being planned, there has been a certain waste reduction. At present, an average 1,950 tons of waste are being collected on a daily basis. The reduction is due to the current economic situation the country is going through, which, despite being stable, has had a negative impact on people's purchasing power.</p> <p><b>Aspects to be reviewed in the MP</b> One of the issues that should be reconsidered is environmental education. I believe that certain aspects necessary for waste reduction and recycling cannot be proposed to residents if their environmental awareness is not raised. In addition, a more comprehensive strategy should be devised in order to provide the information people need to help change existing habits.</p>	<p><b>Current situation.</b> We continue collecting waste with an average above the estimated in the Master Plan, i.e., 1869 tons per day, an important issue is that we have been reducing the amount of tons per day; one issue that helps reducing waste are the several recycling activities by companies in the National District, as well as other type of cooperation by the private sector; although as I mentioned in previous evaluations, economic situation even though it is stable, there is a reduction of buying power among citizens.</p> <p><b>Issues to be revised in the MP</b> I think that more than issues to be evaluated in the Master Plan, what we need is a broad information campaign which would allow us to connect with the citizens and educate them with regards to topics that are common nowadays, but not everybody is aware of them; and there is no knowledge about the impact of 3Rs implementation. In this regard, we should promote to broadcast all adequate information in order to prevent confusion among residents.</p>	<p>Level 4 The evaluation is higher because her answers show progress in understanding waste minimization in the National District.</p>
Recycling Activities foreseen in the Master Plan	<p><b>Current Situation.</b> This is something we are working on; grocery stores have always served as storage center to some glass bottles which are returned to the company and are reused; similarly, supermarkets are reducing drastically</p>	<p><b>Current Situation.</b> We still continue working on this issue. Currently, supermarkets are using packaging for food, as well as reusable bags or biodegradable bags. Grocery stores have always been involved in recycling market because they function as storage center for glass bottles of different kind.</p> <p><b>Aspects to be reviewed in the MP</b> I would say that we should promote recycling initiatives at grocery store</p>	<p><b>Current Situation.</b> I think that now is the right time to move forward. Some supermarkets are currently reducing the materials they use, e.g. Supermercados La Cadena is introducing a reduction of paper used for their inventories. Recently they launched a campaign including plastic bags of different colors to encourage waste segregation, although the strategy used to spread the information is not</p>	<p><b>Current Situation.</b> In the last year several supermarket chains have been involved in reducing materials which are used by them; there is the case of a chain which has placed storage points in its branches for clients to take recyclable materials there. Moreover, they promote the use of reusable bags. Regarding colmados, they have always operated as storage sites for some glass bottles which are taken</p>	<p>Level 4 It is maintain the same evaluation as 2011, in spite of the progress in her understanding about recycling process in the National</p>

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers 2012</b>	<b>Evaluation 2012</b>
	<p>plastic bags that are used.</p> <p><b>Aspects to be reviewed in the MP</b> To promote the use of paper bags at the shops, amongst other changes that can be implemented, of course, over time, dedication and appropriate means.</p>	<p>and supermarket level because this way we would achieve that change begins from the moment clients make their purchase. Moreover, if companies understand that there is some profit with this activity; they will continue to do so because for these companies their main goal is to increase their income.</p>	<p>the most suitable one.</p> <p>In the case of Supermercados Nacional, they focused on reusable plastic bags, which means some improvement. However, they do not encourage customers to use them, thus making their strategy somewhat deficient. They have certainly made significant progress in terms of the installation of storage facilities for TetraPack packages and newspapers to encourage waste segregation by customers.</p> <p>Grocery stores have always been used as storage places for some types of glass bottles that are returned to the manufacturing company to be reused. They are not currently implementing any strategy or initiative to promote the storage of more materials as they only store glass bottles because the companies needing them back are their direct suppliers.</p> <p><b>Aspects to be reviewed in the MP</b> I insist that education is the most important issue here. There should be a program focusing on awareness raising of these business establishments as they may help us spread the information. This way the desired change in attitude would be achieved from the very moment customers do the shopping. Moreover, if companies see any chance of profits by doing so, they would go for it as their ultimate goal is to increase their income.</p>	<p>back to the company and reused in the production process. Colmados do not apply any type of strategy or activity yet to promote storage of other materials. Glass bottles are stored because they are used by their own suppliers. Consequently, these suppliers collect them, but for other type of materials, colmados will have to request another actor to collect them.</p> <p><b>Issues to be revised in the MP</b> I insist that education is key on this issue. There should be programs focused on education in this type of commercial entities because they can help to give information and in this manner, we could achieve to begin making change when the citizen purchase. I think we are doing working correctly. Initially, we promote adequate waste discharge; and provide a reliable collection service in order to generate trust among residents. Subsequently, we can request them to separate waste, and provide collection, but not separate collection because we understand that currently, it is not possible to do it in ADN, but in storage sites where the community can participate. In this work, it is important to account with the support of an active Neighborhood Committee (Junta de Vecinos). Additionally, we are working in identifying companies and the different type of materials which they require and whether they receive them from any supplier, in this manner, we identify what waste can be recyclable.</p>	<p>District.</p>

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers 2012</b>	<b>Evaluation 2012</b>
<i>Composting Activities foreseen in the Master Plan</i>	<p><b>Current Situation.</b> At present, there is no separation for composting, and the only entity carrying out the composting process is the Botanical Garden, which currently is not under continuous operation.</p> <p><b>Aspects to be reviewed in the MP</b> To assess the potential to allow us to create company for the production of compost.</p>	<p><b>Current Situation.</b> In the pilot project which we will implement now, prune waste generated in the city would be used to produce organic fertilizer (compost).</p> <p><b>Aspects to be reviewed in the MP</b> I believe that this issue it would be how we would use prune waste and if what we chipped would be enough to cover all the needs which arise.</p>	<p><b>Current Situation.</b> The tree waste shredding project has yielded some good results. Shredded material has been used to improve the soil in various parts of the city, especially parks. At present, we have three shredding machines. One of them was recently purchased and it is currently going through a trial period. Some pruning wastes have been shredded on order. For example, the Noviciado San José requested our services to shred some tree branches they had previously cut. The shredded material was used on the site. The Residents' Association of José Contreras also requested our shredding services to get rid of some trees invading their territory. The shredded material will also be used to improve the soil in a protected area within the residential perimeter.</p> <p><b>Aspects to be reviewed in the MP</b> We should evaluate how much pruning waste we can handle and run tests to determine whether we can produce compost and up to what extend.</p>	<p><b>Current Situation.</b> One of action plans developed in this Department by one of JICA trainee who participated in the program for 3R in Mexico was related to Cristo Rey market solid waste management where we will be able to work with the current plan in order to be able to implement activities which are more suitable according to the experience obtained with regards to organic waste management and use.</p> <p><b>Issues to be revised in the MP</b> Currently, we have not begun to experience with organic waste. As soon as we implement the action plan developed by one of the CPR members in Cristo Rey Market, we will be able to define where we need more training and determine the needs of its management.</p>	<p>Level 3.5 Evaluation is higher because she has developed a better understanding about activities to make use of organic waste defined in the Master Plan.</p>
<i>Increment of Recycling</i>	<p><b>Sub-products</b> Paper, cardboard, metals, and plastics (different types).</p> <p><b>Phase of recovery</b> At the moment that they are generated.</p> <p><b>Destination of the sub-products</b> It can be offer in the local market or (as it happens in large part) they could be exported to be used</p>	<p><b>Sub-products</b> Paper, cardboard, metals, and plastics (different types).</p> <p><b>Phase of recovery</b> At the moment it is generated, it would be ideal, but it can also be from storage points.</p> <p><b>Destination of sub-products</b> Companies which export material and companies which process the materials recovered.</p>	<p><b>Sub-products</b> Wheel rims, plastic, paper and cardboard, metals, glass, car batteries, organic waste, batteries, debris, e-waste, TetraPack, among others.</p> <p><b>Phase of recovery</b> As I have always stated, the ideal procedure is to start from the moment it is generated, or beginning at the various storage places. However, at present waste segregation takes place mostly at the landfill site and, in fewer instances, at the generation</p>	<p><b>Products</b> Tires, plastic, paper, and cardboard, metals, vehicle batteries, organic waste, small batteries, debris, e-waste, tetra pack, among others.</p> <p><b>Recovery Phase</b> I consider, as I have always mentioned, that it is ideal to conduct it at the generation source, or in different storage points.</p> <p><b>Destination of Products</b> Both in the national and international market, everything depends on what it is produced with these wastes. This</p>	<p>Level 4 Evaluation is higher than 2011 because she took over the direction of recycling pilot project in schools during the last year when she achieved significant progress in</p>

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers 2012</b>	<b>Evaluation 2012</b>
	by other middlemen.		source. <b>Destination of sub-products</b> Arrangements should be made so that companies can integrate wastes into the value cycle by either recycling them, exporting them, or simply disposing of them appropriately.	is the definitive issue.	understanding recycling growth in the National District.
<i>Increment making use of organic waste.</i>	<b>Wastes</b> From households, commerce, and prune waste. <b>Process to make it useful</b> Right now, it is being studied what method would be more adequate for the pilot project. <b>Destination of material produced</b> Fertilizer for cattle raising, gardens, schools.	<b>Wastes</b> From households, commerce, prune waste. <b>Process to make it useful</b> In piles. <b>Destination of the material produced</b> It will be used to improve soil in green areas of the National District.	<b>Wastes</b> Households, shops, tree pruning, and especially agricultural markets located within the District. <b>Process to use them</b> In the case of agricultural markets, the ideal scenario is that they are recovered immediately after they are generated, which would not be so difficult since wastes from agricultural markets are collected by just one company, which is also in charge of transporting them. In the case of organic wastes generated by households, the process can be started from the moment they are generated provided that they are segregated appropriately. <b>Destination of the material produced</b> In piles and in an open place, be it either by means of the active method or the passive one. In our case, both methods should be tried to see which one is more suitable. If the active method is used, the heat generated by wastes would speed up decomposition and a higher-quality compost would be produced. In case the passive method is chosen, it should be applied during the time when temperatures are higher in order not to prolong the humidity in the pile.	<b>Wastes</b> In addition to market, there are household and commercial organic wastes from food and beverage sales, but the latter will be regulated and serviced by a private contractor due to a bill which is under approval; consequently, collection will not be conducted by the Municipality. <b>Process to make use of the waste</b> In piles and open spaces, either through an active method, although for our case, we should try with the two of them to observe the results. If it is done with active method, heat generation from waste would accelerate the decomposition process, generating higher quality compost. In case passive method is used, it should be done during high temperature season, in order to reduce humidity in the pile. <b>Destination of Products</b> It has to be used in different areas which due to its conditions might need to be improved such as parks, traffic islands, green areas, gardens, and in case that there is a high quality material, it can be applied for agricultural purpose.	Level 4 Her answers and the interviews conducted show that there is an increment in her capacity related to making use of organic waste.
<i>Technical</i>	At this moment, we	Collection of material	We need more experience in this	We need to obtain more experience	Level 3

Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
Characteristics for taking advantage of organic waste	do not have experience on this issue, but through theory we know that there is a decomposition process of 90 days and mix should be turned periodically.	To conduct an adequate mix of prune waste. Turn it to aerate it. To maintain adequate humidity by spraying water. To wait until it matures during approximately 3 months.	subject. However, we do know that it involves the following: collect the material, prepare a proper mix by shredding the material correctly (if required), homogenize the pile by mixing the various wastes, turn the pile to aerate it, keep the right humidity (40 – 60% approximately) by spraying water during 30 days at least, and wait for nearly 90 days for maturation to be completed.	related to this topic. Although we manage some concepts such as organic waste separated collection, adequate mixture by means of chipping (if it is required) and subsequently the pile should be made homogeneous by mixing the waste; the pile should also be turned: it should be kept with adequate humidity (40% - 60%) of water. Organic wastes should be decomposed for, at least, 30 days approximately and wait to be mature during 90 days approximately.	Evaluation 2011 is maintained in spite of more knowledge related to this topic, more training is required.





