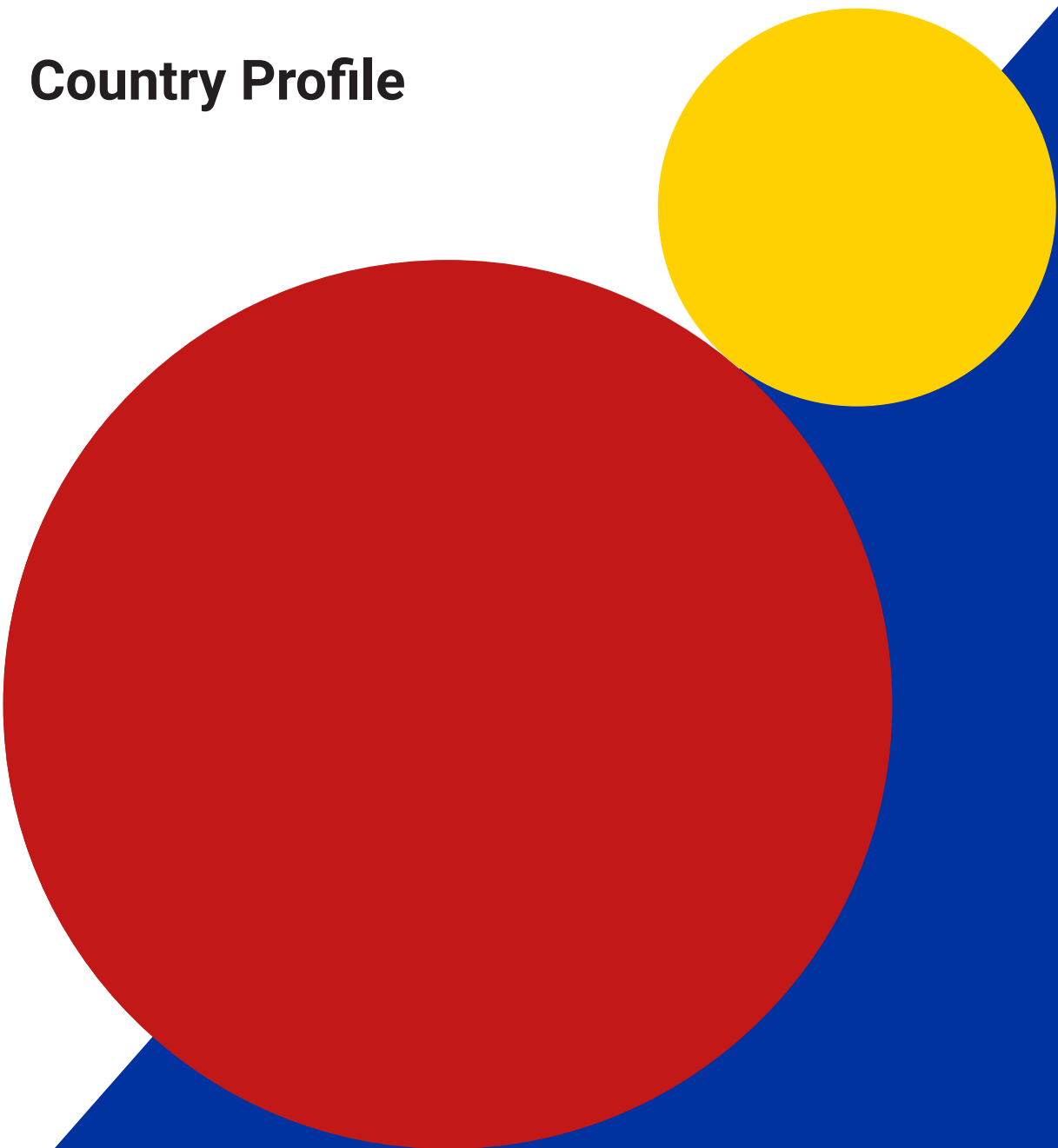




PLASTIC POLICIES IN MALAYSIA

Country Profile



Acknowledgements

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Abbreviations

CAGR	Compound annual growth rate
CEPA	Communication, education, and public awareness
EPR	Extended producer responsibility
FMCG	Fast-moving consumer goods
GDP	Gross domestic product
GGP	Government green procurement
GPAP	Global Plastic Action Partnership
MaSPA	Malaysia Sustainable Plastic Alliance
MAREA	Malaysian Recycling Alliance
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change
MRFs	Material recovery facilities
PGC	Plastic and Government Cooperation
PET	Polyethylene terephthalate
PPP	Public-private partnerships
SMEs	Small and medium-sized enterprises
SUPs	Single-use plastics

1. Context

In Malaysia, approximately 1,451,000 tonnes of plastic waste were generated in 2023, or 42.8 kg per capita (EA 2024). This is more than the global average of almost 32 kg per capita per year and more than twice as much as the average in SWITCH-Asia Countries of roughly 20 kg per capita per year (EA 2024) (Figure 1).

