



RELISE

***ENVIRONMENTAL PUBLIC POLICIES: AN ANALYSIS OF PUBLIC POLICIES
IMPLEMENTED ON THE URBAN BEACHES OF MACEIÓ¹***

**POLÍTICAS PÚBLICAS AMBIENTAIS: UMA ANÁLISE DAS POLÍTICAS
PÚBLICAS REALIZADAS NAS PRAIAS URBANAS DE MACEIÓ**

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ABSTRACT

The article aims to identify the environmental public policies carried out in Maceió, with the purpose of preserving the waterfront, water quality, sanitation, awareness of the local population and visitors, and protection of fauna and flora. It aims to detect and outline an overview of environmental management and public policies, especially the preservation of the seafront. To collect information, the qualitative research was developed through the analysis of secondary data obtained from scientific articles collected through bibliographic searches in databases and public documents. The studies identified that the measures adopted by the local government are still insufficient and out of current environmental standards to preserve biodiversity and human health on the beaches of the municipality of Maceió. In addition, the research had as a limitation the lack of public data and scientific studies available on the environment of the urban beaches of Maceió, and new research should be carried out in several areas, both environmental, structural, social and administrative, among others that can contribute to the interdisciplinarity of the environmental field.

Keywords: public policies, environment, sustainability, urban beaches, Maceió waterfront.

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RESUMO

O artigo tem por objetivo identificar as políticas públicas ambientais realizadas em Maceió, com a finalidade de preservação da orla, qualidade da água, saneamento, conscientização da população local e de visitantes e proteção da fauna e flora. Visa detectar e traçar um panorama acerca da gestão e políticas públicas de meio ambiente, especialmente a preservação da orla marítima. Para levantamento de informações, a pesquisa qualitativa se desenvolveu mediante análise de dados secundários obtidos a partir de artigos científicos coletados através de buscas bibliográficas nas bases de dados e em documentos públicos. Os estudos realizados identificaram que as medidas adotadas pelo governo local ainda são insuficientes e fora dos padrões ambientais atuais para preservar a biodiversidade e saúde humana nas praias do município de Maceió. Ademais, a pesquisa teve como limitação a carência de dados públicos e estudos científicos disponíveis sobre o meio ambiente das praias urbanas de Maceió, devendo ser feitas novas pesquisas em diversas áreas, tanto ambientais, como estruturais, sociais e administrativas, entre outras que possam contribuir para interdisciplinariedade do campo ambiental.

Palavras-chave: políticas públicas, meio ambiente, sustentabilidade, praias urbanas, orla de Maceió.

INTRODUCTION

The urban beaches of Maceió are a national and international benchmark for tourism, thus becoming an important source of income for the local community and the regional economy. Therefore, water quality and environmental preservation are essential aspects for the success and continuity of the visitation cycle, attracting an increasing number of tourists in line with adequate infrastructure.

Costa et al. (2014), in their work *Water Pollution Control in Maceió*, state that the title “Paradise of Waters” is not deserved by the municipality due to the pollution of beaches, rivers, and lakes in the region, identifying sewage as one of the main causes of the problem.

Tartuce, Marques, and Peixoto (2020) consider the verticalization of the waterfront to be one of the main factors of environmental degradation,



emphasizing that the supremacy of political power in the area overrides rights and environmental protection.

The issue of ecosystem preservation has become increasingly pressing in discussions on public policies and urban planning. In this context, the complexity of the challenge faced by contemporary societies in seeking to reconcile the preservation of environmental resources with the guarantee of decent living conditions for the population amid urban development requires science, the academic community, and Public Administration to make continuous and effective efforts toward environmental preservation.

Graciliano Neto, Farias, and Matos-Rocha (2017) conducted a study in which 80 samples of dry and wet sand were collected from the beaches of Ponta Verde, Jatiúca, Pajuçara, and Cruz das Almas, and concluded that the contamination level of 83.75% by parasites results from the lack of basic sanitation in most of the municipality and the inadequate treatment of the portion of water that is collected. The authors suggest preventive measures by public authorities and sanitary education for local residents and merchants.

