



Solid Waste Management in Colombia

By Magda Carolina Correal Sarmiento

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Editor' Note: This paper has been targeted for a broad audience. The level of scientific detail provided is therefore not as high as would be normally be required in technical paper subject to peer review by environment industry professionals.

Introduction

Colombia is located in the northwestern South America, bordered by the Caribbean Sea, the Pacific Ocean, Panama, Venezuela, Ecuador, Peru y Brazil with 1,1 million square kilometers of area and a population around 46 million people (DANE). It is the fourth largest economy in Latin America and makes part of the group called "CIVETS"¹, with a stable GDP growing rate around 4% (World Bank, 2012). It mainly produces coffee, flowers, fruits, emeralds, coal, minerals and oil and main economic activities are oil production, agriculture, industry and services. Temperature and precipitation depends on the altitude of each city.

Solid waste generation is around 32.000 tons a day (SSPD, 2010; Aluna Consultores, 2011), equivalent to 11.3 million tons annually, with a growing rate 4% to 8%, of which at least 50% are organics (Aluna Consultores, 2011).

Since 1991, the organization of the State was modified to adopt a regulator role and allow private participation in the utility sector, including solid waste management utility service. Nowadays, private companies provide the service for more than 60% of the population (SSPD, 2008). The law allows different schemes to provide the service, such as free competition, contracts with municipalities with or without exclusivity; the service can be provided directly by each municipality or by public, private or mixed capital companies (Law 142). Reward is collected directly by the supplier through tariffs charge in the bill of other utilities (electricity, water supply or gas), which are calculated according to methodologies established by the national government regulator (CRA).

Lately, the Supreme Court recognized the informal recyclers' rights in the solid waste management and their accomplished labor and ordered to implement affirmative actions for their protection, therefore government is studying the mechanisms to put the order into operation.

During the last 10 years, solid waste management policies have been focused on eliminating illegal dumpsites, promoting the use of regional landfills and enforcing the formalization of small suppliers.

This document presents a brief description of solid waste management in Colombia, including the state of the art of the planning, regulation and operation conditions of the collection, transportation, recycling and final disposal activities. General figures about current generation, waste composition are also included. Finally, short ideas reveal problems and challenges in progress.

¹ The acronym for favored emerging markets from Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa coined in 2009 by Robert Ward.

Solid Waste Management Planning

The Ministry of Environment was established in 1993 after the issuing of the new Constitution in 1991 and environmental policies and regulation became in progress. In 1998, the policy for a comprehensive solid waste management was adopted, which includes two main relevant components, the government's responsibility for improving the solid waste management and the private sector's responsibility for implementing cleaner production processes. In the policy, solid waste management was conceived under four pillars: solid waste prevention, recycling, treatment and final disposal. On the other hand, it set up life cycle analysis as the fundamental tool to the cleaner production action plans design.

Regulation (Decree 1713) delivered as a result of the policy implementation, forced each municipality to design and carry out a solid waste management plan for a short, medium and long term. Nowadays, most of the plans have been prepared but only a few have been implemented.

Later, in 2008 the National Council for Economic and Social Policies launched the CONPES 3530, with the purpose of strengthen a comprehensive solid waste management as a utility service through regulation development, local solid waste administrator guidance, regional final disposal strategies and feasible recycling systems implementation.

Relevant Legislation

The solid waste management regulation in Colombia dates from 1974 and 1979 when the Law 2811 and Law 9 (National Sanitary Code) were issued.

In 1994, the Law 142 defined the institutional framework for promoting private involvement in utility supply, including solid waste management, in a free market competition and tariff systems for recovering the provision costs but including a cross subsidy system that recognizes the differences in the population's payment capacity.

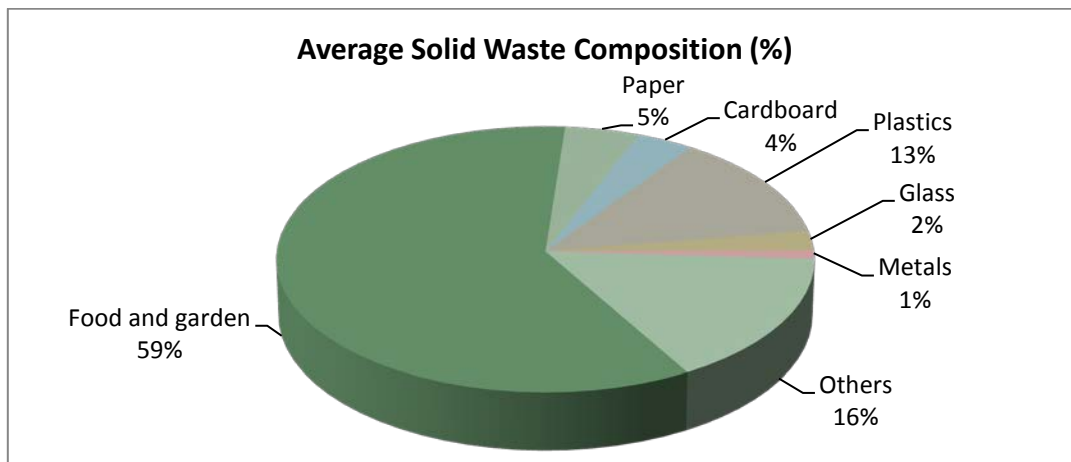
Institutional framework created by Law 142 allocated: i) to the current Ministries of Environment and Sustainable Development and Housing, City and Territory the policy development, ii) to the Regulation Commission of Water Supply and Sanitation the competition promotion, monopolies regulation and tariff methodologies preparation, iii) to the Utility Superintendent the enforcement and control of utility sector, iv) to municipalities administrations the utility provision guarantee, v) the utility companies the service provision and vi) to the users, the right to get the service, to be citizen overseers and the utility payment obligation.