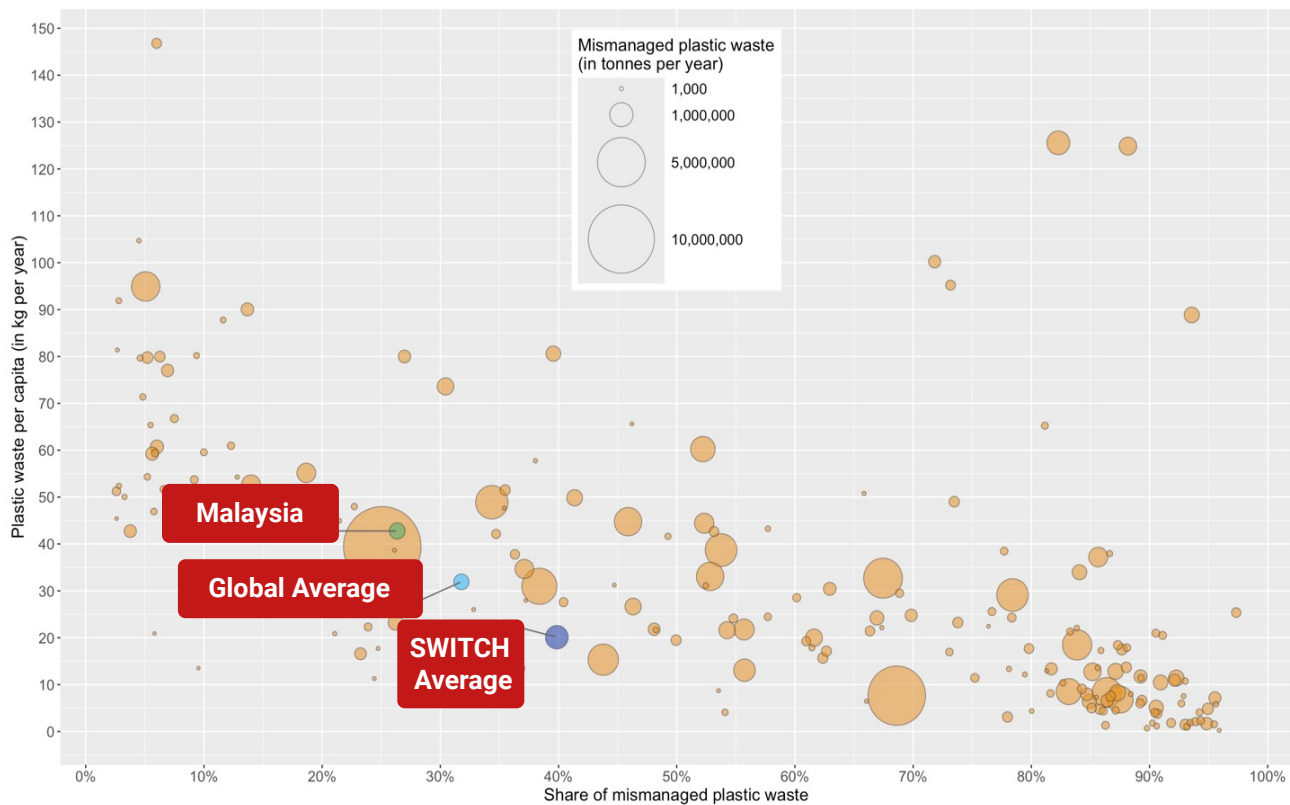


Figure 1. Plastic waste in Malaysia in 2023

Source: Earth Action 2024 data

With more than 382,000 tonnes of mismanaged plastic waste, Malaysia ranks among the smaller plastic polluters, in particular when compared to neighbours Thailand (more than 1,472,000 tonnes) and Indonesia (more than 1,848,000 tonnes) (EA 2024). The share of mismanaged plastic waste stands at 26%, and thus 6 percentage points lower than the global average and 14 percentage points lower than the average share in countries that are covered by the SWITCH Asia programme. The per capita weight of mismanaged plastic waste (11.3 kg) is slightly below the global (12.2 kg) and the average of countries where SWITCH Asia is active (12.5 kg) (EA 2024). Overall, the data suggest that while Malaysia’s overall plastic consumption and plastic waste generation are relatively high, the country seems to manage its waste better than most of the countries in the region (2024).

Rank of Malaysia in global comparison (out of 192, 192 being the highest in pollution/mismanagement)	
Plastic waste in metric tonnes	162
Plastic waste per capita (kg/year)	134
Mismanaged plastic waste in metric tonnes	160
Mismanaged plastic waste per capita (kg/year)	122
Share of mismanaged plastic waste	49

The plastics manufacturing industry is a significant contributor to Malaysia's economy, contributing USD 7.23 billion to the GDP (4.7%) in 2018 (worldbank.org). The plastics industry is a steadily growing economic sector, driven largely by expanding demand from the manufacturing sector serving a growing population with increasing demand for consumer goods. At the same time, a population shift from rural to urban areas in Malaysia is causing an increased demand for plastic in the construction sector (MWR 2024). In 2024, the market value of the plastics industry was USD 3.9 billion, while estimates expect a compound annual growth rate (CAGR) of nearly 4% until 2029 and a plastics market size of USD 4.71 billion in 2029. This increase is expected to be driven mainly by demand from the food and beverage packing sector (Mordor Intelligence 2024).

The Malay plastics industry is highly competitive, comprising domestic and international companies, and plastic is used in a wide range of sectors including industrial machinery, electronics, and consumer goods, among others (MWR 2024). In line with global trends, the packaging sector is the largest industry consumer of plastics (Mordor Intelligence 2024). Other important sectors are automotive, electronics, healthcare and construction (MWR 2024). The issue of so-called 'bioplastics' is apparently of particular interest in the Malay plastics industry, with a CAGR of 4.01 % (compared to conventional plastics 3.9 %) between 2022 and 2027 (Mordor Intelligence 2024). It is noteworthy that there is no agreed definition of what constitutes bioplastic,¹ thus it is not possible to assess whether or not this growing market segment will be able to limit plastic pollution or not.

In 2022 Malaysia's overall trade volume of plastic-related products and goods amounted to USD 39.7 billion, which is slightly more than 6% of Malaysia's overall trade volume in products, and 1.4% of the global trade volume (2024). Malaysia is a net exporter of final manufactured plastic goods, with a positive trade balance of almost USD 3.9 billion in 2022, as well as of additives used in plastics, with a positive trade balance of more than USD 2.1 billion in 2022 (Figure 2). For all other plastic-related goods and products, Malaysia's import and export volumes are more or less balanced, leaning towards a positive balance for feedstock and precursors used in plastic and intermediate forms of plastics. For primary plastics (of which the country imported and exported an equally high volume of more than USD 7.1 billion in 2022), intermediate manufactured plastic goods, and plastic waste, the trade balance leans slightly towards the negative. Malaysia imports plastics predominantly in primary forms, along with final manufactured plastic goods, and together these goods represent a negative trade balance of only USD 215 million while accounting for 65% of all of the country's plastic-related imports. Waste trade data in weight make show that Malaysia is one of the world's largest plastic waste importers. In 2022, 352,000 tonnes of plastic waste were imported into Malaysia, (2024), thus the country was the fourth-largest plastic waste importer worldwide, surpassed only by the Netherlands (977,000 tonnes), Türkiye (700,000 tonnes) and the US (372,000 tonnes). In the region, it is by far the largest importer of plastic in the region, followed by Indonesia (201,000 metric tonnes) and Thailand (184,000 metric tonnes) (2024). Worldwide, only Türkiye imports more plastic waste relative to its exports than Malaysia. While Türkiye imports 677,000 more tonnes of plastic waste than it exports, the difference is only 321,000 tonnes in Malaysia..

