



The National Solid Waste Policy and the importance of public policies for environmental quality

Kelly Cristina Rigoldi

Doctoral student in geography, UEM, Brazil.
kellyrigoldi@gmail.com

Valéria Lima

Doctor teacher, UEM, Brazil.
vlima@uem.br

ABSTRACT

The densification of urban settlements and the advancement of science and technology, from the capitalism perspective, has intensified the society relationship with nature, highlighting environmental problems. Several environmental impacts are observed, such as the issue of solid waste, which results in both environmental and social damage. Public policies aim to solve problems that affect the environmental and life quality of population. It was in this sense that the National Solid Waste Policy (PNRS) was drawn up in 2010. This article aims to understand and evaluate how the National Solid Waste Policy (PNRS) aligns with discussions on environmental issues, public policies and the importance of an analysis of the totality for resolving complex problems. The analyzes carried out showed that the National Solid Waste Policy did not consider the diversity that exist in the national territory, such as the economic potential of the municipalities, thus making the effectiveness of the plan impossible, resulting in numerous reevaluations and extension of deadlines for the plans and targets throughout its validity.

KEYWORDS: Geography. Public policy. Solid waste management.

1 INTRODUCTION

Environmental issues emerged and gained greater notoriety from the second half of the 20th century, with the densification of urban settlements and advances in technical and scientific resources, through the intensification of the society-nature relationship, highlighting the negative impacts resulting from these processes. These changes in space result in impacts of great complexity, which must be analyzed in an integrated way with the processes and their relationships, to understand the intrinsic characteristics of the environmental problem. Identifying the problem, its causes and consequences are fundamental for developing decision plans and taking actions, considering processes that are directly or indirectly related to environmental problems, such as economic, political, cultural, social and even physical.

Public policies have as their object of action a problem to be solved, so that through the elaboration of agendas, programs, goals and other mechanisms, they seek to mitigate and/or solve the desynchrony between reality and the ideal.

Currently, the problem arising due solid waste management is the result of the relationships that society has with nature, which generates impacts before, during and after the production of durable or non-durable materials, which at a certain point become waste and, therefore, they require attention and measures aimed at non-generation, reduction, recycling and adequate disposal of these materials. For this to happen properly, you need to understand the entire process.

Faced with the emerging need for attention to the issue of solid waste management in Brazil, in 2010 the National Solid Waste Policy was implemented, based on the National Solid Waste Plan (2012), which establishes programs and goals that aim to mitigate and solve the impacts resulting from the processes involving this matter. This article aims to understand and evaluate how the National Solid Waste Policy, being a public policy, is aligned with environmental issues, and whether it considered the entire issue, considering its complexity.

2 THE IMPORTANCE OF PUBLIC POLICIES FOR ENVIRONMENTAL QUALITY

The emergence of environmental problems was consolidated by the intensification of urban agglomerations, where the society-nature relationship was intensified, generating multiple impacts resulting from commercial and industrial activities, among others, which resulted in the precariousness of environmental quality, as well as the quality of life of the population. Discussions about the urban environmental problem gained emphasis in the debates that involved the analysis of the causes of this problem and according to Mendonça (2004), the main problems are generated due to the rapid demographic increase in cities, related to basic sanitation and disregard with solid waste and consequently with their disposal.

However, to understand the complexity of a given environmental problem is a challenge, because for it to be interpreted and analyzed appropriately, it is necessary to investigate the understanding of all of it, that is, of all the parts that make up the problem. Therefore, it is necessary to look at the problem as something dynamic, uniting its causes and consequences, like a puzzle, so that a perspective of the whole can be built aiming for appropriate solutions. According to Taylor (2014), when observing the object of study, in this case, solid waste, it is necessary to identify its chains of categories, that is, the parts that compose it, to generate the dimensions of the problem. This process is called ‘concrete totality’ by Kosik (2011), a methodology that seeks to give meaning to an object based on the relationships that it has and that integrate it.

Therefore, it is impossible to think about environmental studies, as in the case of solid waste, without considering the relationships between society and nature. Geography is a science that seeks to understand this relationship. What occurred over time was the creation of a duality, which according to Moreira (1987), needs to be broken to achieve a geography of totality.

