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ANALYSIS OF SOCIO-ENVIRONMENTAL PERCEPTION ON SOLID WASTE IN TWO COMMUNITIES OF THE CITY OF RECIFE, PERNAMBUCO. BRAZIL

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ABSTRACT

Improper disposal of waste is one of the biggest problems facing humanity. In this sense, the research aimed to survey on the knowledge of the residents in the vicinity of a channel Arruda stretch in the urban area of Recife (Pernambuco), about the solid waste. The methodology presented a qualitative and quantitative approach, with questionnaires to 80 residents, divided into two areas of study, differentiated by housing proximity of Arruda channel. Despite showing their concern with the waste into the canal, note that the actions do not follow the observed speech: the channel is degraded and the local population continues to launch their inappropriate way of waste on the environment.

KEYWORDS:

Solid Garbage; Recife city; Environmenthal education; Brazil

INTRODUCTION

On the Brazil the uncontrolled growth of cities was due to rapid urbanization, attracting workers from other regions, which led to a deficit in basic and necessary services such as basic sanitation and housing (UNGARETTI, 2010). One of the functions of the city is the role of adding society and the environment. It´s necessary that the connection between the urban community and the environment. Which they live occurs in a harmonious way, that is, respecting the limits of nature and its battery capacity. There are few cities that have achieved this goal. In the vast majority, small or large cities still face environmental challenges such as polluted air, landslides, contaminated soil, pollution and water scarcity (MACHADO, 2004).

According to Zaneti & Sá (2002), the elements of society and nature cannot be dissociated, although nature is a passive environment for man, it has a dynamic cyclical movement, where relations and reciprocity will ensure its maintenance and reproduction.

Over the last fifty years, with the advent of industrialization and the uneven occupation of land, environmental problems have gained a lot of force. The pollution that occurs in the drainage channels of large cities is mainly due to the formation of consumers, which results in a high solid waste content. Farias & Fontes (2003) says that "for overpopulation, a super consumption. For overconsumption, the use of disposable products is inevitable, which also increases the use of natural resources. "

For Ungaretti (2010), this increase in consumption leads to a rampant production of goods, which leads to an increasing amount of waste, which brings to the forefront one of humanity's greatest challenges, its final destination. Faria (2002), show that this fact causes a serious ecological problem, since it includes health and public health factors. Rego, Barreto and Killinger (2002) corroborate this thought when they say that if the waste is not properly collected and treated, it will cause direct problems in health and environmental degradation.

This research becomes relevant in that it seeks to understand the different perceptions that people have about solid waste. Because their attitudes are based on the meanings they have in relation to solid waste. These attitudes can have diverse impacts on ecosystems and human health and have consequences at local, regional and global levels.

The society is based on a transformation in the way of living, in a change of paradigms and inversion of values. Environmental awareness work in communities is necessary to understand the way in which people understand the environment around them so that the sustainability of human activities can be found.

This research aimed to raise the knowledge of the residents of a section of the sewage channel in Arruda-Recife-PE (Northeast of Brazil), about the problem of solid waste disposal in the area, with the purpose of sensitizing them to face the situation.

METHODOLOGY

The solid waste study had a qualitative-quantitative approach, in which documentary and bibliographic research served as an instrument for the deepening of the thematic. Field research was carried out in the District of Arruda, located in the northern part of the Metropolitan Region of the city of Recife, capital of the State of Pernambuco, in the Administrative Political Region number 2 (Figure 1).

Figure 1: Location of the area investigated according to the Political-administrative Regions of the City Hall of Recife, Brazil.

This region of research was chosen due to the fact that the Arruda sewage channel is the main water body of almost all the northern part of the city of Recife (ARRUDA, 2005), which is more than 5.8 km long. In this channel is observed several types of urban waste. These are waste of various types, from residential and industrial sanitary sewage systems, to the direct disposal of solid waste of all natures. This process of impaction on the Rune Channel can be observed naturally in the region (Figure 2).

Figure 2: Solid waste within the Arruda Channel, Recife, Brazil.

Due to this reality, this research sought to collect data regarding the interaction of the local population with this water area. Residents of the region were interviewed for a better understanding of the real influence of the Arruda Channel in the life of the community.