¹ *Bioplastics* can mean plastics from renewable sources (e.g. corn starch), or plastic that biodegrades either in the environment or in special composting facilities. Only plastics that biodegrade in the natural environment are considered to reduce plastic pollution effectively.

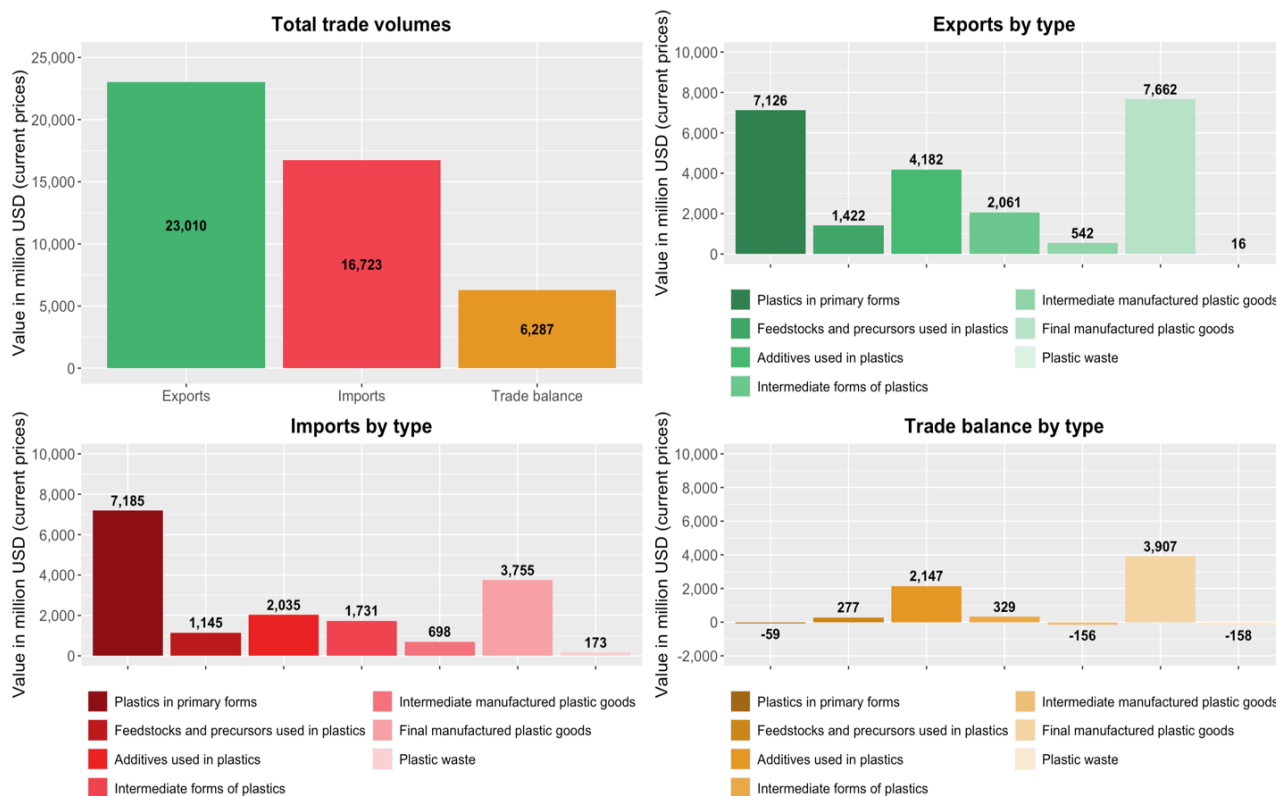


Figure 2. Plastic-related trade in Malaysia in 2022

Source: UNCTAD data 2024

2. Policy landscape

Most policies that target plastic pollution in Malaysia were adopted and are being implemented at the subnational level. At the national level, there is only one legally binding regulation, namely on plastic waste trade, complemented by several national plans and roadmaps that outline potential future actions. In June 2024, Environment Minister Nik Nazmi Nik Ahmad did acknowledge the need for national legislation on plastic pollution, which he stated should concentrate on phasing-out single-use plastics (SUPs) and improving plastic recycling rates. At the same time, he acknowledged that the current policy landscape with its focus on subnational legislation leads to variations in the level and speed of implementation across regions (Free Malaysia Today 2024).

In the one **legally binding and nationally applicable legislation** on plastic waste trade, the Government of Malaysia outlined specific requirements for imports of plastic waste in **Customs (Prohibition of Imports) Order 2012** (Government of Malaysia 2012). This Order specifies that plastic waste imports require a license issued either by the Director General of Customs or by the Ministry of International Trade and Industry. Since 2017, the alternative licensing authority is the Department of National Solid Waste Management (Government of Malaysia 2017), and it should be noted that the licensing requirement does not apply to imports into Malaysia's free zones.² The movement of goods from these free zones to the Principal Customs Area and the islands of Labuan, Langkawi, and Tioman is still subject to import license requirements for the restricted items.

