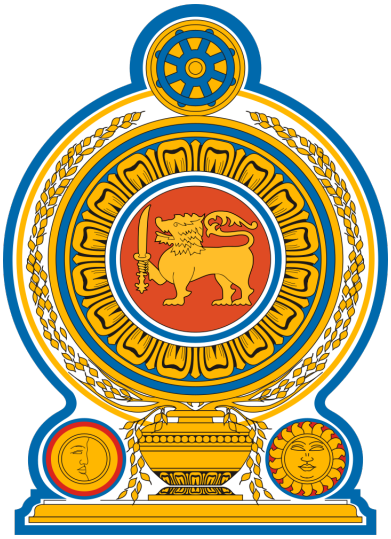

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Plastic Waste Management in Sri Lanka: The Issues in Operationalizing the Management Practices with Local Authorities

1. Introduction

Plastic pollution has emerged as a critical environmental crisis worldwide, with over 400 million metric tons of plastic waste generated annually (United Nations Environment Programme [UNEP], 2022). A significant portion of this waste approximately 11 million metric tons ends up in oceans each year, threatening marine ecosystems and human livelihoods (Lebreton & Andrady, 2019). Sri Lanka, an island nation with a population of 21.4 million, ranks among the top contributors to mismanaged plastic waste. According to Jambeck et al. (2015), the country generates approximately 1.59 million metric tons of plastic waste annually, with around 5% being mismanaged, leading to severe environmental degradation. Alarmingly, Sri Lanka was ranked fifth in the world for releasing plastic waste into the ocean in 2017 (Japan International Cooperation Agency [JICA], 2016).

The rapid urbanization and economic growth of Sri Lanka have led to an increase in plastic consumption, particularly in the Western Province, where nearly 60% of the country's solid waste is generated (JICA, 2016). The Colombo Municipal Council alone collects approximately 700-800 metric tons of solid waste daily, while other urban councils in the Metro Colombo Region, such as Dehiwala-Mount Lavinia, Kolonnawa, Sri Jayawardenapura Kotte, and Moratuwa, collect an additional 350-400 metric tons per day (JICA, 2016). This high rate of waste generation is compounded by the widespread use of single-use plastics, including straws, yoghurt cups, PET bottles, lunch sheets, milk packets, and polythene bags. A recent brand audit by the Centre for Environmental Justice (CEJ) revealed that multinational corporations such as Coca-Cola, Unilever, and Nestlé contribute significantly to Sri Lanka's plastic pollution, although local brands also play a substantial role (CEJ, 2021).

Despite efforts to manage plastic waste, the country's recycling capacity remains limited. Currently, Sri Lanka has over 400 companies engaged in plastic processing, with a total investment of Rs. 15 billion in plastic re-processing, nearly 50% of which comes from foreign direct investments (Ministry of Environment, 2022). However, most of this investment 66% is directed toward the export market rather than local waste management.

The local plastic processing industry operates at a capacity of approximately 140,000 metric tons per annum, with an annual growth rate of 10-12% (JICA, 2016). Sri Lanka imports around 500,000 metric tons of plastic annually, with 70% being used domestically, yet only a small fraction of this is effectively recycled (Ministry of Finance, 2022).

The inadequate management of plastic waste is largely attributed to weak institutional mechanisms, poor enforcement of regulations, and the absence of efficient waste segregation systems. While Sri Lanka has introduced several policies, such as the National Action Plan on Plastic Waste Management (2021-2030) and the 2017 Polythene ban, their implementation remains inconsistent (Centre for Climate and Environmental Technologies [CCET], 2021). The Extended Producer Responsibility (EPR) framework, which mandates plastic producers to manage post-consumer waste, has faced challenges in enforcement, leading to continued pollution (World Bank, 2021). Moreover, local authorities, which bear the primary responsibility for waste management under the Municipal Council Ordinance (1947), Urban Council Ordinance (1939), and Pradeshiya Sabha Act (1987), struggle with financial and infrastructural constraints (Western Province Waste Management Authority [WPWMA], 2008). Many municipal councils allocate less than 5% of their annual budgets to waste management, limiting their ability to implement sustainable practices (Ministry of Environment, 2022).

