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SELECTIVE COLLECTION: A STUDY ON THE BRAZILIAN SCENARIO

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Abstract: The generation of Urban Solid Waste (MSW) in Brazil is in full acceleration, making the final destination more and more difficult. Incorrect disposal has been causing negative impacts to the environment as a whole, polluting the soil, air and groundwater. Recycling contributes significantly to the reduction of MSW destined for sanitary landfills. And the application of selective collection included in the National Solid Waste Policy (PNRS) Law 12305/2010, in which Brazilian municipalities must implement, contributes to this final destination of MSW. The present study aims to delimit the application of selective collection and the current scenario in the country. A bibliographic review was carried out on the subject and the 2020 annual recycling report of the National Association of Recyclable Material Collectors (ANCAT) and Pragma Soluções Sustentáveis was used, with LCA Consultores and the National Panorama of Solid Waste as a technical partner. Urbanos 2021 from the Brazilian Association of Public Cleaning and Special Waste Companies (ABRELPE), which brings data on selective collection in Brazil. Although selective collection is in a superficial stage, it is possible to verify an advance in the sector that has been better seen as a way of generating income and work by the municipalities. having as a technical partner LCA Consultores and the National Panorama of Urban Solid Waste 2021 of the Brazilian Association of Public Cleaning and Special Waste Companies (ABRELPE), which brings data on selective collection in Brazil. Although selective collection is in a superficial stage, it is possible to verify an advance in the sector that has been better seen as a way of generating income and work by the municipalities. having as a technical partner LCA Consultores and the National Panorama of Urban Solid Waste 2021 of the Brazilian Association of Public Cleaning and Special

Waste Companies (ABRELPE), which brings data on selective collection in Brazil. Although selective collection is in a superficial stage, it is possible to verify an advance in the sector that has been better seen as a way of generating income and work by the municipalities.

Keywords: Selective collect, Recycling, Waste, Solid Urban Waste.

INTRODUCTION

The current way of life practiced by society arising from the capitalist system, with an exacerbated consumerism, has had consequences in the generation of urban solid waste (MSW). The disposal of these is now a public health problem and must be addressed efficiently by applying the reduction, reuse and recycling of these wastes (3Rs) (BATISTA E MARTINS, 2020).

Brazil currently produces 82,477,300 t/year of MSW, approximately 1.1 kg/day per inhabitant, an alarming figure for their final destination. The current legislation, Law 12305/2010, defines the Brazilian municipality as responsible for all this final destination. (ABRELPE, 2022).

The final destination of MSW implemented in the main Brazilian municipalities has the sanitary landfill, controlled landfill, dumps and selective collection. The selective collection comes from the entire process of separation and packaging of waste according to its constitution: organic, recyclable and reject. However, for its efficiency, it is essential that the material is separated according to its classes and packed in a suitable place until the final destination (RODRIGUES & SANTANA 2012).

The present work aims to analyze the situation of selective collection in Brazil, through a bibliographic review of the main works developed and using the recycling yearbook in 2020 with the available data.

METHODOLOGY

The present study was carried out through a narrative literary review (JESSON, MATHESON; LACEY, 2011; HART, 1998), making a compilation of data/work carried out from a qualitative approach, being carried out in the databases of the Scielo and Google Scholar, using the keyword: (“selective collection, Brazil”), from works from 2017 to the current moment of 2022.

The selection criteria were as follows: 1) works only in Portuguese; 2) period from 2015 to 2022; 3) reading all titles, abstracts and keywords of the works for framing; 4) reading of the introduction and conclusion of the works and 5) complete reading of all the remaining works. In criteria 1 and 2, 26 works were found and, in criteria 3, 4 and 5, they were used as a method of inclusion of works, which was reduced to 8 articles, as a filtering of all the works necessary to carry out the research. The 2020 annual recycling report of the National Association of Recyclable Material Waste Pickers (ANCAT) and Pragma Soluções Sustentáveis, is also used.

RESULTS AND DISCUSSIONS

SELECTIVE COLLECTION IN BRAZIL

Historically, the first experience with selective collection in Brazil, unfortunately not recorded, took place in São Paulo, in the 1960s. In 1978, a similar attempt took place in Porto Alegre (RS) and, in 1985, in the municipalities of Niterói (RJ) and Pindamonhangaba (SP) (Brazil, 1985 apud CONKE and NASCIMENTO, 2018).

According to Law No. 12,305/2010, which deals with the National Solid Waste Policy in Brazil, selective collection is defined as the collection of solid waste previously segregated according to its constitution or composition (Brasil, 2010).

It was understood as a differentiated

collection of separated materials already at the generating sources, aiming to facilitate their reuse, as well as ensuring their quality, the selective collection of urban solid waste has been known and practiced since the beginning of the 20th century, when the first organized experiments were implemented. in Europe and the United States (EIGENHEER E FERREIRA, 2015).

The selective collection has in the door-to-door modality is a process similar to the conventional method of waste collection. However, collection vehicles travel through homes on days and times that do not coincide with conventional collection and today one of the main means of this collection. (GUABIROBA et al 2021).

For Recyclable Solid Waste management, selective collection is not just a differentiated collection of waste and separation, packaging and final destination (CONKE and NASCIMENTO, 2018). In Brazilian municipalities, the vast majority of selective collection is carried out informally or in an organized way, through associations and cooperatives of collectors (KLEIN, DIAS E JAYO, 2018).