Evaluation 2012 Alan Alarcón

Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Anser2012	Evaluation2012
Minimization of wastes foreseen in the Master Plan	<p><b>Current Situation.</b> Waste generation has not been able to be reduced. <b>Aspects to be reviewed in the MP</b> No answer.</p>	<p><b>Current Situation.</b> Waste generation has not been able to be reduced. An increment of waste generation was produced. <b>Aspects to be reviewed in the MP</b> Elaboration of norms and laws which regulates most important actors and promote the practice of 3Rs by the industrialized sector.</p>	<p><b>Current Situation.</b> Waste generation has not been reduced. There has been an increase in waste generation instead. <b>Aspects to be reviewed in the MP</b> The establishment of standards and laws regulating key stakeholders and promoting the introduction of the 3R's by the industrial sector.</p>	<p><b>Current Situation.</b> The progress achieved in waste minimization has not had significant impact on the waste generation daily average in the National District, but it should be mentioned the success obtained in the pruning waste chipping and production of compost, until the end of the Project, more than 300 tons of material has been chipped since the beginning of the Project. <b>Issues to be revised in the MP</b> Our main focus in 3R or waste minimization area is to develop citizens' education programs and, consequently, I believe that it should be revised the manner how it is being worked this issue. Currently, it is being conducted education programs jointly with some schools in the National District, but we should continue to follow up and expand the area of influence of the project.</p>	<p>Level 3.5 He showed important progress in his training during the last year due to his participation in the paper recycling pilot project.</p>
Recycling activities foreseen in the Master Plan	<p><b>Current Situation.</b> There are not any recycling programs that it is being executed currently. <b>Aspects to be reviewed in the MP</b> No answer.</p>	<p><b>Current Situation.</b> Progress in promoting recycling activities in supermarkets and grocery stores in the country is almost non-existent. Grocery stores have a collection system and sales to reuse glass bottles which are established before the implementation of the master plan. Some supermarket implemented a campaign called "my bag" which intends to reduce the use of plastic bags for purchase. . Currently, the pilot project is initiating in INVI community which</p>	<p><b>Current Situation.</b> Some supermarkets implemented the campaign "My Bag" to attempt to reduce the use of plastic bags for shopping. In some schools within the National District, paper recycling is carried out through a company named Green Love. A pilot project for paper segregation was completed at "Victor Garrido Puella" school, located in INVI community. <b>Aspects to be reviewed in the MP</b> To create incentives for business</p>	<p><b>Current Situation.</b> In this moment, most of supermarket offer reusable bags to their clients as an alternative option to plastic bags, although efforts are taking place to promote this type of purchase at supermarket, it becomes complicated without a legal framework that regulates this type of activity. There are also some supermarkets which implemented storage points for recyclable materials and promote waste separation among their citizens. The so called Colmados have not</p>	<p>Level 3.5 It showed important progress in his training during the last year, as a result of his participation in the recycling paper pilot project.</p>

Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Anser2012	Evaluation2012
		<p>focuses in environmental education, but it is expected to introduce a little bit of recycling and 3Rs in general. In some schools in the District recycling is conducted through company called Green Love.</p> <p><b>Aspects to be reviewed in the MP</b> To create incentives for these establishments for citizens and the manner to encourage recycling practice in the community and these businesses.</p>	<p>establishments and citizens to encourage recycling. To thoroughly know the amount and the types of materials that can be classified in the schools and communities to contact the companies handling them. ADN should be the link between the communities and the industrial sector. Based on the lessons derived from the pilot project, it was determined that paper generated at the school is not enough for a company to consider it profitable.</p>	<p>changed drastically, they still purchase glass bottles, specially beer and exchange refreshment and soda bottles. <b>Issues to be revised in the MP</b> To create a legal framework to regulate and develop recycling in commercial areas. To cooperate with this type of establishments to develop education programs for 3R area focused on their clients.. We should evaluate the incentive system which is predominant in recycling activities that are conducted by the private sector because it makes difficult the sustainability of the project in time. The main incentive should be to protect the environment.</p>	
Composting activities foreseen in the Master Plan	<p><b>Current Situation.</b> I do not know any amount of waste generated nowadays due to composting. <b>Aspects to be reviewed in the MP</b> No answer</p>	<p><b>Current Situation.</b> We have a pilot project for composting of waste originated from tree trimming. This composting project will be at small scale because our focus would be to shred garden waste, make use of chips generated, and improve soils in parks and public areas in the National District. <b>Aspects to be reviewed in the MP</b> With the beginning of this shredding project, tests will be conducted to analyze the compost quality produced by waste generated with green areas trimming. To study the amount to be produced in accordance to the compost market in the country.</p>	<p><b>Current Situation.</b> The pilot project for composting using wastes from tree pruning is still ongoing. This composting project will be a small-scale project because our approach is to shred tree waste to use the chippings generated as soil conditioner in parks and public spaces within the National District. The project is expected to be expanded with the use of three shredding machines. <b>Aspects to be reviewed in the MP</b> During the project, some tests to analyze the quality of compost produced using tree wastes will be run. The amount of compost to be produced based on the existing demand for compost in the country will be determined.</p>	<p><b>Current Situation.</b> Currently, three machines are operating under the supervision of Amancio Pereyra; they are chipping around 3.0 tons per day and we are expecting additional staff to, at least, double wood chip production by the end of August. The wood chip will be used as mulching material in Mirador Sur Park. With regards to compost, we are still monitoring the experiment, it has become evident the difficulty of the process due little experience in the area and the complexity of the process. Even so, we have plans to expand and improve the method used for compost production with the help of the design made by the expert,</p>	<p>Level 3 It showed important progress in his training during the last year, but still requires more training on this issue.</p>

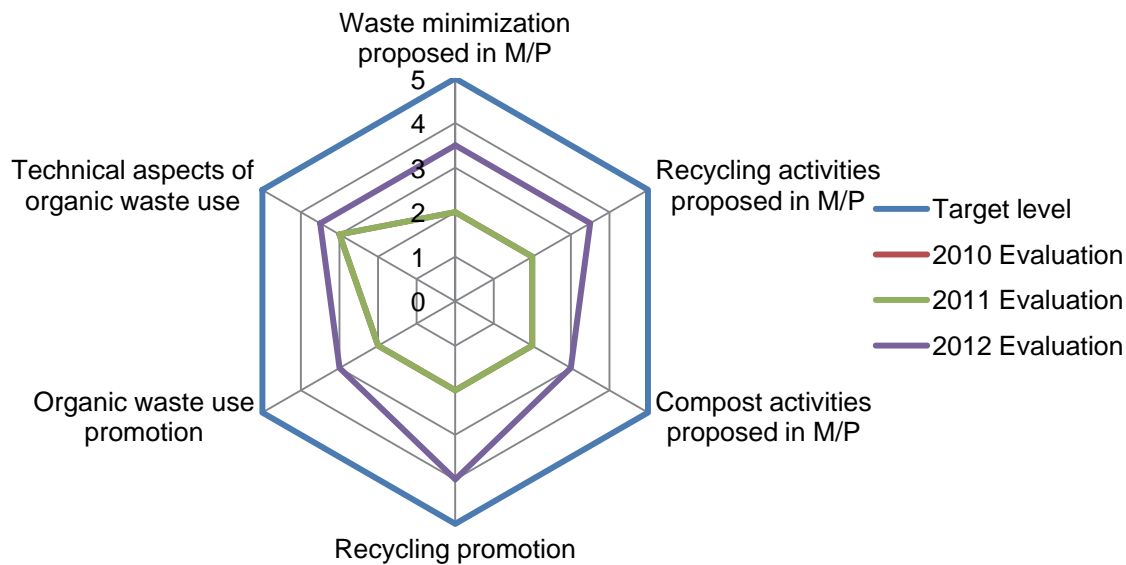
<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Anser2012</b>	<b>Evaluation2012</b>
			The quality of compost produced will also be established.	Mr. Kato, and hope to implement this expansion by the beginning of August. Jointly with the General Department for Public Services and with the soon to be inaugurated new model for municipal market, implemented with the support of the European union, we expect to use organic waste generated by these markets for the compost project in Mirador Sur Park. <b>Issues to be revised in the MP</b> It should be taken into account the new source of organic waste with the inauguration of the new municipal market and develop logistic to use these wastes to produce compost. We should improve the production compost method with the assistance of the private sector or by training our own staff.	
<i>Increase Recycling</i>	<b>Sub-products</b> Paper, aluminum cans, cardboard, glass, tubes. <b>Phase of recovery</b> They can be separated in the same place where they are produced. <b>Destination of the sub-products</b> The consumer who acquires the sub-products	<b>Sub-products</b> Paper, aluminum cans, plastic, PET, cardboard, glass, tubes. <b>Phase of recovery</b> Where wastes are generated; they can also be separated in an intermediate treatment facility or in the final disposal. <b>Destination of the sub-products</b> The consumer or companies which use them as raw material.	<b>Sub-products</b> Paper, aluminum cans, plastic, PET bottles, cardboard, glass, tires. <b>Phase of recovery</b> At the places where they are generated. They can also be segregated either in an intermediate treatment plant, or at their final destination. <b>Destination of the Sub-products</b> The consumer or the companies using them as raw materials.	<b>Products</b> The different materials which can be recycled have not changed too much, among them; we have tires, plastic, paper and cardboard, vehicle batteries, organic waste, small batteries, debris, e-waste, tetra pack, among others. <b>Recovery Phase</b> Currently, most of the recyclable materials are classified by the so called "buzos" in the final disposal site, but already some community foundations have storage sites for recyclable materials, mainly plastic and paper. Additionally, some supermarket established	Level 4 He showed important progress in his training during the last year due to his participation in the recycling paper pilot project.

