

AN ANALYSIS ON THE LEGAL APPROACHES TO COMBAT PLASTIC POLLUTION IN BANGLADESH

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Abstract

Plastic pollution is a significant environmental problem in Bangladesh, induced by rapid urbanization, poor waste management, and a dearth of specialized legal regimes. The study, titled, An Analysis on the Legal Approaches to Combat Plastic Pollution in Bangladesh, adopts a qualitative approach based on secondary data from legislation, journal articles, and international reports. It assesses key legislations like the Bangladesh Environment Conservation Act 1995, Mandatory Jute Packaging Act 2010, and Solid Waste Management Rules 2021. Findings reveal that while the legislations exhibit regulatory intent, their effectiveness is marred by weak enforcement, inadequate infrastructure, low public awareness, and a lack of legislation addressing the full lifecycle of plastics. Drawing from global best practice, particularly Rwanda and Germany, the study recommends enacting comprehensive legislation, enhancing enforcement, promoting alternatives, and harmonization with global treaties. The research emphasizes the urgency of robust legal and institutional reforms to combat plastic pollution in a sustainable manner.

Keywords: Plastic pollution, legal frameworks, Bangladesh, environment conservation, jute packaging, waste management, circular economy, enforcement.

1. INTRODUCTION

Plastic and microplastic pollution pervade global ecosystems. Ranging from oceans, coastlines, mountains, cities, and rural areas. Some scientists propose these pollutants as geological markers for the Anthropocene (Geneva Environment Network, 2023). Global economic shifts toward urbanization, high-capacity production, and technological advancement. It has intensified industrial activity and urban growth which leads to increased pollution, environmental degradation, and poor waste management. Plastic waste inevitably reaches oceans. The World Economic Forum warns that by 2050, plastic could outweigh fish in the seas based on current trends (World Economic Forum, January 2016). Growing cities and industries exacerbate poorly managed waste, particularly plastic. It accumulates at record levels globally in both developed and developing nations. China led with 95 million tons of plastic produced in 2019 (Straková et al., 2022). Bangladesh as a developing nation, ranks 10th among the top 20 countries for mismanaged plastic waste in 2010, contributing significantly to plastic pollution (Jambeck et al., 2015). Bangladesh's throwaway culture leads to rampant roadside trash dumping. Which overwhelm city and municipal authorities. Plastic waste, mixed with organic waste, without segregation, hinders effective recycling due to the lack of organized waste management. In Dhaka, 2020 saw 646 tons of plastic waste, 10% of its total waste. 48% ended up in landfills, 37% were inefficiently recycled, 12% were disposed of in rivers, and 3% were indiscriminately disposed. Thus, it underscores the urgent need for sustainable waste management to address environmental and health risks (Khatun et al., 2023).

In this context, the study intends to find the international best practices for combating plastic pollution, the legal framework in Bangladesh pertaining to plastic pollution, and what legal measures need to be taken to combat plastic pollution in Bangladesh and beyond.

2. STATEMENT OF THE PROBLEM

Plastic pollution is a critical global environmental crisis, posing significant threats to ecosystems, human health, and sustainable development. We produce about 400 million tonnes of plastic waste (Decoding Biosphere, 2023) annually in this era (UNEP). Despite significant plastic waste production, no globally binding regulations govern its disposal or production. Scientific



evidence stands to prove the dire health effects of plastics. Among those are increases in the rates of cancers, endocrine disruption with drugs that prevent reproduction processes, growth, and ability impairments in neurocognitive faculties (Geneva Environment Network 2023). Plastic pollution emanates from a wide range of sources, including textiles, tire wear, plastic bottles, and packaging. Its sophistication requires an extensive and adaptive international response, including collective action by national, regional, and international players. Notwithstanding increasing acknowledgement of the imperative of long-term, integrated, and collaborative action, there is yet no international agreement solely aimed at curtailing plastic pollution (Center for International Environmental Law 2023). Plastic pollution has some complex effects. These include social and economic factors and policy effectiveness. But these remain relatively poorly understood. Since it is a transboundary problem, it requires a worldwide viewpoint and coordinated international efforts. This study looks into the existing international and Bangladeshi legal regimes concerning plastic pollution. In Bangladesh, especially in Dhaka, 646 tons of plastic waste, constituting 10% of its total waste, were dumped in 2020. It continues mostly due to throwaway culture, although some regulations do exist (Khatun et al., 2023). In the context of the legal framework, the response to plastic pollution remains woefully inadequate. Bangladesh has no specific laws or regulations to combat plastic pollution. Some laws talk about plastic in a brief, including the Environment Conservation Act 1995, the Mandatory Jute Packaging Act 2010, the National Plastic Industry Development Policy 2021 (Draft), and the National 3R Strategy for Waste Management. However, the provisions of this Act have failed to combat plastic pollution in Bangladesh. The current scenario is that over 646 tons of plastic waste have accumulated in Dhaka city alone (Khatun et al., 2023). Bangladesh lacks a dedicated law to counter plastic pollution, creating a huge regulatory gap undermining policy implementation and effective enforcement and thereby obstructing mitigation efforts. This paper focuses on those significant gaps, considering the absence of any statute, the dysfunctional application of existing laws and policies in Bangladesh, and the absence of any binding international covenant.

