Implementing the management of solid waste on islands and coastal areas in Vietnam: A perspective from policy to practice

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The article addresses the issue of implementing solid waste management on islands and coastal areas in Vietnam, viewed from the perspective of policies to practice. It encompasses the Party's directives and orientations to legal regulations, notably the Law on Environmental Protection 2020 and other related policies such as planning. Specifically, the provisions of the Law on Environmental Protection 2020 are detailed through Decree No. 08/NĐ-CP issued on January 10, 2022, and the guiding circular No. 02/TT-BTNMT issued by the Ministry of Natural Resources and Environment on the same date. The article also highlights current difficulties and challenges in implementing policies related to solid waste management on islands and coastal areas. Based on these insights, it proposes solutions for effective solid waste management on islands and coastal areas in Vietnam that align with practical conditions and the implementation of the regulations set forth in the Law on Environmental Protection 2020.

1. OVERVIEW OF ISLANDS, COASTAL AREAS, AND THE NECESSITY OF SOLID WASTE MANAGEMENT

Vietnam's maritime space is three times larger than its land area, comprising over 3,000 islands and offshore archipelagos, including the Hoang Sa (Paracel) and Truong Sa (Spratly) Islands. The coastline stretches for 3,260 kilometers (excluding the shores of the islands) and spans 28 coastal provinces and cities. Situated in the tropical monsoon region of Southeast Asia, Vietnam's seas are characterized by high biodiversity, featuring typical ecosystems such as wetlands, mangroves, coral reefs, and seagrass beds. Marine pollution, particularly from solid waste originating from human activities, poses a significant threat to these ecosystems. If not properly managed and allowed to be freely discharged into the sea, solid waste pollution can lead to the degradation of marine ecosystems. The importance of addressing solid waste pollution lies in preserving these ecosystems, which are vital for environmental sustainability, economic activities, and the overall health of coastal and marine life. Figure 1 below outlines Vietnam's maritime space, key ecosystems and some of the islands and archipelagos within this area.

Previous studies have estimated that 80% of solid waste discharged into the sea originates from land-based activities. Vietnam's coastline features 114 river mouths, creating pathways for solid waste to flow into the sea and oceans. In 2018, the United Nations Environment Programme (UNEP) reported that Vietnam discharges between 0.28 and 0.73 million tons of plastic waste into the oceans annually, accounting for 6% of the global total, and ranking fourth in the world. Marine waste pollution not only affects environmental quality and ecosystems but also has significant impacts on economic development and coastal communities, posing risks to food security and safety. Therefore, the management and treatment of solid waste, particularly in coastal areas and on islands, is of critical importance to mitigate these adverse effects and ensure sustainable development.

2. POLICIES AND LEGISLATION ON SOLID WASTE MANAGEMENT

The implementation of solid waste management in general, and on islands and coastal areas in particular, in relation to current policies and legislation, needs to be considered from the Party's directives and orientations to the State's policies and laws.

Party directives and orientations, the government's action plan.

Regarding the Party's directives and orientations related to solid waste management in general, and specifically for islands and coastal areas, there have been prior instructions, notably in Resolution No.24-NQ/TW dated June 3, 2013, and the resolution from the seventh session of the Central Executive Committee of the XIth Congress, which focuses on "*proactively responding to climate change, enhancing resource management, and protecting the environment*." The specific target set for 2020 was to "*reuse or recycle over 65% of municipal solid waste*." The specific tasks outlined aim to focus on solid waste management by 2020, with a vision extending to 2050, emphasizing the need to concentrate efforts on effectively managing solid waste.

Resolution No.36-NQ/TW and the resolution from the eighth session of the Central Executive Committee of the XIIth Congress, dated October 22, 2018, regarding the "Strategy for Sustainable Development of Vietnam's Marine Economy by 2030, Vision to 2045," addresses the management of solid waste by stating that "*In coastal provinces and cities, 100% of hazardous waste and municipal solid waste must be collected and treated in accordance with environmental standards.*" To implement Resolution 36/NQ-TW, the Government issued Resolution No.20/

NQ-CP on March 5, 2020, which outlines the "Overall Plan and 5-Year Plan for the Government's implementation of Resolution No. 36-NQ/TW dated October 22, 2018, from the eighth session of the Central Executive Committee of the XIIth Congress regarding the Strategy for Sustainable Development of Vietnam's Marine Economy by 2030, Vision to 2045." In terms of environmental solutions related to solid waste management, Resolution 20/NQ-CP requires *"Investment in and strengthening of infrastructure and equipment for the collection and treatment system of municipal solid waste to meet environmental standards and to ensure the effective implementation of collection and treatment processes"*.

