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Management analysis of municipal solid waste a municipality Semi-Arid Pernambucano

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ABSTRACT

The management of municipal solid waste is presented as one of the major challenges to be faced by municipalities today, especially for those small, lacking in resources and specific policies for this purpose. Poor management and inadequate disposal of these wastes can cause serious damage to the environment and health. This study, exploratory and guided by a qualitative approach nature, analyzed the management of such waste in a small municipality located in the wilderness of Pernambuco State in the light of what determines the Federal Law nº12.305/10. As conclusions, it was found that the city studied is not fulfilling this law provides, fundamentally with regard to direction given to the waste it produces. Also, it does not exist an integrated management plan for solid waste and have not been verified directly programs and actions aimed at promoting environmental education.

Keywords: Public administration, National Policy on Solid Waste, Sustainability.

INTRODUCTION

The production of solid waste in the world is growing alarmingly, in the case of one of the major challenges to be faced by humanity. This situation is aggravated by population growth in urban areas, reinforcing concerns about environmental problems in cities as regards the management of solid waste. According to the Institute of Applied Economic Research (IPEA, 2012) the volume of municipal solid waste generated annually grows at much higher levels to the Brazilian population growth.

Almeida (2012) states that industrial society has imposed cultural patterns guided by exorbitant consumption of goods and services, generating large and growing volumes of waste. This same author conceptualizes solid waste, commonly called trash, as all that is thrown out by the people for lack of utility.

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Days (2011) states that one of the most visible problems arising from industrialization is the allocation of excess waste from the production process, which affect both the natural environment and people's health.

In general, municipal solid waste are composed of plastic, paper, food, wood, glass, debris, iron, sheet, tree branch, among other materials. And in some cases, they comprise toxic waste (batteries, lamps, insecticides packaging); and radioactive (hospital products that had contact with radioactivity). The latter have specific legislation for its use, which assigns responsibilities to their generators.

Every day new products are available in increasing quantities, increasing the impact on the final destination. Consumerism is strongly encouraged by their producers that use of various media. Worldwide, the advertisements in: newspapers, radio, television and the internet encourage people to purchase various products and to replace the older the more modern (CAVINATTO & RODRIGUES, 2003).

Also according to these authors, the products are manufactured to meet people's needs, but in some cases the requirements are confused with mere whim to satisfy their egos.

This increase in the supply of industrial products is another contributing factor to aggravate the problem of solid waste in the world. This combined with increased supply of credit has been given to the population in order to encourage all this consumerist system is a significant aggravating factor for the generation of waste.

Moreover, one should take into consideration that material goods are being manufactured to last less and less, then your disposal will occur faster and faster.

Milaré (2011) warns about the complexity of this problematic situation, citing the phenomenon of rapid urbanization, with the disorderly occupation of land in cities, the huge production deben and packaging, as well as the ineffectiveness and inefficiency of the management of urban solid waste the municipalities.

In Brazil, landfills remain a common and damaging form of disposal of municipal solid waste, for although seemingly "cheap", committed to public health and the environment.

The Brazilian Standard NBR 10.004/2004 conceptualizes hazardous waste as a characteristic that he will present in terms of their physical, chemical or infectious. A residue can cause risk to public health, causing mortality, disease incidence or accentuating its contents; and the environment, when managed improperly (ABNT, 2004).

The National Policy on Solid Waste established by Law 12.305/10, despite the delay for approval (nearly two decades), to be sanctioned represented a revolution in relation to environmental policies in Brazil. It is exclusively directed to this issue and has important and necessary tools so that you can face the problems caused by inadequate management of solid waste. It also has objectives, principles and instruments for the management and proper management thereof.

However, his approach covers the entire product life-cycle management, which will become waste upon their use by mankind.

This law aims to prevent and reduce waste generation therefore suggests environmentally sound alternatives for their treatment, disposal and waste disposal.

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It is, therefore, a comprehensive legislation, meaningful and participatory nature; according to which the municipalities, which should take it always as a reference, will need to develop its integrated management plans of solid waste and establish reduction targets, reuse, selective collection and recycling, aiming to reduce the quantities of sent waste for final disposal (BRASIL, 2010).

The integrated management of solid waste can be understood as the way to design, implement and manage municipal solid waste management systems, including the broad and effective participation in society, with the purpose of promoting sustainable development (MESQUITA JUNIOR, 2007).

The solid waste management combines methods and techniques that can contribute to the improvement in the form of their treatment. It includes the planning of the whole process and therefore provides greater identification of the situation in which they are the residues of a particular place, as well as their main needs. From there it becomes easier to identify the appropriate way to treat each type of waste, as the reality of each location. Thus, the benefits may be more meaningful to the community.