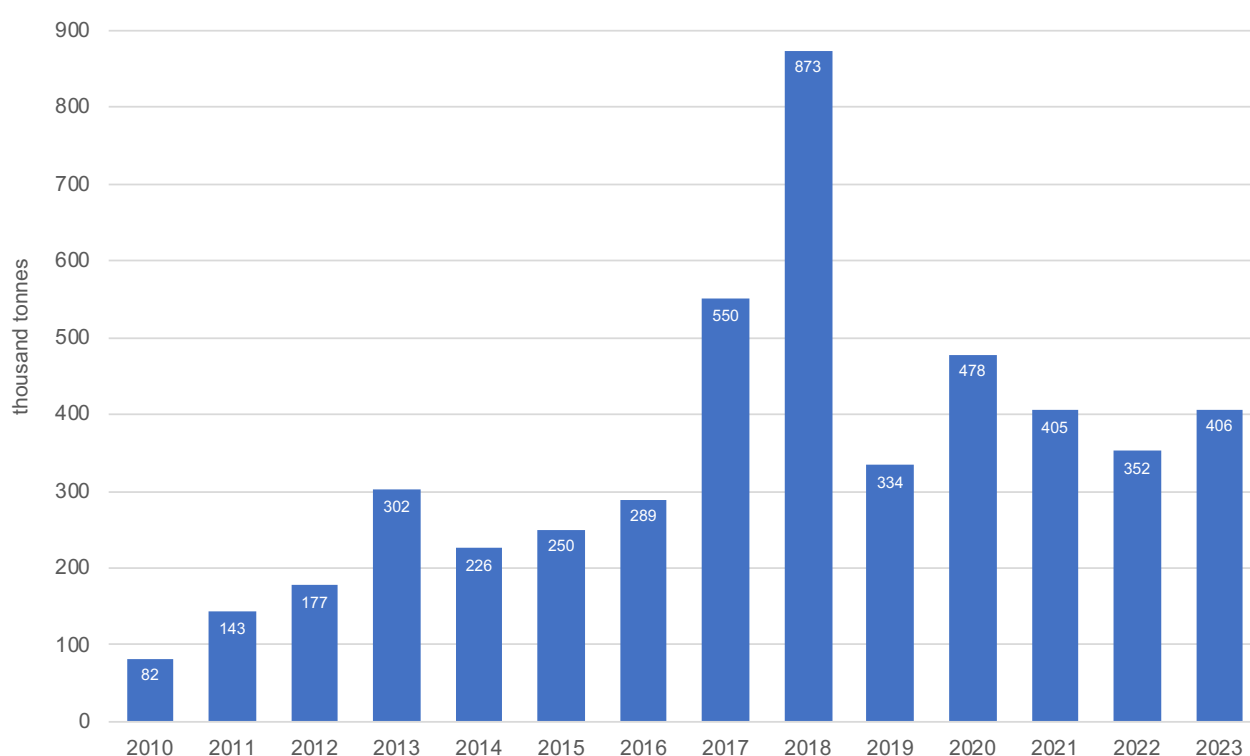


Figure 3. Plastic waste imports in Malaysia 2010–2022 (in thousand tonnes)

Source: UNCTAD data 2024 for values 2010 to 2022; ITC data 2025 for 2023 (estimate)

So far, the law did not reduce plastic waste imports (Figure 3). After the Chinese ban on plastic waste imports in 2018, which is known to have shifted plastic waste inflows to other countries in the region, the imports of plastic waste by Malaysia increased substantially as well (Parker 2018). In response, the Malaysian Government tightened the criteria for import licenses, and plastic waste imports decreased

² Pasir Gudang Port Free Zone, Johor; Mukim of Kapar, Selangor; West Port, Pulau Indah, Selangor; Tanjung Pelepas Port, Johor; South Point, Port Klang, Selangor; (Lot 67894) Pulau Indah, Selangor; and Deep Water Wharf, Butterworth, Penang.

(Malay Mail 2021). Since the country's official waste management and recycling sectors are not large enough to adequately manage the quantity of incoming and domestic plastic waste, causing illegal dumpsites to flourish (see Malay Mail 2021), the Government could consider further reducing imports through stricter regulations and enforcement.

Plans and Roadmaps

In response to the increasing challenges posed by SUPs, Malaysia introduced the Roadmap towards Zero Single-Use Plastic 2018–2030 in 2018. This initiative by the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) outlines a comprehensive strategy to eliminate SUPs in Malaysia by 2030. The actions promoted in the roadmap can be categorised into command-and-control measures, market-based measures, and information measures (see Table 1).

Table 1. Overview of measures in the Roadmap towards Zero Single-Use Plastic 2018–2030

Source: Authors' work, after Government of Malaysia (2018).

Type of measure	Description
Command and Control	1. Legal Framework: The roadmap foresees the development and revision of legal frameworks to regulate single-use plastics. This involves the introduction of a federal pollution levy on plastic manufacturers by 2022. 2. Regulatory Guidelines: The establishment of technical guidelines for biodegradable and compostable products, ensuring that only products meeting the revised ECO001 criteria are used. 3. Ban on Straws: Implementation of a 'no straw by default' practice, where straws are provided only upon request, starting in fixed premises from 2019 and extending to non-fixed premises by 2022.
Market-based	1. Pollution Charge: States will impose a pollution charge on single-use plastic bags, starting with fixed premises in 2019 and extending to non-fixed premises by 2025. This charge is set at a minimum of MYR 0.20 (USD 0.05) per plastic bag. 2. Pollution Levy: A federal pollution levy on plastic manufacturers to be introduced by 2022, with the funds collected being used for addressing plastic pollution, research and development of eco-friendly alternatives, and incentives for manufacturers. 3. Incentives for Alternatives: Expansion of incentives to manufacturers of biodegradable and compostable products, encouraging the production and adoption of eco-friendly alternatives. 4. Circular Economy Roadmap: Launch of a Circular Economy Roadmap for plastics, including bottles, by 2020, which will promote recycling and the use of sustainable materials.
Information	1. Communication, Education, and Public Awareness (CEPA): A comprehensive CEPA programme developed to educate the public on the impact of single-use plastics and promote sustainable consumption habits. 2. Stakeholder Engagement: Nationwide stakeholder engagement in drafting and implementing the CEPA programme, ensuring that all relevant parties are informed and involved. 3. Experiential Learning: Integration of experiential learning into the education system by 2023, to foster among students a deeper understanding of the environmental issues related to plastics.

It should be noted that the environmental claims surrounding biodegradable and compostable alternatives to SUP alternatives, as suggested in the Roadmap, are under increasing scrutiny worldwide. The efficacy of biodegradable and compostable plastics often hinges on very specific conditions, which may not always be achievable in real-world conditions. Furthermore, the implementation of the roadmap has revealed that the promotion of behavioural changes among consumers in particular, including price signals, needs to be strengthened. For instance, the government-mandated charge of MYR 0.20 for plastic bags has proven largely ineffective in curbing plastic bag use (The Edge Malaysia 2024).