4. METHODOLOGY OF THE STUDY

This qualitative research relies primarily on secondary data gathered from various sources, i.e., books, peer-reviewed journal papers, UN resolutions, UN press releases, newspaper articles and other verified online sources. Some Preliminary data such as laws and relevant statistics from different NGOs used with proper reference. The relevant UN resolution, UNEP press release, etc. and also relevant provisions of the Environment Conservation Act 1995, the Mandatory Jute Packaging Act 2010, the National Plastic Industry Development Policy 2021 (Draft), and the 3R strategy for waste management are discussed in this study. It has also reviewed the relevant literature on this issue, such as laws, government official documents, published articles, etc. In this study, the upcoming globally binding plastic treaty, the relevant laws and policies in Bangladesh and the challenges to combat plastic pollution have been analysed.

5. SCOPE AND JUSTIFICATION OF THE STUDY

The research analyses legal responses to plastic pollution in Bangladesh, determining the sufficiency and efficacy of domestic laws, policies, and regulations. It also analyses applicable international legal frameworks and best practices available to augment national response. The study evaluates enforcement and implementation to determine actual impact on the ground, inclusively covering legal and institutional steps and not foraying into technical and scientific solutions to plastic waste management. Wherever relevant, it makes comparative remarks from best-practice countries in order to suggest improvements.

It is desirable that this study will help to realize the present legal situation of plastic pollution in Bangladesh and beyond. Plastic pollution has emerged as a significant and pressing environmental issue. Many initiatives are taken by the countries to combat this alarming climate problem. But none of them are internationally legally binding. There is an absence of a legally binding international treaty. In Bangladesh, there are some laws which talk about plastic pollution. But there is no specific provision that is enough to combat plastic pollution. As this study focused on international and domestic laws, the policymakers and



legislators will get new insight from the study, which will help to think about making new laws and policies and proper implementation of those laws and policies to combat plastic pollution.

7. LITERATURE REVIEW

Fahmida Khatun et al. (2023), conducted a study on plastic pollution in Bangladesh. Where they point out the seriousness of urban plastic waste. They cited that, in Dhaka 646 tons of waste accumulated daily in 2020. Of that, only 37% recycled informally and 12% discharged into the rivers. Which is suggestive of systemic mismanagement and public apathy. In spite of the presence of laws and policies (Khatun et al., 2023). They revealed the careless enforcement of the Environment Conservation Act 1995. And the poor degree of compliance with the Mandatory Jute Packaging Act 2010. And indicates policy gaps in both design and implementation (Hossain, 2018). International Growth Centre (IGC) in their 2023 report sees that Bangladesh's regulatory framework remains fragmented. There are overlapping mandates and institutional coordination is poor. Which contributed to aggravating plastic leakage into the environment (International Growth Centre 2023).

The International Institute for Sustainable Development (IISD) points out the role of trade policy which addresses plastic pollution. IISD suggests the potential of bans on single-use plastics. Also speaks about the lack of harmonized approaches within WTO member nations (Baršauskaitė & Irschlinger, 2023). The WTO's Informal Dialogue on Plastics Pollution (IDP) aligns trade measures with environmental sustainability. Which puts forward regulatory cooperation and transparency (Geneva Environment Network 2023).