It is up to municipalities to legislate and carry out the tasks related to public cleaning. According to Rocha, Rose and Cardoso (2009) the municipal government is responsible for the public service of collection, removal and disposal of household waste.

The issue of solid waste has been widely debated in academic and scientific circles because of the importance and complexity of this theme for the environment, society today and for future generations.

The city Floresta, like many other Brazilian cities, experiencing problems with the treatment and disposal of solid waste generated by its inhabitants.

Thus, the aim of this study is to analyze the management of municipal solid waste that municipality in light of what determines the legislation (Federal Law No. 12.305/10).

MATERIALS AND METHODS

Foresta is located in Itaparica Hinterland Development Region in the State of Penambuco the 433,6 km of the capital, Recife, and has a population of 29.285 inhabitants, according to the latest census conducted in 2010 by the Instituto Brasileiro de Geografia e Estatítica (IBGE) (Figure 1). The municipality has an area of 3644,168 km², with an altitude of 316 meters and semi-arid climate. Confined to the north with Serra Talhada, Betânia and Custódia; south with Inajá, Tacaratu, Petrolândia and the State of Bahia; east with Ibimirim; and west with Carnaubeira da Penha and Itacuruba (IBGE, 2016).

This article is the result of an exploratory research, the data were obtained through systematic observation, archival research and interviews with questionnaires (GIL, 2007; RUDIO, 2011).

According to Martins (2008) observation is a data collection technique that uses the senses to obtain certain aspects of reality. During the observation, it held the record information by photographic means that contributed to analyze the management of municipal solid waste in the municipality.

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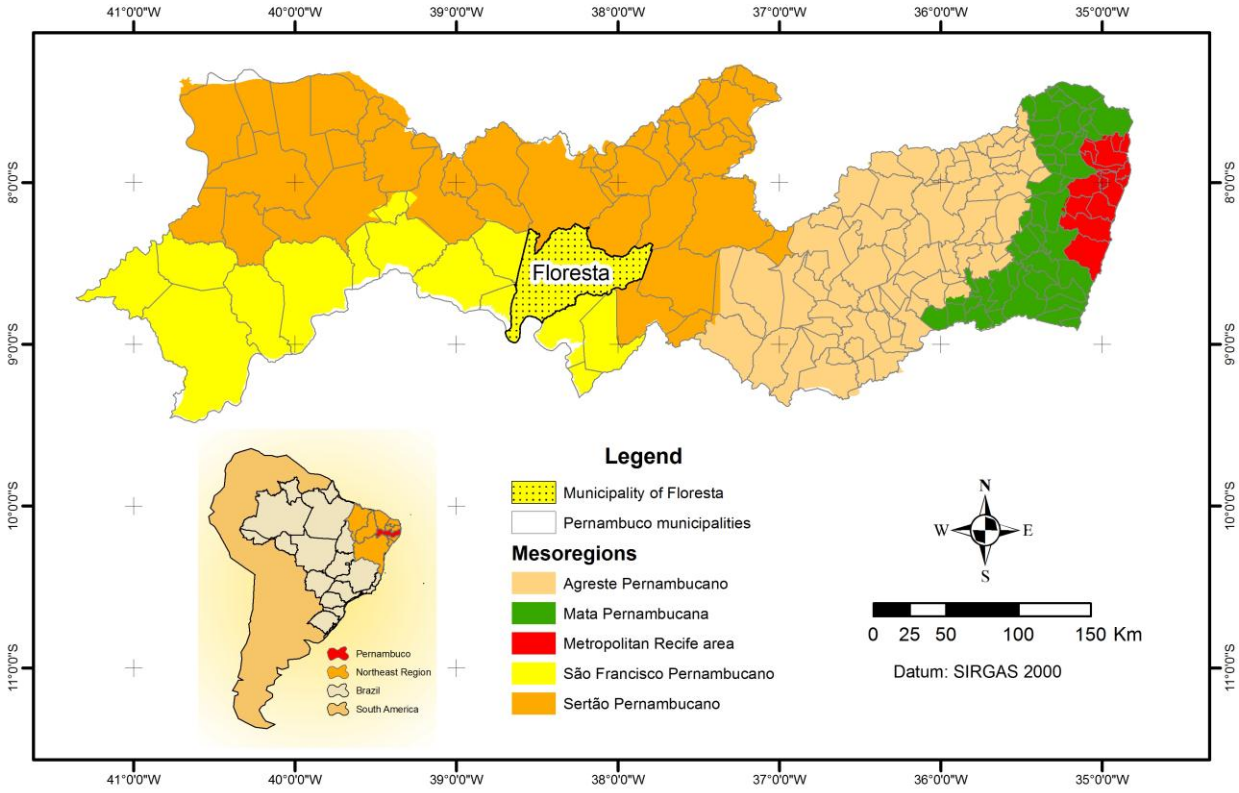
Figure 1 – Representing the municipality of Floresta/PE



Photographs were taken: a) Municipal Garbage Dump, located near the city and occupies an area of approximately 360.000 m²; b) a drainage channel to open that bisects the city and has a length of approximately 2 km; and c) a stretch of river Pajeú.