For Mendonça (2012), the term “environment” is the result of transferring the term geographic environment to environmental analysis, in order to add its analysis to the geographic approach, showing that relationships in the environment are not only natural, but they also involve the correlation between physical, chemical, biological, social, cultural, political, economic aspects, among others, that act on geographic space. In this sense, the author also proposes the union of the prefix “socio” with the term environmental, arguing that this will emphasize society's participation in the processes arising from environmental issues.

The existing relationships between society and nature occur in an uneven way, from which natural processes cannot recover from human actions/activities which, according to Mendonça (2004), are expressed through environmental impacts. If the environment is the result of society's relationship with nature, environmental problems are also the result, so that both physical and social characteristics are fundamental to understanding these and to find solutions and mitigating measures. The environmental problem is expressed in impacts on the environment, with greater expressiveness and visibility in urban and peri-urban areas. An impact is a mismatch between the real and ideal situation of a problem, according to Secchi (2010), these are conditions subject to the action of public policies.

Environmental quality is a parameter that indicates the condition of a given space, and its analysis consists of evaluating several factors in an inseparable manner, these being social

and natural, in order to carry out an integrated analysis of the relationships that develop in the geographic space. According to Marques (2005), this will indicate the positive or negative situation of the environmental quality of that location. In this sense, this can be used as a reference for the elaboration and implementation of public policies that seek to mitigate the environmental problems highlighted, aiming to bring the real closer to the ideal.

The incessant need to transform, produce and consume affects nature, generating conflicts that sometimes ignore ethical issues and cultural rights, but end up taking into greater consideration the costs of procedures that ensure sustainable development, considering that they are normally high as a preponderant factor and replacing them with less costly solutions, but which do not contribute to the maintenance of environmental quality. There is the issue of impartiality when dealing with environmental problems, in the sense of exercising and maintaining power. Leff (2001) says that the environmental issue has become a political issue and, therefore, it has no nullity in relation to economic and political interests. In many cases, environmental issues are underestimated in relation to others that could generate greater visibility. We observed that environmental problems are put on the agenda for the elaboration and implementation of public policies when they acquire positive repercussions, and their resolution becomes interesting for the political promotion of public or private agents. Secchi (2001) says that with this type of action, these individuals visualize their rise in society.

In this sense, environmental problems begin to be considered from the moment they become “raw material” for the promotion of particular interests, which puts environmental quality at risk, as measures should be taken in order to mitigate environmental impacts. and/or seek solutions aimed at maintaining the population's environmental and quality of life. Another important factor to be noted is that urban environmental problems are generally associated with targeted and interest-based urban planning, responsible for the uneven production of urban space. Lefebvre (2001) points out that not all individuals are able to enjoy the full experience of being citizens, and this is due to biased urban planning, considering that this can be directed based on interests, generating planned inequalities in urban space.

This model of insufficient and targeted urban planning leads to low quality and even the absence of supply of basic human needs, which, according to Jacobi (2004), generate the spread of environmental and social problems, such as soil and water contamination due to the irregular disposal of solid and toxic waste, landslides, floods, among others, which, as previously mentioned, affect the low-income population more incisively due to the inequality present in urban space.

Environmental public policies, according to Salheb et al. (2009), must act incisively in the way of life and production aiming to preserve resources for future generations. The indisputable need for public environmental policies is based on exactly this: ensuring the adequate preservation and maintenance of environmental quality for current and future generations, to enforce what the Federal Constitution says in article no. 225:

Everyone has the right to an ecologically balanced environment, a common asset for the people and essential to a healthy quality of life, imposing on the Public Power and the community the duty to defend and preserve it for present and future generations. (BRAZIL, 1988, art. 225)

Therefore, public environmental policies, in addition to protecting the environment, contribute to maintaining environmental quality and the population's quality of life. In this way, we understand that the problems arising from maintaining the supply of basic needs must be considered for the implementation of public policies, as in the case of solid waste management, which constitute a global environmental problem, both in relation to production, reuse, reduction and disposal of these materials.