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Anser2012</b>	<b>Evaluation2012</b>
				<p>storage sites for recyclable materials.</p> <p>The ideal moment to recover material is at the generation source, but our collection system is not prepared yet for this task; however, in this moment, a separation project begins which will focus as a pilot project in Zona Colonial. This is a joint effort by an Italian corporation and funds from the European Union, with this project, it is expected to introduce separate collection in this area of the National District and it is expected to reproduce this experience in the entire municipality.</p> <p><b>Products Destination</b></p> <p>The market for recyclable products is not stable yet due to the informal manner how it is managed and there is not a legal framework to regulate it. The products found in the market are like paper, glass, and plastic because they are very appealing to a large number of companies that work with the material in the country, but to compete at the international level, the raw material should improve in quality because it does not reach standards requested by international companies. And clearly, metals have always had high demand both nationally and internationally.</p>	
<i>Increment making use of organic waste</i>	<b>Wastes</b> Markets, grocery stores, supermarkets, street sweeping, prune waste.	<b>Wastes</b> Markets, grocery stores, supermarkets, street sweeping, prune waste.	<b>Wastes</b> Markets, grocery stores, supermarkets, street sweeping, tree waste.	<b>Wastes</b> We have already designed a collection logistic for the new Cristo Rey Market in which it was	Level 3 He showed important progress in training during the last year,

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Anser2012</b>	<b>Evaluation2012</b>
	<p><b>Process to make it useful</b> It is required an environment with controlled temperature and sufficient space to keep the material the time required to complete the composting process.</p> <p><b>Destination of material produced</b> It will be used as fertilizer by farmers.</p>	<p><b>Process to make it useful</b> It is required an environment with controlled temperature and enough space to keep the material the time required to complete the composting process.</p> <p><b>Destination of material produced</b> Improvement of soils in parks and public areas of the National District.</p>	<p><b>Process to use them</b> An environment having controlled temperature and enough space to keep the material the time required to complete the composting process.</p> <p><b>Destination of the Material Produced</b> Improvement of soils in parks and public spaces within the National District.</p>	<p>taking into account organic waste separation and other type of waste with the purpose to use organic wastes in the compost project. As a pilot project, it is not expected to be necessary to use wastes generated by other sources, but in the expansion phase, it will be considered commercial entities which have a considerable organic waste generation (supermarkets, markets, colmados, etc.) With the new Cristo Rey Market, it was designed a separate collection plan, we will be recovering waste at the source.</p> <p><b>Process to make use of the waste</b> With the assistance of Mr. Kato, it was designed a system of platforms constructed with bamboos to place the organic materials piles and make a pyramid of several levels, each one of 40 cm., in order to facilitate aeration of the material and speed the composting process. We are still in the planning stage, but hope to begin implementation by August.</p> <p><b>Products Destination</b> In this moment, everything that we produce will be used in Mirador Sur Park and green areas of the municipality.</p>	<p>but he still requires more training on this issue.</p>
<p><i>Technical Characteristics for using organic waste</i></p>	<p>Decomposition of organic material</p>	<p>The decomposition of organic matter by making piles with them for compost; subsequently, piles are made and turned whenever it is necessary to let air enter or wet the piles.</p>	<p>The decomposition of the organic material by making piles for composting. The piles should be monitored and turned when necessary to aerate them. They should also be sprayed with</p>	<p>The general idea about the compost process is known by us, i.e., the pile in made homogeneous, it is aerated, temperature is monitored, it takes about 90 days to mature, etc.</p>	<p>Level 3.5 His evaluation is higher than 2011 because he showed important progress in his training during the last year.</p>

Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Anser2012	Evaluation2012
			water.	However, in practical terms, it was not experienced, for example, the pile maturation period was larger; these are issues which should be studied in more detail and adapted to processes for our particular situation. With the expansion of this project, we will have the opportunity to adapt and observe what works and what does not work.	

**2012 Evaluation Alan Alarcón**



Evaluation 2012 Amancio Pereyra

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
<p><i>Minimization of wastes foreseen in the Master Plan</i></p>	<p><b>Current Situation.</b> Currently, only paper and newspaper are being recycled. <b>Aspects to be reviewed in the MP</b> Issues related to discharge by residents, as well as the capacity (loading) by the vehicle fleet which is currently being used. Additionally, the orientations and information by citizens about their role to reduce and discharge wastes that they generate.</p>	<p><b>Current Situation.</b> Until now, it prevails a situation where it has been exceeded the figure of 2.000 tons per day. Additionally, the informal data management of recycling market. <b>Aspects to be reviewed in the MP</b> To review the part by MIMARENA which should be directed to take initiatives for reviewing and promoting laws and regulations which prohibits the use and sale of materials used by a large part of the population in excessive manner. Additionally, it should be created incentives for those companies which are dedicated to recycling in our country.</p>	<p><b>Current Situation.</b> The progress is noticeable in the use of tree waste with the implementation of the pilot project for tree waste management, in paper and newspaper segregation, and in the initiatives regarding other wastes undertaken by the private sector. <b>Aspects to be reviewed in the MP</b> To review the amount of waste expected to be reduced, which I believe to be excessive. The major's office, the Ministry of the Environment, the Ministry of Education, and the private sector, should work together to update existing standards and to establish laws regulating and defining the 3R's system within the National District, as well as in the rest of the municipalities composing the Greater Santo Domingo.</p>	<p><b>Current Situation.</b> We can say that the amount of pruning waste discharged has increased in the chipping area; consequently, it has been decreased the amount that reached the Transfer Station. Furthermore, paper separation was expanded to 10 more schools, and in every office of the ADN. <b>Issues to be revised in the MP</b> To revise the amount estimated to be minimized, in my opinion is too high. The municipality jointly with ministries of Environment, Education, and the private sector should make common efforts to update regulations and enact laws which regulate and organize the 3R system market; not only in the National District, but also the municipalities of Great Santo Domingo.</p>	<p>Level 4 In the last year, he experienced important progress in his training about waste generation minimization in the National District, inspired by his training in other countries.</p>

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
<p><i>Recycling activities foreseen in the Master Plan</i></p>	<p><b>Current Situation.</b> Currently, what was expected is not being conducted. <b>Aspects to be reviewed in the MP</b> Efforts made in supermarkets and grocery stores to comply with what has been established regarding the use of recyclable and biodegradable packages.</p>	<p><b>Current Situation.</b> Currently, it is not being complied what was established in the Master Plan, but some supermarkets sell some type of materials which they use for packing and sell them to companies that use these wastes; currently, work is being done to elaborate the directory of these companies, in order to have more information on financial issues Regarding grocery store, they are in the chain to reuse the bottles for drinks. Bottles for beer, malts, and others such as rums are sold as containers for turpentine, detergent, and other uses. Pepsico company works in a project to implement recycling in some barrios, together with community companies which provide collection service in those areas. CEDAF and Banco Popular are holding a contest to separate paper; children from 100 schools will participate and the school which separates the most per child registered will win. <b>Aspects to be reviewed in the MP</b> MINARENA responsibility is to stimulate this activity, complying what has been established in this sense. In this way, residents will be interested to take to these businesses which can be reused or recycled. In many cases, they do not do it because they do not obtain benefit.</p>	<p><b>Current Situation.</b> Some examples are the use of biodegradable bags in La Cadena, Nacional, and other supermarkets, and the sale in some of them of reusable bags, as well as the distribution of plastic bags with instructions for the disposal of wastes such as plastic, aluminum cans, paper, and so on. With regard to grocery stores, the purchase of glass bottles, especially beer and malt bottles is still ongoing. These bottles are recovered by the companies manufacturing these beverages. The paper segregation pilot project began at "Víctor Garrido Puello" school within INVI community. It was welcomed by most teachers, students and parents. An average 25 pounds of paper a week were recovered during the six months of the project. Some negative points are waste collection due to the limited segregated collection of this type of waste. There were some difficulties with paper segregation at the beginning of the pilot project as some paper not complying with requirements was collected. <b>Aspects to be reviewed in the MP</b> Uninterrupted supervision of the changes taking place, e.g., the reduction in the number of plastic bags used. The location of the storage places for segregated materials and their timely collection for later use. With regard to grocery stores, the implementation of improved waste segregation.</p>	<p><b>Current Situation.</b> Progress in these concepts is the same as 2011, in addition to the expansion to other 10 new schools. With regards to paper and newspaper separation in the main building of ADN, this experience has been expanded to other offices inside the building. <b>Issues to be revised in the MP</b> It is urgent to design and approve laws and regulations to implement projects related to integrated management of wastes generated both by businesses and particular persons which cause a change of attitude in every sector involved. I insist in approving sound laws and norms to regulate Integrated Waste Management that are produced by each institution (businesses, educational, and others).</p>	<p>Level 4 Evaluation is higher than 2011 because there is important progress in understanding recycling processes included in the National District Master Plan.</p>