The main documents consulted were: the master plan of the city studied and the state plan for solid waste in the state of Pernambuco different questionnaires were prepared containing closed questions that had two choices of answers, open questions where the respondent could formulate its own answer and also multiple choice questions where, in some cases, were combined with open questions to enable greater information subject (GIL, 2007; MARCONI & LAKATOS, 2010).

Was chosen a sample intentional, with the key respondents, considering its importance and representativeness in the legislative and executive powers of the city studied: the councilors and secretaries work, education, culture, agriculture, environment and health (MARTINS, 2007).

The collection of information sought meet the ethical requirements established by the National Research Ethics Commission, the body which sets the search instruction with humans: anonymity, consent and clarification of the purpose of the study (CONSELHO NACIONAL DE SAÚDE, 2012).

Once collected, the data were analyzed following the guidelines Miles and Huberman (1994), cited by Gil (2008), which recommends that the qualitative data analysis is performed using the following steps: reduction, display and completion/verification.

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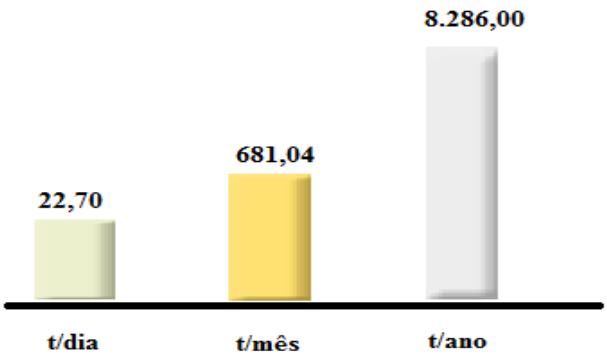
RESULTS AND DISCUSSION

Urban cleaning the city studied is held by a third party. In 2012, they produced 8.286 (eight thousand two hundred eighty-six) (Figure 2), and the cost of sweeping services and garbage collection, which are scheduled throughout the city for public coppers totaled R$ 458.640,00 (four hundred fifty-eight thousand, six hundred forty Reais), according to the State Plan for Solid Waste of the State of Pernambuco (PERNAMBUCO, 2012).

Figure 2 – Production of solid waste in Floresta/PE in 2012



Source: Adapted from Pernambuco (2012).

Subsection IV, the Master Plan of the city, which deals specifically solid waste presents a guideline encouraging the use, reuse and recycling of waste; decreasing excessive generation; the prevention of improper disposal, presenting alternative to consign them properly; the implementation of an efficient management and development of community awareness for conscious consumption (FLORESTA, 2012).

However, this study found that Floresta does not have selective collection program, solid waste does not undergo treatment and also, there are no associations and no recycling cooperatives.

The collected solid waste in the municipality are destined for a dump in violation of the Federal Law No. 12,305/10 (BRASIL, 2010), which are deposited not only of home origin, but the arising of health services, the slaughterhouse and public butcher shop, trade, including a shoe factory and leather accessories. Including animals that were found dump, despite being surrounded site (Figure 3).

Figure 3 – Animals that feed on garbage

Source: Carvalho (2014a).

The disposal of solid waste in the open is improperly disposed of, since attract many transmitters of diseases such as flies, mosquitoes, cockroaches and rats. Moreover, animals that circulate and feed on the garbage dump of waste can also act in the transmission of diseases.

Thus, the allocation given to municipal solid waste is dangerous to the health of the community as alert Days (2011) and subject to soil contamination.

During systematic observation found is still the existence of a sewage canal in the open, accumulating waste and results in a major health risk to the community (Figure 4).

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Figure 4 – Continuation of the Sewage Canal

Source: Carvalho (2014b).

It was found that in certain sections of this channel, more precisely in places of increased movement of people, cleaning is made periodically, or solid waste are removed.

But in other less visible parts, such cleaning is not performed. This shows a greater concern with the question "aesthetic" city than the possible harm that such waste can cause to the community, such as contamination, disease transmission, culvert clogging and sewage canal itself.

Liquid and solid waste that channel are dumped into the river Pajeú, whose stretch observed during this research within the urban perimeter of the municipality is silted, dirty, smelly, and full of waste (tires, diapers, plastic packaging, among others) (Figure 5).

Figure 5 – River pollution Pajeú

Source: Carvalho (2014c).

Based on Pernambuco Solid Waste diagnosis made by the Department of Science Technology and Environment that state in 2009 it was possible to determine the age of the municipal garbage dump forest which reached its 30 years of use in 2014 (PERNAMBUCO, 2009) . It is located 2 km away from housing units and 80 m away from watercourses.