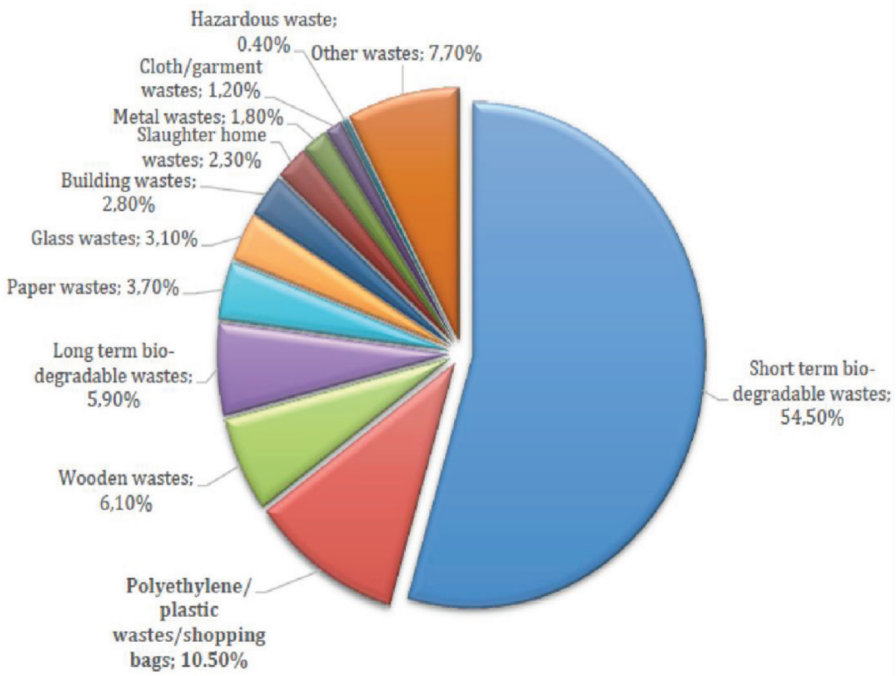

Figure 1: Solid waste composition in Sri Lanka
(Source: Country Situation Report - Sri Lanka, Centre for Environmental Justice, 2021)

According to Figure 1, approximately 10% of municipal solid waste in Sri Lanka consists of polyethylene plastic. In 2017, Sri Lanka was ranked as the fifth-largest contributor to plastic and polythene waste entering the ocean. The country's total plastic waste generation is estimated at 1.59 million metric tons (MMT) per year, with around 5% classified as mismanaged plastic waste.

The Western Province, home to the country's economic hub, faces the most acute plastic waste challenges. In response, the Western Province Waste Management Authority (WPWMA) was established in 2007 to oversee waste management initiatives, including taxation on waste-producing businesses and recycling programs (Gazette No. 1560/6, 2008; Gazette No. 1713/11, 2005). However, the success of these initiatives has been limited due to poor coordination between stakeholders and inadequate technical assistance. As a result, plastic waste continues to accumulate in landfills, water bodies, and urban spaces, contributing to urban flooding and health hazards.

Given these challenges, urgent reforms are necessary to enhance plastic waste management at the local level (Nuskiya & Sahana, 2021). This study examines the current state of plastic waste management in Sri Lanka, identifying operational challenges within local authorities and proposing strategic interventions to improve sustainability. A multi-stakeholder approach, involving government agencies, private sector actors, and community engagement, is essential to mitigate the worsening plastic waste crisis. Strengthening policy enforcement, investing in advanced recycling infrastructure, and promoting public awareness campaigns are critical steps toward a more sustainable waste management system in Sri Lanka.

2. Current State of Plastic Waste Management in Sri Lanka

2.1 Plastic Waste Generation and Composition

Sri Lanka generates approximately 1.59 million metric tons (MMT) of plastic waste annually, with an estimated per capita plastic consumption of 6 kg per year (World Bank, 2021). The Western Province, particularly Colombo, contributes the highest volume of plastic waste due to its high population density and economic activities (IPEN, 2021). According to the Centre for Environmental Justice (2021), plastic waste constitutes approximately 10% of the total municipal solid waste, with common plastic waste items including polyethylene bags, lunch sheets, sachet packets, and plastic bottles. The high dependency on single-use plastics exacerbates the environmental burden, as nearly 50% of the plastic products in Sri Lanka are designed for single use, persisting in the environment for several decades (Jambeck et al., 2015).

The impact of plastic waste mismanagement is particularly evident in marine pollution. In 2017, Sri Lanka was ranked as the fifth-largest contributor to plastic and polythene waste entering the ocean (Jambeck et al., 2015).