3 PUBLIC POLICIES IN SOLID WASTE MANAGEMENT

Consumption, widespread nowadays, is often associated to the idea of well-being and even social status. This, according to Rodrigues (1998), contributes to the formation of a "disposable society", since consumption is considered a prerequisite for social inclusion. Every day, we are bombarded with the promotion of innovative products that, in many cases, offer the same functionalities as the products we already have, but with more attractive designs, encouraging their replacement. When purchasing these products, many of which have planned obsolescence, what was considered innovative in a short period of time becomes obsolete. However, it is worth highlighting that this unbridled consumption, driven by capitalist logic, generates impacts in two main ways: the first is the intense exploitation of natural resources, leading to the exhaustion of nature; the second is the disposal of materials considered expendable.

The high generation of solid waste is responsible for several environmental and social impacts, with emphasis on those resulting from the inadequate disposal of these materials. This includes air pollution due to the emission of gases such as carbon dioxide (CO₂), contamination of soil, surface and groundwater, as well as the spread of disease vectors, transforming it into a public health problem and, therefore, sanitary. Moraes (2011) highlights that the environmental impacts related to solid waste management are directly linked to inadequate disposal, where contamination occurs mainly due to the decomposition of waste and the flow and infiltration of percolated liquid, known as leachate.

Secchi (2010) states that the first step towards the elaboration and implementation of a public policy is the identification of the problem. In the case of solid waste management, this issue is part of a larger problem, which is environmental and social issues. To solve it, according to Taylor (2014), it is necessary to analyze the concepts or, as Kosik (2011) argues, carry out an analysis of the totality, understanding their interrelations. In this context, solid waste management plays a fundamental role in maintaining environmental quality, and it is essential that it is adapted to meet its "concrete totality" (KOSIK, 2011).

According to the first National Solid Waste Plan (2012), after more than 20 years of discussion about the increase in solid waste generation, the National Congress established the National Solid Waste Policy, regulated by Law No. 12,305 and implemented in 2010. Its main objective is to improve waste management and establish goals. According to the approaches proposed by Secchi (2010), this policy has an embracing nature. According to the first paragraph of Law No. 12,305, all natural or legal persons, public or private, who contribute directly or indirectly to the generation of waste are subject to the provisions of the law.

As previously mentioned, the environmental problem related to the generation of solid waste has two broad and complex aspects: the problems arising from the production of new materials, which result in the exploitation of natural resources, and the waste resulting from the disposal of these materials, which require space and appropriate treatments.

In view of this, article 9 of Law No. 12,305/10 defines priority criteria for solid waste management: "non-generation, reduction, reuse, recycling, treatment of solid waste and environmentally appropriate disposal of waste". Not generating, reducing, reusing and recycling waste contributes to reducing the exploitation of natural resources and extends the useful life of landfills.

According to Rodrigues (2012), with the reduction in waste generation, there is a reduction in the need for disposal sites (landfill), which cannot be implemented anywhere, as they require specific characteristics. According to Secchi (2010), the formation of the agenda, that is, the identification of related problems or relevant topics, is fundamental to guide government actions in relation to problem solving.

Therefore, developing a plan is important to direct the actions prescribed by law. In this sense, the National Solid Waste Plan (2012) was drawn up, valid for 20 years, subject to review every 4 years. In it, diagnoses of the waste situation were carried out, inclusion of international and macroeconomic trends, definition of goals, programs and projects to support the fulfillment of these goals, standards, promotion of regionalized management and guidelines on management, collection and disposal of waste, as well as inspection measures.

It is important to highlight that the creation and improvement of the legal and constitutional characteristics that underpin national public environmental policies, according to Rodrigues et al. (2012), have a decentralizing character, where States and Municipalities have the responsibility for maintaining environmental management, in addition to the federal government.

The Federal Constitution of 1988, in articles 1 and 18, decentralized the action of environmental policies and attributed responsibility for the environment to municipalities, allowing them to legislate within their geographic limits. Article 23 of the Constitution makes clear the role of municipalities, which are responsible for protecting the environment, combating pollution in all its forms and preserving fauna and flora (BRASIL, 1988).

In this context, Broietti (2015) points out that, due to this responsibility, municipalities needed to establish agencies to assist in the prevention and protection of the environment. This led to the creation of agencies such as the Municipal Environmental Council, the Municipal Environmental Fund, among others. However, with the new attributions, there was an increase in municipal public spending, which, according to Lima (2003), was not accompanied by a proportional increase in municipal revenues.