The Geneva Environment Network (2023) provides a comprehensive overview of international efforts to address plastic pollution. The Basel Convention's 2019 Plastic Waste Amendments sheds light on international legal instruments. Which will govern transboundary plastic waste. It aims to ensure environmentally sound plastic waste management (Geneva Environment Network 2023). It is found that enforcement remains uneven. Especially in low and middle income countries such as Bangladesh.

The World Economic Forum (WEF) (2016), provide a forecast that, plastic in the oceans could outweigh fish by mass by 2050 (World Economic Forum 2016). This alarming projection emphasizes the urgency for globally coordinated strategies. The WEF also examines Extended Producer Responsibility (EPR) schemes. Such as those adopted by Ghana through its National Plastic Action Partnership. Which Bangladesh could emulate to increase accountability in its plastic supply chain (World Economic Forum 2023).

Fiona Harvey (2017), says that, Kenya's 2017 plastic bag ban policy, imposed fines up to \$40,000 or four years' imprisonment. Which resulted in an 80% reduction in plastic litter (Harvey, 2017). Rwanda's 2008 policy banning plastic bags and single-use items has similarly been effective. Consistent public education and legal enforcement is responsible for the effectiveness (UNDP 2023). Kenya and Rwanda sets an example of strict enforcement measures. Both countries demonstrate the potential of rigorous laws and cultural transformation. Which largely contrast with Bangladesh's fragmented efforts.

8. KEY CONCEPTS AND THEORETICAL FRAMEWORKS

Plastic pollution is the presence of harmful chemicals that builds plastic in the environment and human health. In Bangladesh, plastic waste clogs waterways and pollutes rivers. Different laws in Bangladesh are aims to reduce the plastic pollution but due to the obvious reasons it fails or does not implement properly. Different study shows the dire effect of plastic pollution in the environment. Different studies have shown that how plastic is mismanaged and polluting the environment.

Different environmental law theories and principles are in align with combating plastic pollution. The polluter pays principle requires polluters to bear the cost of pollution it caused to the environment. Which underpins the extended producer responsibility (EPR) in the solid waste management rule. Sustainable development, environmental justice, circular economy, precautionary and policy implementation theories can be used to evaluate the plastic pollution laws in Bangladesh.

10. EXISTING LEGAL FRAMEWORKS IN BANGLADESH

In Bangladesh, certain laws could be called related to combating plastic pollution. The laws and policies about plastic products are mostly targeted towards the consumption aspect of the value chain. The laws and policies discussed in this chapter are the Environment Conservation Act 1995, the Mandatory Jute Packaging Act 2010, and the National Plastic Industry Development Policy 2021 (Draft), the National 3R Strategy for Waste Management, and the Solid Waste Management Rules, 2021.

10.1. CONSTITUTIONAL LAW OF BANGLADESH

Article 18A of the Constitution of Bangladesh poses the commitment of the govt. to ensure the protection of the environment. It reads, “the State shall endeavour to protect and improve the environment and to preserve and safeguard the natural resources, bio-diversity, wetlands, forests and wild life for the present and future citizens.”

10.2. THE ENVIRONMENT CONSERVATION ACT 1995

Currently in effect in Bangladesh, the Environment Conservation Act 1995 seeks to reduce pollution, raise standards, and protect the environment. The term “environment” refers to the interactions between physical properties, water, air, soil, people, animals, plants, and microorganisms. According to the Act, “pollution” is defined in section 2(b) as the physical, chemical, or biological contamination or alteration of air, water, or soil by the release of substances that are harmful to the environment, public health, or any beneficial activity or living form. The Act also define ‘environment pollutant’ as “any solid, liquid or gaseous substance which causes harmful effect to the environment and also includes heat, sound and radiation”. According to the Act, a “hazardous substance” is any material whose chemical or biological characteristics render its production, handling, release, or uncontrolled transportation hazardous to the environment. According to the Act, “hazardous waste” is defined as waste that can be toxic, infectious, flammable, explosive, radioactive, corrosive, or otherwise hazardous to the environment because of its chemical or biochemical makeup, or when combined with other waste.

According to Section 6A of the Act, if an item made of polyethylene or polypropylene is judged to be environmentally harmful, the government may prohibit its manufacture, importation, sale, distribution, or commercial use, by publishing a notice in the Gazette. For export use or if certain types are excluded in the notification, there are exceptions. “Polythene shopping bag” refers to any carrying bag composed of polyethylene, polypropylene, or their derivatives.