Studies indicate that approximately 5% of the country's total plastic waste is mismanaged, with much of it entering rivers, coastal zones, and ultimately the ocean (UNEP, 2022). This pollution poses severe threats to marine biodiversity and fisheries, which are crucial to Sri Lanka's economy and food security (World Bank, 2021).

2.2 Waste Collection and Recycling Practices

The waste collection infrastructure in Sri Lanka varies significantly between urban and rural areas. In Colombo, the Colombo Municipal Council (CMC) collects approximately 700–800 tons of solid waste daily, while other urban councils in the Metro Colombo Region, including Dehiwala-Mount Lavinia, Kolonnawa, Sri Jayawardenapura Kotte, and Moratuwa, handle an additional 350–400 tons per day (IPEN, 2021). However, inadequate waste segregation at the source and inefficiencies in collection mechanisms hinder effective waste management. The Western Province Waste Management Authority (WPWMA) has implemented regulations and initiatives to improve collection and recycling, but enforcement remains weak (WPWMA, 2008).

Recycling rates in Sri Lanka remain alarmingly low. Only 3% of plastic waste is recycled domestically, which is significantly lower than the global average of 7.2% (MDPI, 2023). A major limitation is the lack of infrastructure and financial incentives to promote large-scale plastic recycling (CCET, 2021). Although Sri Lanka has over 400 companies engaged in plastic processing, most recycling investments are focused on producing materials for the export market rather than addressing domestic waste (JICA, 2016). Approximately 66% of total plastic processing investments in Sri Lanka are dedicated to exporting plastic products, leaving a significant gap in addressing local recycling needs (Ministry of Finance, 2022).

The informal sector plays a crucial role in plastic waste management, with informal waste collectors and recyclers contributing significantly to collection and sorting (CCET, 2021). However, these workers often operate without proper institutional support or legal recognition, making their contributions undervalued and unsustainable in the long term. Additionally, open dumping and improper disposal methods continue to be prevalent, leading to widespread environmental contamination (UNEP, 2021).

Despite various policy efforts, including bans on certain single-use plastics and improved waste collection regulations, Sri Lanka continues to struggle with mismanaged plastic waste. The country remains one of the top contributors to oceanic plastic pollution, highlighting the urgent need for stronger enforcement of waste management policies and enhanced recycling mechanisms (Jambeck et al., 2015).

3. Challenges in Operationalizing Waste Management Practices

3.1 Inadequate Infrastructure and Financial Constraints

Local authorities in Sri Lanka face significant challenges in managing waste effectively, primarily due to inadequate infrastructure and financial constraints. Many local councils operate with limited budgets, which restricts their ability to invest in essential waste management facilities. According to the Centre for Climate and Environmental Technologies (CCET, 2021), many councils lack the financial resources needed to purchase modern waste collection vehicles, resulting in outdated and inefficient fleets that struggle to meet the demands of waste collection. Furthermore, there are insufficient landfill sites equipped to handle the increasing volume of waste, leading to the continued reliance on open dumping, which poses serious environmental risks.

Only a few municipal councils have established properly equipped Material Recovery Facilities (MRFs), which are critical for the sorting and recycling of waste. The absence of these facilities results in inefficient sorting processes, as recyclable materials are often mixed with general waste, significantly reducing the recycling rates. The World Bank (2021) indicates that the limited capacity of waste management infrastructure hampers local authorities' ability to effectively manage plastic waste, contributing to the ongoing plastic pollution crisis in the country. This inadequacy in infrastructure and funding is compounded by the increasing volume of waste generated, which continues to rise as urbanization and consumption patterns evolve.

3.2 Lack of Coordination between Stakeholders

Effective waste management in Sri Lanka involves a complex interplay of multiple stakeholders, including government agencies, private sector entities, and civil society organizations. However, a significant challenge lies in the lack of coordination among these stakeholders, which undermines the effectiveness of waste management initiatives. According to the United Nations Environment Programme (UNEP, 2021), weak policy enforcement and fragmented governance structures hinder the implementation of comprehensive waste management strategies at the municipal level.

Many local authorities operate independently, often without the necessary guidance or support from national agencies, leading to inconsistencies in waste management practices across different regions. This lack of coordination results in overlapping responsibilities and miscommunication among stakeholders, creating gaps in service delivery and exacerbating the challenges of managing plastic waste. Moreover, private sector involvement in waste management is often limited, as businesses may not feel incentivized to invest in sustainable practices due to the absence of robust regulatory frameworks and clear guidelines.