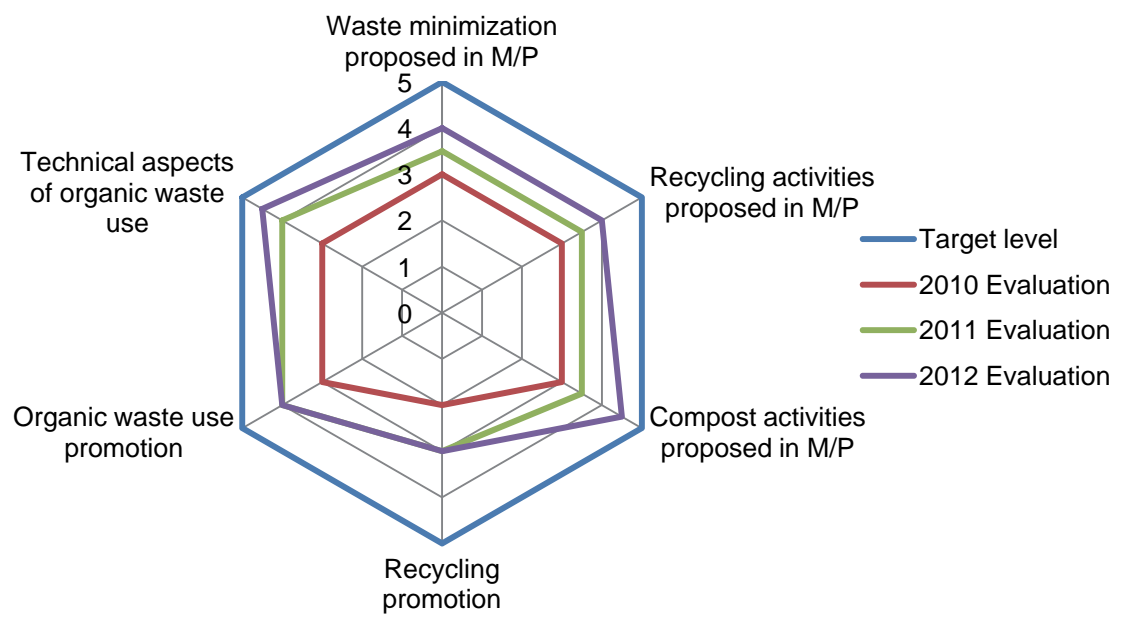


<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Answers 2012</b>	<b>Evaluation 2012</b>
<i>Composting activities foreseen in the Master Plan</i>	<p><b>Current Situation.</b> It is not being implemented.</p> <p><b>Aspects to be reviewed in the MP</b> The manner it is being implemented.</p>	<p><b>Current Situation.</b> The pilot project includes developing a pilot project for organic fertilizer (compost). In this project, it will be used prune waste and organic market waste.</p> <p><b>Aspects to be reviewed in the MP</b> The site where production will take place. Specific sources where organic waste will be obtained.</p>	<p><b>Current Situation.</b> In all sincerity I must say that little progress has been made. We are currently preparing a lot within the premises of the municipal nursery located in Fernández housing estate. Piles using wastes from chippings, and organic waste generated at households, restaurants and markets are expected to be used for composting. Garden waste and waste from cattle farms are to be used. Tests to analyze the quality of the compost produced will be run.</p> <p><b>Aspects to be reviewed in the MP</b> The amount of waste expected to be reduced, the staff available for cooperation, and technical experts.</p>	<p><b>Current Situation.</b> Currently, it is being developed an experiment to produce compost with pruning waste chipped material. In this experiment, decomposition has been slow, but we have obtained several valuable information to expand this experiment by making use, now, of pruning waste and mainly organic market waste. The data and statistics are shown in the report for Pruning Waste Management Project submitted to the Japanese experts.</p> <p><b>Issues to be revised in the MP</b> We have preferred to focus in the project to produce compost at a small scale; consequently, I suggest to continue efforts in this direction to make use of organic waste, but not emphasizing on the amount processed, but the information that can be useful to other municipalities, communities, and why not, private citizens.</p>	<p>Level 4.5 There is important progress about organic waste use as a result of his experience in the pilot project for pruning waste chipping and training abroad.</p>
<i>Increase Recycling</i>	<p><b>Sub-products</b> Plastics, Paper, Aluminum, Glasses.</p> <p><b>Phase of recovery</b> At the source.</p> <p><b>Destination of the sub-products</b> Local and international market.</p>	<p><b>Sub-products</b> Glass, paper, metal, cardboard, plastics, PEAD, PET, as well as other resins.</p> <p><b>Phase of recovery</b> Regarding generation, those originated in households.</p> <p>In the Center to store in the markets.</p> <p><b>Destination of the sub-products</b> Exportation and use of companies in the local market.</p>	<p><b>Sub-products</b> Paper, plastic, aluminum, glass, cardboard, TetraPack, and others.</p> <p><b>Phase of recovery</b> During the generation stage</p> <p><b>Destination of Sub-products</b> Export and local use.</p>	<p><b>Products</b> Cardboard, paper, glass, HDPE, PET, Tetra Pack, newspaper, FOAM, and some metals.</p> <p><b>Recovery Phase</b> In the final phase for each one of the wastes, for example, after the first components of 3Rs have been implemented.</p> <p><b>Destination of Products</b> The national and international market.</p>	<p>Level 3 It remains the same evaluation as 2011 in spite of the progress attained during the training on this issue.</p>
<i>Increase use of organic waste.</i>	<p><b>Wastes</b> From markets, supermarkets, and</p>	<p><b>Wastes</b> Households Restaurants</p>	<p><b>Wastes</b> Households Restaurants</p>	<p><b>Wastes</b> I still think the same: *Markets</p>	<p>Level 4 The evaluation is higher than 2011</p>

Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Answers 2012	Evaluation 2012
	households. <b>Process to make it useful</b> To dry them or crush them in order to mix them with other organic products. <b>Destination of material produced</b> To offer them to nurseries and school kitchen gardens.	Markets <b>Process to make it useful</b> Open air piles to reduce costs. <b>Destination of material produced</b> Public areas, nursery, gardens, and school kitchen gardens. Furthermore, a small nursery for educational purposes in the compost site.	Markets <b>Process to use them<sup>o</sup></b> During generation in the case of households and restaurants, and in collection vehicles at the time wastes are disposed of at the supermarkets. <b>Destination of the Material Produced</b> In open piles, or in furrows being turned and monitored to prevent rain water infiltration.	*Households *Restaurants *Other businesses. <b>Process to make use of the waste</b> To find an adequate manner to shred material in order to reduce its humidity or use it directly with other wastes such as dry leaf or pruning waste material shredded. <b>Destination of material produced</b> Avenues, Parks, nurseries, gardens, school vegetable garden, small farms, and other places.	because there has been an important progress in his training on the issue of organic wastes.
<i>Technical Characteristics for using organic waste</i>	To shred, mix, and dispose in the compost maker.	To shred, mix, and dispose in the compost maker.	There are four processes, namely: 1- Mesolithic: The vegetable mass is at room temperature and mesophilic microorganisms multiply rapidly. As a consequence of metabolic activity, temperature rises and organic acids are produced reducing the pH. 2- Thermophilic: When a temperature of 40 °C is reached, thermophilic microorganisms transform nitrogen into ammonia and the pH of the medium becomes alkaline. At 60 °C, these thermophilic fungi vanish and spore-forming bacteria and actinomycetes appear. These microorganisms decompose waxes, proteins and hemicelluloses. 3- Cooling process: When the temperature is below 60 °C, thermophilic fungi appear again in the humus and decompose the cellulose. When dropping below 40 °C, mesophilic microorganisms begin their activity again and the pH is slightly reduced. 4- Maturation: It is a	There are four processes: 1- Mesophilic phase- the vegetable mass is at ambient temperature and mesophilic micro-organisms are multiplied rapidly as a result of metabolic activity, temperature increases and organic acids are produced which lower the pH. 2- Thermophilic – when temperature reaches 40 °C, thermophilic micro-organisms transform nitrogen into ammonia and pH in the environment becomes alkaline. At 60 °C, thermophilic fungi disappear and sporogenic bacteria and actinomycetes appear. These micro-organisms are in charge to decompose wax, proteins, and hemicellulose. 3- Cooling process, when temperature is less than 60 °C, thermophilic fungi reappear in the compost heap and decompose cellulose. When temperature decreases to 40 °C, mesophilic micro-organisms reappear and	Level 4.5 His evaluation is higher than 2011 because he has shown remarkable progress in his training on the issue of organic waste treatment.

Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Answers2012	Evaluation2012
			period requiring months at room temperature during which some secondary condensation and polymerization reactions in the humus take place.	begin their activity, pH is reduced slightly. 4- Maturation. It is a period which requires ambient temperature; during this phase secondary condensation reactions are produced and humus polymers are produced.	

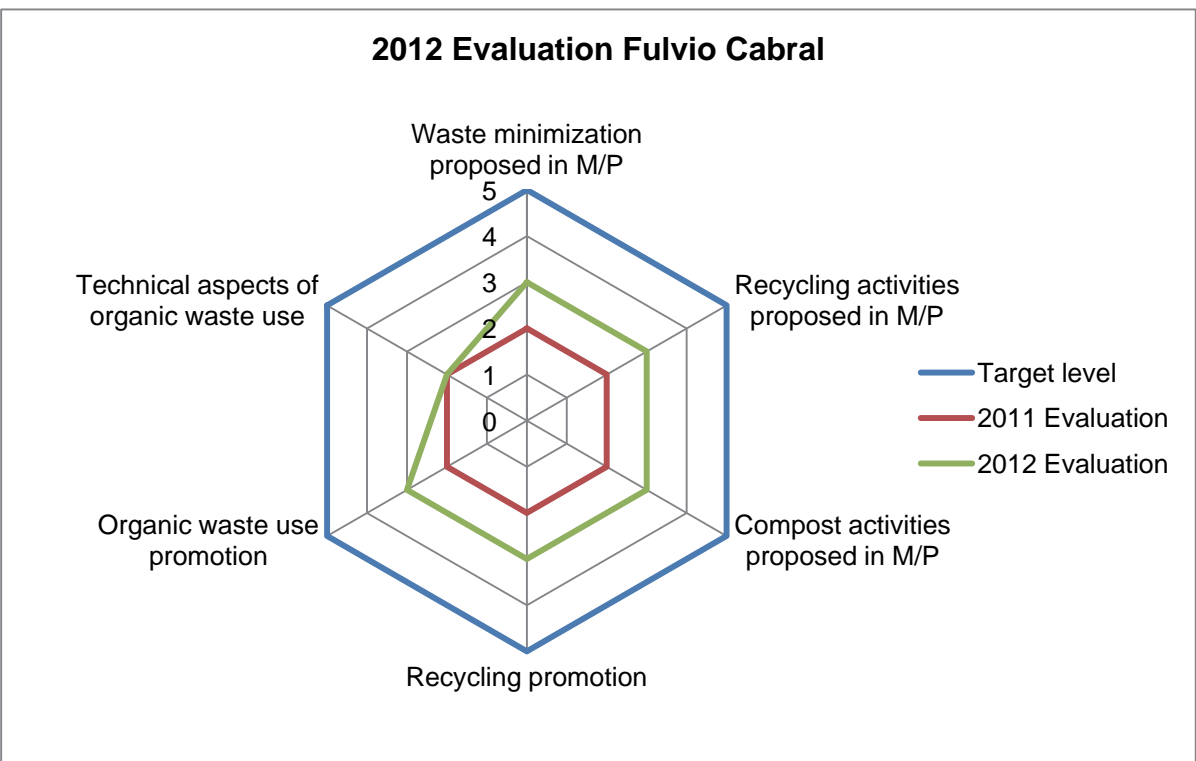
**2012 Evaluation Amancio Pereyra**



Evaluación 2012 Fulvio Cabral

<b>Concepts to be evaluated</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
<i>Minimization of wastes foreseen in the Master Plan</i>	<p><b>Current Situation.</b> No answer due to the fact that he has only recently joined the C/P team.</p> <p><b>Aspects to be reviewed in the MP</b> No answer due to the fact that he has only recently joined the C/P team.</p>	<p><b>Current Situation.</b> Among progress and achievements, we can highlight the 2007 Master Plan, there are the projects for pruning waste management and paper separation at schools and public institutions which has helped to reduce waste discharged in Duquesa. In this sense, we should point out that waste minimization is neither substantial nor significant.</p> <p><b>Issues to be revised in the MP</b> In our criteria, it should be revised the part dealing with citizens' conscious awareness campaign, in a way that the population inside our jurisdiction and, why not, nationwide know about 3R culture and everything related to this topic such as objective, importance, proceedings.</p>	<p>Level 3 Better answers than in 2011. It shows progress about knowledge of waste minimization objective.</p>
<i>Recycling activities foreseen in the Master Plan</i>	<p><b>Current Situation.</b> No answer due to the fact that he has only recently joined the C/P team.</p> <p><b>Aspects to be reviewed in the MP</b> No answer due to the fact that he has only recently joined the C/P team.</p>	<p><b>Current Situation.</b> In spite there is no legal framework which regulates supermarket and colmados to have corporate social responsibility in the environmental area, this type of commercial entities have taken the initiative on recycling and its importance, but it should be highlighted that these initiatives respond to concerns related to global warming. Supermarkets offer reusable bags to prevent the use of plastic bags which are not harmful to the environment. Regarding schools, we should mention the paper separation pilot project which was implemented at Víctor Garrido Puello school. With regards to communities, it should be highlighted that we have conducted conscious awareness campaigns for INVI and Antillas sectors, but there is no separation in those sectors because the municipality does not have the capacity to provide separate waste collection service.</p> <p><b>Issues to be revised in the MP</b> Responding to the previous question, the first step would be to design and create a legal framework and conduct an educational program by the municipality. We believe that in order to continue ahead on the recycling topic in these sectors of the society, the municipality should get more economic resources, in this manner we can expand the paper separation project to every school in the National District and can also offer a separate collection to the citizens.</p>	<p>Level 3 Answers are better than in 2011.</p>
<i>Composting activities foreseen in the Master Plan</i>	<p><b>Current Situation.</b> No answer due to the fact that he has only recently joined the C/P team.</p> <p><b>Aspects to be reviewed in the MP</b> No answer due to the fact that he has only recently joined the C/P team.</p>	<p><b>Current Situation.</b> In this sense, we must cite the Pruning Waste Management Project which is processing about 3 tons per day. We should highlight that the material produced is used as mulch.</p> <p><b>Issues to be revised in the MP</b> In spite chipped material is being used as mulch satisfactorily, DIGAUE</p>	<p>Level 3 There is progress on understanding the process to make use of organic waste.</p>