Bangladesh’s first legislative measure to address plastic pollution was Section 6A, which was introduced in 2002. The production, importation, marketing, sale, display, storage, distribution, commercial transportation, and use of polythene shopping bags and other environmentally harmful products are all prohibited. Due primarily to public ignorance, single-use plastics, mostly polythene bags, are frequently used and carelessly disposed of in Bangladesh’s streets, canals, rivers, or by burning. Furthermore, in response to a writ petition, the High Court Division broadened the prohibition to cover the sale, advertising, and transportation of plastic carrier bags and other single-use plastics, including straws, cotton buds, cutlery, bottles, food packets, and plastic plates, in coastal hotels and restaurants (BELA vs. Bangladesh Ministry of Environment, Forest and Climate Change and ors., 2020).

In order to prevent environmental harm, Section 6C gives the government the authority to regulate the production, processing, storage, packaging, transportation, import, export, disposal, and dumping of hazardous waste through regulations and in accordance with other laws. This section also applicable to combat plastic pollution. The pile of plastic generates harmful chemicals such as Bisphenol A (BPA), phthalates, and other chemicals which can be hazardous to both the environment and to human health (Proshad et al 2017). It is now an open truth that this hazardous waste is affecting the environment. So, this section has its own applicability to combat plastic pollution.

10.3. THE ENVIRONMENT CONSERVATION RULES 1997



In order to combat environmental pollution, ensure proper enforcement of the law, and address other environmental matters, the government creates regulations using the authority granted by Section 20 of the Environment Conservation Act, 1995.

Rule 7 of the aforementioned rule prescribes the manner of obtaining an Environmental Clearance Certificate. For this purpose, industrial units and projects are categorized in four different classes based on the location and potential environmental impact thereof: -

- a) “Green
- b) Orange-A
- c) Orange-B
- d) Red”

Plastic products are listed under Orange B in Schedule 1, which arranges products according to their environmental impact. The following documents must be included with an application under subrule 5, rule 7 for plastic-related industries to receive an Environmental Clearance Certificate.

10.4. THE MANDATORY JUTE PACKAGING ACT 2010

One significant step in Bangladesh’s attempts to revitalize its jute industry and cut back on plastic use was the Mandatory Jute Packaging Act of 2010. The Act was formally put into effect in 2013 with the goal of encouraging environmentally friendly, biodegradable packaging. The government can require jute packaging for specific products under Section 3. Initially, the government required jute packaging for six important agricultural products, including wheat and rice. This was in line with international sustainability trends and helped to revive the jute industry. Later, the list was extended to include seventeen essential commodities (Yoshijima et al., 2021). This extension strengthened the Act’s effect on the jute industry and demonstrated the government’s dedication to a circular economy and less environmental damage. Packing notified commodities in materials other than jute is prohibited by Section 6. This clause makes sure that jute packaging is strictly enforced. The transition away from plastic presented difficulties, so it was implemented gradually. The government may impose minimum percentages of jute use on notified goods under Section 9. Everyone involved in the supply chain, from producers to consumers, had to adjust. Research and development were sparked by innovations that increased jute’s affordability and durability. By extending product coverage to reduce plastic pollution and promote a greener future, the Act demonstrates Bangladesh’s dedication to sustainability. It brought new life to the jute industry and changed packaging standards, demonstrating how environmentally friendly policies can be implemented with awareness.

10.5. THE NATIONAL PLASTIC INDUSTRY DEVELOPMENT POLICY 2021 (DRAFT)

In 2020, the Bangladesh Ministry of Industries unveiled the “National Plastic Industry Development Policy 2021 (Draft)”, to address the environmental impact of plastic waste. And encourage the plastic industry to grow sustainably within the socioeconomic framework of the nation. The primary objective of the policy was to proactively reduce the negative effects of plastic waste on the environment. With a focus on strong environmental stewardship, it set an ambitious goal of achieving zero plastic and packaging waste by 2030 and provided a clear vision for minimizing harm. The policy’s goal of standardizing the production of recyclable products in the plastics sector was one of its main characteristics. It aimed to create a circular economy and a sustainable industrial framework by encouraging recyclability, which opened the door to better plastic waste management. The Ministry of Industries’ dedication to ethical and efficient plastic waste management was reflected in the policy, which placed a strong emphasis on the integrity and calibre of recycling procedures. Strict oversight and guidelines were required to guarantee high-quality recycling. The policy also established a clear connection between waste generation and recycling by emphasizing the necessity of systematic waste collection for plastic packaging. The goal of this integration was to improve and optimize waste management’s overall effectiveness. Plans for incineration-based power plants were started by Dhaka North City Corporation (DNCC) and Narayanganj City Corporation (NCC) in accordance with the waste-to-energy vision. With the goal of lowering landfill pressure and utilizing waste energy for the general public’s benefit, a 42.5 MW plant was proposed in DNCC and a 5 MW plant in NCC.