3.3 Low Public Awareness and Improper Waste Disposal Practices

Public awareness regarding proper waste management practices remains low in Sri Lanka, contributing to widespread improper waste disposal. Studies indicate that approximately 65% of households do not practice waste segregation, leading to the contamination of recyclable plastics and other materials (MDPI, 2023). This lack of segregation results in increased disposal costs and lower recycling rates, as recyclable materials are often mixed with general waste and sent to landfills.

Additionally, open dumping and burning of waste are prevalent practices, especially in rural areas, where communities may lack access to organized waste management systems. The International Pollutants Elimination Network (IPEN, 2021) highlights that these practices not only exacerbate plastic pollution but also pose serious health risks to communities, as burning plastic releases toxic emissions into the air. The absence of effective public education campaigns and community engagement initiatives further perpetuates these harmful disposal practices, underscoring the urgent need for increased awareness and involvement of citizens in waste management efforts.

3.4 Limited Policy Enforcement

Despite the existence of several policies aimed at improving waste management in Sri Lanka, the enforcement of these regulations remains weak. For instance, the polythene ban implemented in 2017 sought to reduce plastic consumption and promote alternative materials; however, the lack of monitoring mechanisms has resulted in widespread non-compliance (UNEP, 2021). Enforcement agencies often struggle with limited resources and inadequate training, which hampers their ability to effectively monitor and regulate waste management practices at the local level.

Furthermore, penalties for illegal dumping and improper waste disposal are rarely imposed, undermining the overall compliance with waste management regulations (CCET, 2021). This lack of accountability fosters an environment where improper waste disposal practices can persist without consequence, leading to increased plastic waste leakage into the environment. Strengthening the enforcement of existing policies, coupled with the development of comprehensive monitoring systems, is crucial for enhancing compliance and promoting sustainable waste management practices across the country.

In summary, the operational challenges in waste management practices in Sri Lanka are multifaceted, encompassing inadequate infrastructure, lack of coordination among stakeholders, low public awareness, and weak policy enforcement. Addressing these challenges is essential for creating an effective and sustainable waste management system that mitigates plastic pollution and protects the environment.

4. Role of Local Authorities in Solid Waste Management in Sri Lanka

Local authorities play a crucial role in solid waste management (SWM) in Sri Lanka, as they are primarily responsible for the collection, transportation, treatment, and disposal of waste within their jurisdictions. The effectiveness of local authorities in managing solid waste significantly impacts environmental sustainability, public health, and the overall quality of life for residents. This section explores the multifaceted roles and responsibilities of local authorities in solid waste management, highlighting their functions, challenges, and opportunities for improvement.

4.1 Responsibilities of Local Authorities

Local authorities, including municipal councils, urban councils, and pradeshiya sabhas, are tasked with a variety of responsibilities related to solid waste management, which can be summarized as follows:

- **Waste Collection and Transportation:** Local authorities are responsible for the regular collection of municipal solid waste from households, businesses, and public spaces. They must ensure that waste is collected efficiently and transported to appropriate disposal sites. In urban areas, such as Colombo, municipal councils handle a significant volume of waste, with the Colombo Municipal Council (CMC) collecting approximately 700–800 tons of solid waste daily (IPEN, 2021).

- **Waste Treatment and Disposal:** Local authorities manage the disposal of solid waste through various methods, including landfilling, incineration, and recycling. They must establish and maintain appropriate disposal facilities, such as landfills and recycling centers, while ensuring that these facilities comply with environmental regulations. The effectiveness of waste treatment and disposal methods directly influences environmental protection and public health.

- **Public Education and Awareness:** Local authorities play a key role in educating the public about proper waste management practices, including waste segregation, recycling, and the importance of reducing plastic use. They are responsible for organizing awareness campaigns and community engagement initiatives to foster a culture of responsible waste management among residents.

- **Policy Implementation and Regulation:** Local authorities are tasked with implementing national waste management policies and regulations at the local level. This includes enforcing laws related to waste disposal, monitoring compliance, and applying penalties for violations. Local councils must collaborate with national agencies to ensure the effective enforcement of waste management policies, such as the polythene ban introduced in 2017 (UNEP, 2021).

4.2 Challenges Face by Local Authorities

Despite their critical role in solid waste management, local authorities in Sri Lanka face numerous challenges that hinder their effectiveness:

- **Limited Financial Resources:** Many local authorities operate with constrained budgets, which restricts their ability to invest in essential waste management infrastructure, such as modern waste collection vehicles and recycling facilities. Insufficient funding often leads to inadequate service delivery and maintenance of existing waste management systems (CCET, 2021).