In the Socio-Economic Development Strategy for 2021-2030, under the section on "Directions, Tasks, and Solutions for Socio-Economic Development," specifically item 7 regarding "Effective management and use of resources; enhancing environmental protection and responding to climate change; disaster prevention and mitigation," it is stated that concerning the management of municipal solid waste, "the rate of reuse and recycling of municipal solid waste must reach over 65%." Thus, the directives and orientations established by the Party indicate that by 2030, the entire country must achieve a result where more than 65% of municipal solid waste is recycled and reused.

Resolution No.48/NQ-CP issued by the Government on April 3, 2023, regarding the "Approval of the strategy for sustainable exploitation and use of marine and island resources, and environmental protection by 2030, with a vision to 2050," establishes specific targets related to solid waste management by 2030. It states that "by 2030, in coastal urban areas, 100% of hazardous waste and municipal solid waste must be collected and treated in accordance with environmental standards." In terms of strategic orientations and tasks for 2030, Resolution No.48/NQ-CP also emphasizes the issue of marine plastic waste, asserting the need to "prioritize resources from environmental protection funding to implement the National action plan on marine plastic waste management by 2030." By that year, the resolution sets the goal that the rate of recovery and treatment of plastic waste at beaches, coastal tourism areas, and marine protected areas must reach 100%.

The Conclusion No.81-KL/TW issued by the Politburo on June 4, 2024, regarding the continued implementation of the Central Resolution 7 of the XIth Congress on proactively responding to climate change, enhancing resource management, and protecting the environment, addresses the management of municipal solid waste on islands and coastal areas. In this conclusion, it directs the "full and comprehensive implementation of the Environmental Protection Law 2020.".

Thus, regarding the directives, orientations, and strategies of the Party, as well as the implementation actions of the Government concerning municipal solid waste on islands and coastal areas by 2030, there is a nationwide requirement that the waste treatment rate must reach 100%, and the rates of reuse and recycling must achieve 65%. In particular, it is essential to fully and comprehensively implement the provisions of the Environmental Protection Law 2020 related to waste in general and municipal solid waste in particular.

State policies and laws.

Regarding the state's legal policies, local authorities must first review and implement the provisions of the Environmental Protection Law 2020, which has been passed by the National Assembly, along with Decree No.08/NĐ-CP dated January 10, 2022, and Circular No.02/TT-BTNMT issued by the Ministry of Natural Resources and Environment on January 10, 2022. For the Environmental Protection Law 2020, the relevant provisions are found in Chapter VI, Section 2, "Management of Municipal Solid Waste," specifically Articles 75 to 80. The key regulations under Decree No.08/NĐ-CP are located in Chapter V, Section 2, "Management of Municipal Solid Waste," covering Articles 58 to 64. Circular No.02/TT-BTNMT details the management of municipal solid waste in Chapter IV, Section 2, Articles 26 to 32. Overall, the legal regulations concerning the management of municipal solid waste are quite comprehensive. Notably, compared to the Environmental Protection Law 2015, the 2020 version provides detailed stipulations that address waste management at the provincial, district, and community levels, specifically for household-generated waste. In relation to the management of solid waste on islands and coastal areas, local authorities in the 28 coastal provinces and cities, particularly in coastal districts and communes, need to fully understand these legal provisions to ensure effective implementation.

Regarding urban planning, Resolution No.139/2024/QH15 dated June 28, 2024, concerning the "National Marine Spatial Planning for the period 2021-2030, with a vision to 2050," has been approved by the 15th National Assembly at its seventh session. The contents related to the management of municipal solid waste must be considered in this planning as a basis for implementation in islands and coastal areas. Notably, Resolution 139/2024/QH15 emphasizes the necessity to implement the guidelines and policies set forth by the Party, such as the Strategy for Socio-Economic Development for the 10-year period 2021-2030 and Resolution 36-NQ/TW. In terms of solid waste management, the specific objective for 2030 explicitly states the need to "prevent, minimize, and control marine environmental pollution, especially concerning marine plastic waste." Currently, the 28 coastal provinces and cities have developed their provincial/city development plans for the 2021-2030 period, with a vision towards 2050, which include strategies for managing municipal solid waste in islands and coastal areas. The state's management

role in these areas is crucial. Additionally, regions have begun implementing regional planning such as the Red River Delta, North Central Coast, Central Coastal Area, Southeast Region, and Mekong River Delta for the 2021-2030 period, with a vision to 2050. In particular, along with marine spatial planning, the coastal zone planning for the 2021-2030 period, with a vision towards 2050, provides critical frameworks for the implementation of municipal solid waste management in islands and coastal regions.