Law No. 12,305/2010 established the National Solid Waste Policy (PNRS), which, in its article 16, establishes the preparation of the State Solid Waste Plan and conditions for accessing federal resources. Article 18 of this law provides the implementation of the Municipal Plan for Integrated Solid Waste Management (PMGIRS) as a requirement for municipalities, including the Federal District, to access federal resources related to urban cleaning and solid waste management. PMGIRS is a strategic planning tool that aims to meet all legal requirements, ensuring adequate solid waste management.

Just like the National Solid Waste Plan (2012), municipal plans must contain diagnoses of the waste situation, consider international and macroeconomic trends, define goals, programs and projects to achieve them, establish standards, promote regionalized management, establish guidelines for the management, collection and final disposal of waste, as well as establishing inspection mechanisms, all in accordance with what is established in Law No. 12,305/2010. For municipalities with less than 20 thousand inhabitants, the plan can be simplified and drawn up in the form of a regulation, as stipulated by the second paragraph of article 18 of the same law.

Among the programs and goals established by Law No. 12,305/2010, the development and implementation of selective collection programs by municipalities stands out, which must be coordinated with cooperatives and waste collectors associations. Furthermore, the law provides for environmental education programs to be carried out, with the aim of raising awareness and mobilizing society in favor of the common good. Another significant goal is the extinction of landfills and the recovery of their degraded areas, initially scheduled for 2014. However, this goal was not achieved and required two extensions, the first in 2015, through Senate Law No. 425/14, and the second in 2020, with the update of the Legal Framework for Basic Sanitation by Law No. 14,026/2020. According to Secchi (2010), programs and goals are fundamental instruments to achieve the objectives of a public policy and serve as a basis for decision-making.

Following the preparation of the National Solid Waste Plan (2012), as provided for by Law No. 12,305/2010, a diagnosis of the solid waste situation in Brazil was carried out. This diagnosis mainly used data from the National Solid Waste Survey and the National Sanitation Information System. He considered three scales of analysis: national, regional and municipal, delimited based on population.

The development of diagnoses is fundamental for the implementation of a public policy, as Secchi (2010) highlights, it allows to check progress in relation to established plans and goals, identifying errors before making decisions.

According to Egler (2013), it is essential to carefully analyze the territory and understand the processes that constitute it, including economic, social, political, physical and other factors. This is essential to understand the relationships between society and nature, as well as to evaluate the contradictions present in space and anticipate problems in planning. In this context, the use of cartographic materials plays an important role to provide information about characteristics of the space in which public policy will be implemented, including data collection, syntheses and the creation of diagrams that reveal the dynamics and interactions related to the topic central.

However, it is worth highlighting that the National Solid Waste Plan (2012) was mainly based on collecting information about waste, which is not enough to understand a complex topic like this. Considering the approach to solid waste management as a "concrete totality" (KOSIK, 2011), other factors, such as sanitation, public health and municipal economic potential, are essential for planning.

The National Solid Waste Plan (2012) provided regional and municipal information, but was limited to data related to waste generation, collection rates and types of materials. A previous survey of data provided by the Brazilian Institute of Geography and Statistics (IBGE)

could have provided a more solid basis for this type of analysis. Therefore, the National Solid Waste Policy (2010) left something to be desired in this aspect, since the inclusion of related regional data would have been of great importance, helping to reduce possible errors, reassessments and adaptations.

Secchi (2010) argues that evaluations are necessary to verify the validity of proposals, as well as to identify successes and failures in programs and goals. This was evident in the first quadrennial review of the National Solid Waste Policy (2010), when it was necessary to extend the deadline for eliminating landfills in the country. This target was adjusted according to the population characteristics of the municipalities.

Thus, in 2015, based on the categorization by size of municipalities and resident population, a decree was drawn up in accordance with Senate Law No. 425/14, amending article No. 54 of Law No. 12,305/2010. This decree established new specific deadlines for the elimination of landfills:

Até 31 de julho de 2018, para capitais de Estados e de Municípios integrantes de Região Metropolitana (RM) ou de Região Integrada de Desenvolvimento (Ride) de capitais; II –

até 31 de julho de 2019, para Municípios com população superior a 100.000 (cem mil) habitantes no Censo 2010, bem como para Municípios cuja mancha urbana da sede municipal esteja situada a menos de 20 (vinte) quilômetros da fronteira com outros países limítrofes; III –

até 31 de julho de 2020, para Municípios com população entre 50.000 (cinquenta mil) e 100.000 (cem mil) habitantes no Censo 2010; IV –