Solid waste management service has been regulated in 1996 (Decree 605) and in 2002 (Decree 1713), the last decree has the purpose of integrating the utility service conception with an environmental management focus. Afterward, some new decrees have modified the Decree 1713 (e.g. Decree 838 regulated final disposal planning, construction and operation and Resolution 1045 ordered illegal dumpsites closing).

Reward is based on a tariff system, where the Regulation Commission establishes the price cap for each service component (e.g. Resolutions 351 and 352), utility companies establish the tariffs and Superintendent controls that tariffs do not exceed the price cap.

Waste Generation

Ordinary solid waste generation is around 32.000 ton a day with a growing rate between 4% and 8%.



Source: prepared by the author based on Aluna Consultores, 2011

Solid Waste Collection & Transport

There are 1206 providers of the solid waste management (SSPD, 2010), more than 60% of the population is attended by private or mixed capital companies (Econometría, 2008).

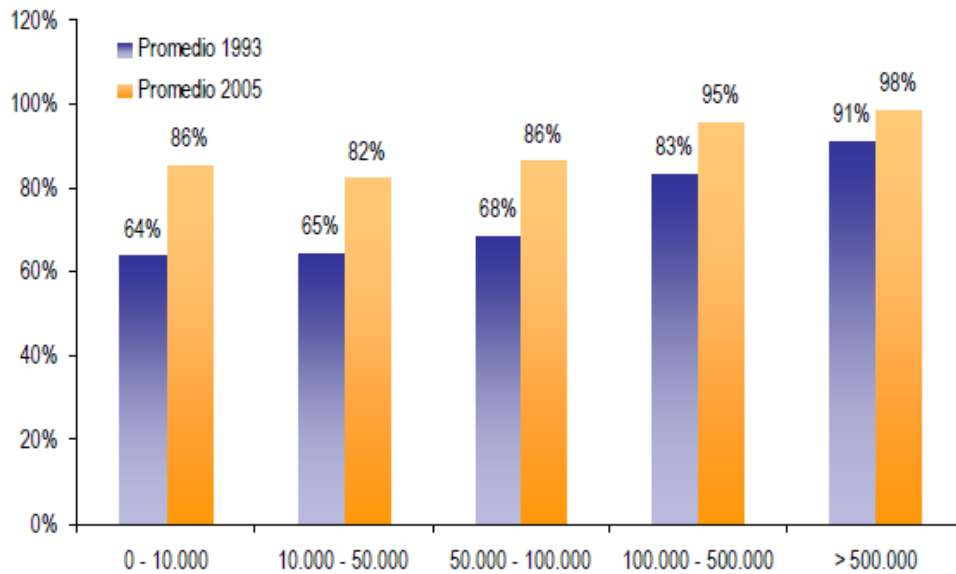
More than 900 suppliers provide the collection and transportation services, 576 supply final disposition service and 269 carry out some recycling activity. In general terms, all the suppliers who provide the collection and transportation activities also provide the sweeping service of public areas and roads.

The population covering who receive the solid waste collection service has increased during the last 20 years, from 87,2% in 1993 to 94,6% in 2005. The higher covering rates are found in larger cities (Chart 1).

The collection frequency varies between 2 and 3 times a week, higher frequencies are provided in the more populated cities.

Recently, two transfer stations started working close to two of the main cities in Colombia, Medellin and Cali, where sanitary landfills are located 41,5 km (Guacal) and 62,2 km (Colomba-Guabal) away from the cities; both stations are operated by a private utility company (INTERASEO SA ESP).

Urban Population with Solid Waste Collection Service, according with size (1993, 2005)



Source: National Planning Department (2008) based on Census DANE

Recycling

There are more than 100 associations that group around 5.000 recyclers (Aluna Consultores, 2011) and most of the recyclers do not belong to any association (v.gr. informal recyclers).