Pimentel, Callado, and Pedrosa (2012) state that in urban beaches there are eleven sections with urban stormwater discharges, demonstrating that clandestine sewage connections are evident and harmful to the environment and human health. The Salgadinho stream drains twelve neighborhoods; however, due to the lack of sanitation and treatment, the water reaches the beaches with the characteristics of sanitary sewage.

Moura and Caffaro Filho (2015) highlight that the socio-environmental and socioeconomic aspects of urban beaches are fundamental to the maintenance of tourist cities, and that city governments must responsibly and efficiently ensure the preservation of regions where the environment is exposed to a large number of residents and visitors, including through the use of science



and technology to adjust demographic density and the relationship with the ecosystem within the same area.

Therefore, regional policies are essential to neutralize the effects of human activity in large urban centers and to synchronize with a global force for ecosystem recovery and preservation. In this study, a survey and presentation of environmental public policies implemented along the Maceió waterfront will be carried out, one of Brazil's main tourist centers for beach visitation, the so-called Brazilian Caribbean. Even so, the importance of sustainable development and its direct relationship with the preservation of urban beach ecosystems will be emphasized.

This article aims to identify the environmental public policies implemented on the urban beaches of Maceió that are aimed at providing better conditions for environmental preservation of ecosystems and a healthy environment for use by local residents and visitors. To gather information, qualitative research with secondary data analysis was conducted through bibliographic searches in databases, mainly scientific articles from the last twenty years focused on environmental preservation, ecosystems, and environmental public policies, as well as data extracted from public documents available on the websites of the Ministry of the Environment (MMA), the Environmental Institute of the State of Alagoas (IMA), and the Municipal Secretariat of the Environment and Urban Planning of Maceió (SEMURB).

THEORETICAL FRAMEWORK

This theoretical framework will present themes that provide a better understanding of the study referred to in this article, in order to comprehend the importance of sustainable development and its direct relationship with the preservation of the ecosystems of the urban beaches of the city of Maceió, and



the importance of public management in the implementation of environmental public policies.

Environmental public policies – Governance and sustainability

According to Moura and Bezerra (2016), the process of defining, monitoring, and implementing public policies involves governance and goes beyond political-institutional decision-making issues, encompassing the forms of dialogue between the State and organized groups in society. The authors further note that, in terms of governance for sustainability, difficulties are found in several factors, including the absence of an integrated long-term planning process that articulates federal, state, and municipal bodies and creates space for the participation of different social organizations in the decision-making process.

Several environmental agencies and federative entities have the authority to create the necessary legislation and to implement projects that may contribute to and preserve the fauna and flora of the beaches of Maceió. Becoming an environmental reference as a tourist destination can attract a large number of demanding tourists with high purchasing power, thereby improving local economic conditions and the quality of life of the population that provides services and markets products in beach areas.

According to information from the Ministry of the Environment, in 2022 a beach-cleaning task force was organized in the municipality of Maceió. It was carried out within the framework of the implementation of the National Plan to Combat Marine Litter and resulted from a partnership between the Ministry of the Environment and the Municipal Secretariat for the Environment and Urban Planning of Maceió, with the participation of the Environmental Institute of the State of Alagoas. Its objectives were to raise public awareness about waste disposal through citizenship; to maintain beach cleanliness and improve the



community's quality of life; and to collect data on waste in order to create effective actions capable of preventing litter from being dumped into the local ecosystem.

Actions of this type benefit and initiate efforts to remedy the damage caused and must occur on a constant and cyclical basis to maintain the effectiveness of environmental protection programs, while environmental education measures and the creation of new methods can help keep the urban shoreline permanently clean.

Moura and Bezerra (2016) emphasize governance as the combination of institutional structures with participatory processes that include social and market actors in the definition of public policies. They also stress that governance adds quality to the planning and policy formulation cycle. Thus, community organization and the provision of targeted public services - such as vocational training and environmental awareness courses - would be indispensable elements for such progress.

The basic governance structure of the environmental sector under the National Environmental Policy (PNMA) includes the National Environmental System (SISNAMA), the National Environmental Council (CONAMA), and an extensive network of state and municipal councils and thematic management committees. These bodies provide mechanisms of representativeness, ensuring social participation that legitimizes the process of formulating Brazilian environmental policy.