The forward-thinking projects by DNCC and NCC, as well as the “National Plastic Industry Development Policy 2021 (Draft),” demonstrate a concerted effort to address the intricate relationship between waste management, industrial growth, and environmental preservation. When taken as a whole, these measures demonstrate the government’s unwavering resolve to combat plastic waste and steer industrial growth in an environmentally conscious and economically feasible direction, opening the door to a time when ecological sustainability and industrial advancement coexist.

10.6. NATIONAL 3R STRATEGY FOR WASTE MANAGEMENT

A significant step toward creating an effective waste management system was taken in 2010 with the adoption of the National 3R Strategy for Waste Management. Based on the doctrines of reduce, reuse, and recycle, it encourages environmentally conscious behaviour and sustainable resource use. Additionally, by establishing a clear goal to eradicate waste dumping in open fields, waterways, and floodplains by 2015, the strategy pledges to reduce waste disposal in environmentally sensitive areas. It also included measures to promote recycling and require segregation of waste at source in the hope of creating a market for recyclables and providing incentives for recycling. Waste pickers find recycling more difficult because most households do not separate their waste due to a lack of institutional support and lax enforcement. In order to address this, the 2015 Plastic Park Project moved outdated plastic plants from central Dhaka to a new location with the goals of enhancing environmental quality, encouraging the expansion of the sustainable plastics industry, and lowering urban waste (Yoshijima et al., 2021).

Moreover, it is imperative to highlight the significant milestone represented by the unveiling of the Clean Dhaka Master Plan (2018-2032) (Yoshijima et al., 2021). With this creative plan, the Dhaka North and South City Corporations (DNCC and DSCC) now have a thorough framework to handle growing waste and fast urbanization. Founded on the 3Rs, Reduce, Reuse, Recycle, it places a strong emphasis on appropriate collection, responsible disposal, and waste reduction at the source. A crucial component is the construction of contemporary treatment facilities and incinerators, which guarantee environmentally responsible disposal while furthering the more general objective of waste reduction.

In adopting Clean Dhaka Master Plan (2018-2032) (Yoshijima et al., 2021), both the Dhaka North City Corporation (DNCC) and Dhaka South City Corporation (DSCC) have embarked upon a resolute path toward creating a cleaner, healthier, and more sustainable urban environment. The plan underscores their unwavering commitment to the principles of environmental stewardship and urban development that are enshrined in national and international legal frameworks. Furthermore, it demonstrates a clear recognition of their fiduciary duty to safeguard the well-being of current and future generations by addressing the challenges of urbanization and waste management in a comprehensive and legally sound manner.

10.7. THE SOLID WASTE MANAGEMENT RULES, 2021

An important step in the nation’s waste governance was taken in December 2021 when the government passed the Solid Waste Management Regulations under the Bangladesh Environment Protection Act, 1995. The regulations’ adoption of the 3R strategy, Reduce, Reuse, Recycle, to address waste mismanagement is one of their main features. Additionally, the regulations established Extended Producer Responsibility (EPR), which mandates that manufacturers, importers, and brand owners oversee the post-consumer phase of their goods in a sustainable manner (Khatun et al., 2023). The regulation also stress how important it is for local government officials to enforce waste management at the local level. They require public awareness campaigns, organized waste collection, and source segregation. The regulations also seek to encourage a consumer culture of environmental responsibility. Because of the risks to the environment and human health, they specifically forbid careless waste disposal and open burning as a preventative measure. When taken as a whole, these clauses signal a change in Bangladesh’s waste management system toward one that is more enforceable and sustainable.