In order to delimit the interviewed subjects of the research, the population distribution of this neighborhood was cut, in order to apply the previously structured questionnaires to people who lived along the banks of the Arruda Channel. The other group of interviewees was selected from people who lived on parallel streets of the neighborhood and who were suffering indirect influence of said Channel.

Thus, two residential sampling groups were selected, based on spatial distribution in the neighborhood.

In order to choose the interviewees among the local residents, the intentional sampling technique was used. Gil (1999) characterizes this type of sampling as being non-probabilistic and is based on the selection of a subgroup of the population, which can be considered representative according to accessible information. In the section chosen for research there is an average registry of 800 resident families. In this case, 10% of this population was considered for sampling, that is, 80 families were interviewed.

As residents of two areas of do Arruda neighborhood were interviewed, these subjects chosen in the survey were divided into two groups, as described below:

- Area I, counted on 40 people who lived in the area the banks of the channel of the Arruda;

- Area II, also composed of 40 people, who lived on streets parallel to the canal, in a region of lesser influence of the Canal (Figure 3).

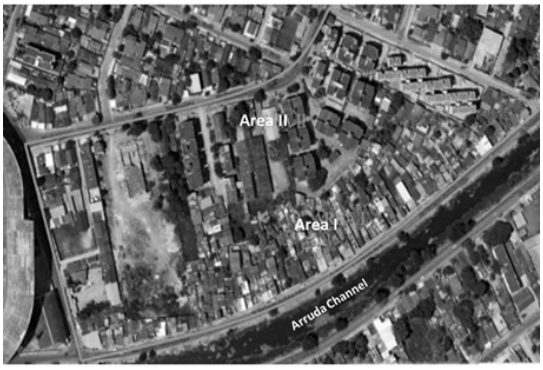

Figure 3: Aerial photography of the application areas of the interviews around the Arruda Channel; Area I: residents on the banks of the Arruda Channel; Area II: Residents on parallels streets to theArruda Channel, Recife - Brazil.

Thus, it was possible to make several analyzes of the perception of these residents about the presence of the Canal and its importance in the community and a comparison about the information they had about the Canal and its perception about the influence of the presence of residues in the region and its environmental damages.

The results obtained were structured according to the information interests of the questionnaire. They were grouped in the characterization of the subject interviewed and in their level of information about solid waste and environmental quality.

The questionnaires were tabulated according to the numbers of answers obtained for each question. These responses were organized into analysis worksheets and their results were transformed into graphs for global and comparative analysis of the results obtained. These graphs were duly described and discussed to compare the results obtained between the groups of subjects previously divided and studied and with results obtained by other researches on the subject.

In the analysis of the perception of the residents, the results were observed and analyzed according to the thematic groups previously defined. Guiding words were previously defined for each group of questions, for later grouping and analysis of the answers.

RESULTS AND DISCUSSION

The questionnaires were predominantly applied in female subjects, probably due to the greater availability that the women demonstrated in contributing to the research. The most significant age group was young people aged 29 to 39 years in the two study areas (area I-27.5%, area II- 32.5%). Regarding the level of schooling, the individuals in area I have the primary education (45%) and average (47.5%) in their predominance, and the income reaches two minimum salaries, having its value in 2014, year in That the questionnaires were applied from $ 248 to $ 426. For area II, higher education (82.5%) is what prevails, with a family income between four and ten minimum wages, which can reach $ 2.480.

The community was questioned about the constitution of residues produced in their residences. For area I, 40.84% believed to produce more plastic materials, followed by food remains (38.03%). For area II, 63.63% of people consider a higher production of food remains throughout the day, followed by plastic materials (29.54%). Figure 4 shows the composition of the residues, according to those interviewed in the research; this result reflects the responses of a certain part of the population.

Area I showed a higher consumption of plastic materials, probably due to the fact that most of the products consumed have packaging. To the area II showed that organic material is the largest component among its residues. This difference may be associated with the habits of each community. It is important to know what types of waste predominate in each locality so that the collection can be done in a more adequate way, so that the final disposal of this material occurs in an environmentally safe way.