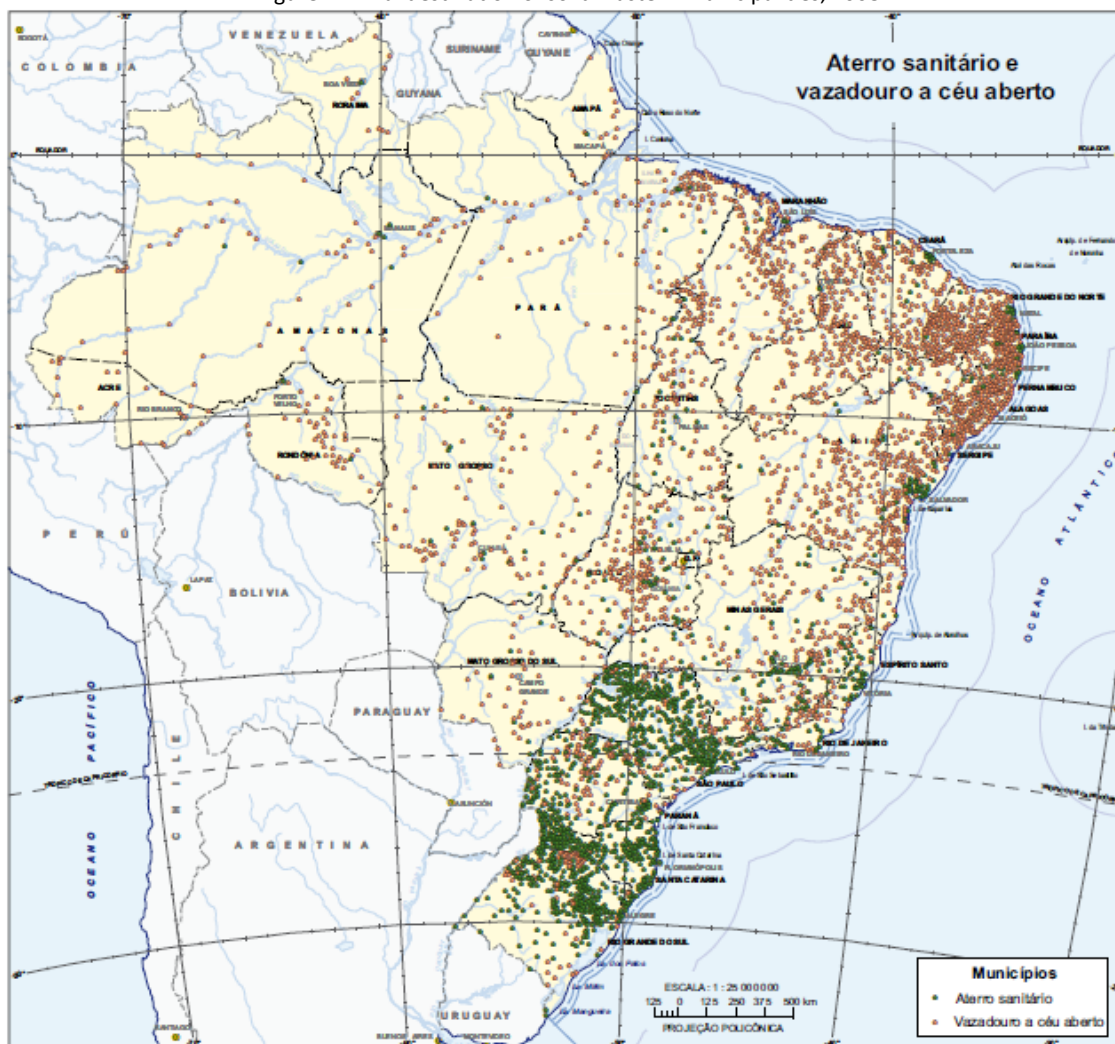
até 31 de julho de 2021, para Municípios com população inferior a 50.000 (cinquenta mil) habitantes no Censo 2010.