Guiding principles play a fundamental role in the implementation of public policies, especially with regard to environmental protection and land-use planning. The principles that guide urban environmental public policy include, for example, the principle that the protection of the urban environment prioritizes public interests over private interests; the principle of mandatory State intervention in the protection of the urban environment; the principle of prior assessment of the environmental impacts of any type of activity; the principle of



the socio-environmental function of urban property; the principle that ensures the right to sustainable cities; and the principle of social participation and democratic governance of the city (Silva, 2003).

According to Silva (2003), another aspect of sustainability is the management of cities over time, encompassing the present and future management of the city and its environmental resources, associated with social management. The author also emphasizes that the formulation of public policies in the urban environment is the responsibility of the representatives of the people - that is, the legislative branch - which should establish the main guidelines of public policies, while the executive branch is responsible for their implementation. Furthermore, planning should also aim at the medium and long terms, thereby consolidating cultural and social development related to the environment.

According to Motta and Oliveira (2019), sustainability is associated with the decisions taken by the various public agents involved in the public policy cycle. They also emphasize that the link between sustainability and public policies is essential in setting priorities, and that, in the absence of economic resources, the designated public manager must make decisions based on the public interest, legality, administrative morality, impersonality, efficiency, and transparency.

According to Silva (2020), through a certain degree of government intervention, it is possible for the understanding of sustainability to permeate the urban environment and transform it into a kind of ecocracy, contributing to the creation of governmental regulatory frameworks that support the implementation of urban environmental awareness. The author further states that, in cases of conflict of legislative competence in the environmental field, the principle of the predominance of interests should be adopted. In addition to regulation, concrete and permanent actions by the State are required, encouraging the green economy through benefits for local businesses and the population.



Thorstensen and Mota (2020) argue that sustainable development encompasses the economic, social, and environmental dimensions - which should not be examined in isolation - as well as discussions regarding the need to protect and conserve the environment. In this scenario, the need for governance among those who hold decision-making power, whether public or private, and among policymakers at all levels of government is recognized as necessary in international sustainability documents.

According to Thorstensen and Mota (2020), one of the fundamental issues involving policy coherence for sustainability is how it can be applied in practice - that is, how to define a clear and objective methodology capable of assessing progress toward achieving coherent levels of sustainable development. They further emphasize that, in addition to methodology, another obstacle lies in limited levels of knowledge and in unreliable or even nonexistent data to measure the evolution of policies aimed at sustainable development.

Decentralization of public environmental administration

Another point that should be considered is the decentralization of public policies, and one of the key elements for its success is the capacity of local bureaucracy to execute resources effectively. According to Batista (2015), the quality of decentralized public policies, far beyond the amount of resources transferred, lies in the ability of local bureaucracy to make effective use of the resources received.

Still according to Batista (2015), the decentralization of public policies can be understood as the shift of resources and decision-making power related to public policies from the federal domain to the subnational domain; that is, it involves the transfer of decision-making authority and resources from the federal level to states and municipalities. The author also highlights the benefits of such a measure, including greater proximity between governments and citizens and,



as a result, a better understanding of citizens' preferences and needs, leading to more accurate decisions by public officials. In parallel, citizens would have greater control over their governments, increasing transparency and accountability. In this sense, the formulation and implementation of public policies would be more effective, as they are designed specifically to meet local needs.

Arretche (2004) emphasizes that the authority of the federal government to influence the choices of local governments, with the intention of aligning them with its own priorities, remains limited, since local governments possess fiscal and political autonomy and have institutional conditions that allow them not to adopt federal policies. She further stresses that the autonomy of state and municipal governments enables them to establish their own agendas, independent of the federal executive agenda.

In this context, Brazilian environmental public administration has undergone a process of decentralization (IDESP, 2011), initiated with the National Environmental Policy (PNMA – Federal Law No. 6,938/1981). Since then, municipalities have increasingly assumed responsibilities related to environmental policy and have strengthened their institutional organization in the environmental area, including the creation of secretariats, councils, funds, and similar bodies (Guandalini, Borinelli, & Godoy, 2013).

On the other hand, it is essential that this decentralization process be accompanied by greater financial consistency, since one of the main problems faced by municipalities in environmental administration is the increase in responsibilities without a proportional increase in financial resources allocated to meeting these demands (Mauro, 2007).