The creek located near the dump, the Riacho Fundo, is contaminated by it. Not simply in its bank is located the municipal slaughterhouse dumping blood and other wastes from washing the meat of slaughtered animals.

The Riacho Fundo into the river Pajeú contaminating it too. The Master Plan of the Floresta municipality in its art. 35, IV, determines that environmental management, among other obligations, shall promote the supervision and control of waste released into water bodies (FLORESTA, 2012). In practice, this action does not exist.

The river Pajeú, and liquid waste from the sewers, gets pretty rubbish placed by the population, especially the open sewage canal that is located in the city center.

It was evident in this case, the Master Plan of the city under study is not being fulfilled, since it highlights that edge region of the Riacho Fundo as a Special Area of Environmental Protection (SAEP), and the margin of Pajeú river as much as SAEP and as a Permanent Protection Area (PPA) (FLORESTA, 2012).

In addition, the municipal government has not prepared its integrated management plan of solid waste and was not verified proper procedure regarding the proper disposal of solid waste produced, that is, that does not cause or

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at least minimize the damage and environmental impacts.

In the case of disagreement with Federal Law No. 12.305/10 and understandings of Milaré (2011); Rocha, Rosa e Cardoso (2009), which reinforces the commitment that municipal management should have with efficiency and effectiveness in the management of municipal solid waste.

According to representatives of the executive and the City Council interviewed, solid waste should be treated by sorting, recycling and composting.

The landfill was mentioned by most respondents as the best alternative for the disposal of waste, but some of the respondents suggested a landfill, which would be an intermediate step between the landfill and the landfill. It should be noted that the landfill is mode indicated by the National Solid Waste Policy (NSWP).

The lack of financial resources was pointed out by representatives of the municipal government as the main reason for the failure of Law No. 12.305/10.

It was evident that the local community is not adequately informed about the situation of solid waste; and that traders are not held accountable for the waste they produce.

The Master Plan of the municipality in study deals with the environmental awareness of its population in its art. 36, when he states as guidelines: awareness and awareness of the importance of the environment to the quality of life of citizens (FLORESTA, 2012).

But the art. 37 this plan has as duties of municipal government: the preparation of the environmental education program; awareness of children; the creation of school boards of environmental education and campaigning that can contribute to the dissemination and awareness of society about the municipality's environmental problems. Since measures actions were observed during this study.

The absence of these actions affect the achievement of the conditions of sustainability present in the Federal Constitution, art. 225 and the National Environmental, Federal Law Policy No. 6.938/81, which recommend a local development model socially just, environmentally balanced and economically viable, to ensure quality of life for present and future generations. At the same time, it makes it impossible to reach the set objectives contained in the National Environmental Education Policy, Federal Law No. 9.795/2009 in its fullness.

CONCLUSIONS

It was found that the solid waste management is a huge challenge for the city of Floresta/PE, the municipality where the landfill is still used mistakenly as disposal of waste it produces.

It was found that the municipal public administration has not diagnosed the situation of municipal solid waste and therefore unable to specify the amount produced much less its composition. The city has no legislation that is unique to the solid waste and have not been verified specific programs or projects that address this issue.

The determinations of the National Solid Waste Policy are not being followed, since in addition to the existence of the dump, there is no separate collection or inclusion of scavengers for collection of solid waste in the municipality,

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and also was not prepared the Integrated Management Plan Solid waste.

Representatives of the municipal executive claimed the lack of resources to invest in stocks that can at least minimize this problematic situation.

It was found that inadequate waste management is already affecting permanent environmental protection area of the city studied, which requires public policies to mitigate those impacts caused by improper disposal of solid waste produced.

It is worth noting that investments in solid waste management area are key to protecting the environment and promoting quality of life.

A public policy suggestion for the city would be precisely the creation and implementation of its plan of integrated management of solid waste, which could contain, among others, a recycling program to include collectors, assisting in the proper disposal of waste, including actions people's awareness of the importance of selective collection and the role of these workers.

This plan would need to be comprehensive and integrated initiatives in environmental education, in addition to establishing shared responsibility where not only the municipal government is responsible, but all who are part of the community; from who manufactures, markets and distributes products to the very citizen and consumer.

The participation of all the organs of the municipality this plan would be essential, as a good waste management is crucial to ensure the sustainable development of a city.

The competent management of solid waste upon any municipality environmental quality and health for the local population, and reduce spending, which includes environmental education as a tool strategically necessary for such purposes.

By analyzing the solid waste management in the municipality studied, this research, as well as having contributed to the advancement of scientific studies in this area serves as a stimulus for carrying out other academic works to assist the various other municipalities that are in a situation similar to studied to enhance their plan and programs.

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