11. INTERNATIONAL REGULATORY LANDSCAPE

Plastic pollution is not specifically covered by a number of international conventions that address environmental pollution, underscoring the need for a global treaty. Although it does not cover the full plastic lifecycle, the Basel Convention (1989) governs the transboundary movement of hazardous waste, including some plastics. The Stockholm Convention (2001) targets persistent organic pollutants, with the majority of plastic chemicals left out. The Stockholm Convention (2001) targets persistent organic pollutants, with the majority of plastic chemicals left out. These gaps emphasize the necessity for a coordinated, legally binding framework, as in UNEA Resolution 5/14 (2022), to deal with plastic pollution in a holistic way (UNEA 2022). Among the production of 460 million metric tons of plastic only 9% are annually recycled. This makes plastic pollution a serious problem on a global scale (GW Chowdhury and others 2021). In March 2022, 175 countries approved Resolution 5/14, at the United Nations Environment Assembly (UNEA-5.2), which calls for the creation of a legally binding international agreement by 2024 to address the entire lifecycle of plastics (UNEP). An important step forward in international efforts to create a legally binding agreement to address plastic pollution, especially in the marine environment, is the fifth session of the Intergovernmental Negotiating Committee (INC-5), which will take place from November 25 to December 1, 2024. Delegates adopted a “Chair’s Text,” which will be the foundation for further discussions, even though the session ended without a treaty being finalized. With a life-cycle approach, the proposed instrument addresses plastic pollution from design and production to disposal. Its comprehensive measures include design standards, binding reduction targets, restrictions on single-use plastics, extended producer responsibility (EPR), and mechanisms for technology transfer and financing, especially for low- and middle-income countries. The treaty in question places a strong emphasis on independent monitoring procedures, mandatory national reporting, and strong compliance frameworks. This changing international treaty framework offers Bangladesh both opportunities and challenges. National efforts to reduce plastic waste can be greatly strengthened by implementing EPR mechanisms and integrating a life-cycle legal approach. Additionally, Bangladesh may be better able to implement and grow its legal framework for the control of plastic pollution if its laws are in line with international design and packaging standards and it participates in treaty-based financial and technological assistance. The treaty in question places a strong emphasis on independent monitoring procedures, mandatory national reporting, and strong compliance frameworks. This changing international treaty framework offers Bangladesh both opportunities and challenges. National efforts to reduce plastic waste can be greatly strengthened by implementing EPR mechanisms and integrating a life-cycle legal approach. Additionally, Bangladesh may be better able to implement and grow its legal framework for the control of plastic pollution if its laws are in line with international design and packaging standards and it participates in treaty-based financial and technological assistance. In order to guarantee a successful and long-lasting response to plastic pollution, Bangladesh’s legal system must proactively evaluate how such international legal standards can be harmonized with and incorporated into national legislation, as the treaty is anticipated to be finalized during the next INC 5.2 session in August 2025 (Earth Negotiations Bulletin 2024).

12. ADEQUACY OF BANGLADESH’S EXISTING LEGAL FRAMEWORK

One of the main challenges is that the Bangladesh Environment Conservation Act 1995, which is the primary environmental legislation in Bangladesh, does not explicitly ban all types of plastic, for example, single-use plastics and laminated plastics are not currently banned. Some policies have been made in 2025 which bans single-use plastics and laminated plastics but it is not successfully implemented. This loophole allows for the continued production and use of these harmful plastics. Another challenge is that the existing laws are often not enforced effectively. For example, section 6A of the Bangladesh Environment Conservation Act 1995 prohibits manufacturing, producing, displaying, marketing, and selling polythene shopping bags. In a press release, Transparency International Bangladesh (TIB) says, “Polythene is being used indiscriminately under the nose of the law enforcers, and each year around three lakh tonnes of plastic waste are being dumped into water bodies and open places” (UNB 2014). The current law focuses on reducing the use of plastic bags, but it does not provide any specific guidance on how to manage plastic waste properly. This is a major loophole, as plastic waste remains a major problem in Bangladesh. The current law only focuses on single-use plastic bags. However, there are many other types of plastic pollution, such as plastic straws, plastic cutlery, plastic bottles, and other plastic products found in the markets of Bangladesh. Not specifying those products will not be a wise law to combat plastic pollution.