- **Outdated Infrastructure:** A significant number of local councils lack the necessary infrastructure to handle the increasing volume of waste generated in their areas. Many municipalities rely on outdated waste collection methods and equipment, which can result in inefficiencies and higher operational costs (World Bank, 2021).

- **Lack of Skilled Personnel:** The effective management of solid waste requires skilled personnel who are trained in waste management practices, environmental regulations, and public engagement. However, many local authorities struggle to recruit and retain qualified staff due to limited salary offerings and professional development opportunities (UNEP, 2021).

- **Coordination Challenges:** The management of solid waste often involves multiple stakeholders, including government agencies, private sector partners, and community organizations. A lack of coordination among these stakeholders can lead to inefficiencies, miscommunication, and gaps in service delivery (UNEP, 2021).

4.3 Opportunities for Improvement

To enhance the effectiveness of local authorities in solid waste management, several opportunities for improvement can be considered:

- **Capacity Building and Training:** Local authorities can benefit from targeted capacity-building programs that focus on enhancing the skills and knowledge of personnel involved in waste management. Training initiatives should cover areas such as waste collection, recycling practices, and community engagement strategies.

- **Public-Private Partnerships:** Collaborating with the private sector can provide local authorities with access to additional resources and expertise in waste management. Public-private partnerships can facilitate investment in waste management infrastructure, including recycling facilities and waste-to-energy plants.

- **Community Engagement:** Local authorities should prioritize community engagement initiatives to raise public awareness about waste management practices. Involving residents in decision-making processes and encouraging their participation in waste management programs can foster a sense of ownership and responsibility toward waste management efforts.

- **Innovative Waste Management Solutions:** Embracing innovative waste management solutions, such as technology-driven waste collection systems, can enhance efficiency and effectiveness. Local authorities can explore the use of data analytics, mobile applications, and geographic information systems (GIS) to optimize waste collection routes and monitor waste generation patterns.

5. Initiatives to Address Waste Management Challenges in Sri Lanka

The Sri Lankan government has implemented a variety of initiatives aimed at enhancing the country's waste management systems. These initiatives encompass the development of policies, strategies, guidelines, and legislation, as well as the provision of necessary infrastructure for effective waste management. Local authorities are primarily responsible for managing waste at the community level, operating under specific legislative frameworks, including the Municipal Council Ordinance (No. 16 of 1947), the Urban Council Ordinance (No. 61 of 1939), and the Pradeshiya Sabha Act (No. 15 of 1987). These frameworks establish the roles and responsibilities of local councils in solid waste management, allowing them to implement strategies suited to their specific contexts.

In recognition of the acute plastic waste problem, particularly in the Western Province, the Western Province Waste Management Authority (WPWMA) was established in accordance with the Western Province Waste Management Authority Statute, No. 01 of 2007. This authority has introduced various regulations, including the imposition of tipping fees on hotels, factories, and privately-owned markets to incentivize proper waste disposal. Furthermore, the WPWMA has initiated several recycling projects and provides technical assistance to enhance waste management practices across the province.

One notable initiative is the construction of a solid waste-fired thermal power station in Kerawalapitiya by the Urban Development Authority, which is designed to process approximately 630 metric tons of waste daily from the Colombo and Gampaha suburbs, generating up to 10 megawatts of electricity. Additionally, another facility is being developed in Karadiyana, expected to handle 500 metric tons of municipal solid waste per day. However, while incineration may alleviate waste accumulation, it is not considered a sustainable solution to the plastic pollution crisis, as it may release harmful emissions into the atmosphere.

Table 1: Overview of Key Waste Management Initiatives in Sri Lanka

Initiative	Description	Expected Outcome
Western Province Waste Management Authority	Established under Statute No. 01 of 2007 to oversee waste management in the Western Province.	Improved waste management practices and recycling initiatives.
Solid Waste Thermal Power Stations	Two power stations being built in Kerawalapitiya and Karadiyana to incinerate waste for energy production.	Reduction of waste volume and generation of renewable energy.
National Strategy for Solid Waste Management	Policy framework developed by the Ministry of Environment to formalize waste management practices.	Enhanced accountability and sustainability in waste management.
National Waste Management Policy (2018)	Comprehensive policy guiding waste management practices, emphasizing the principles of zero waste.	Shift towards a circular economy and reduction in plastic waste generation.
Environmental Police Network	Strengthening enforcement mechanisms for waste management across the country.	Improved compliance with waste management regulations.