3. DIFFICULTIES AND CHALLENGES IN MANAGING MUNICIPAL SOLID WASTE ON ISLANDS AND COASTAL AREAS

In order to implement solid waste management in the islands and coastal areas of Vietnam, it is necessary to identify the difficulties and challenges to develop appropriate solutions. The following challenges need to be considered.

Firstly, the unique geographical characteristics of the islands, archipelagos, and coastal areas.

+ For the islands and archipelagos: The characteristic of islands and archipelagos is that they are not attached to the national territory; they are isolated in the maritime space and have a certain distance from the mainland. The islands and archipelagos that generate municipal solid waste requiring treatment are those with socio-economic activities and national security operations. Depending on geographical location, area size, natural advantages, and proximity to the mainland, the level of socio-economic development varies, which in turn affects the generation of municipal solid waste. In terms of management, the islands and archipelagos are assigned to be managed by a coastal province or city; therefore, the primary responsibility for managing solid waste on these islands and archipelagos lies with the coastal provinces and cities that contain them.

+ For the coastal areas: This refers to the interface between the sea and the mainland, with administrative boundaries typically aligned with the district-level administrative boundaries of coastal provinces and cities. This region has a high population density and vibrant socio-economic activities, resulting in a significant volume of municipal solid waste compared to other areas, with waste generated both on land and at sea. Additionally, a large amount of solid waste is contributed by river basins that discharge into coastal areas, originating from the mainland. With 114 river mouths along the coastline of Vietnam, a substantial quantity of municipal solid waste is released into coastal waters annually, necessitating effective management and treatment.

Secondly, regarding policy mechanisms

Although there are currently laws, decrees, and circulars in place for the management and treatment of municipal solid waste in general, as well as for islands, archipelagos, and coastal areas specifically, there are still certain challenges in implementing these policy mechanisms. These challenges include the compatibility and consistency of the relevant laws and policies. Additionally, some necessary circulars and guidelines, such as those pertaining to procedures, standards, and pricing for municipal solid waste treatment, have yet to be issued. There is also a need for specific mechanisms tailored to the treatment of municipal solid waste on islands, archipelagos, and coastal areas. Other related policies, such as action plans for implementing a circular economy regarding municipal solid waste, must also be considered. Therefore, it is essential to promptly address the policy mechanisms for municipal solid waste treatment in general, and specifically for islands and coastal areas, in order to avoid creating barriers and delays that could result in significant losses for society.

Thirdly, the implementation process for the treatment of municipal solid waste in localities with islands, archipelagos, and coastal areas

Although there have been numerous policies and initiatives from the Party, along with clear targets set for the treatment of municipal solid waste, particularly with the enforcement of the Environmental Protection Law 2020, certain regulations are nearing their implementation deadline, such as the mandatory segregation of municipal solid waste at the source starting in January 2025. However, to date, the management of municipal solid waste on islands, archipelagos, and coastal areas has not met expectations, and the implementation remains inconsistent and insufficiently urgent to comply with the Party's guidelines and legal requirements. While there are some effective models for managing municipal solid waste in certain islands and coastal areas, they have not been widely adopted. Given the development plans of the 28 coastal provinces and cities, as well as the coastal region plans for the period 2021-2030 with a vision toward 2050, localities need to promptly implement detailed waste management plans for the islands, archipelagos, and coastal areas within the overall development framework of the provinces.

Fourthly, infrastructure for the management of municipal solid waste on islands and coastal areas

To effectively manage municipal solid waste on islands and coastal areas, a comprehensive technical infrastructure system is necessary, encompassing waste classification, collection, transportation, transfer, and final processing. Practical research indicates that many coastal localities currently fall short of meeting these requirements. Therefore, it is essential for local authorities to prioritize the development and immediate implementation of the necessary technical infrastructure for municipal solid waste management in these regions. This urgent need emphasizes the commitment of localities to enhance their waste management capabilities and ensure compliance with environmental standards.