Among the municipal responsibilities defined by Complementary Law No. 140/2011, the following can be highlighted: (i) planning, implementation, and monitoring of the Municipal Environmental Policy; (ii) the establishment and maintenance of the Municipal Environmental System; (iii) the incorporation of



environmental zoning in accordance with the Municipal Master Plan; (iv) environmental licensing for activities that cause local impacts in conservation units established by the municipality; and (v) forest management at the municipal level.

According to Teixeira (2002), in areas traditionally associated with public policies such as the environment, housing, sanitation, and others, municipalities, the federal government, and the states share common responsibilities, to be carried out through cooperation among these levels of government, either through the distribution of resources or technical cooperation. Teixeira (2002) also notes that the greatest problem lies in resources, since in a disorderly decentralization process many responsibilities are transferred without the corresponding resources, which often depend on political patronage, party affiliation, and clientelistic interests.

Managerialism and social management in environmental policies

Paes de Paula's (2005) text presents a perspective on Public Administration focused on managerialism and social management, comparing and analyzing both models in order to reflect on their common points and the efficiency aspects of each. The author considers the Brazilian model to be complex, given the challenges posed to the public sector by the country's size and large population with cultural diversity. The text also refers to another author, Bresser-Pereira (1998), who conceptualizes the municipal, state, and federal levels within the managerial model, emphasizing professionalization as a fundamental aspect. Technically, the models are presented with their historical concepts, origins, methods, and forms.

Paes de Paula (2005) highlights important points such as popular participation, representation within the bureaucratic apparatus, human resources policy, participatory budgeting, public management, and citizenship. The author



seeks to balance the models of Social Management and Managerialism and emphasizes that interaction between the executive and legislative branches and citizens is essential, as well as encouraging popular participation, technical training, and restructuring aimed at reducing bureaucratic barriers and overcoming a lack of interest in the political field, among other aspects. The author further argues that Public Administration has its own logic, which requires greater commitment and attention to citizens' needs.

With regard to environmental policy, the Brazilian Constitution may be taken as a starting point, as several fundamental principles gave rise to laws at the federal, state, and municipal levels. Thus, the traditional Brazilian element of legalization and regulation can provide the first modern step. Furthermore, still within the constitutional framework, national and local competencies were established - not in isolation - since the importance of environmental issues was introduced with overlap and joint participation among the federative entities.

In this sense, Paes de Paula's (2005) analytical development explains characteristics of managerialism and social management. Given this, it is essential to observe the urgency of issues related to ecosystems and human activity (waste production, use and non-use of natural resources, management, and preservation). While managerialism may respond more effectively in "real time" and achieve results through rational use of financial resources, social management can reconcile preservation with local human needs (for example, through agroforestry systems), in addition to collecting and providing information on rational resource use to local residents and to Public Administration itself.

At several points, social management and managerialism intersect with environmental issues, which are often intertwined with human life, the economy, health, survival, culture, forms of community organization, climate, and other factors. Today, numerous examples of small local policies originating from government entities help - sometimes very effectively, sometimes precariously -



the subsistence of social and economic groups and categories, such as support for fishers during fish reproduction periods, the replacement of one type of crop with another that is more basic, ecological, and healthy (including the provision of resources and training to replace tobacco with vegetables), among other projects that reconcile and guide human activity based on knowledge, science, health, innovation, and related fields.

It can be concluded that a modern and ideal perspective for a public manager - one worthy of receiving a mandate through representative democracy or public remuneration - would be based on merit, professionalism, scientific grounding, and maturity, setting aside ideological power struggles (tainted by personal and group interests). Such a perspective would open the way to converging the positive aspects of each theory according to the needs of specific circumstances, ecosystems, or populations. This condition is necessary to achieve results in Brazil, a country of extraordinary dimensions and resources that demands highly complex analyses and projects.

Nevertheless, solutions can often be achieved through simple methods; the key point is that projects are effectively implemented and that resources reach their destination in an ethical and appropriate manner. From the standpoint of Environmental Policy, this theory of overlap and evaluation through managerialism and social management is fully applicable, whether due to the immediate need for results or to the multidisciplinary nature of the issues involved.