In 2019, the government launched the **National Cleanliness Policy, 2020–2030**, a comprehensive framework aimed at guiding Malaysia towards becoming a clean, sustainable, and prosperous nation (Government of Malaysia 2021). The Policy is also relevant in the combat against plastic pollution. It encompasses a broad spectrum of objectives and recognises the potential economic and ecological benefits that can be derived from more effective waste management practices. Introduced by the Ministry of Housing and Local Government, the general aim is to improve the country's waste management and ensure a clean environment by promoting the circular economy with a particular emphasis on including public participation in (plastic) recycling initiatives. A focus on recycling serves a dual purpose: the concept of a 'waste-to-wealth' agenda is supported while environmental protection efforts are simultaneously upheld (Government of Malaysia 2021). With regard to plastics, the aim is to reduce the use of plastic bags and improve imported plastic waste handling and processing, once again highlighting the importance of this issue on a national level (Government of Malaysia 2019).

Partially in response to the presumed shortcomings of the SUP Roadmap, the government issued two additional Roadmaps regarding plastic pollution in 2021. Both were published by the Ministry of Environment and Water (KASA)³; the development of the **National Marine Litter Policy and Action Plan 2021–2030** was supported by the United Nations Environment Programme (UNEP), the Coordinating Body on the Seas of East Asia (COBSEA) and the Swedish Government, and the Malaysia Plastics Sustainability Roadmap 2021–2030 was developed with the support of the World Bank, the Malaysia Green Technology and Climate Change Centre (MGTC), and WWF-Malaysia, which facilitated the underlying policy dialogues held in the Roadmap development process.

The National Marine Litter Policy and Action Plan 2021–2030 of Malaysia outlines a comprehensive strategy to address marine litter pollution, with a particular focus on plastic waste. The plan is structured around five pillars and includes various actions to be implemented from 2021 to 2030 (see Table 2).

Table 2. Overview of measures in the National Marine Litter Policy and Action Plan 2021–2030

Source: Authors' work, after Government of Malaysia (2021a).

Type of measure	Description
Command and Control	1. Establish a national legal framework on addressing marine litter by 2024–2027 moving towards more stringent regulations and enforcement mechanisms. 2. Enhance actions on Malaysia's Plastic Sustainability Roadmap 2021–2030, including the implementation of voluntary Extended Producer Responsibility (EPR) schemes. While voluntary, this approach can be seen as a precursor to more mandatory measures. 3. Ensure strict enforcement on the ban of imported plastic waste to reduce the influx of plastic waste into the country. 4. Bring forward the ban on oxo-degradable/oxo-biodegradable technology to phase out specific types of plastic products.
Market-based	1. Implement deposit refund schemes and buyback programmes across the board to incentivise proper disposal and recycling of plastic products by 2023.⁴ 2. Explore and adopt green investment tax incentives (GITA/GITE) and the Green Technology Financing Scheme (GTFS) by 2025. These financial mechanisms aim to promote environmentally friendly technologies and practices. 3. Engage value chain stakeholders to establish enabling mechanisms/infrastructure to increase waste recovery, such as deposit-refund schemes, kerb-side collection, and reverse vending machines to improve recycling rates and reduce plastic waste by 2023 (see footnote 4). 4. Create an online business network for Malaysian private sector players to access cutting-edge technologies within the region and participate in pilot projects by 2027, to foster innovation and market-driven solutions for plastic pollution.

3 MESTECC and KASA were merged, together with the Previous Ministry for Natural Resources and Environment (NRE) to form a single Natural Resources, Environment and Climate Change Ministry (Yeo 2022).

4 A deposit-refund scheme will for all bottled and canned drinks between 150 ml and 3 litres will start in April 2025 (Begum 2024).

Type of measure	Description
Information	1. Establish a National Marine Litter Monitoring Expert Group to streamline and socialise regional/global findings with national stakeholders and actions by 2021. This group will play a crucial role in disseminating information and best practices.⁵ 2. Develop open access traceability schemes for packaging and other forms of solid waste by 2024, to increase transparency and inform consumers about the life cycle of plastic products. 3. Promote science-policy interface to enhance interaction between scientists and policymakers, and improve accessibility to scientific information by 2022, to ensure that policies are based on the latest scientific evidence. 4. Establish an information platform for youths to exchange information and share innovative solutions and best practices by 2023, to engage younger generations in addressing marine litter issues. 5. Organise expert exchange platforms and/or study-trip programmes at schools and tertiary institutions in 2022–2023, to help raise awareness and promote knowledge sharing. 6. Work with international donors to offer free courses yearly on nature-based solutions, closing the loop, EPR toolbox, circular economy, and the 2030 agenda from 2021–2023. This action focuses on capacity building and knowledge dissemination.

While the **Malaysia Plastics Sustainability Roadmap 2021–2030** is less focused on waste management, it includes measures that target the upstream stages of the plastics life cycle, such as the phasing out of specific products or sustainable design standards (see Table 3).

Table 3. Overview of measures in the Malaysia Plastics Sustainability Roadmap 2021-2030

Source: Authors' work, after Government of Malaysia (2021b).

Type of measure	Description
Command and Control	1. Phasing out problematic single-use plastics (SUPs) from 2023 to 2030. This action involves identifying and gradually eliminating specific types of SUPs that are particularly harmful to the environment. 2. Mandating sustainable design standards for all plastics applications, especially packaging. This measure aims to ensure that plastic products are designed with sustainability and recyclability in mind from the outset. 3. Implementing a mandatory Extended Producer Responsibility (EPR) scheme for packaging by 2026. This policy makes producers responsible for the entire life cycle of their products, including waste collection and recycling. 4. Establishing post-consumer halal rPET (recycled PET) standards by 2022 to create guidelines for the use of recycled plastics in food-contact packaging, which is particularly important in the Malaysian context due to halal requirements. 5. Mandating waste management plans for the construction sector to divert plastic from landfills (2028–2029). This measure targets the construction industry, which is a significant consumer of plastics. 6. Setting minimum thresholds for recycled content in packaging (2025–2026), automotive (2027–2029), and construction sectors also creates a market demand for recycled plastics.

⁵ For this and all other measures that follow there is no up-to-date information available on implementation. A mid-term review of the Policy and Action Plan was announced for 2025.