The gravimetric composition of household solid waste has a high variation in time and space, demonstrating a tendency for the authors to be mentioned. There are limitations to making any precise inference about the data collected here, since each one has different housing conditions, and it is not possible to apply a common model for all locations.

According to Santos, Souza and Rocha (2012), the survey on the waste generated in the industrial district of the city of Cáceres (Mato Grosso – Center Brazil), obtained the most cited organic material (60%), followed by paper, plastic, glass and metals.

Massukado (2004), showed that the main components of Brazilians' solid residues are food waste, bottles, newspapers and magazines, aluminum cans, textiles, and may also have residues containing dangerous chemicals such as paints, lamps, medicines, Batteries.

In the study on domestic solid waste, conducted by Konrad, Casaril and Schmitz (2010) in Lajedo (Rio Grande do Sul – South Brazil), organic material was the most expressive item in the collections, corresponding to 46.1% of sampling. The presence of diapers (10.9%), plastic film (10.9%), toilet paper (8.3%), paper / newspaper (5.6%), hard plastic (4.0%) , Metal (1.6%), PET (1.5%), paper (2.8%), glass (2.6%), waste , Tetra pak (1.4%), styrofoam (0.4%) and wood (0.3%). It was verified that the highest percentage is organic materials and that these end up occupying a large space in the final destination of the landfill that ends up shortening its useful life, generating gases and leachate from the decomposition of the organic matter, Makes it fundamental to treat and monitor it.

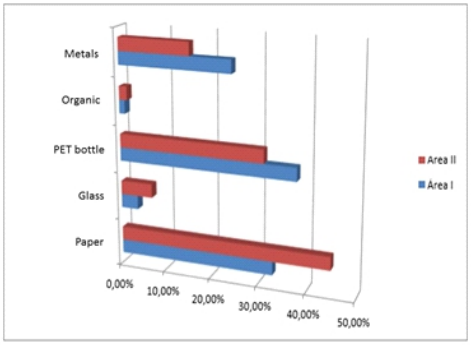

Figure 4: Graph of percentages obtained on household waste composition in the two study areas.

Inquiring about the final destination of the garbage they produce in their homes, 100% of the interviewees state that the city collects, so they do not throw waste on the community floor or the canal.

In area I, the Recife City Hall collects the waste daily, and in places where the garbage truck can't enter, the employees pass with a wheelbarrow, thus leaving no locality without collecting. However, it was observed that there is still a lot of garbage in the entrance of the community, which are played independent of the time of collection. Residents wanting to get rid of the waste in their homes put it anyway, huddled at the entrance to the community. In area II, the collection is only carried out three times a week, so people only dispose the waste on the sidewalks on the predetermined days. In this case, therefore, no dirt was seen on the sidewalks of the streets.

In Foz do Iguaçu (State of Paraná – Southeast Brazil), Negrão et al (2012) state that among the people approached in their research, 87.2% destine their garbage for collection, while 12% burn with this material and 0, 8% play it "open skies". Few consider knowing the fate given to the garbage produced by the community of the district of Arruda (Recife), conferring subjective answers like "some dump". Most people do not know where this rubbish goes, nor what is done with it later when they leave their homes (area I-90%, area II-85%).

The same pattern was observed for those interviewed by Lira (2012) in the Alto do Mandú neighborhood (Recife), who also answered that they are unaware of the destination that the public collection system gives to the collected waste.

In Recife city, the daily production of garbage reaches 3,000 tons, which in 2015 led to an expense of R $ 23.5 million to collect unduly discarded waste (ECORECIFE, 2016). In 2008, the Muribeca dump that received the waste for more than two decades was deactivated and now receives recovery actions, already possessing a strong vegetation cover. Now, the collected waste goes to two landfills located in the cities of Jaboatão dos Guararapes city (Pernambuco – Northeast Brazil) and Igarassu (Pernambuco – Northeast Brazil) (PREFEITURA DO RECIFE, 2014).