<b>Concepts to be evaluated</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
		team and the Department of Public Services, which is in charge of managing municipal markets, are thinking about conducting a compost project by mixing market organic waste and wood chipped material.	
<i>Increase Recycling</i>	<p><b>Sub-products</b> Paper, glass, metals, cardboard, and plastic.</p> <p><b>Phase of recovery</b> Prior to waste collection by the compactor truck.</p> <p><b>Destination of Sub-products</b> They could be used as raw materials in industries and factories to manufacture other products.</p>	<p><b>Products</b> The materials which can be recycled because there is sufficient demand in the local market are plastic, cardboard, tires, debris, and batteries.</p> <p><b>Recovery Phase</b> In the phase that can be recovered some of valuable waste is in the final phase when they are discharged in the Sanitary Landfill. Plastic is recovered in important quantity in the sanitary landfill; similarly, in this phase, we can also recover some cardboard and batteries.</p> <p>There is a significant amount of paper which can be recovered in schools and institutions.</p> <p><b>Destination of Products</b> In the first place, we should establish that informing is the main task regarding the market of recyclable materials because there are neither norms nor regulatory framework. Plastic, paper, and cardboard are materials which are stored in large amount to be exported or to be reused by companies which can use that material in their production or to be recycled as raw material to elaborate a product.</p>	Level 3 The answers show that there is progress in understanding issues related to recycling in the National District.
<i>Increase use of organic waste.</i>	<p><b>Wastes</b> From households and markets.</p> <p><b>Process to use them</b> The pile system is widely used for composting.</p> <p><b>Destination of the Material Produced</b> No answer.</p>	<p><b>Wastes</b> 60% wastes generated in our jurisdiction are organic. These wastes are generated mostly in municipal markets and households.</p> <p><b>Process to make use of the waste</b> There are several systems for processing compost, I will mention the most commonly used such as placing waste in composters and process it to obtain compost for plants. 2. To place waste in piles outdoors to achieve its decomposition through oxygen and heat.</p> <p><b>Destination of material produced</b> No answer</p>	Level 3 There is progress in understanding how to make use of organic wastes as a result of his participation in the pilot projects.
<i>Technical Characteristics for using organic waste</i>	No answer.	<p>1) Elaboration of formats which should be used during the study and elaboration of a study program;</p> <p>2) field work and reconnaissance, confirmation of sources and planning the correct collection route, and adjust the collection program; and</p> <p>3) preparation of materials to be used in the study.</p>	Level 2 Same evaluation as 2011 because he does not show progress in understanding composting process.



Evaluación 2012 Fernando Prestol

<b>Concepts to be evaluated</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
<p><i>Minimization of wastes foreseen in the Master Plan</i></p>	<p><b>Current Situation.</b> No answer due to the fact that he has only recently joined the C/P team. <b>Aspects to be reviewed in the MP</b> No answer due to the fact that he has only recently joined the C/P team.</p>	<p><b>Current Situation.</b> The progress achieved in waste minimization has not had a significant impact on waste minimization daily average in the National District, but it should be mentioned the success obtained in the pruning waste and mulch production project which has produced more than 300 tons of chipped material since the beginning of the project. <b>Issues to be revised in the MP</b> Our main focus in 3R or waste minimization is to develop a citizen education program and, because of this, I believe that the manner how we are working should be revised. Currently, an educational program is being implemented jointly with some schools in the National District, but we should follow up and expand the project.</p>	<p>Level 3.5 In spite, his recent inclusion to the counterpart team for Waste Minimization / 3Rs promotion, his participation in the paper recycling and adequate waste discharge pilot projects, allowed important progress in his training.</p>
<p><i>Recycling activities foreseen in the Master Plan</i></p>	<p><b>Current Situation.</b> No answer due to the fact that he has only recently joined the C/P team. <b>Aspects to be reviewed in the MP</b> No answer due to the fact that he has only recently joined the C/P team.</p>	<p><b>Current Situation.</b> In this moment, most of supermarkets offer reusable bags to their clients as an alternative for plastic bags; although efforts have been conducted to promote this style to purchase in supermarkets, it becomes complicated a little without a legal framework which regulates this activity. There are also some supermarkets which have implemented storage sites for recyclable materials and promote separation among their clients. The so called colmados have not changed too much; they still purchase glass bottles, mostly beer, and exchange refreshment and soda bottles. The experience obtained in the paper recycling pilot project in Víctor Garrido Puello school, in INVI sector, has been expanded to other schools in the municipality. Although the results in the pilot project were not what we expected, we take that experience to improve our next implementations for this type of projects Educational campaigns and contests have been conducted with the private sector and non-profit organizations. <b>Issues to be revised in the MP</b> To create a legal framework to regulate and develop recycling in the commercial area. To cooperate with these types of establishments (colmados and supermarkets) to develop educational programs in 3Rs targeting their clients. We should evaluate the predominant incentive system in the recycling activities implemented by the private sector because it might create difficulties for the project sustainability in time. The main incentive for these activities should be to protect the environment.</p>	<p>Level 3.5 In spite, his recent inclusion to the counterpart team for Waste Minimization / 3Rs promotion, his participation in the paper recycling and adequate waste discharge pilot projects, allowed important progress in his training.</p>
<p><i>Composting activities foreseen in the Master Plan</i></p>	<p><b>Current Situation.</b> No answer due to the fact that he has only recently joined the C/P team.</p>	<p><b>Current Situation.</b> Currently, three chipping machines are operating under Amancio Pereyra supervision; they shred about 3.0 tons per day and we are expecting additional staff to be able to, at least, double wood chipping production by the end of</p>	<p>Level 3 In spite, his recent inclusion to the counterpart team for</p>

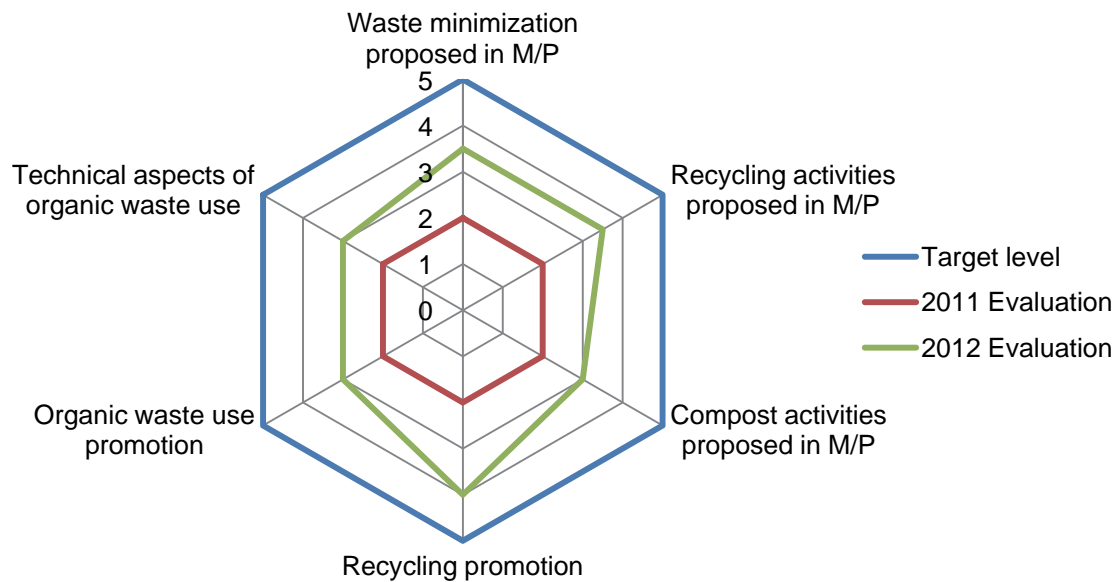
<b>Concepts to be evaluated</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
	<p><b>Aspects to be reviewed in the MP</b></p> <p>No answer due to the fact that he has only recently joined the C/P team.</p>	<p>August. This chipped material is being used as mulch in Mirador Sur Park.</p> <p>Regarding compost, we are still monitoring the experiment; it is evident the difficulty of this process due to little experience in this field and the complexity of the process. Even so, we have plans to expand and improve the method used for compost production with the assistance of the design prepared by the Japanese expert, Mr. Kato, and expect to implement the expansion by the beginning of August.</p> <p>Jointly with the General Department for Public Services and with the soon to be inaugurated new model for municipal market, implemented with the support of the European union, we expect to use organic waste generated by these markets for the compost project in Mirador Sur Park.</p> <p><b>Issues to be revised in the MP</b></p> <p>It should be taken into account the new source of organic waste with the inauguration of the new municipal market and develop logistic to use these wastes to produce compost.</p> <p>We should improve the production compost method with the assistance of the private sector or by training our own staff.</p>	<p>Waste Minimization / 3Rs promotion, his participation in the paper recycling and adequate waste discharge pilot projects, allowed important progress in his training related to use of organic waste.</p>
<p><i>Increase Recycling</i></p>	<p><b>Sub-products</b> Plastic, paper, some metals, glass and cardboard.</p> <p><b>Phase of recovery</b> Prior to being collected by the compactor truck, and at the final disposal site.</p> <p><b>Destination of the Sub-products</b> Industries and/or factories using them as raw materials to manufacture new products fit for both local and international markets.</p>	<p><b>Products</b> Currently, a data base is managed by the Center for Promotion of Recycling (CPR), which has data such as recycling activities, recyclable prices, companies which work in making use of waste, reuse, and production of materials derived from recycling, among other information. According to the data base, materials which be recycled and have been collected, reused, and, subsequently, sold to the market from the Transfer Station by the so called Buzos or informal recyclers are plastic, some metals, paper, cardboard, and glass. Each one of them have an extensive field of derived products which are traded after collection and adequately treated in plants which deal with that type of waste.</p> <p><b>Recovery Phase</b> Ideally recyclable materials should be collected at the source, i.e., by the compactor vehicle in the house and/or business, but currently we are separating material after it gets to the Transfer Station where a group of recyclers is in charge to separate materials which they consider are adequate for the recycling market and can be made use of them. Subsequently, they are sold to a treatment facility which purchase them at prices which can be located in the data base in the annex.</p> <p><b>Products Destination</b> Ideal destinations for recyclable products are those treatment facilities for materials which can make use of them to elaborate new products suitable for the national market and also to be exported as a raw material. Currently, there are several companies dedicated to this type of activity and where more material for exportation can be observed are those facilities which treat plastic (PET bottles)</p>	<p>Level 4 In spite, his recent inclusion to the counterpart team for Waste Minimization / 3Rs promotion, his participation in the paper recycling and adequate waste discharge pilot projects, allowed important progress in his training related to recycling and 3Rs.</p>



