The Challenges and Future of Marine Debris Policy in Indonesia and Taiwan Case Studies

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Abstrak

Ada bukti bahwa polusi plastik laut memengaruhi kehidupan laut dan layanan ekologi. Potensi bahaya bagi kesehatan manusia dari penambahan bahan kimia dalam plastik juga ada. Meskipun diinginkan, daur ulang plastik sekarang dibatasi oleh kerumitan bahan dan bahan kimia, keterbatasan teknologi yang tersedia, dan permintaan pasar. Studi ini dilakukan untuk menemukan tantangan dan masa depan kebijakan sampah laut. Studi ini mengambil dua lokasi, Indonesia dan Taiwan, yang mengeluarkan kebijakan sampah laut secara bersamaan. Pada saat yang sama, pemerintah Indonesia dan Taiwan tahun 2018 mengeluarkan kebijakan pengurangan sampah laut. Sesuai Keputusan Presiden Nomor 83 Tahun 2018 tentang Penanganan Sampah Laut, Pemerintah Indonesia menerbitkan Rencana Aksi Nasional Penanganan Sampah Laut 2018–2025. Mengikuti undang-undang ini, pemerintah Indonesia setuju untuk menangani 70% sampah padat yang dihasilkan dalam waktu delapan tahun antara 2018 dan 2025, menghilangkan sampah laut hingga 70%, dan mengurangi limbah padat hingga 30%. Di Taiwan, "Rencana Aksi Tata Kelola Sampah Laut", yang dikeluarkan pada tahun 2018 oleh aliansi ini dan EPA, berisi jadwal penghentian empat item plastik sekali pakai (kantong plastik, sedotan, perkakas, dan gelas untuk dibawa pulang) secara bertahap. . Pengurangan sumber, pencegahan dan penghapusan, pemantauan dan survei (termasuk penelitian), serta penjangkauan dan keterlibatan publik adalah empat tujuan dari rencana aksi ini. Walaupun implementasi kebijakannya berbeda, tujuan yang dilakukan di Indonesia dan Taiwan adalah sama: mengurangi sampah dari sumbernya dan meningkatkan partisipasi masyarakat dalam program rencana aksi.

Kata kunci: Sampah Laut, Kebijakan, Indonesia, Taiwan

Abstract

There is evidence that marine plastic pollution affects marine life and ecological services. The potential hazard to human health from chemical additions in plastics is also present. Although desirable, the recycling of plastics is now limited by the complexity of the materials and chemicals, the limitations of available technologies, and market demands. This study was conducted to discover the challenges and future of marine debris policy. This study takes two locations, Indonesia and Taiwan, which have issued marine debris policies simultaneously. At the same time, the Indonesian and Taiwanese governments 2018 issued a policy to reduce marine debris. Following Presidential Decree Number 83/2018 concerning Handling Marine Debris, the Government of Indonesia published a National Action Plan for Handling Marine Debris for 2018–2025. Following this law, the Indonesian government agreed to handle 70% of the solid trash generated within eight years between 2018 and 2025, eliminate marine debris by 70%, and reduce solid waste by 30%. In Taiwan, the "Action Plan of Marine Debris Governance, " issued in 2018 by this alliance and the EPA, contains a schedule for the phase-out of four single-use plastic items (plastic bags, straws, utensils, and takeaway cups). Source reduction, prevention and removal, monitoring and surveying (including research), and outreach and public involvement are the four objectives of this action plan. Although implementing the policy is different, the objectives carried out in Indonesia and Taiwan are the same: reducing waste from sources and increasing community participation in action plan programs.

Keywords: Marine Debris, Policy, Indonesia, Taiwan

INTRODUCTION

Indonesia is a developing country in the form of the largest archipelago in the world, with natural beauty, cultural heritage, and abundant culture. These various potentials, if appropriately managed, can encourage the global competitiveness of Indonesian tourism (Nopitasari, 2018). However, it has experienced a pretty good increase compared to the previous period when Indonesia's global tourism, further development is still needed because Indonesia's tourism potential is so significant that its growth has not been maximized (Rochmah, 2020).

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Maximizing tourism in Indonesia can also be hindered due to environmental damage such as uncontrolled waste generation which causes marine debris and reduces the aesthetics of marine tourism (Cordova et al., 2021; M. Sari et al., 2022; M. M. Sari, Inoue, Septiariva, et al., 2022; Suryawan et al., 2021).