The Arruda channel was characterized by the participants as a dirty environment (area I-85%, area II- 95%), only 15% of respondents in area I and 5% of area II believe that the water channel Is in bad standing. None of the participants identifies the same as a clean environment. Although residents of area I live nearer to the canal and realize the stench it has and the visual pollution it contains, they still believe that the situation in which it is located is reasonable. This fact may be related to not worrying about the canal situation and the indifference about the functions that this body performs in the city of Recife.

The Campos-Macaé channel, located in the State of Rio de Janeiro (Southeast Brazil), under Araújo's point of view (2012), faces several environmental problems, such as commercial and household waste that are rich in organic matter, causing water eutrophication; Inadequate dumping of solid waste; Sedimentation that compromises the sidewalls of the channel, and is also considered an aesthetically dirty environment. Thus, the Maria Auxiliadora channel (Petrolina – Pernambuco state) is located, where the problems of drainage, sanitation and garbage accumulation are conspicuous, directly affecting the San Francisco river, since this channel is one of its main tributaries, cooperating for the degradation of The Whole basin (VITAL; LIRA; SANTOS, 2013).

According to Gonzalez, Tozoni-Reis and Diniz (2007), the theme "junk", although much debated in society as a problem is intrinsic to the human being. It is considered as a factor of economic growth, because it represents the amount of consumption of a region and indicates the level of economic growth of it, and thus, the more it is bought, the greater the quantity of what is produced in terms of waste.

Buarque (1999) states that environmental degradation and its regeneration capacity are directly linked to the type of development, the pattern of consumption and the technological base that the region uses. As each ecosystem has a carrying capacity that sustains the impacts that society and the economy cause in the environment, the support limit will be defined in the form of consumption and production of the population.

Almost all of the representatives (area I-100%, area II- 97.5%) state that it is the residents themselves who throw waste improperly into the canal or put it on their banks where they are carried in times of winds and rainfall to the inside of it.

For Mucelin and Bellini (2008) the habit often disguises the circumstances visible, but not noticeable. Even observing cases of aggression to the environment, as this occurs in their daily life, the resident ends up not pondering the consequences of their habits, even retaining information in this regard.

According to Oliveira (2006), the relevance of solid waste often goes unnoticed by people, just by putting them in the trash bin daily. This action becomes a common and unimportant act, not taking into account the problems they cause in urban centers, where the urbanization process has generated a high capacity of consumption.

For Silva and Albuquerque (2013), the residues that are destined in these places, bring many problems, mainly floods, impoundment of contaminated water and the contact with the population that can cause waterborne diseases, such as parasites and diarrhea. A single insect, such as cockroach or fly, may carry 100 different species of microbes, such as bacteria that cause diarrhea, hepatitis brought by viruses and parasitic diseases such as giardia and amoeba (OLIVEIRA, 2006). Ribeiro & Lima (2000) affirm that the inadequate disposal of waste can also cause air pollution through the gases that are the result of the anaerobic digestion of the organic part of the waste; the pollution of soils, subsoil, surface water and groundwater through slurry, as well as the aesthetic degradation of the region.

For Machado (2004), the city can be considered an ecosystem that integrates society and the environment. For it to survive in good conditions it is necessary that there is a good relationship between the urban community and the environment in which it lives. According to Buarque (1999), to do so will lead to an improvement in people's quality of life in harmony with the conservation of natural resources.

CONCLUSION

In general, respondents are aware of the problems generated by solid waste in communities. However, these respondents do not associate the problem in the community with environmental issues;

Residents of both areas are concerned about the garbage deposited in the canal, and believe that people practice this act for lack of education and awareness;

People in area I, because they live closer to the canal, suffer more from the problems of inadequate waste disposal, having the main disorder in diseases;

It is noticed that the residents of area II demonstrate a greater perception about the consequences of this incorrect destination. They argue that this act causes integrated damage, while for residents of area I this thought is still fragmented;

The lack of identification of waste as a collective problem brings difficulties in the search for sustainable solutions, because, because they do not feel responsible, they do not seek changes in their domestic routines, always leaving the solution to public agencies;

Continuing awareness of the community is important, in the search for more critical and reflective actors in the preservation of the environment in which they live, so environmental education becomes the main tool in the search for a socio-environmental citizenship.

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