Type of measure	Description
Market-based	1. Introducing market-based instruments and alternative financing options. While not specified in detail, such instruments and options could include measures such as taxes on virgin plastics or subsidies for recycled materials. 2. Implementing a Deposit Return Scheme (DRS), adding a surcharge to product prices, which is refunded when consumers return the containers or products after use. 3. Increasing recycled content demand (2024–2030) to create a stable market for recycled plastics, encouraging investment in recycling infrastructure. 4. Empowering the informal sector (2022–2026). This initiative recognises the role of informal waste collectors and aims to integrate them into the formal recycling economy.
Information	1. Establishing a Circular Economy Data Network Platform (2022–2025) to facilitate data sharing and improve transparency across the plastics value chain. 2. Implementing Communication, Education, and Public Awareness (CEPA) programmes to improve corporate action and drive behavioural change among consumers. 3. Launching the PLASTICBUSTERS Programme, which is designed to create awareness among public servants and the general public to prevent unnecessary use of plastics and promote good plastic management practices. 4. Introducing a Circular Economy Award to recognise and incentivise corporate actions that promote plastic sustainability and circularity. 5. Developing training modules and programmes for SMEs to increase the number of local SME personnel trained in circular economy principles. 6. Implementing the INSPIRE Programme to create success stories for Malaysia's sustainability and circularity initiatives. This programme aims to encourage industrial behavioural change and showcase best practices.

As one effort to address challenges of plastic pollution, the Malaysian government is thus planning to implement an **Extended Producer Responsibility (EPR) scheme** for plastic products. This initiative was to be rolled out in phases between 2023 and 2025, with a mandatory phase beginning in 2026. Concrete progress on this front appears to be limited, or at least not widely communicated. Business actors have expressed hope for the swift implementation of the EPR scheme. According Penang Green Council (PGC) representatives, EPR could incentivise development of eco-friendly packaging and encourage the responsible disposal and recycling of single-use plastic. This sentiment is echoed by Environment Minister Nik Nazmi Nik Ahmad, who emphasises the need for EPR to be integrated across the entire plastic value chain, rather than being treated as just another corporate social responsibility activity. To ensure the success of a circular economy approach to plastic management, Nazmi suggests that EPR needs to be supported by a robust legal framework, which would not only ensure its workability but also facilitate easier monitoring of its implementation and effectiveness (The Edge Malaysia 2024).

Non-Plastic Specific Policies

Malaysia's **Twelfth Malaysia Plan 2021–2025 (Twelfth Plan)** outlines a comprehensive policy response to challenges posed by the COVID-19 pandemic, aiming to achieve sustainable economic growth while focusing on equitable wealth distribution, citizen wellbeing, and environmental sustainability. The plan introduces a transformative approach based on three themes, four catalytic policy enablers, and 14 'game changers'. These elements are designed to reset the economy, strengthen security and inclusivity, advance sustainability, develop talent, accelerate technology adoption, enhance infrastructure, and improve public services. The plan's success hinges on effective implementation and collaboration among all stakeholders, with the ultimate goal of transforming Malaysia into a high-income nation, in line with the country's 2030 vision. Like the United Nations 2030 Agenda for sustainable development,⁶ the plan was developed in a bottom-up approach, together with representatives from the private sector and civil society and across a broad range of governmental actors from various departments and levels of government (Government of Malaysia 2021).

⁶ UN Agenda 2030 for Sustainable Development was launched by a UN Summit in New York in September 2015 and is aimed at achieving a better and more sustainable future for all by addressing global challenges such as poverty, inequality, climate change, environmental degradation, and peace and justice through a comprehensive set of 17 Sustainable Development Goals (<https://www.coe.int/en/web/programmes/un-2030-agenda>).

In particular, **Strategy A2 of the Twelfth Plan**, which focuses on the transition to a circular economy, is of relevance in combating plastic pollution, outlining how the circular economy could replace the linear economy and offering best practice examples for the different life cycle stages of plastic products. For the manufacturing stage, design guidelines are suggested for polyethylene terephthalate (PET) bottles. For the consumption stage, banning SUP is proposed to encourage reusable bottles for beverages. And for waste collection, the plan suggests using bags made from biodegradable plastics for organic waste collection. In terms of actions regarding the waste trade, the government plans to review and amend the existing legislation, including Act 127 and the Customs Act 1967, to enhance enforcement and monitoring of waste imports and exports. Furthermore, the plan foresees that Malaysia will implement the Basel Convention amendments on plastic waste classification, requiring prior informed consent for transboundary waste shipments. Strategy A2 also intends intensify on-site inspections and verifications of imported waste to ensure safety and recyclability, thereby supporting the circular economy. Additionally, efforts to identify and penalise illegal waste operators will most likely be escalated.

Regarding **public procurement**, there are plans to make Government Green Procurement (GGP, including for specific packaging materials) mandatory across all ministries and potentially also across all regional state governments (Thai-German Cooperation 2024). So far all the Ministries have incorporated voluntary GGP plans, and in 2020 Green Procurement accounted for 20.7% of overall procurement (Government of Malaysia 2021). For the purpose of GGP, a directory of certified products exists, although the authors could not clearly identify the underlying criteria for the inclusion of products.

Most recently, the government of Malaysia published the **Blueprint for Circular Economy for Solid Waste in Malaysia (2025-2035)**, which outlines a comprehensive strategy to address solid waste management challenges (KPKT 2024). While not exclusively focused on plastic pollution, the document presents several key initiatives that will significantly impact plastic waste reduction:

- **Vision and Strategic Framework:** The blueprint envisions Malaysia achieving a circular economy transformation for solid waste management by 2050, maximising resource efficiency and minimising waste generation. This overarching goal will drive efforts to reduce plastic pollution as part of the broader waste management strategy.
- **Extended Producer Responsibility (EPR):** A crucial initiative is the actual and eventual implementation of mandatory EPR schemes for solid waste, including plastics. This policy will make producers responsible for managing their products throughout their lifecycle, including post-consumer waste. EPR is expected to incentivise companies to design more sustainable packaging and improve plastic waste collection and recycling.
- **Regulatory Transformation:** The blueprint calls for a transformation of solid waste management legislation, including the development of a Circular Economy Act. This legal framework will provide a foundation for implementing various plastic pollution reduction strategies across all states in Malaysia.
- **Waste Eco Parks (WEP):** The development of Waste Eco Parks is proposed to encourage industrial symbiosis. These facilities could potentially include plastic recycling and upcycling operations, creating a more circular economy for plastic materials.
- **Pay-As-You-Throw (PAYT) Scheme:** Implementation of PAYT schemes for the Commercial, Industrial, and Institutional (CII) sector and construction industry could incentivise businesses to reduce their plastic waste generation.
- **Improved Infrastructure:** The blueprint emphasises upgrading existing landfills to sanitary landfills with Material Recovery Facilities (MRFs). This improvement will enhance the capacity to sort and recover plastic waste before final disposal.
- **Digital Platforms:** Creating digital e-commerce platforms for waste materials could facilitate the trade of recyclable plastics, potentially increasing recycling rates.
- **Product Design Guidelines:** Development of product design guidelines may encourage manufacturers to create more easily recyclable plastic products and packaging.