<b>Concepts to be evaluated</b>	<b>Answers 2011</b>	<b>Answers2012</b>	<b>Evaluation2012</b>
<p>Increase use of organic waste.</p>	<p><b>Wastes</b> In households, restaurants, and business establishments. In all those places generating organic waste and segregating them to be used as raw materials. <b>Process to use them</b> There are many ways to process organic waste. However, the most widely used is the following: 1. Segregate organic wastes to remove any toxic material such as medicines. 2. They are crushed and then exposed to speed up decomposition and eventually obtain fertilizers. <b>Destination of the Material Produced</b> No answer</p>	<p>and convert them to PET flakes.</p> <p><b>Wastes</b> Organic waste generators are mostly food related business, restaurants, etc. Additionally, households are potential organic waste generators due to the large amount of food that is characteristic of their waste. There are other types of important waste organic generators which generate in their activity pruning waste, trunk, etc. There should be emphasized some household sources, nurseries, gardens, wasteland, among others. The latter are being treated by three wood chippers at Mirador Sur Park which were donated by the Japan Agency Cooperation (JICA) and converted to compost subsequently. <b>Process to make use of the waste</b> Currently, there is making use of both a large amount of waste pruning organic waste, trunks which are not chipped and treated in aerobic environment to produce organic compost. Other type of wastes are mixed such as fruit peelings, among other products to make a better treatment; this project was managed by Mr. Amancio Pereyra with the assistance of Alan Alarcón and Lisbeth Sandoval. There are other methods to process organic waste, but the better known and with best results at the international level are the following: 1. To separate organic waste which does not contain toxic material, medicines, among others. 2. To proceed to chip them and, subsequently, to facilitate its decomposition and produce compost, among other materials. <b>Destination of Products</b> Adequate destination for compost product would be companies which are dedicated to compost through the use of compost as raw material which can be used in nurseries subsequently or individuals who require of them for garden, farms, or households, as well as international market. With regards to the material produced by Mr. Amancio Pereyra in the wood chipping and pruning waste treatment project in Mirador Sur Park to produce mulch; it is being placed in different areas in the National District which has created several positive changes. In the park areas where this material has been place, grass nor bush have grown during 6 months which makes it easier the work by the Municipality in the Environmental Management area; additionally, expenditures are reduced for operational cost; it creates a better sight of the environment and reduce the amount of insects which can live under grass and bush of low height like it was observed in different parks of the city. Treated material in that project can also be collected by any citizen who needs it; the citizen should only account with adequate transportation and be committed to use the material properly.</p>	<p>Level 3 His participation in the paper recycling and adequate discharge projects, it allowed important progress in his training regarding the use of organic waste.</p>
<p>Technical Characteristics for using organic waste</p>	<p>No answer</p>	<p>Composting process can only be conducted in two manners, depending on the product (aerobic and anaerobic). In both cases, temperature is measured at</p>	<p>Level 3 His participation in the</p>

Concepts to be evaluated	Answers 2011	Answers2012	Evaluation2012
		<p>three different heights (low, middle, and top of the pile). Currently, Mr. Amancio Pereyra is taking the temperature with a thermometer donated by the Japanese expert, Mr. Kato. Once temperature has reached a defined temperature, then the pile is turned.</p> <p>Aerobic: Outdoors where the pile receives air from the environment and bacteria which are found in the pile stay alive, keeping the organic material alive.</p> <p>Anaerobic: Close system where material does not receive any aeration.</p>	<p>pilot projects about recycling paper and adequate discharge allowed important progress in his training regarding use of organic material.</p>

### 2012 Evaluation Fernando Prestol



**Evaluation 2011 Heisor Vicente Arias Díaz**

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Evaluation 2011</b>
Waste minimization planned in the Master Plan	<p><b>Current Situation.</b> Today, the solid wastes generation in the National District has exceeded the projections set in the Master Plan; of an estimate of 1,600 tons per day for 2009 in generation, there has been a reality of a collection than 1,970 per day in the same year (in the last two months exceeds a daily average of 2,000 tons), so we conclude that the generation has increased extraordinary. This project will update existing information, as due to informality with which is handled the recycling market is very difficult to have a precise percentage of recycling rate. In 2006, the recycling rate was estimated at 1% when 1,500 tons were generated daily.</p> <p><b>Aspects to be reviewed in the MP</b> The Secretariat of State of Environment and Natural Resources must take the initiative to promote laws, rules and regulations in order to reduce solid waste generation, prohibiting some materials used excessively in the products sold and used by the population, through the efforts coordinated with the municipalities. In addition, the citizenship education programs should be reviewed in order to create awareness among the different social actors and induce change towards a culture of reduction in waste generation.</p>	<p><b>Current Situation.</b> Until now, the same situation presented for the answer for evaluation 2009 (left) is maintained, having a collection of 2,050 tons per day in average. As a progress on this issue, many organizations have become interested in this subject and are slowly introducing minimization concepts, through programs or products. Projects in the framework of this plan are a remarkable progress in minimization issues. The introduction of 3Rs in the community and schools. Prune waste shredding to produce compost or improve the soil, paper recycling, production of organic fertilizer derived from kitchen waste.</p> <p><b>Aspects to be reviewed in the MP</b> The Environment and Natural Resources Ministry should take the initiative to promote and review laws, norms, and regulations with the purpose of reducing solid waste generation, prohibiting some materials which are used excessively in products sold and used by the population through coordinated efforts with the municipalities. Moreover, incentives should be given to companies which recycle.</p>	<p><b>Current Situation.</b> Waste volumes generated in 2009, 2010, and 2011 are similar. Therefore, progress in quantitative terms is not significant. However, the progress in terms of awareness on the subject, as well as in the number of stakeholders involved in waste reduction, is really noticeable. At present, a number of both public and private initiatives increasingly involving companies, institutions, and citizens are being implemented. Some of these initiatives are the following: Pilot projects implemented by ADN, introduction of the 3R's in "Victor Garrido Puella" school (paper segregation), pruning management (tree waste shredding), and creation of databases (recyclables, prices, list of stakeholders). Two supermarkets have set up storage facilities and prepared materials to motivate waste segregation (plastic bags). Other supermarkets and companies have had newspaper articles on the subject published. Cedef, Malta Morena and Banco Popular have held contests about plastic and paper segregation. Coca Cola is implementing waste segregation projects in school centers. As the above shows, the progress in terms of the number of stakeholders involved in these isolated initiatives, and willing to turn them into a policy, is noticeable.</p> <p><b>Aspects to be reviewed in the MP</b> A recycling system to include the above isolated initiatives involving coordination among the various relevant organizations, incentives, corporate and citizens' responsibility, and standards, regulations, and other legal instruments related to waste reduction. Within the framework of this project, a system was proposed that may be improved.</p>	<p>Level 4.5 He has significantly improved his capacity to analyze the conditions for waste generation reduction within the National District. The proposals to review the Master Plan should be considered.</p>
Recycling Activities foreseen in the Master Plan	<p><b>Current Situation.</b> It has not been complied with the provisions of the Master Plan, but</p>	<p><b>Current Situation.</b> It has not been complied with the provisions of the Master Plan, but</p>	<p><b>Current Situation.</b> Some supermarkets have undertaken the following initiatives:</p>	<p>Level 4.5 There has been some significant</p>

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Evaluation 2011</b>
	<p>many supermarkets sell some materials used as packaging to companies that take advantage of this waste. The grocery chain are involved in the reuse of glass bottles for beer, malt and soft drinks. Some communities have started paper recycling in coordination with company that makes packaging for products from the newspaper and copy papers; and there are proposals of pilot projects with various schools in the National District.</p> <p><b>Aspects to be reviewed in the MP</b> It is necessary to review the Recycling Market Study, in order to update all the information concerning generators, buyers, sellers, intermediaries and prices of recyclable materials. It is also proposed to create a Recycling Directory for interested parties mentioned to have contacts with each other.</p>	<p>many supermarkets sell some materials used as packaging to companies that take advantage of this waste. The grocery chain are involved in the reuse of glass bottles for beer, malt and soft drinks. As part of the framework for this project, it is being considered to implement recycling pilot projects in communities and schools. It is important to mention that there are several initiatives to promote recycling this year: several organizations (Cedaf, Banco Popular) conduct a contest to separate paper where 100 schools are participating and the school which separates more paper will be the winner. This activity will begin next October. On the other hand, Pepsico is working on a recycling project with the Community Foundations which will promote that activity in these communities.</p> <p><b>Aspects to be reviewed in the MP</b> It should be reviewed the incentives and the legal framework for the citizens who take their recyclable materials to the grocery store and supermarkets, taking into account that these establishments will not reserve a site inside their limited space if there were not benefits; similarly, clients would not take their recyclable materials</p>	<p>Supermercado Nacional set up storage facilities for paper, cardboard, tetrapak and plastic. Supermercado La Cadena has plastic bags of 5 different colors to encourage waste segregation and it will soon set up some storage facilities. Other supermarkets have made some publications related to the subject. A pilot project to introduce the 3R's was implemented at "Víctor Garrido Puello" school. Over 600 school students understood the subject and participated in paper segregation. Rather than the amount of waste segregated, which was extremely limited, the project is aimed at raising the awareness of school students, teachers, and employees. This project scheme, including stakeholders' awareness raising, school participation, and waste collection by intermediate, waste-processing, companies, will be replicated in other places this year. Cedaf and Banco Popular are still holding contests on paper segregation in schools. Malta Morena organized a contest on plastic segregation in 67 schools. Green Love is still providing service to schools engaged in waste segregation.</p> <p><b>Aspects to be reviewed in the MP</b> Taking into account the initiatives implemented by the supermarkets, these should be evaluated to involve the whole sector and to turn the initiatives into a policy designed by both the supermarkets and the Ministry of the Environment. Incentives should be given to ensure the sustainability of recycling in this sector. Recycling system. Identification of school centers. Coordination with the Ministry of Education to present the pilot project as a role model for the rest of the school centers.</p>	<p>progress in terms of awareness related to the recycling activities included in the Master Plan. The progress made in terms of the paper recycling pilot projects has been significant despite the fact that they have not been assessed appropriately. The proposals to review the Master Plan should be considered.</p>
<i>Composting Activities foreseen in the Master Plan</i>	<p><b>Current Situation.</b> The implementation of the Master Plan envisages a pilot Project to organic fertilizer (compost) which will</p>	<p><b>Current Situation.</b> The follow-up project includes the implementation of a pilot project for organic fertilizer (compost) in which</p>	<p><b>Current Situation.</b> Chips generated during tree waste shredding were initially meant to be used for compost making. However, they are currently being used as an</p>	<p>Level 3.5 There has been some progress in terms of his</p>