METHODOLOGY

The descriptive research method was used in order to present the main conditions of the beaches and the public policies adopted by the municipality of Maceió, with the aim of identifying and evaluating the panorama of municipal Public Administration with regard to environmental public policy, especially the



preservation of the shoreline and current management and sustainability requirements.

To gather information, qualitative research was conducted through bibliographic and documentary methods, by searching databases and accessing public documents. The search initially considered public information and scientific articles from the last ten years; subsequently, data collection was expanded to cover the last twenty years, given the limited availability of updated information on the subject.

In view of the advancement of the topic across various sectors of society, and its increasing relevance to the public sector, the study is based on a bibliographic analysis addressing concepts such as the environment, sustainability, environmental preservation, and sustainable development. Based on these data, a comparison was drawn with the current situation of the municipality of Maceió, highlighting the main measures adopted for the preservation of the municipal shoreline, as well as presenting information on local water quality.

It is worth emphasizing the use of secondary data sources from government websites such as gov.br, alagoas.al.gov.br, and maceio.al.gov.br, as well as scientific articles from the last twenty years collected from databases including SciELO, Web of Science, and Google Scholar, using key terms such as public policies, environment, sustainability, urban beaches, and the Maceió shoreline. Documentary data collection techniques were also employed.

PRESENTATION OF DATA AND ANALYSIS OF RESULTS

The information obtained from the analyzed scientific studies provided several clarifications regarding the environmental conditions along the urban shoreline of Maceió, in addition to presenting an overview of current Public Policies and Environmental Legislation. In this regard, emphasis is placed on



sand contamination, water pollution - especially due to clandestine sewage in affluent areas of the city - the large proportion of the population without basic sanitation (approximately 70%), as well as problematic drainage systems, with sewage discharged into stormwater ducts. There is also an extensive area in which several neighborhoods use rivers and lagoons as sanitary sewage outlets, in addition to a significant presence of solid waste in the environment. Concern regarding sustainable development in the international context and the existence of extensive legislation - out of alignment with the public policies adopted on the urban beaches of Maceió - were also identified (Graciliano Neto, Farias, & Matos-Rocha, 2017).

When comparing two sand-sample studies - one from 2017 and another from 2021- the first, broader and more comprehensive study was conducted on the beaches of Cruz das Almas, Jatiúca, Ponta Verde, and Pajuçara. It involved laboratory analysis of dry and wet sand from the urban shoreline, systematically collecting multiple samples from 20 different points on each beach, spaced 20 meters apart. This study found contamination agents at a level of 83.75%, considered high. The later study, conducted in 2021, collected a smaller number of samples and found that of the 24 samples analyzed, 18 contained coliforms, representing 75% contamination by fecal coliforms. The public agencies responsible for water collection, treatment, and sewage disposal are therefore accountable both for the lack of public education and for the absence of effective projects capable of properly treating and disposing of wastewater and sewage (Graciliano Neto, Farias, & Matos-Rocha, 2017).

With regard to vertical construction and the consequent increase in the amount of waste and sewage on the urban beaches of Maceió, political power in the region holds absolute supremacy over the environment and over social and welfare rights. As a result, without adequate criteria or analysis, environmental degradation continues not only unchecked by public authorities but is also



encouraged and carried out by the very economic beneficiaries (Tartuce, Oliveira, & Vianna, 2020).

Issues related to neighborhood sanitation, stormwater ducts, and rivers flowing into the sea are central points to be addressed by public policies in the municipality of Maceió. Pimentel, Callado, and Pedrosa (2012) point out that there are eleven drainage outlets discharging water into the sea along the urban beaches, all of which contain sewage. In addition, the Salgadinho stream plays a key role in draining water, receiving sewage from twelve neighborhoods and reaching the sea with the characteristics of sanitary sewage. Only 30% of Maceió's population lives in areas with access to sanitation.

Moura and Caffaro Filho (2015) observed that development in Brazil's Northeast region has resulted in high levels of subsurface and groundwater pollution, making activity management, the creation of laws, and technical capacity-building necessary.