- **Market Creation:** The initiative to create markets for local recycled materials will be crucial for increasing the demand for recycled plastics and closing the loop in the plastic waste cycle.
- **Communication, Education, and Public Awareness (CEPA):** Industry-driven CEPA programs will play a vital role in educating consumers about proper plastic waste management and recycling practices.
- **Recycling Targets:** The blueprint acknowledges Malaysia's improving recycling rates, with a target of 40% by 2025. While not specific to plastics, this overall increase in recycling will undoubtedly impact plastic waste reduction.
- **Circular Economy Business Models:** Encouraging the adoption of circular economy business models could lead to innovative approaches in plastic product design, use, and recovery.
- **Data Management:** Strengthening the data system for solid waste management will provide better insights into plastic waste flows and help inform policy decisions.

Table 4. Overview of plastic-related policies in Malaysia

Source: Authors' own representation

	Production (primary polymers)	Manufacturing (plastic products)	Consumption	Waste management/ End-of-life	Trade
COMMAND AND CONTROL					
Mandatory performance/outcome standards (incl. targets)					
Mandatory process standards (incl. targets)					
Technological standards (incl. targets)					
Prohibitions/bans (incl. phaseout)					Customs (Prohibition of Imports) Order 2012
MARKET-BASED					
Taxes/levies					
Subsidies/grants/tax reductions					
Public procurement			Planned: Mandatory Government Green Procurement (GGP), which refers to specific certified products		
EPR/deposit refund schemes					
Liability schemes					
INFORMATION					
Taxonomies					
Data collection, reporting and disclosure					

	Production (primary polymers)	Manufacturing (plastic products)	Consumption	Waste management/ End-of-life	Trade
Labels					
Awareness raising/ capacity development			Awareness raising efforts are an integral part of each of the roadmaps and plans regarding plastic pollution reduction mentioned above. These include education efforts, communication, training modules and programmes for SMEs, different exchange formats, experiential learning and other stakeholder engagement activities.		
GOVERNANCE/COORDINATION					
Roadmaps, plans and strategies		• Roadmap towards Zero Single-Use Plastic 2018-2030 • National Marine Litter Policy and Action Plan 2021-2030 • Malaysia Plastics Sustainability Roadmap 2021-2030	• Roadmap towards Zero Single-Use Plastic 2018-2030 • National Marine Litter Policy and Action Plan 2021-2030 • Malaysia Plastics Sustainability Roadmap 2021-2030	• Roadmap towards Zero Single-Use Plastic 2018-2030 • National Marine Litter Policy and Action Plan 2021-2030 • Malaysia Plastics Sustainability Roadmap 2021-2030	
Inter-ministerial coordination	Malaysia’s ‘plastic sustainability roadmap’ envisages a synergistic collaboration among a diverse array of stakeholders, including governmental bodies, industry leaders, academic institutions, civil society organisations, and the general public. This comprehensive approach holds significant promise for effecting transformative change in the realm of plastic management.The success of this ambitious initiative will critically hinge upon the establishment of robust coordination mechanisms (Circular Innovation Lab 2022).				
Public-Private partnerships	While there are collaborative efforts and initiatives in Malaysia that involve both the public and private sectors in addressing plastic pollution, the authors’ research did not reveal many formalised public-private partnerships specifically dedicated to this issue. Existing frameworks and alliances, such as the Global Plastic Action Partnership (GPAP) or the Malaysia Sustainable Plastic Alliance (MaSPA) provide a foundation for potentially developing more structured PPPs in the future.				
SPECIAL FOCUS SECTOR: CONSTRUCTION					
	While the exact quantities of plastics used in the Malaysian construction sector are not readily available, plastics are widely employed in this sector because of their versatile properties. Plastics are cost-effective, strong yet light, easily formable, and easy to maintain. These characteristics make them attractive for various construction applications. In the construction industry, a key challenge is managing plastic waste at the end of the life cycle. While not always financially rewarding, efforts to segregate, reuse, and recycle contribute to corporate responsibility and environmental stewardship (Marsh McLennan 2021). Efforts are being made by the Malaysian Government to improve the management of construction waste (Government of Malaysia 2018, 2021b), as well as to encourage the use of certified ‘environmentally friendly’ building materials (see GGP above). The effectiveness of both efforts cannot be assessed at this point.				

3. Private sector innovations

There are currently several innovative actions and approaches to waste management in the private sector in Malaysia. In a proactive move, the Malaysian Plastics Manufacturers Association has recently published a *Plastics Neutrality Masterplan: Zero Plastics to Landfill, 2024–2030*. The plan presents a comprehensive approach to tackling plastic pollution by focusing on circularity, sustainability, and collaboration across the entire plastics value chain. The strategy acknowledges several challenges currently facing the industry, such as the lack of clarity with respect to using recycled content in food-grade applications, the absence of a mandatory extended producer responsibility (EPR) scheme, the unsatisfactory quality of local plastics waste, and a limited capacity for materials recovery nationally.

To address these challenges, the masterplan emphasises the need for a multifaceted approach involving policy reforms, investments in infrastructure, public education campaigns, and collaboration among stakeholders across the plastics value chain.