The Metro Colombo Solid Waste Management Project, which includes the Aruwakkalu sanitary landfill, was proposed in 2015 and approved following environmental impact assessments in 2017. This project aims to address the challenges posed by waste accumulation in the Colombo area through the establishment of waste transfer stations and a landfill located about 170 km from the city. Despite its potential to mitigate waste management issues, concerns remain regarding the segregation of waste before it reaches the landfill.

Legal and policy frameworks have also played a crucial role in shaping waste management in Sri Lanka. The National Strategy for Solid Waste Management (2000) and the National Policy on Solid Waste Management (2007) were foundational efforts to formalize waste management practices in the country. However, challenges in implementation led to ongoing issues of open dumping, particularly in areas like Bloemendhal and Meethotamulla, where unregulated dumping resulted in significant environmental degradation. The collapse of the Meethotamulla dump in 2017 highlighted the urgent need for effective waste manag-

-ement solutions. In response to these issues, the National Waste Management Policy (2018) was introduced, which, while not specifically identifying plastic waste as a distinct category, recognizes it as part of broader waste streams, including municipal solid waste, packaging waste, and industrial waste.

Section 7 of the policy outlines guiding principles that emphasize shared responsibility among citizens and institutions in waste management. It advocates for environmentally sound practices, sustainable consumption, and the application of market-based instruments like the "polluter pays" principle and extended producer responsibility throughout the product lifecycle. The policy also encourages the establishment of zero-waste societies and incorporates legal provisions for waste tracking and accountability.

In summary, Sri Lanka has made significant strides in addressing waste management challenges through a combination of legislative measures, infrastructure development, and community engagement. However, ongoing challenges in implementation and enforcement highlight the need for continued efforts to strengthen the waste management system, particularly concerning plastic waste reduction.

6. The Major Legal Framework for Plastic Waste Management in Sri Lanka

Sri Lanka has established a comprehensive legal framework to manage plastic waste, incorporating various policies, regulations, and action plans. These efforts aim to address the environmental challenges posed by plastic waste through a combination of legislative measures and strategic initiatives.

Table 2: The Major Legal Framework for Plastic Waste Management in Sri Lanka

Legal Framework/Initiative	Description
Constitutional Provision	Article 27(14) of Chapter VI - Directive Principles of State Policy and Fundamental Duties states, “The State shall protect, preserve and improve the environment for the benefit of the community.” This establishes the fundamental duty of the state to safeguard the environment.
National Environmental Act No. 47 of 1980	This foundational legislation provides the legal basis for environmental protection in Sri Lanka, including regulations on the manufacture and disposal of plastics to control pollution and manage waste effectively.

National Policy on Waste Management (2020)	This policy outlines Sri Lanka's strategic approach to waste management, emphasizing the reduction, reuse, and recycling of materials, including plastics. It serves as a guiding document for implementing sustainable waste management practices across the country.
National Action Plan on Plastic Waste Management (2021–2030)	Developed by the Ministry of Environment, this action plan provides a strategic roadmap for managing plastic waste over the next decade, focusing on the entire lifecycle of plastics and promoting the principles of a circular economy.
Bans on Single-Use Plastic Products	In June 2023, Sri Lanka implemented bans on various single-use plastic items, including plastic straws, stirrers, plates, cups (excluding yoghurt cups), cutlery, plastic flower garlands, and plastic string hopper trays, to reduce plastic pollution and promote sustainable practices.
National Framework for Eco-Labelling	This framework encourages manufacturers to label products with information regarding their environmental impact, including recyclability. Approved on November 21, 2022, it aims to promote sustainable consumption by informing consumers about environmentally friendly choices.

7. Conclusion

The challenge of plastic waste management in Sri Lanka is a multifaceted issue that poses significant threats to the environment, public health, and the economy. As the country grapples with increasing volumes of plastic waste, it becomes imperative to recognize the critical role of local authorities, governmental policies, and community engagement in addressing this crisis. Despite existing frameworks and initiatives aimed at mitigating plastic pollution, gaps in implementation, enforcement, and public awareness continue to undermine efforts toward sustainable waste management. Sri Lanka's comprehensive

legal framework includes essential laws and policies that seek to regulate plastic production and waste disposal. However, the effectiveness of these measures is hampered by inadequate infrastructure, limited financial resources, and a lack of coordination among stakeholders. Moreover, the rising prevalence of single-use plastics and insufficient public awareness further exacerbate the issue, making it essential to foster a culture of responsible waste management across all levels of society.

