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Brazilian waste management: Belo Horizonte's case study of sustainable management

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Abstract

This study is part of a PhD research and aims to present one Brazilian case study of waste management, the process of waste management plan elaboration in Belo Horizonte city Brazil, and the sustainable actions that this city has, which is considered reference about waste management in Brazil. The process of waste management plan in this city started in 2014, and in 2016 is in the last stage. Three groups are important to this process. The first one is the technical group, constituted by urban oversight of Belo Horizonte, Brazil. The second is the steering committee, formed by representatives of the executive power organs. The last one is the consulting board, that includes political bodies for social participation, representatives of the public sector municipal and from the state, and the organized civil society as well, contemplating the popular segments, technical / academic, and from the companies too. Papers of Scopus and Science Direct were consulted as well to compare this Brazilian case with European cases.

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1. Introduction

Development countries face problems or difficulties to treat and to manage their waste. For food waste management, something important is to consider one review of the existing system, one review of the existing regulations, to identify related stakeholders, set up standards and regulations, establish goals, conduct food waste management activities / programs, repeat estimating and compare options, and evaluate the food waste management system. Education and public participation must be part of this (THI et al., 2015).

In a case of cooperation between public and private areas to manage the waste, sometimes one good option is to join public and private companies. In a study that compared two models for dealing with urban solid waste in Brazil, namely, management by contract and management by public–private partnership, indicates that the management by a public–private partnership was more advantageous for dealing with urban solid waste than management by contract. This former provided a strong selective collection program, reduced the amount of solid waste sent to sanitary embankments, led to the recovery an area of land previously degraded by the incorrect disposal of urban solid waste and stimulated the installation of an energy recovery unit (MARCONSIN & ROSA, 2013).

When we are talking about waste management, the collaboration of society is something essential. According to Mavropoulos et al., (2015, p. 381) until recently, waste management was faced as a matter of appropriate storage, collection, transfer, treatment and disposal, and the main effort was to minimise environmental and health impacts. Thus, engineering and logistic tools were sufficient to plan and implement waste management systems. But today resource management and social behaviour are becoming an integral part of any waste management system.

In Brazil, one good example of cooperation between municipalities is the Intermunicipal Public Consortium Alto Sapucaí, signed for the construction of landfill in Itajubá, Brazil. This was the first consortium in Brazil, serving a population of 90,000 people, involving six municipalities (Delfim Moreira, Itajubá, Piranguinho, Piranguçu, São José do Alegre and Wenceslau Braz), getting 51 tons of waste per day. Another successful example of consortium is implemented in the Zona da Mata region, involving the municipalities of Carangola, Divine, Faria Lemos, Fervedouro, Pedra Bonita, Pedra Dourada, Santa Margarida, Tombos (Minas Gerais), Natividade, and Porciúncula (Rio de Janeiro). The consortium of the Zona da Mata was a pioneer when it comes to having among its consortium members, cities of different states (BEEA MINAS GERAIS, 2014).

The aim of this work is to present the system constituted by the public company (government), private company (MYR consulting), and the society to make and to approval one waste management in Belo Horizonte, Brazil.

2. Brazilian case study of Belo Horizonte

Belo Horizonte is one of the most capitals in Brazil, with a population of 2,513.451 people, 64 universities, and 331,401 km² of area (BIGS, 2016). This study is based in the participation of the author in events about Belo Horizonte's waste management plan. In a total, seven events happened in the city. Three groups are important to approach. The first one is the technical group, constituted by urban oversight of Belo Horizonte. The second is the steering committee, formed by representatives of the executive power organs. The last one is the consulting board, that includes political bodies for social participation, representatives of the public sector municipal and from the state, and the organized civil society as well, contemplating the popular segments, technical / academic, and from the companies too.

Based on materials available on the virtual page of Belo Horizonte, the process performed to make the waste management plan of Belo Horizonte divided into four main steps: 1. Communication and mobilization. 2. Diagnosis of the waste situation (inventory of collectors, dividing them into independent and cooperative). 3. Associated management and last topic is the 4. Development of future scenarios. There were two other hearings on 15th, and 16th December. On 15th were East's regional, Northeast and Northwest. On 16th Pampulha's regional, North and Venda Nova.

March 16th, 17th and 18th, 2016 there were other public hearings in order to present the possibilities of the management tasks inserted in the Plans Health Services Waste Management (PHSWM) and also Plan of Waste Management of Construction and Bulky (PVMCB). These documents were available for public consultation by the

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