According to the scientific study by Moura et al. (2019) on accommodation facilities in the areas between Ponta Verde and Cruz das Almas beaches, three hotel managers rated the existing Waste Management Policy in the municipality of Maceió as poor, while only one considered it fair. They identified the following necessary improvements in waste management in their respective areas:

i) It is essential to involve the local community through awareness-raising initiatives, as this is fundamental for individuals to fully understand their role in society;

ii) There is an urgent need to educate residents about the importance of not disposing of waste in public spaces, in addition to applying punitive measures to cart drivers and companies that charge for improper disposal - especially construction waste, a serious cultural issue;



- iii) To address this problem, it is imperative to improve the waste collection system, including the installation of containers specifically for recyclable materials, targeted educational campaigns for the community, and nighttime waste collection;
- iv) One of the crucial steps is the implementation of selective waste collection, a basic method that allows different types of waste to be separated and collected in an organized manner.

Information presented by the Ministry of Education indicates that the epicenter of water pollution is the lack of sewage collection, which affects 83% of the population of Alagoas, threatening public health and tourism. Furthermore, only 20% of the collected sewage is treated. The same source reports that the Salgadinho stream reaches the sea with fecal coliform levels millions of times above normal. Meanwhile, Riacho Doce, on the northern coast, receives large quantities of waste, compromising local biodiversity (Brazil, 2019).

Even based on superficial information, there is already compelling evidence of the precarious and alarming conditions of ecosystems on the urban beaches of Maceió, compromising sustainable development - that is, threatening the continuity of economic activities, social well-being, and public health in the region. This places one of the region's strongest sources of income, tourism, at risk of decline due to negligence by the local government.

The limited number of available studies as sources of information, together with the official data published, demonstrates the need for greater data collection and the immediate implementation of measures to prevent ecosystem degradation caused by water contamination, vegetation loss - which is essential for biodiversity and pollutant filtration - lack of public awareness, and failure to comply with and execute public services such as basic sanitation within the agreed deadlines. This also includes compliance with municipal master plans and the proper enforcement of the law by the government.



The challenges and pathways for environmental preservation are numerous and involve multiple sectors, requiring the engagement of public authorities aligned with the actions of environmental organizations. In this regard, for more than 27 years Maceió has had its Municipal Code, consisting of 194 articles, which defines goals, outlines challenges, assigns responsibilities, establishes procedures for holding violators accountable, and guides the main functions of the Municipal Secretariat for the Environment and Urban Planning (SEMURB) (Maceió, 2023).

Within this framework, one of SEMURB's main responsibilities is to carry out inspections to ensure compliance with legislation and prevent environmental violations, addressing issues such as air pollution, irregular effluent discharge, illegal landfills, suppression of native vegetation, and other matters relevant to the city (Maceió, 2023).

In 2017, the municipality of Maceió joined the Federal Government's Term of Adhesion to the Management of Urban Maritime Beaches (TAGP), aiming to improve the management of urban beaches in order to promote the rational use of this ecosystem and enhance environmental and urban quality. Through the municipal project entitled "Programa Orla," resulting from adherence to the TAGP, the municipality committed to preparing the Integrated Management Plan for the Maceió Shoreline, with the goal of qualifying this coastal territory and developing a work plan for its implementation.

It is also worth highlighting the launch, in July 2023, of the Integrated Urban Development Plan for the Metropolitan Region of Maceió (PDUI), which focuses on improving the population's quality of life through territorial planning of the metropolitan region. Its objectives include ensuring social development, enhancing quality of life, and guaranteeing environmental sustainability (Alagoas, 2023).



With the aim of providing the population with better health, improved quality of life, and, consequently, greater environmental conservation through water supply and sewage network construction in nearly all municipalities, the government of Alagoas launched the “Mais Água Alagoas” program in August 2023, bringing together public and private investments (Alagoas, 2023).

In addition to these policies, another point that must be analyzed is environmental awareness among the population. With this in mind, the city of Maceió carried out door-to-door environmental education actions in 2023, both in the upper and lower parts of the capital, with the goal of encouraging residents to take responsibility for city cleanliness and environmental care. It is estimated that approximately 40,000 people benefited from sustainable guidance on services and equipment provided by the Municipal Authority for Sustainable Development and Urban Cleaning (ALURB) (Maceió, 2024).