In light of these challenges, it is crucial for the Sri Lankan government to strengthen its commitment to tackling plastic waste through targeted actions and initiatives. This will not only improve waste management practices but also contribute to environmental sustainability and the health of future generations.

Recommendations for the Government

To effectively address the challenges of plastic waste management in Sri Lanka, the government should implement a multifaceted approach that includes several key recommendations. First, it is crucial to introduce legislative mechanisms aimed at tracking illegal plastic waste imports into the country, which will help prevent the entry of substandard and harmful plastic products that contribute to environmental degradation. Additionally, the government should urgently enact regulations that ban the manufacture, use, and import of single-use plastics, facilitating a swift transition away from these products to reduce the overall volume of plastic waste generated.

Enhancing accountability among plastic manufacturers and traders is also essential; this can be achieved by enforcing stricter regulations that require them to consider the entire lifecycle of their products, including end-of-life disposal. To promote sustainable practices, the establishment of plastic-free zones in key public areas, such as schools, government offices, and hospitals, can serve as effective models for reducing plastic use while fostering community engagement in waste management efforts.

Moreover, improving law enforcement is vital to ensure compliance with existing laws and regulations related to plastic importation, manufacturing, and disposal. This includes enhancing monitoring mechanisms to ensure that all stakeholders adhere to legal requirements. The government must also uphold and strengthen the National Waste Management Policy by allocating sufficient resources for its implementation, empowering local authorities to execute waste management strategies effectively.

Accordingly, fostering education and commitment across government agencies and the public is essential for minimizing plastic usage. Comprehensive education campaigns should emphasize the importance of responsible waste management and sustainable practices, targeting all sectors of society. By implementing these recommendations, the Sri Lankan government can significantly enhance its efforts in managing plastic waste,

leading to a cleaner, healthier environment and improved quality of life for its citizens. The success of these initiatives will depend on the collective action of government agencies, local authorities, private sector stakeholders, and the general public, fostering a shared responsibility toward sustainable waste management practices.

References

1. Barnes, D.K., Galgani, F., Thompson, R.C. and Barlaz, M., 2009. Accumulation and fragmentation of plastic debris in global environments. Philosophical Transactions of the Royal Society B: Biological Sciences, 364(1526), pp.1985-1998.
2. Brooks, A.L., Wang, S. and Jambeck, J.R., 2018. The Chinese import ban and its impact on global plastic waste trade. Science Advances, 4(6), p.eaat0131.
3. Central Environmental Authority, 2021. National Solid Waste Management Policy.
4. Centre for Climate and Environmental Technologies (CCET). (2021). Plastic waste management policies and practices in Sri Lanka. CCET Reports.
5. Centre for Climate and Environmental Technologies. (2021). National Action Plan on Plastic Waste Management 2021–2030: Implementation Challenges and Strategies. CCET.
6. Centre for Environmental Justice. (2021). Country situation report - Sri Lanka: Solid waste composition and plastic waste management. CEJ Publications.
7. Centre for Environmental Justice. (2021). Plastic Brand Audit Report: Assessing Corporate Contributions to Plastic Pollution in Sri Lanka. CEJ Publications.
8. Cleantech, 2021. Composition Analysis of Municipal Solid Waste in Colombo. Available at:https://cleantech.lk/2021/09/24/composition-analysis-of-municipal-solid-waste-in-colombo/
9. Colombo Municipal Council, 2020. Waste Collection and Recycling Report. Colombo, Sri Lanka.
10. Country: A Case Study of Western Province, Sri Lanka. Nature Environment and Pollution Technology, 23(3), pp.1623–1630.
11. Dauvergne, P., 2018. Why is the global governance of plastic failing the oceans? Global Environmental Change, 51, pp.22-31.
12. Dharmasiri, L.M., 2019. Waste Management in Sri Lanka: Challenges and Opportunities. Sri Lanka Journal of Social Sciences, 9, pp.72–85.
13. Dharmasiri, L.M., 2019. Waste Management in Sri Lanka: Challenges and Opportunities. Sri Lanka Journal of Social Sciences, 9, pp.72–85.
14. Earth Action, 2024. Plastic Policies in Sri Lanka.
15. Gazette No. 1560/6. (2008). Regulations on Waste Management and Taxation in the Western Province. Government of Sri Lanka.
16. Gazette No. 1713/11. (2005). Waste Management Regulations for Local Authorities. Government of Sri Lanka.
17. Geyer, R., Jambeck, J.R. and Law, K.L., 2017. Production, use, and fate of all plastics ever made. Science Advances, 3(7), p.e1700782.
18. Government of Sri Lanka, 1947. Municipal Councils Ordinance.
19. Hemali, N.A. and De Alwis, A.A.P., 2024. Waste Generation and Recovery in a Developing
20. https://switch-asia.eu/site/assets/files/4232/plastic_policies_sri_lanka_2.pdf
21. International Solid Waste Association, 2019. Waste Management and Public Participation.
22. Jambeck, J. R., Geyer, R., Wilcox, C., Siegler, T. R., Perryman, M., Andrady, A., Narayan, R., & Law, K. L. (2015). Plastic waste inputs from land into the ocean. Science, 347(6223), 768-771. https://doi.org/10.1126/science.1260352
23. Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrady, A., Narayan, R.
24. Japan International Cooperation Agency (JICA). (2016). Data collection survey on solid waste management in Sri Lanka: Final report. Kokusai Kogyo Co., Ltd.