Parágrafo único. A União editará normas complementares para definição de critérios de priorização de acesso a recursos federais e para implementação de ações vinculadas dentro dos prazos máximos estabelecidos nos incisos do caput.” (NR). (LEI DO SENADO 425, 2014, Art. 54)

Again, little was considered in relation to the economic potential and achievement by municipal power. When analyzing the cartographic data present in Figure 1, regarding the information related to waste management, it is clear that this target would probably not be met within the reestablished deadline. Given the non-compliance along the deadlines established in 2015, in 2020 the Legal Framework for Basic Sanitation was updated, an extension of the dates for eliminating spills and recovering their degraded areas. However, once again, considering only the size of the municipalities in relation to their population and the interaction network according to the 2010 census, it resulted in an increase of 3 years in relation to the previous date that had been stipulated by the Senate Law No. 425/2014.

According to a survey carried out by IBGE (2011) to prepare the Sanitation Atlas, it is noticeable that in 2008 the concentration of spills was in the Northeast region (Figure 1).

Figure 1 - Final destination of solid waste in municipalities, 2008

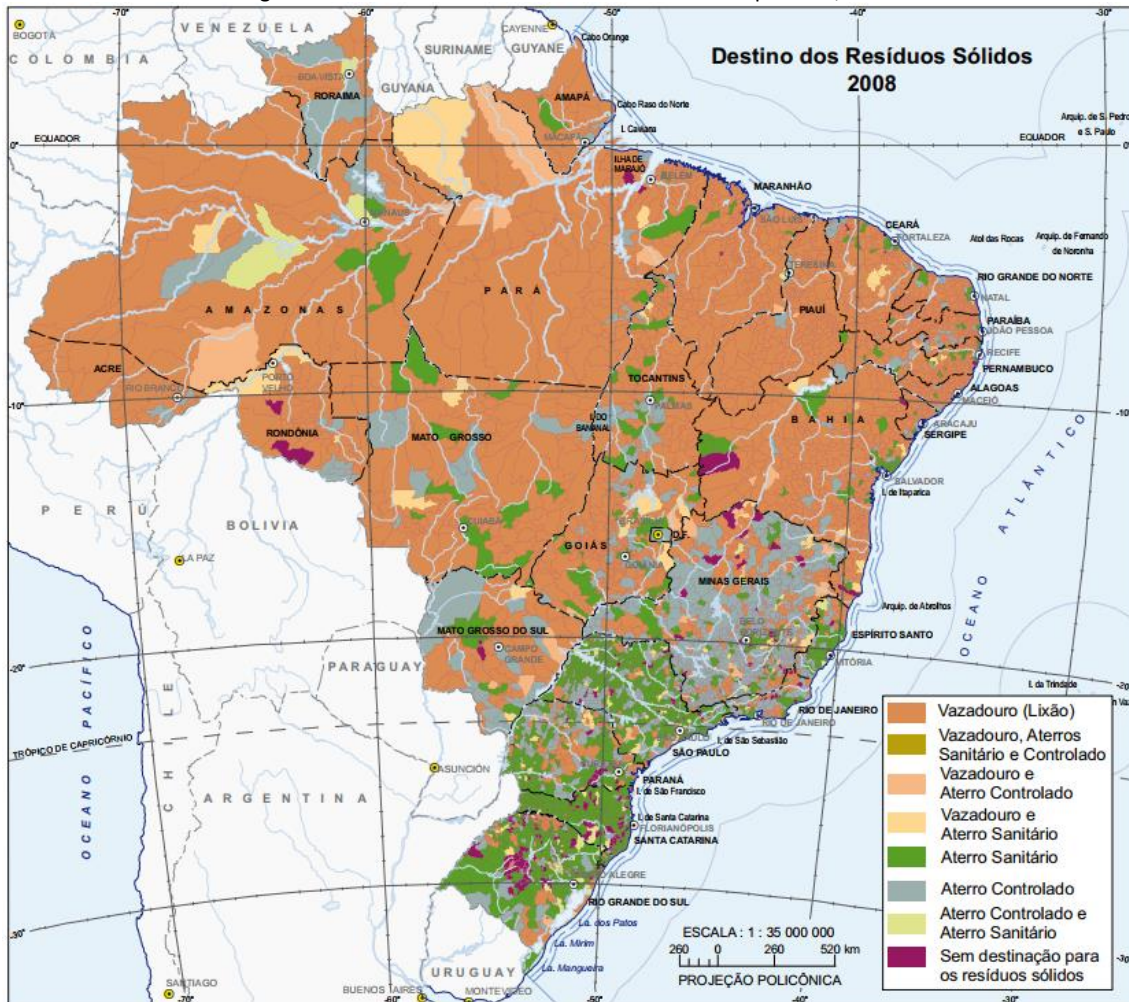


Font: IBGE, 2011

The data regarding the size of the municipalities in relation to the population and the forms of disposal, as shown in Figure 2, show that coincidentally in these regions the number of small municipalities is large and they have inadequate forms of solid waste disposal.