<b>Concepts to be evaluated</b>	<b>Answers 2009</b>	<b>Answers 2010</b>	<b>Answers 2011</b>	<b>Evaluation 2011</b>
	<p>serve as a laboratory to determine the feasibility of carrying out this product because it has to be done in accordance with market, because we may be burning more fossil fuels and spending more resources that would harm environment but, we usually have such wastes.</p> <p><b>Aspects to be reviewed in the MP</b> Wastes quantity and composition study in the chemical analysis, to see the carbon and nitrogen levels that maintain organic wastes.</p>	<p>prune waste and market organic waste will be used.</p> <p><b>Aspects to be reviewed in the MP</b> The site where production will take place. Specific sources from where organic waste will be obtained.</p>	<p>aesthetic element for landscaping, and as a means to preserve humidity, in parks and other green areas within the National District. Market wastes have not been tested yet at Duquesa landfill site or any other site.</p> <p><b>Aspects to be reviewed in the MP</b> The site where organic waste will be used (compost)</p>	<p>awareness about organic waste use. However, more training focusing on the possibilities to use organic waste generated within the National District should be conducted.</p>
<i>Increment of Recycling</i>	<p><b>Sub-products</b> Paper, cardboard, glass, plastics (PET and other resins) <b>Phase of recovery</b> Source, final disposal (facility installed in Duquesa landfill) <b>Destination of Sub-products</b> Companies that export the materials and companies that process the recovered materials.</p>	<p><b>Sub-products</b> Metal, Paper, Cardboard, glass, plastics (PEAD, PET, and other resins) <b>Phase of recovery</b> Source, final disposal site and storage area</p>	<p><b>Sub-products</b> Metal, paper, cardboard, glass, plastic (PEAD, PET and other resins) <b>Phase of recovery</b> Source, landfill site, and storage facilities. <b>Destination of Sub-products</b> Companies exporting these materials and companies processing recovered materials.</p>	<p>Level 3.5 The answers are the same as in 2010. However, there has been some progress in terms of awareness about the subject.</p>
<i>Increment making use of organic waste</i>	<p><b>Wastes</b> Municipal markets and in the future if it is feasible to produce compost from restaurant, household, and industrial kitchen because the percentage of organic waste composition is higher than 50%. <b>Process to make it useful</b> Currently, it is under study the option which we will take for the pilot project. <b>Destination of material produced</b> Improvement of soils.</p>	<p><b>Wastes</b> Municipal markets and in the future if it is feasible to produce compost from restaurant, household, and industrial kitchen because the percentage of organic waste composition is higher than 50%. In addition to prune waste collected by the collection brigades for this material. <b>Process to make it useful</b> Piles <b>Destination of material produced</b> To improve chemical, physical, and biological conditions of soils in public spaces in the National District (parks, places, ridges).</p>	<p><b>Wastes</b> Municipal markets and, if feasible, to produce in the future compost from food waste generated by restaurants, households, and industrial kitchens taking into account the fact that the organic component exceeds 50%. Tree branches and other pruning wastes recovered. <b>Process to use organic waste</b> Piles and small pequeñas aboneras <b>Destino del material producido</b> To improve the chemical, physical, and biological conditions of soils in public spaces within the National District (parks, squares, traffic islands).</p>	<p>Level 3 The answers are the same as in 2010. No significant progress in terms of awareness about the use of organic waste generated within the National District is noticeable.</p>
<i>Technical Characteristics for</i>	We do not have experience to produce compost, we have	Material Collection Adequate Mix	Material collection Appropriate mix	Level 3 Same answers as

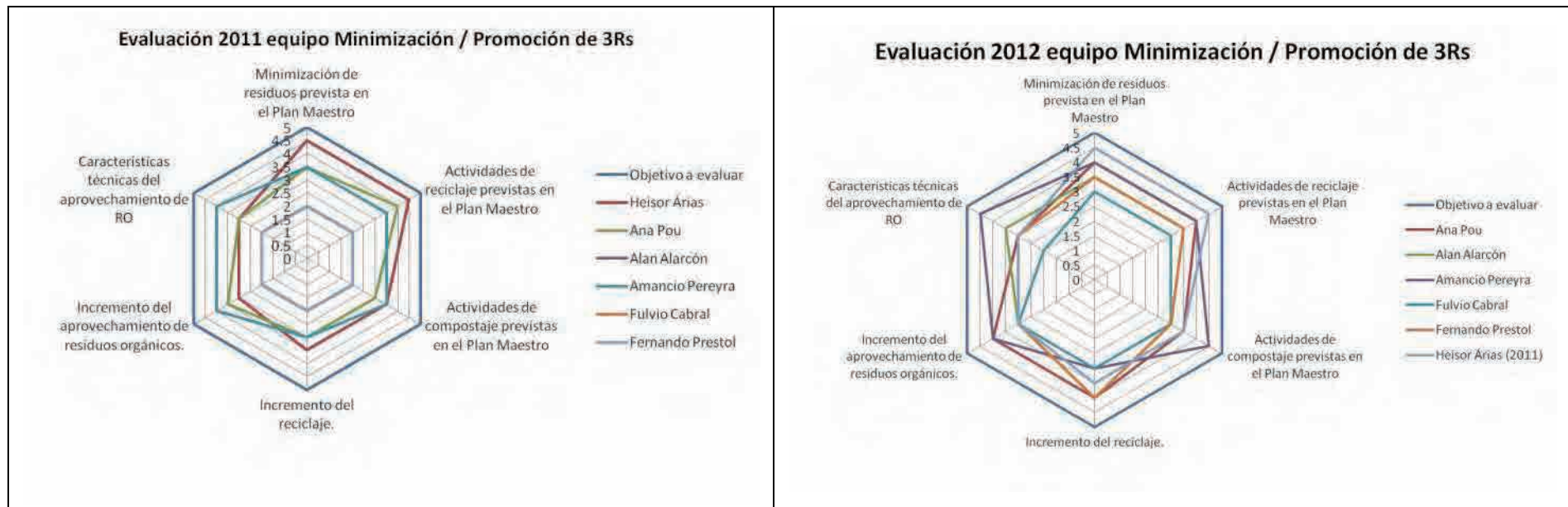
Concepts to be evaluated	Answers 2009	Answers 2010	Answers 2011	Evaluation 2011
taking advantage of organic waste	theoretical information about mixing, micro-organism, and time to decompose (90 days)	Turning for aeration To spray water to maintain optimum humidity To wait for the maturation process during 3 months	Turning for aeration To spray water to preserve optimum humidity. To wait for the maturation process taking 3 months	in 2010. No significant progress in terms of awareness about the techniques to use organic waste is noticeable.

### Evaluación 2011 Heisor Árias



### Evaluation Summary 2012 for counterpart team about Waste Minimization / 3Rs Promotion.

- 1.- Counterpart team about Waste Minimization / 3Rs Promotion was modified again during last year because Mr. Heisor Arias was absent of his activities in DIGAUE as a result of his trip to study abroad. Consequently, he did not conduct waste minimization activities for 3Rs promotion which was developed by counterpart team 4.
- 2.- In spite recent inclusion of Mr. Fulvio Cabral and Mr. Fernando Prestol to the counterpart team about waste minimization and 3Rs promotion and the fact that they participated only in the pilot projects for 3Rs activities, paper recycling, and waste adequate discharge for collection service allowed they were trained on this issue and, consequently, some training target were attained which were expected for this Project.
- 3.- In spite the different abilities among counterpart members, it is emphasized that the team has adequate capacity to develop activities which were expected in the development project with regards to waste minimization and 3Rs promotion policies, and mainly taking into account inclusion in the short term of Mr. Heisor Arias to DIGAUE's activities.
- 4.- It should be considered the output of the paper recycling pilot project in schools and public offices in view of the results related to 3Rs promotion and public conscious awareness, and not only as a function of the amount of material which is recovered. This evaluation and experience attained should be used to expand the pilot project to other schools and public offices.
- 5.- In spite the pruning waste chipping project had satisfactory output regarding the operation, the amount of chipped material and its use, it should be taken advantage of the experience attained to create an institutional organic structure to continue and expand the project by linking the staff who conducts the chipping activity with ADN section in charge of pruning in the National District. This can be achieved easier with the creation of the Environmental Management and Risk Secretariat which has under its jurisdiction both staff (the one in charge of pruning waste chipping project and the Environmental Management section in charge of pruning green areas in the city).
- 6.- Next, two graphs are shown with 2011 and 2012 evaluations for all counterpart team members for Waste Minimization and 3Rs Promotion:  
:



#### Final comments about individual capacity of counterpart team “Waste Minimization / 3RS Promotion” by the end of the project in July 2012.

Similarly to most of counterpart team in the Project, Waste Minimization / 3Rs Promotion team also went through modifications regarding its members during the Project. Some of the members who began with the counterpart team were neither members of pilot project activities developed nor were trained by JICA team whereas other members became part of the team in the last year of the project; consequently, their training was developed only in the third part of the project.

Other element to be taken into account is that the Project was developed in two topics: those related to recycling and others related to making use of the organic material; in spite both projects are part of 3Rs, the activities developed were aiming to train different members in the counterpart team. This situation causes that progress in evaluation can not be conducted with the same parameters for different members because, obviously, capacity development for some members was targeting recycling whereas for other members was targeting the use of organic waste.

It is suggested that for future projects, it should be defined training objectives according to activities developed by different counterpart members with the purpose that progress in evaluation can be precise.

In spite these difficulties in the process of evaluation progress for capacities, it was attained adequately the overall goal to introduce 3Rs in every counterpart team member and in the focus of DIGAUE for waste management in the National District. Pilot projects developed have all the potential to be expanded to other areas and amount of waste treated can increase which would prevent them to be discharged in the final disposal site.



## **II. Minutes of Meetings**

Minutes of Meeting from each Joint Coordination Meeting is shown below.