The Mandatory Jute Packaging Act 2010 was enacted to reduce the use of plastic bags in everyday life. Even after 13 years of implementing the Mandatory Jute Packaging Act 2010, jute sacks are not being used to wrap 19 types of products (Rahul 2023). The law was enacted to protect the interests of jute farmers and jute mill owners and limit the use of plastic bags harmful to the environment. However, due to the lack of enforcement of the law, a large number of products are being packaged in plastic bags (Rahul 2023). Since 2013, the Ministry of Textiles and Jute has tried to implement the law by inspecting the market through mobile courts numerous times. However, only 35 percent of the cases show the use of jute packaging (Hossain 2018). Without proper implementation of this law, the use of plastic packaging will be unabated in Bangladesh.

There is hardly any adequate waste management system in the plastic-related industry in Bangladesh, as the National 3R strategy suggests. Effective management of plastic waste faces many difficulties in Bangladesh. Lack of knowledge on the issue of plastic pollution is one barrier. In Bangladesh, many people still use and dispose of plastic products in an unsustainable manner because they are unaware of the negative consequences of plastic waste (Chakma, 2024). The lack of infrastructure for managing plastic waste is another problem. The systems in place for gathering and disposing of waste are insufficient, and there aren't enough recycling facilities to handle the enormous amount of plastic waste that is produced. There is a lack of political will across all administrative tiers to address the plastic pollution issue (Chakma, 2024). Lack of inspection and improper strategy implementation is also responsible for poor waste management.

13. LESSONS FROM BEST PRACTICE COUNTRIES

In order to support legal systems addressing plastic pollution in Bangladesh, lessons are learnt from Rwanda and Germany which have adopted successful action and fruitful policies to reduce plastic waste. Rwanda and Germany present examples of strong laws, strict enforcement, and creative waste management systems that can be replicated by Bangladesh based on its context.

Rwanda as an example implements strict plastic bans. Along with proper enforcement, sanctions and public awareness to reduce plastic pollution. Though it faces initial challenges such as smuggling and other limited alternative it has overcome the challenges and became one of the successful country to combat plastic pollution (InfoNile, 2022).

Germany as another example which through proper implementation of its Circular Economy Act combated plastic pollution successfully. The Act emphasizes prevention, reuse, recycling, and EPR. Germany's advance infrastructure and the successful deposit return system achieved maximum return rates (NetZero Pathfinders). These models could be a role model for Bangladesh. As the robust regulation, proper enforcement, public awareness, infrastructure investment and economic incentives can be successful to combat plastic pollution. Bangladesh can adopt a mixed approach to mitigate plastic pollution at the regulatory level.

14. FINDINGS

The findings are organized to align with the goals and research questions, guaranteeing a clear connection with the study's emphasis on legal frameworks, their adequacy, and their state of implementation.

14.1. From this research, it is found that, the legal regimes controlling plastic pollution in Bangladesh consist of a number of major pieces of legislation and policies, each with their respective provisions and limitations.

- Bangladesh Environment Conservation Act 1995: Section 6A prohibits polythene shopping bags and other toxic plastics. It is a step towards combating plastic pollution. It has no provision for other single use plastics and microplastics. And it is not implemented properly.
- Mandatory Jute Packaging Act 2010: It mandates jute packaging of certain commodities. And reduces the consumption of plastic. It's use only limited to certain products and not the whole plastic waste arena.



- National Plastic Industry Development Policy 2021 (Draft): It favours recyclable plastic and circular economy. It fails in current form because it is not enforced.
- Solid Waste Management Rules 2021: The rules adopt the 3R principle (Reduce, Reuse, Recycle) and Extended Producer Responsibility (EPR) to manage plastic waste at the system level.
- National 3R Strategy for Waste Management: The strategy minimizes, reuses, and recycles but lacks any particular provision to manage plastic waste.

14.2. Adequacy of Legal Instruments in the Combat against Plastic Pollution: The second objective evaluates the adequacy of these instruments to combat plastic pollution and determines severe deficiencies:

- Limited Scope: The Environment Conservation Act 1995 is polythene bag focused. It excludes other plastics such as straws, cutlery, and laminated plastics. Which are a major contributor to pollution. This limits its capacity to address the whole scale of plastic pollution.
- Lack of Appropriate Provisions for Waste Management: Existing laws provide minimal guidance towards managing plastic waste. Where 646 tons of plastic waste daily in Dhaka in 2020 were 48% landfilled and 12% in rivers.
- Poor Regulatory Environment: There is poor compliance with inadequate penalties and irregular monitoring, with widespread use of banned plastics.