One of the biggest challenges for developing management plans, as well as meeting targets, in this case, to eliminate spills in the country, is the economic fragility of Brazilian municipalities. According to Prates (2012), especially small municipalities, need to look for alternatives to carry out what is proposed by the legislation. The most appropriate alternative is intermunicipal consortia, which present themselves as an efficient tool in terms of financing local public policies.

Figure 2 - Final destination of solid waste and municipal sizes, 2008



Font: IBGE, 2008

The new National Solid Waste Plan (2022), still in the public consultation phase, demonstrates a concern to present a study of the national situation in the face of problems and diversities to adapt disposal areas. However, with the publication of the 2022 PNRS, this concern appeared only as a proposition in its introduction, considering that when analyzing its text in full, no mention was found of the economic, social, cultural and territorial diversities present in our country of continental scale.

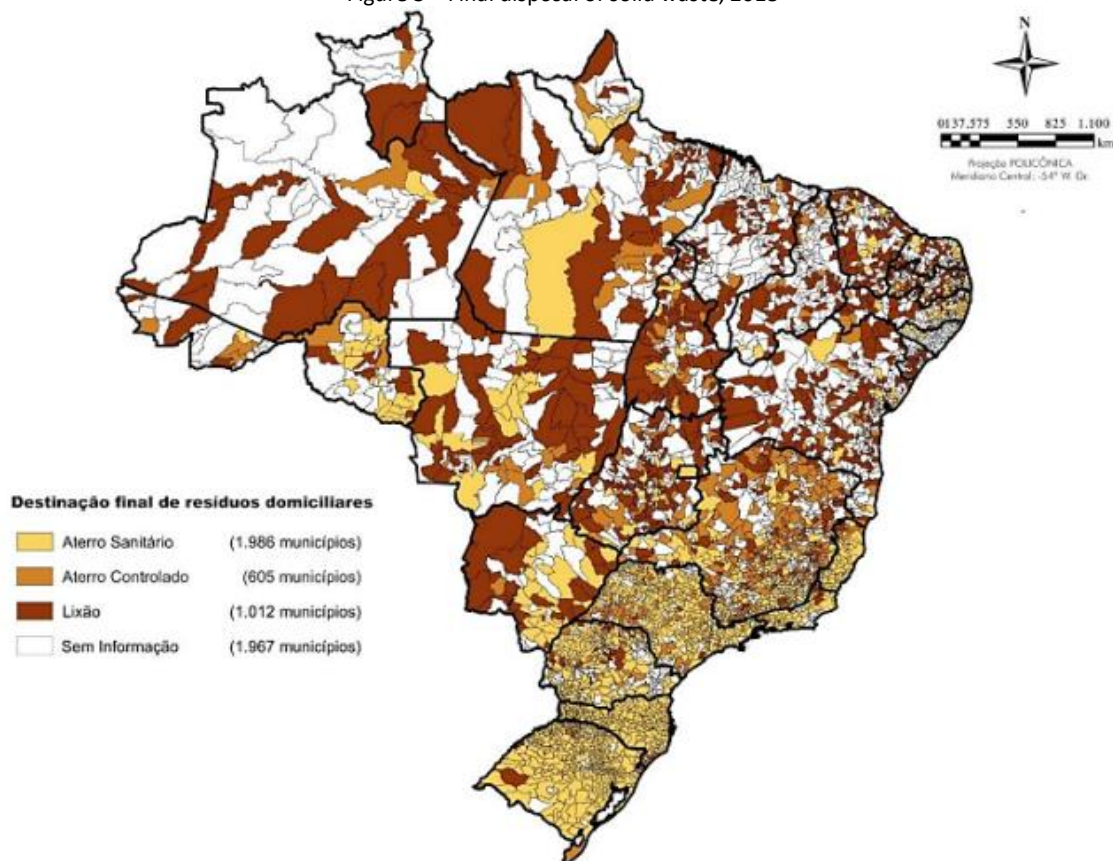
Despite the use of cartographic materials (Figure 3), the new National Solid Waste Plan (2022) did not delve deeper into analyzes of the differences between municipalities, states and macro-regions. Therefore, as there were other extensions of the deadline for meeting the goals, only the institutional capacity of the municipalities in relation to the eradication of spills in relation to the number of inhabitants was considered.