Between 40% and 60% of the recycled solid waste are collected by recyclers (informal and formal) who carry out this activity for making a living. The difference is directly managed by the industry. Solid waste management utility companies do not used to perform recycling activities, they exceptionally provide selected collection to give the materials for recycling associations and in few cases they operate recycling plants.

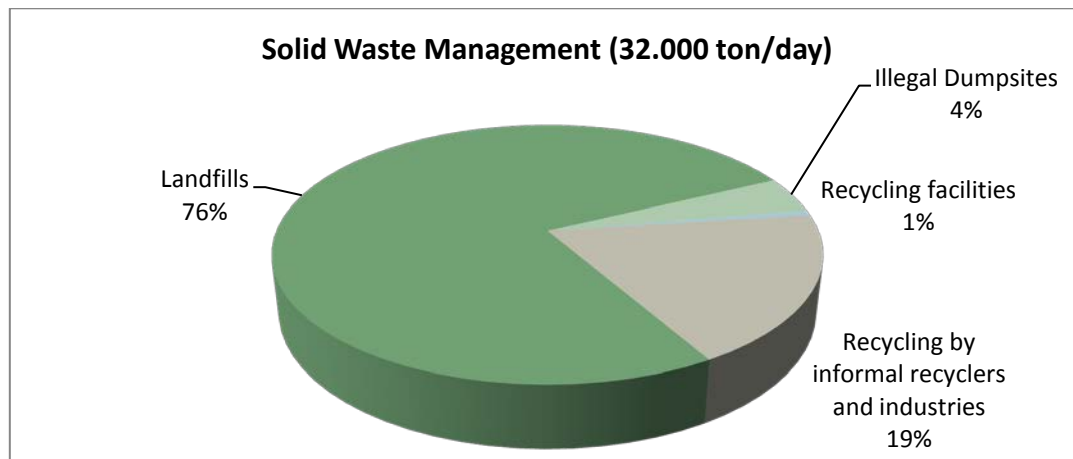
Main collected recyclable materials are metals (49,75%), paper and cardboard (35,01%), plastics (11,15%) and glass (4,09%) (Aluna Consultores, 2011).

In relation with recyclers, some of the problems in the supply chain are: low revenues, involvement of children and lack of social security. The problems in the other parts of the chain are high levels of intermediation, high prices variability, lack of incentives to use recycled material, among others.

Last year, the Supreme Court recognized, in the Auto 275, the informal recyclers' rights in the solid waste management and their accomplished labor, so it ordered to implement affirmative actions for the recyclers' protection. Currently, the national and Bogota governments are studying the mechanisms to put into operation the order.

Waste Disposal & Treatment Facilities

Including the solid waste recycled by informal recyclers and industries (around 6.000 tons a day), 76% of solid wastes are disposed in landfills, around 19% are recycled, 1% are transported to recycling facilities operated by utility companies, 4% are disposed in illegal dumpsites, rivers or are fired in open areas.



Source: Prepared by the author based on SSPD (2010) and Aluna Consultores (2011)

Main Problems & Challenges

Although, waste management in Colombia has positively evolved during the last 20 years, there are many challenges to be managed, some of them are: i) the provision of higher quality solutions for smaller municipalities, ii) promoting management organizations that recognize informal recyclers work, iii) increasing the sanitary landfills' technical specifications and improving technical operation, iv) advancing on adaptation climate change measures, for avoiding problems caused during the rain and dry periods, and v) increasing the solid waste recycling.

Currently, Regulation Commission (CRA) is reviewing the price cap methodology and the inclusion of recyclable materials collection and transportation payment for recyclers.

Finally, it is the right moment for starting the adoption and implementation of extended producer responsibility measures as a method for increasing the solid waste recycling, in a feasible and sustainable way.

Conclusions

A brief description of solid waste management in Colombia, including the state of the art of the planning, regulation and operation conditions of the collection, transportation, recycling and final disposal activities was offered.

Although, waste management in Colombia has positively evolved during the last 20 years, there are many challenges to be managed, such as: i) the provision of higher quality solutions for smaller municipalities, ii) promoting management organizations that recognize informal recyclers work, iii) increasing the sanitary landfills' technical specifications and improving technical operation, iv)

advancing on adaptation climate change measures, for avoiding problems caused during the rain and dry periods, and v) increasing the solid waste recycling.

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Magda is from Colombia, she has over 12 years of experience on planning, regulation and policy design of solid waste management. Nowadays, she manages her own consulting company (MAG CONSULTORIA) focused in this sector. Formerly, she worked as Director for the Superintendence of Public Utilities assigned to the Solid Waste Management Services, and as a consultant for the Ministry of Environment in Colombia. She holds a bachelor and master degrees on Civil Engineering and is aspirant for a MA in Management in Durham University (UK). Regularly, she collaborates for the Interamerican Development Bank and other agencies in preparing and developing solid waste management projects.