These loopholes show that current frameworks are not adequate to address the extent and complexity of plastic pollution in Bangladesh.

14.3. Implementation Scenario of Legal Frameworks: The third objective analyses the implementation scenario, finding existing frameworks aren't being implemented effectively:

- Weak Enforcement: Despite the ban on polythene bags via the Environment Conservation Act 1995, three lakh tonnes of plastic waste enter water bodies annually owing to weak enforcement.
- Limited Public Awareness: Limited public awareness on plastic pollutions impacts motivates irresponsible practices like roadside dumping and open burning.
- Inadequate Infrastructure: Inadequate recycling and waste collection infrastructures inhibit proper treatment, with only 37% of plastic waste being recycled informally in Dhaka.
- Lack of Coordination: Ineffective inter-ministerial coordination and weak political will result in low compliance, with only 35% compliance on the Mandatory Jute Packaging Act 2010.

These problems have a wide gap between policy making and actual implementation, ruining efforts to stem the tide of plastic pollution.

15. RECOMMENDATIONS

The recommendations are designed to address the gaps identified in the findings, aligning with the research objectives to improve the legal framework, its adequacy, and implementation for effective plastic pollution prevention.

15.1. Bangladesh should pass a specific law that addresses the full plastic lifecycle in order to address the fragmented frameworks. The law should include bans on single-use plastics and microplastics to broaden the scope to include more than polythene bags. It should provide standards for recyclable and biodegradable plastic. It must include EPR to ensure producers bear responsibility for post-consumer waste.

15.2. Bangladesh needs to improve enforcement mechanisms in order to improve the adequacy of the legal framework, enforcement must be improved. Bangladesh Should discipline with harsher punishment and well defined compliance rules to deter wrongdoings. It must build regulatory authority capacity through capacity development and increased funding. It should



increase inter-ministerial coordination to achieve consistent enforcement.

15.3. Public Awareness need to improve implementation. This should include informing the public about plastic pollutions environmental and health impacts. Promotes sustainable practices such as reducing plastic use and sorting out waste. Support community led initiatives to improve local waste management.

15.4. Bangladesh should invest in Waste Management Infrastructure to overcome infrastructure inadequacies. In doing so it should set up modern recycling plants to manage plastic waste efficiently, get waste-to-energy plants operational to reduce pressure on landfills, augment waste collection and segregation networks, particularly in urban areas.

15.5. Bangladesh needs to promote eco-friendly alternatives to enhance framework adequacy It should provide subsidies and tax holidays to producers of biodegradable products like jute, fund research on sustainable packaging options in order to reduce plastic reliance.

15.6. Bangladesh should actively participate in the forthcoming 2025 worldwide treaty against plastic pollution to bring national laws into alignment with international standards and secure international financing and technical assistance to enhance infrastructure and deployment

16. CONCLUSION

Plastic pollution is a blazing environmental concern in Bangladesh due to unrestrained urbanization, inadequate waste management, and disconnected legislation controls. The qualitative study, mostly based on secondary data, achieves its objectives by discussing key legislations. It Includes Bangladesh Environment Conservation Act 1995, Mandatory Jute Packaging Act 2010, and Solid Waste Management Rules 2021, and scrutinization of their adequacy and implementation. Findings indicate that while these legislations, being progressive, are narrow in scope and aim mostly at polythene bags with no provisions for other single-use plastics and microplastics. Those has weak enforcement, a lack of proper infrastructure, low public awareness, and inter-ministerial coordination inefficiency cause 646 tons of plastic waste to pile up every day in Dhaka with 48% being landfilled and 12% contaminating rivers. An effective mitigation is thwarted by the lack of a proper law covering the entire plastic lifecycle. Following global best practice, such as Rwanda's strict plastic prohibitions and Germany's advanced waste management, the study recommends having a dedicated plastic pollution Act comprising prohibitions, recyclability requirements, and Extended Producer Responsibility. Enhancing enforcement, launching public awareness initiatives, investing in modern recycling and waste-to-energy plants, promoting eco-friendly substitutes such as jute, and joining the 2025 global plastic treaty are essential. These reforms will plug regulatory gaps, enhance implementation, and create a plastic free Bangladesh future that is sustainable, weighing environmental conservation against socioeconomic growth.

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