25. Japan International Cooperation Agency. (2016). Data Collection Survey on Solid Waste Management in Sri Lanka: Final Report. Kokusai Kogyo Co., Ltd.

26. Lebreton, L., & Andrady, A. (2019). Future scenarios of global plastic waste generation and disposal. Palgrave Communications, 5(1), 1-11. https://doi.org/10.1057/s41599-018-0212-7

27. Ministry of Agriculture, 2020. Composting Initiatives in Sri Lanka.

28. Ministry of Environment, 2007. National Solid Waste Management Policy.

29. Ministry of Environment, 2021. National Action Plan on Plastic Waste Management 2021–2030. Available at: https://ccet.jp/sites/default/files/2021-08/srilanka_report_web_fin_pw.pdf

30. Ministry of Environment, 2021. Plastic Waste Management Strategies.

31. Ministry of Environment. (2022). Sri Lanka's National Waste Management Policy 2018: Guidelines and strategies for effective waste management. Government of Sri Lanka.

32. Ministry of Environment. (2022). Sri Lanka's Plastic Waste Management Status and Policy Framework: Annual Report. Government of Sri Lanka.

33. Ministry of Finance, 2021. Sustainable Development and Waste Management Funding.

34. Ministry of Finance. (2022). Sri Lanka's Import and Export Trends in the Plastic Industry: Economic Review Report. Government of Sri Lanka.

35. Ministry of Local Government, 1987. Pradeshiya Sabha Act.

36. Nature Climate Change, 9(5), pp.374-378.

37. Nuskiya, M. H. F., & Sahana, A. R. (2021). Role & challenges of solid waste management system in Kalmunai municipal council.

38. OECD, 2022. Global Plastics Outlook: Policy Scenarios to 2060. OECD Publishing.

39. United Nations Development Programme, 2020. Waste Management and Sustainable Development in Sri Lanka.

40. United Nations Environment Programme (UNEP). (2021). Plastics and environmental sustainability in South Asia: A policy framework. UNEP Reports.

41. United Nations Environment Programme, 2021. From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution.

42. United Nations Environment Programme, 2021. Managing Plastic Waste in South Asia.

43. United Nations Environment Programme. (2021). Global Assessment of Plastic Pollution and Policy Responses. UNEP Publications.

44. United Nations Environment Programme. (2022). The State of Plastics: Global Trends and Sri Lanka's Plastic Waste Problem. UNEP.

45. Western Province Waste Management Authority (WPWMA). (2008). Waste management regulations and implementation in the Western Province. WPWMA Reports.

46. Western Province Waste Management Authority. (2008). Western Province Waste Management Authority Statute, No. 01 of 2007: Waste Management Regulations. WPWMA.

47. WHO, 2019. Microplastics in Drinking-Water. World Health Organization.

48. World Bank, 2019. Waste Management in Urban Areas: Challenges and Solutions.

49. World Bank. (2021). Plastic Waste and the Circular Economy: Sri Lanka Country Report. World Bank Group.

50. Zheng, J. and Suh, S., 2019. Strategies to reduce the global carbon footprint of plastics.