Taiwan is part of the global community, whose role is irreplaceable (Hsu et al., 2021). Taiwan's restrictions on plastics and recycling mechanisms have surpassed those of European countries and the United States (C.-Y. Wu et al., 2021). Planning targets from government policies to strictly control the use of plastic products will be carried out until 2030 (H.-H. Wu, 2022). In addition to establishing relevant regulations, the community has the initiative and willingness to create a clean coastal environment. All parties strive to create a sustainable and sustainable environment.

Maritime tourism in Indonesia and Taiwan presents a beautiful and unique underwater panorama. Not only the magnificent expanse of coral reefs and the breadth of the shoreline. Marine tourist attractions in Indonesia have a myriad of fascinating marine species. They start from turtles, sharks, dolphins, and many more. Indonesia is a country consisting of islands from Sabang to Merauke. Whereas in Taiwan, the geographical location is surrounded by the ocean, making Taiwan able to enjoy the catch of fish that are migrating. On the other hand, due to their strategic location, Indonesia and Taiwan often receive 'gifts' from all over the world, namely marine debris (Gacutan et al., 2022; H.-H. Wu, 2022).

Ships are also a contributor to marine debris (Jang et al., 2014; Otley & Ingham, 2003), most likely marine debris is dominated by fishing gear that is intentionally left behind and lost; if we look at areas far from urban development. Furthermore, plastic pollution in the oceans also negatively impacts the country's economy. Plastic pollution in the oceans can cause a decline in the economy in fisheries, tourism, and others. If traced further, 70-80% of waste pollution in the sea comes from land (Calabrò & Grosso, 2018), but this figure cannot be proven properly because it does not include the mass of plastic waste dumped into the ocean from the mainland. The increase in plastic waste in the sea and its negative impact has resulted in the world's attention to plastic waste in the sea, resulting in the creation of bilateral, multilateral, and regional international agreements to tackle waste pollution in the ocean. This study takes two locations, Indonesia, and Taiwan, which have issued marine debris policies simultaneously.

METHOD

This research was conducted by reviewing literature studies from journals and related regulations that had been previously published. Then a systematic data analysis was carried out from the policies and similarities of marine debris policies in Indonesia and Taiwan.

RESULT AND DISCUSSION

INTERNATIONAL MARINE PROTECTION POLICY

Countries are committed to following the provisions of the United Nations convention on the law of the sea related to protecting and preserving the marine environment to prevent the degradation of the marine environment (Maes, 2008). From maintaining and increasing the carrying capacity of life and productivity of the marine environment by following each country's policies, priorities, and resources. In achieving this goal, it is necessary to implement prevention, anticipation to address the degradation of the marine environment and reduce the risk of long-term adverse impacts and ensure the assessment of activities (Cowie et al., 2018). Provision of additional financial resources through appropriate international mechanisms, access to clean technologies, and relevant research will be needed to support developing countries actions to implement these commitments.

The Stockholm Declaration contains 26 general principles of international environmental law and their enforcement and 109 recommendations for action plans for the human environment. The Mediterranean Sea against Pollution from Land-Based Sources and Activities 1996 (Sycrause Protocol), Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region 1983 (Cartagena Convention), and Protocol Concerning

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Pollution from Land-Based Sources and Activities to the Convention for the Protection and Development of the Wide Caribbean Region 1999.

TAIWAN MARINE DEBRIS MANAGEMENT PLATFORM

Since the EPA and local environmental groups jointly established the Taiwan Marine Debris Management Platform in July 2017, Taiwan's management solutions for marine garbage have advanced significantly and matured (Environmental Protection Administration, 2021). Public and business sectors collaborate to completely clean up marine waste as part of the "Salute to the Ocean" initiative. All countries are concerned about the severe and continuous problem of marine debris. Because marine plastic garbage decomposes slowly in the environment, it has a particularly significant impact. The No. 13 Executive Plan of the Taiwan-US Environmental Protection Technological Collaboration Agreement, signed in September 2020, calls for cross-departmental cooperation concerning marine debris (Environmental Protection Administration, 2021). The source reduction approach currently has 18 active and upcoming projects. The Ocean Conservation Administration (OCA), the Fisheries Agency (FA), and the EPA are among the cooperating government agencies. The following four areas of attention comprise the Taiwan Marine Debris Governance Action Plan (Figure 1) (Environmental Protection Administration, 2021). This was large because of the cross-jurisdictional coordination through various governmental departments and citizen participation mechanisms for follow-up monitoring characteristics of the action plan (Hung et al., 2022). The action plan addresses four societal dimensions: reducing waste at the source, preventing, and eliminating waste, conducting research and investigations, and increasing cooperation and involvement (Hung et al., 2022).