Fifthly, the decisive involvement of the political system, businesses and the public

Although the issue of solid waste management is not new, it can be considered a specific challenge for islands and coastal areas, thus requiring the decisive involvement of the entire political system, businesses, and the public. In particular, it is essential to promote effective practices and initiatives that have proven successful at the local level, enabling their replication throughout the country.

4. KEY SOLUTIONS FOR SOLID WASTE MANAGEMENT IN ISLANDS AND COASTAL AREAS OF VIETNAM

Based on the identified difficulties and challenges, in order to overcome these obstacles and effectively implement the Party's guidelines, legal regulations, and other related policies, the following solutions need to be considered for the effective management of solid waste.

Firstly, regarding the policy mechanism

To create a policy mechanism for effectively managing solid waste on islands and coastal areas, it is essential to continue reviewing and refining existing policies. Specifically, this involves identifying shortcomings and inconsistencies in current policies, as well as addressing any misalignments with other relevant mechanisms, such as those related to finance, land, and energy. This approach aims to pinpoint bottlenecks that can serve as a basis for amending and supplementing existing regulations, thereby establishing a cohesive policy framework for managing solid waste in general, and specifically for islands and coastal areas.

Particularly, the legislative documents, decrees, and circulars related to the management of solid waste need to be urgently issued. This includes the decree for piloting the circular economy model, the government's action plan for implementing the circular economy, and the circular detailing procedures, standards, and pricing for solid waste management from the Ministry of Natural Resources and Environment, as well as other relevant documents to ensure effective implementation across ministries, agencies, and local authorities.

Secondly, implementation at the local level

To address this issue, based on the provisions of the Law on Environmental Protection 2020 regarding the management and treatment of solid waste, coastal localities and those with islands and archipelagos under their jurisdiction should assess the process of solid waste management in their areas over the recent period. They should compare this with the regulations of the Law on Environmental Protection 2020, as well as subordinate legal documents such as decrees and circulars, to continue implementing and proposing new methods suitable for the islands and coastal areas under their management.

Localities that have successfully implemented effective models for solid waste management on islands and coastal areas should summarize their experiences and replicate them. For example, the model for recovering plastic bags on Ly Son island in Quang Nam, the waste classification model at the source, collection, and treatment in Nghi Xuan district, Ha Tinh, and the current waste classification and organic fertilizer processing model in Hai Phong city, which applies a circular economy approach, should be documented and shared with other localities.

Thirdly, mechanisms for monitoring the implementation of the Law on environmental protection

Based on the provisions of the Law on Environmental Protection 2020 and the subordinate legal documents that have been issued, it is essential to establish mechanisms for monitoring the implementation of the law by coastal localities (28 provinces/cities) concerning the execution of solid waste management on islands, archipelagos, and coastal areas. This monitoring will facilitate the summarization and evaluation of the achievements and shortcomings, particularly focusing on identifying challenges and issues that need to be addressed at the local level to create favorable conditions for the effective implementation of solid waste management on islands, archipelagos, and coastal areas. The oversight of law enforcement should be led by the National Assembly in coordination with the Government, assigning the Ministry of Natural Resources and Environment to implement this process.

Fourthly, promoting the role of businesses, citizens, and social political organizations

To effectively manage solid waste nationwide, particularly in islands, archipelagos, and coastal areas, it is essential to harness the roles of businesses, citizens, and social political organizations. This approach will leverage a comprehensive effort where businesses act as the primary executors, supported by the consensus of the community and the assistance of social political organizations such as youth, women, and war veterans. This is especially critical in islands where issues of security and national defense are involved, highlighting the significant role of social political organizations.

Fifthly, specific mechanisms and appropriate models for managing solid waste in islands and coastal areas.

Due to the unique characteristics of islands, archipelagos, and coastal areas, specific mechanisms are required for solid waste management in these regions. For instance, the approach to solid waste management for islands should be based on factors such as the scale, generation rates, and volume of solid waste, as well as the transportation distances involved in waste disposal. In coastal areas, in addition to the solid waste generated on land, there are also floating debris in the sea and waste from river mouths discharging into the ocean; therefore, it is essential to establish suitable treatment methods according to a specific mechanism tailored to these conditions.

Additionally, there are various related solutions that depend on each island and coastal area within different localities. These include the necessary technical infrastructure for solid waste management, the implementation processes, technology used, and the awareness of the public, businesses, and local leaders. Solutions should be tailored to the specific characteristics of each area to ensure effectiveness and suitability ▪