The 2022 National Solid Waste Plan uses the deadlines established in the new legal framework for sanitation (Law No. 14,026/2020) for the implementation of environmentally appropriate waste disposal until December 31, 2021, except in the cases of municipalities that have prepared a plan municipal integrated solid waste management or intermunicipal solid

waste plan, and that apply charges that guarantee economic and financial sustainability. For these, new deadlines were reestablished:

I – até 2 de agosto de 2021, para capitais de Estados e Municípios integrantes de Região Metropolitana (RM) ou de Região Integrada de Desenvolvimento (Ride) de capitais; II – até 2 de agosto de 2022, para Municípios com população superior a 100.000 (cem mil) habitantes no Censo 2010, bem como para Municípios cuja mancha urbana da sede municipal esteja situada a menos de 20 (vinte) quilômetros da fronteira com países limítrofes; III – até 2 de agosto de 2023, para Municípios com população entre 50.000 (cinquenta mil) e 100.000 (cem mil) habitantes no Censo 2010; e IV – até 2 de agosto de 2024, para Municípios com população inferior a 50.000 (cinquenta mil) habitantes no Censo 2010. (LEI 11.445, 2007, Art. 29)

Figure 3 – Final disposal of solid waste, 2018



Font: SNIS-RS, 2019 (base year 2018).

The National Solid Waste Plan (2022), in its initial proposal, provided for the alignment of alternatives with the economic viability of meeting the previously proposed goals. In its official publication, it recognized the economic challenges, especially for small municipalities, in complying with waste management requirements, and, in more detail, points to the use of public consortia as a management mechanism, bringing public-private partnerships as an alternative. Furthermore, another instrument highlighted in the new plan is the charging of fees and charges on the service provided.

Considering only the institutional capacity associated with the size of municipalities in relation to the number of inhabitants is ineffective in achieving the goal of eradicating landfills. The proposed economic viability instruments are important; However, with difficulties in certain conditions and characteristics, it is important to understand the composition of municipalities in the different macro-regions of Brazil so that, based on the challenges, goals and incentives can be proposed.

According to Secchi (2010), a public policy is extinguished in three cases: first, if the problem is considered resolved; second, if the programs developed are considered ineffective; and third, whether the problem has lost importance. When analyzing the national solid waste policy, it is indicated that the problems are still in force and are of great importance, both environmental and social. More active social agents are needed and committed to solving this emerging problem for current and future generations.

4 FINAL CONSIDERATIONS

The present work allowed a brief understanding of the dimension of the environmental problem that involves the management of solid waste, as well as the importance of analyzing all processes and relationships to elaborate public policies aimed at maintaining environmental quality, as well as quality of life.

Therefore, it is concluded that understanding the problem as a whole is important, as it is from the parts of a whole that it becomes possible to understand the processes involved, enabling the understanding of the complexity for the establishment of parameters for the elaboration of public policies.

In this sense, we observed that the National Solid Waste Policy, despite remaining under discussion for more than two decades, presented flaws, considering that the entirety of the solid waste problem was not considered, which resulted in plans and goals that were impossible to achieve within the established deadlines, in addition to the lack of an approach to political, population, economic and territorial diversity and inequality in national macro-regions and, above all, intra-regional ones, resulting in several revisions and extensions of deadlines throughout the term.

We emphasize the need to evaluate the problem in all its parts. The issue of solid waste is complex and relates to several variables, having interactions with the economy, culture, politics, social aspects, which need to be considered and analyzed to develop public policies aligned with the national reality, aiming to achieve satisfactory results.

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