Additionally, in 2018 the Ocean Affairs Council was founded to control marine debris, develop sustainable marine development, and combine resources from both the public and commercial sectors while also developing Taiwan's maritime policies (Hung et al., 2022). The primary organization in charge of issues relating to marine trash is now the Ocean Conservation Council. Integrated action plans are regarded as practical tools for managing marine debris. However, promoting a waste management policy is frequently viewed as challenging, and comprehensive case studies on such initiatives are few and far between. According to our assessment, the experience from Taiwan that exemplifies public-private cooperation (Bruno A Walther et al., 2018; Bruno Andreas Walther et al., 2021) is likely to be helpful as a guide when developing environmental policy. This issues hope it will make foreign policymakers including Indonesia more aware of the increased viability of public participation in the debate over marine debris.

INDONESIA MARINE DEBRIS GOVERNANCE ACTION PLAN

Indonesia already has a special regulation related to the waste problem, namely Law no. 18 of 2008 concerning Waste Management. However, this regulation still leaves various legal loopholes, so it is ineffective in dealing with multiple waste problems that are overgrowing along with the increase in population and increasing public consumption (M. M. Sari, Inoue, Harryes, et al., 2022; Septiariva et al., 2022; Septiariva & Suryawan, 2021). So, seeing the usual efforts that the government has taken have not been able to manage waste optimally even after twelve years of the existence of this regulation, we cannot expect to be able to solve problems in the field.

Rules regarding waste management are also addressed explicitly to marine debris. Through Presidential Decree No. 83 of 2018 concerning the Handling of Marine Debris, a National Action Plan (NAP) for the Handling of Marine Debris is designed for eight years with the period 2018-2025. The NAP is implemented through several strategies, which include: (a) a national movement to increase stakeholder awareness; (b) management of waste originating from the land; (c) waste management on the coast and the sea; (d) funding mechanisms, institutional strengthening, supervision and law enforcement; and (e) research and development.21 These strategies are then translated into several programs and activity plans listed in the Appendix

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section, which is an integral part of Presidential Decree no. 83 the Year 2018 (Peraturan Presiden Indonesia, 2018).

Figure 1. Taiwan Marine Debris Governance Action Plan (Environmental Protection Administration, 2021)