For the National Solid Waste Policy (PNRS), selective collection and recycling play an important role in the planning and final disposal of MSW. According to OLIVEIRA & GALVÃO JÚNIOR (2016) and BERNARDO E LIMA (2018), the implementation of selective collection must be done as follows:

“In implementing a selective collection program, it is necessary to take into account an important number of technical, economic, environmental and legal factors related to the place where the activity will be carried out (TOSO & ALEM, 2014) BERNARDO AND LIMA (2018)

.To plan the implementation of collection involves some considerations, such as frequency, collection point, time and form

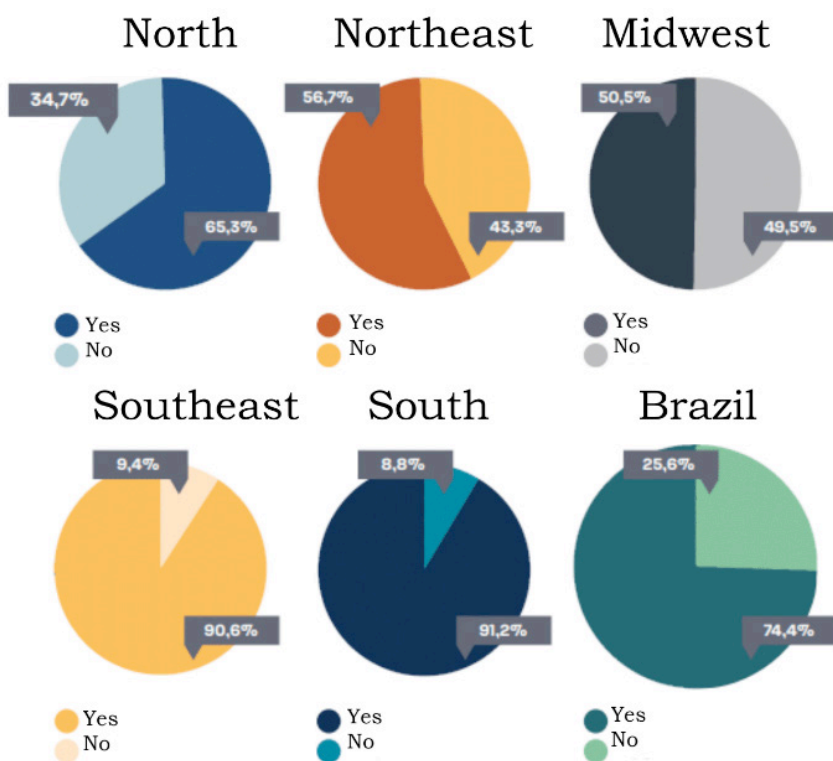
of collection, so that they cause less possible inconvenience to the population and are sanitary and economically adequate. Rodrigues & Santana (2012) highlight three restrictions to the implementation of a selective collection program: budgetary costs necessary for the implementation, maintenance of selective collection and the environmental culture of the municipality.

Selective collection still has low coverage in Brazil, considering historical data, the annual recycling report brings only 38% of the urban population, in 2018, it has access in 2021 the panorama of ABRELPE behind that has some selective collection initiative was 4,145, representing 74.4%, but this high value does not represent a selective collection covering the total population of these cities.

According to BERNARDO E LIMA (2018), Brazilian selective collection is characterized by the modality, about 80% use the door-to-

door modality and about 45% use the modality through PEVs/Ecopoints. It is noteworthy that there can be more than one executing agent and that both modalities can be used at the same time in a municipality CEMPRE (2014a). The door-to-door modality occurs when the population previously separates recyclable materials from domestic waste in their homes so that they are later collected by a specialized vehicle. On the other hand, the modality through PEVs/Ecopoints occurs when the population disposes of separated materials in their homes in these PEVs/Ecopoints.

Data from ABRELPE (2022) show that the southern region of Brazil has the largest number of cities with some sort of selective collection initiative, with 91% of the municipalities. On the other hand, the Midwest has the lowest participation of these municipalities, as shown in Graph 1.



GRAPHIC 1. DISTRIBUTION OF MUNICIPALITIES WITH SELECTIVE COLLECTION INITIATIVES IN BRAZIL AND REGIONS (%).

Source: ABRELPE, 2022.

Another important factor in selective collection is that, in the Brazilian market, this is carried out by collectors who have few financial conditions and are poorly paid for the activity, becoming a degrading activity (EIGENHEER E FERREIRA, 2015).

In a way, the issue of selective collection costs needs to be further discussed. Perhaps this, together with the obstacles in the recyclables buyer market, are the main responsible for the still poor results in the country, especially if we take into account the amount of material collected. There are many initiatives, but little scope (EIGENHEER AND FERREIRA, 2015).

Selective collection is a means to reduce the impact of all waste destined for landfills or even dumps, preventing this material from contaminating the soil, water table and air. (BIRTH, 2021)

used in the management of MSW in each municipality as a way of combating the large generation that is increasing significantly, avoiding the waste of natural resources that could return to the production chain.

FINAL CONSIDERATIONS

The selective collection encouraged by the National Policy on Urban Solid Waste (PNRS) implemented by Law 12305/2010, contributes to the reduction of waste destined for sanitary landfills, “avoiding the landfill of raw material that could be used in the production process”.

However, its implementation is below what was expected by this resolution, with little adherence by the population. Another factor that contributes to its non-effectiveness is the lack of information on how the Brazilian population can contribute (in the separation, packaging and correct disposal of these residues).

The current scenario of the Brazilian market still needs to improve, we have walked with a greater participation of municipalities in selective collection, however, most municipalities do not have full coverage in carrying out this, with a collection that covers only a few routes or in spaced days, making it difficult to dispose of separate waste at home.

Therefore, selective collection must be

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