In this same context, Maceió has a monitoring center to request environmental education actions in specific regions and to arrange for the collection of bulky waste or obtain information. ALURB provides a direct communication channel with citizens, accessible through the contacts listed on its official website. The city administration reports that more than 8,400 requests were handled by the Center in the current year alone (Maceió, 2024).

Furthermore, the Municipal Superintendence for Sustainable Development (SUDES) has also carried out actions through the “Brotá na Grotá” program, an innovation and social inclusion initiative that has benefited more than 52,000 people with cleaning services and environmental education in visited neighborhoods. Since the program's inception in January 2023, it is estimated that more than 45 tons of waste - irregularly discarded by the population - have been collected and properly disposed of (Maceió, 2023).

There are still many aspects to be improved, such as greater engagement from other public sectors, stronger synergy between the state



government and the city of Maceió to achieve the common good of a more sustainable city, partnerships and projects with the academic community, and direct participation from society and the private sector. Nevertheless, considering the existing legislation, the methods and commitments already undertaken by the local government and its concessionaires, several actions aimed at local preservation can be identified - not only enforcement actions, but also public awareness initiatives regarding environmental conservation, improper waste disposal, and the revitalization of collection points - positively impacting the preservation of the local ecosystem.

FINAL CONSIDERATIONS

The existence of environmental impacts on the urban beaches of Maceió is evident; tourists, residents, and workers who frequent the shoreline are witnesses to precarious administrative practices and experience these environmental problems as victims, both through contamination and through the personal resources they allocate to services such as sanitation and waste collection, transportation, and smart infrastructure management - acting simultaneously as voters and consumers. Meanwhile, the communities that depend on fishing and tourism for their livelihoods see both the quantity and quality of their products and consumption decline.

In light of this, the effectiveness of Public Policies becomes fundamental, including sanitation, systematic awareness-raising, training, high-quality infrastructure aligned with international and scientific standards, promotion of ecotourism, quality control, and the presence of public authorities across sectors such as health, inspection, education, science, popular participation, and policing, among others.

Finally, the research sought to present an analysis of the actions taken by the government and the municipality of Maceió to preserve the local



ecosystem. A lack of actions focused on local preservation and on raising public awareness regarding environmental protection was identified, and the few actions that do exist are insufficient to address the wide range of environmental degradation problems affecting the local ecosystem.

This study was limited by the low availability of data and research in relation to the vast scope of activities carried out daily along the Maceió shoreline, which hinders a comprehensive detailing of its demands. This limitation points to directions for future scientific research, which may be complemented by evaluations of the effectiveness of the measures adopted for environmental preservation in the municipality of Maceió and by comparisons with preservation actions implemented by other municipalities.

Under current conditions, sustainable development is entirely compromised. Without serious and permanent measures, supported by proper planning and execution, both residents who depend on and visitors who frequent the urban beaches of Maceió will have their rights to well-being, health, food, leisure, and other aspects affected by the lack of commitment from Public Administration.

The studies conducted identified that the measures adopted by the local government remain insufficient and fall short of current environmental standards to which it has committed in order to preserve biodiversity and human health on the beaches of the municipality of Maceió.

The scientific and official data currently available expose, at an international level through internet-based communication, the local reality, affecting the economy and the social conditions of the population that depends on the environmental health of the beaches for their livelihoods. Business owners, workers, fishers, and all activities connected to the coastal environment depend on good local governance, as well as on the well-being and health of everyone who uses the area.



Joint and interdisciplinary participation is necessary, involving universities, local government, and companies, as well as raising awareness among beach communities and other neighborhoods, construction companies, and commercial establishments. Such collaboration is essential for developing projects that remedy and prevent environmental problems, including in neighborhoods far from the beaches where river pollution ultimately increases shoreline pollution. Inadequate construction practices and lack of sanitation are priority issues to be addressed, along with the need for stricter oversight of building construction near coastal areas and of outsourced companies responsible for sewage collection, treatment, and final disposal.

Continuous data collection and evaluation are also necessary to safeguard public health and ensure the immediate preservation of local ecosystems, in line with well-being and sustainable development in the region. Given the high flow and frequency of people in the area, public policies must be effective and continuous, always vigilant and committed to the goals they assume. Maceió is defined by its beaches - for the leisure of its citizens and in the eyes of the world - and the urban shoreline is a reflection of local policy and its people.



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