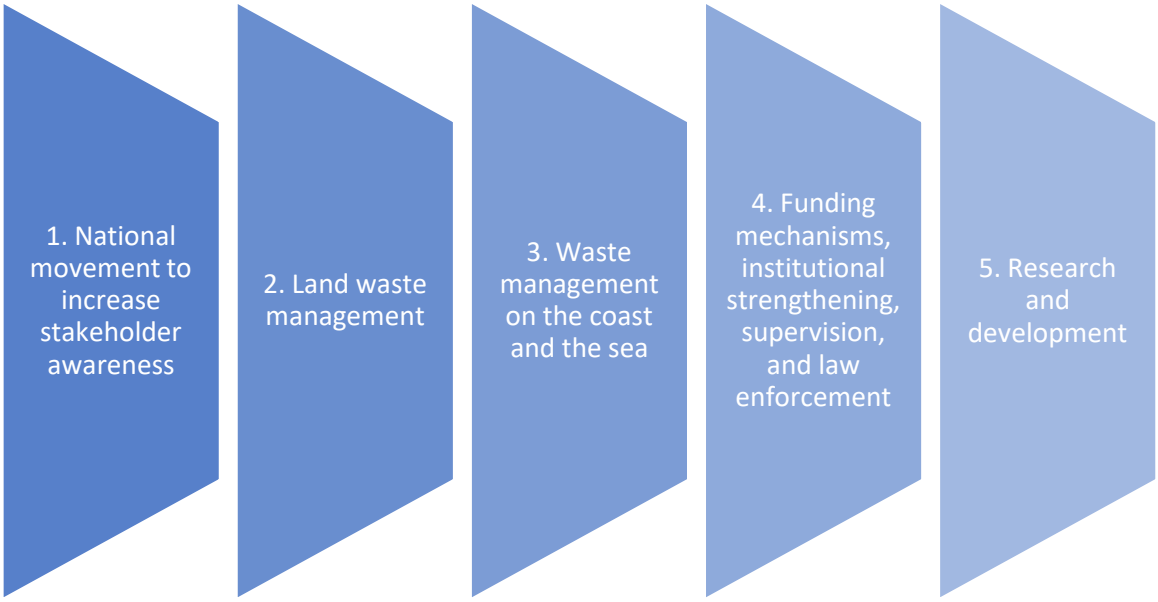

Figure 2. Presidential Decree No. 83 of 2018 concerning the Handling of Marine Debris, a National Action Plan (Peraturan Presiden Indonesia, 2018)

(Jambeck et al., 2015) previously estimated the production of marine plastic waste in several countries, including Indonesia. Indonesia ranks second highest, with an estimated annual output of

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0.48-1.29 million tons annually. There needs to be a combination of bottom-up and top-down approaches to accelerate the improvement of plastic waste management in Indonesia. The coordinating minister for Maritime Affairs led the team and was chaired by the Minister of Environment and Forestry (KLHK) (Nisaa, 2019). The team involved various ministries and agencies. The Ministry of Environment and Forestry has an agency at the provincial and local government levels, namely the Environmental Agency (DLH) (Nisaa, 2019).

SIMILARITIES IN MANAGEMENT OF INDONESIAN AND TAIWAN MARINE DEBRIS

How the policy is put into effect differs from country to country. Still, the goals that are pursued in both Indonesia and Taiwan are the same: decreasing the amount of waste produced at its origins and raising the amount of community participation in action plan programs. Although scientific studies are elucidating the origins and effects of marine plastic pollution, governments and nonstate actors are pursuing solutions in a wide variety of methods. The present governance structures in place on both the international and the national levels to deal with marine litter are analyzed here to emphasize the intricacies of this environmental restoration challenge (Landon-Lane, 2018; Wenhai et al., 2019) Corporate social responsibility in marine plastic debris governance. In addition, market and community tactics offer various answers that the government and international organizations cannot give, such as education, outreach, and corporate social responsibility programs (CSR). Combining governance solutions with scientific expertise can offer an all-encompassing and integrated approach to reducing the amount of litter and waste entering the oceans. Several nations are addressing the problem of marine debris nationally by-passing legislation, developing policies, and developing action plans. The intricacy of the problem can be seen in the several "bottom-up" or community-based ways to address the issues associated with marine litter and the governance of the problem. In their efforts to address various facets of the marine litter problem, different actors direct their attention toward distinct demographics, communicate in multiple tones and styles, and use diverse strategies, materials, and worldviews. The impact of non-governmental organizations (NGOs) and community-based groups are multifaceted, and it can lead to substantial shifts in the policies that regulate industries and the government (e.g. microbead bans have been enacted or are under consideration in several states and countries). Industrialized manufacturing sectors are foundations on which developing nations can accumulate endogenous social capabilities and enable network-based collective bricolages; for developing nations trying to establish circular economies based on their endogenous small-to-medium enterprises, developing network-based collective bricolages in conjunction with adaptive institutional governance is an essential and effective strategy (C.-Y. Wu et al., 2021).

CONCLUSION

To prevent further marine environment degradation, countries have pledged to implement policies per the United Nations Convention on sea law. Due to the pressing necessity to initiate comprehensive conservation efforts, the Platform plans to invite relevant authorities and groups to its meetings to influence further parties involved in marine debris. Its goal is to raise public consciousness about the need to reduce marine garbage generation and its impact so that people would realize they must take personal responsibility for conserving the environment. The Taiwan Marine Debris Governance Action Plan focuses on the following four categories. Marine debris is also specifically handled in waste management regulations. A National Action Plan (RAN) for the Handling of Marine Debris is planned for eight years, from 2018 to 2025, under Presidential Decree No. 83 of 2018. Procedures for putting the policy into action vary from one nation to the next. Indonesia and Taiwan are committed to reducing trash at their source and increasing community involvement in waste management action plans. Scientists are studying the causes and consequences of marine plastic pollution, and governments and

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nonstate organizations are working on remedies in many ways.

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