- First Joint Coordination Meeting: 21<sup>st</sup> August 2009
- Second Joint Coordination Meeting: 26<sup>th</sup> July 2010
- Third Joint Coordination Meeting: 8<sup>th</sup> October 2010
- Fourth Joint Coordination Meeting: 14<sup>th</sup> June 2011
- Fifth Joint Coordination Meeting: 11<sup>th</sup> July 2012

I.1 First Joint Coordination Meeting: 21<sup>st</sup> August 2009

II-121

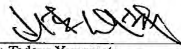
MINUTES OF MEETINGS  
BETWEEN  
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE  
DOMINICAN REPUBLIC  
AND  
JICA EXPERT TEAM  
ON  
INCEPTION REPORT OF  
PROJECT FOR APPROPRIATE WASTE MANAGEMENT  
IN SANTO DOMINGO DE GUZMAN, NATIONAL DISTRICT,  
DOMINICAN REPUBLIC

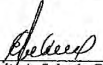
The Expert Team of Japan International Cooperation Agency (hereinafter referred to as "JICA") had a series of discussions with the authorities concerned of the Government of Dominican Republic on the Draft Inception Report of the Project for Appropriate Waste Management in Santo Domingo de Guzman, National District, Dominican Republic (hereinafter referred to as "the Project").

As a result of discussions, the JICA Expert Team and the Dominican Republic side agreed on the matters referred to in the document attached hereto.

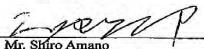
These texts were done in duplicate in Spanish and English languages, each text being equally authentic. In case of any divergence of interpretation, the English text shall prevail.

Santo Domingo, 21 August 2009

  
Mr. Tadayama Yamamoto  
Chief Adviser,  
JICA Expert Team,

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

Witnessed by:

  
Mr. Shiro Amano  
Leader  
Project Consultation Team  
Japan International Cooperation Agency  
(JICA)

ATTACHED DOCUMENT

1. Introduction

The JICA Expert Team submitted the Draft Inception Report (hereinafter referred to as "IC/R") to the Dominican Republic side; 5 copies in Spanish and 3 copies in English. Subsequently, a series of meetings were held between the both sides from 22 July to 21 August 2009.

Various issues were discussed and clarifications on the Draft Inception Report were made. Subsequently, appropriate consensus was reached during the meetings. These issues, clarification and consensus are outlined in the following paragraphs.

2. Term of Cooperation

Both sides confirmed the duration of the technical cooperation for the Project will be 36 months from July 2009 to July 2012.

3. Project Design Matrix and Plan of Operation

Both sides confirmed that the Project Design Matrix (hereinafter referred to as "PDM") shown in the Minutes of Meetings (hereinafter referred to as "M/M") signed on 25 February 2009 and also shown in the IC/R is to be flexibly amended in view of the process and achievements of the Project based upon agreement between the Dominican Republic side and JICA.

Both sides confirmed that the activities of the Project as shown in the Plan of Operation (hereinafter referred to as "PO") shown in the M/M signed on 25 February 2009 and also shown in the IC/R are subject to change within the scope of the Record of Discussions (hereinafter referred to as "R/D") with mutual consultation when necessity arises in the course of implementation of the Project.

4. Appointment of personnel

4.1 Confirmation of Joint Coordinating Committee members

Members of Joint Coordinating Committee (hereinafter referred to as "JCC") of the Project are confirmed as shown in the Annex I.

When appointment and/or substitution of JCC member takes place, the JCC chairperson should inform to all whom concerned accordingly.

4.2 Technical Committee members

Members of Technical Committee (hereinafter referred to as "TC") of the Project are confirmed as shown in the Annex II.

When appointment and/or substitution of TC member takes place, the TC chairperson should inform to all whom concerned accordingly.

**4.3 Dominican Counterpart personnel and JICA Expert Team members**

Members of Dominican Counterpart (hereinafter referred to as "C/P") personnel and JICA Expert Team (hereinafter referred to as "JET") members of the Project are confirmed as shown in the Annex III.

When appointment and/or substitution of C/P or JET member takes place, it should be informed to all whom concerned accordingly.

**5. "List of Machinery, Equipment and other Materials" stated in the R/D**

**5.1 Cutting machinery for green and market wastes**

In order for General Directorate of Urban Cleansing and Equipments (hereinafter referred to as "DIGAU") to cope with problems related with green and market wastes, it is confirmed the necessity to carry out a pilot project for the said wastes. Both sides confirmed that the examination and planning of a pilot project for the said wastes might include, other alternative treatment methods than compost.

JET stated that, irrespective of treatment methods to be employed, it is indispensable for the Dominican Republic side to secure the site(s) for the pilot project before JET starts the procurement process of machinery for the pilot project. The machinery to be procured for the pilot project should be subject to JICA's approval.

The Dominican Republic side stated that the site(s) for the pilot project will be secured by the end of October 2009.

Both sides confirmed that it is urgent to start the examination and planning of the pilot project outline and contents, and that should be defined by the end of December 2009.

**5.2 Vehicle(s), other machinery and equipment necessary for the effective implementation of the Project**

Both sides confirmed that, necessity of vehicles or other machinery/equipment may arise, when the pilot project outline and contents are detailed, although it is not identified at the time of IC/R discussions.

**6. "Training of Dominican Personnel in Japan and/or Other Countries" stated in the R/D**

JET informed to the Dominican Republic side that two (2) third-country trainings are tentatively planned for the Japanese fiscal year 2009 (i.e. until March 2010) as follows.

- Training in El Salvador for four (4) C/P members for six (6) days at around November 2009

- Training in Argentine for four (4) C/P members for six (6) days at around November 2009

JET requested appointment of four (4) C/P members respectively for the above two (2) trainings, and the Dominican Republic side responded that the appointment of participants is made by the end of September 2009.

JET stated that information of training in Japan and/or other countries in the next Japanese fiscal year onward will be informed accordingly when their contents become available.

**7. "List of Land, Building and Facilities" stated in the R/D**

JET appreciated that an office space for JET has been provided in the DIGAU office in the city hall by the Dominican Republic side.

**8. Finalization of IC/R**

After a series of discussions between both sides and upon clarification and consensus outlined in the above paragraphs, both sides confirmed that IC/R is finalized and agreed.

The digital document of IC/R will be submitted to C/P by JET on or before 29 August 2009.

Annex I: The Joint Coordinating Committee members

Name	Position
Esmérito A. Salcedo Gavilán	Mayer of National District, Santo Domingo de Guzmán (Project Director)
José Miguel Martínez Guridy	Director General of DIGAU (Project Manager)
Desiderio Ruiz	Representative of Mancomunidad del Gran Santo Domingo
Ernesto Reyna	Representative of Secretariat of State of Environment and Natural Resources
Luis Feliz Roa	Representative of Secretariat of State of Public Health and Social Assistance
América Bastidas	Representative of Secretariat of State of Economy, Planning and Development
Tadaya Yamamoto	JET Chief Adviser
Hiroshi Kato	JET Deputy Chief Adviser
Tadashi Ikeshiro	Representative of JICA Dominican Republic Office
Yasuji Okuma	Official of Embassy of Japan (Observer)
-	Others agreed by the JCC

*[Handwritten signature]*

*[Handwritten mark]*

*[Handwritten mark]*

Annex II: The Technical Committee members

Name	Position
José Miguel Martínez Guridy	Director Manager of DIGAU (Chairperson)
Desiderio Ruiz	Representative(s) of Mancomunidad del Gran Santo Domingo
Porfirio Ortega	Representative of Secretariat of State of Environment and Natural Resources
Luis Félix Roa	Representative of Secretariat of State of Public Health and Social Welfare/ General Directorate of Environmental Health
Oscar García	Representative of General Directorate of Urban Cleansing and Equipments
Juan José Guzmán	Representative of General Directorate of Human Development
Sina Del Rosario	Representative of General Directorate of Urban Planning
Marianna Szabo	Representative of Environmental Information Center
Hélsor Arias	Representative of Recycling Promotion Center
Moralma Díaz	Director of Citizens Observatory
Cristina Nogueira	Representative of Pan American Health Organization
Tadaya Yamamoto	Chief Adviser, JET
Hiroshi Kato	Deputy Chief Adviser/Waste Minimization/Promotion of 3Rs (1), JET
Masaharu Kina	Solid Waste Education and Awareness Raising/Promotion of 3Rs (2), JET
Ana Ximena Atagris Olivos	Solid Waste Education and Awareness Raising/Promotion of Waste Discharge Manner, JET
Ryo Hiraga	Vehicle Maintenance Management, JET
Shinsuke Okamoto	Vehicle and Spare Parts Data Management / Project Coordinator (1), JET
Lisa Muranaka	Project Coordinator (2), JET

*[Handwritten signature]*

*[Handwritten mark]*

*[Handwritten mark]*

**Annex III: The Dominican Counterpart personnel and JICA Expert Team members**

Name	Position
<b>1. Solid Waste Management:</b>	
José Miguel Martínez Guridy	Director Manager of DIGAU
Hugo Pérez Sarraff	Head, Department of Programming and Control General Directorate of Urban Cleansing and Equipments
Ruditerol Castillo	Head, Department of Administration, General Directorate of Urban Cleansing and Equipments
Manuel Ramírez	Head, Department of Urban Cleansing, General Directorate of Urban Cleansing and Equipments
Francisco Martínez	Head, Control Department Division No.2, General Directorate, Urban Cleansing and Equipments
<b>2. Solid Waste Education and Awareness Raising</b>	
Juan José Guzmán	General Director of Human Development
Luis Taveras	Head, Department of Public Education
Marianna Szabo	Coordinator, Environmental Information Center
Anyelina Aquino	Head, Department of Environmental Management
Leomarís Henríquez	Coordinator, Health Centers Collection, General Directorate of Urban Cleansing and Equipment
<b>3. Vehicle Maintenance Management</b>	
Oscar García Arias	Head, Department of Operations
Genaro Rosarlo	Head, Department of Vehicles Maintenance
Manuel Roa	Staff in charge, Operation Unit for Compactor Trucks
Luis Checo	Coordinator Technician, Department of Maintenance
David Rodríguez	Head of Control, Division No.3, General Directorate of Urban Cleansing and Equipment
<b>4. Waste Minimization/Promotion of 3Rs</b>	
Heisor Arias	Head, Recycling Promotion Center
Amanco Pereyra	Technician, Recycling Promotion Center
Manuel Dajer	Technician, Recycling Promotion Center
Alan Alarcon	Technician, Environmental Information Center
Ana Beatriz Pou	Technician, Environmental Information Center

Name	Task
Tadaya Yamamoto	Chief Adviser, JET
Hiroshi Kato	Deputy Chief Adviser/Waste Minimization/Promotion of 3Rs (1), JET
Masaharu Kina	Solid Waste Education and Awareness Raising/Promotion of 3Rs (2), JET
Ana Ximena Alegria Olivos	Solid Waste Education and Awareness Raising/Promotion of Waste Discharge Manner, JET
Ryo Hiraga	Vehicle Maintenance Management, JET
Shinsuke Okamoto	Vehicle and Spare Parts Data Management / Project Coordinator (1), JET
Lisa Muranaka	Project Coordinator (2), JET