More specifically, the **Plastics Neutrality Masterplan** is built upon two main pillars:

- 1. Making Plastics Circular:** This pillar focuses on fostering innovation and collaboration across sectors to develop sustainable alternatives and improve recycling infrastructure. Three key initiatives include:
 - a. Fostering circular design and business models:** The entire plastics value chain is encouraged to work concurrently, from upstream producers creating more circular polymers to brand owners and manufacturers redesigning plastics products to be reusable and recyclable.
 - b. Enhancing mechanical recycling:** The plan aims to improve the efficiency and effectiveness of mechanical recycling through stricter regulations, improved separation at source (SAS) and collection activities, advancements in technology such as AI-improved sorting, and incentives to increase demand for recycled plastics products.
 - c. Unlocking chemical recycling:** The masterplan recognises the potential of chemical recycling to complement mechanical recycling, especially for difficult-to-recycle plastic waste, and applications such as food-contact packaging or medical use.
- 2. Fostering Sustainable Use of Plastics:** This pillar aims to produce and use plastics applications in a way that is safe for human health and the environment. Key enabling strategies include:
 - Assuring the safe management of plastics additives
 - Eliminating pellet loss in the production of plastics through initiatives like Operation Clean Sweep® (OCS)
 - Harnessing tools to share information across the value chain, such as adopting sustainable product labels and the MS 1405:2018 coding system⁷ for the identification and classification of plastics products
 - Proactive communication to gain trust among all players and actors and to consistently provide reliable data on plastics neutrality
 - Collaboration with stakeholders to address current and legacy leakage issues

The masterplan also outlines a roadmap with immediate (2024–2026), short-term (2027–2028), and mid-term (2029–2030) actions. Some key actions include:

- Enforcing public actions on non-compliance with separation at source (SAS)

⁷ MS codes are national standards created by the Standards Development Committee as part of the Malaysian Standards Development System and administered by the Ministry of Investment, Trade, and Industry. They provide rules, guidelines, or characteristics for activities to ensure optimal organisation in a specific context.

- Providing tax incentives for manufacturers to enhance product design/innovation
- Imposing minimum circular content targets
- Enforcing mandatory extended producer responsibility (EPR)
- Increasing material recovery facilities (MRFs) nationwide
- Improving data collection and reporting structures on waste
- Implementing chemical recycling at scale

Since many of the proposed actions in the roadmap depend on broader strategic and political actions, the overall success of this strategy will depend on the effective implementation of these actions and the cooperation of all stakeholders involved (MPMA 2024).

In addition, the proposed scaling up of chemical recycling requires a thorough scrutiny of the potential disadvantages and harmful effects that are widely discussed in both the media and scientific papers. Chemical recycling is a process that converts plastic waste into its original monomers or other chemicals via chemical reactions that break the polymer chains down into their basic building blocks, allowing for the creation of new, high-quality plastics and other products. There are different types of chemical recycling (pyrolysis, gasification, depolymerisation, and solvolysis), with varying effects with regard both to energy use and to negative repercussions on the environment. The main potential disadvantages that are currently being discussed include, first, that regardless of the type of chemical recycling, the process requires substantial energy inputs, often derived from fossil fuels, leading to significant greenhouse gas emissions. Second, the yield of usable recycled material from chemical recycling is often low. For example, a pyrolysis process might only yield 60–80% of the input plastic into oil, with the rest becoming partially hazardous waste. Third, the resulting oil will not necessarily be used to produce new plastics, but may be used as fuel in industrial processes, further reducing the recycled plastics yield (Quicker 2023). Fourth, it is unclear whether any of the four types of chemical recycling can operate at scales that would render them economically viable (Paddison 2024). Quicker (2023) argues that particularly in developing countries with few stringent environmental regulations, the operation of chemical recycling plants may result in uncontrollable risks to the environment as well as to health.

The private sector has also implemented **voluntary actions**. In January 2021, it established an **Extended Producer Responsibility (EPR) scheme**, MAREA, Malaysia's first voluntary, non-profit EPR group. The industry-led initiative was formed by a consortium of fast-moving consumer goods (FMCG) companies, initially comprising ten member companies including Coca-Cola Malaysia, Colgate-Palmolive Malaysia, Dutch Lady Milk Industries, Etika Group of Companies, and Fraser & Neave Holdings Bhd, among others (Multi-Color Corporation n/d; The Edge Markets 2021).

The primary objectives of MAREA revolve around enhancing collection practices, promoting the use of recycled and renewable materials, and minimising post-consumer packaging leakage into the environment (MAREA 2023). In January 2022, the alliance pledged to recycle 25% of the packaging waste generated by its members by 2025 (GlobalData Consumer 2022). MAREA's approach to achieve its goals is collaborative, working closely with the Malaysian government, consumers, waste management companies, and other stakeholders to drive behavioural changes along the value chain and foster sustainable practices (MAREA 2023). The alliance's efforts are particularly focused on boosting the country's recycling collection of post-consumer plastic packaging (GlobalData Consumer 2022).

The **Malaysia Sustainable Plastic Alliance (MaSPA)** is another initiative that addresses plastic pollution and promotes a more circular plastics economy in Malaysia, thereby focusing on the prevention and reduction of plastic waste and the replacement of certain SUP through reusable alternatives. This alliance aims to foster collaboration and drive sustainable practices within the plastics industry. The MaSPA was established in conjunction with the launch of Malaysia's Plastics Sustainability Roadmap 2021-2030. It brings together various stakeholders, including government agencies, private sector companies, and civil society organisations, to address plastic pollution and ensure the country's economic prosperity and social wellbeing. While not explicitly labelled as a public private partnership (PPP), the alliance represents a collaborative effort between public and private entities (WRAP 2021).

Several other efforts have focused on removing plastic waste from rivers. Together with WWF-Malaysia, the initiatives [Fuze Ecoteers](#), [Reimagine Plastic](#) and [Inspirasi Kawa](#) have collected a total of 461 kg of waste (predominantly plastic waste) from 3 different rivers in just a few hours (WWF-Malaysia 2024). Furthermore, in November 2022, the government signed a memorandum of cooperation with The Ocean Cleanup, a non-profit international organisation (The Ocean Cleanup 2023). This partnership aims to address plastic pollution in Malaysia's rivers, which are significant contributors to ocean plastic pollution.

Targeting single-use plastic bags, in recent years, major retail chains in Malaysia have taken steps to reduce these, aligning with government directives and environmental goals. AEON Co (M) Bhd, one of the leading retailer and one of the largest mall operator in Malaysia with a turnover of almost USD 1 billion in 2023, implemented a nationwide ban on single-use plastic bags in January 2023, resulting in an annual reduction of 70 million plastic bags and avoiding approximately 123,000 tonnes of carbon emissions. Other prominent retailers have followed suit: Lotus's Malaysia stopped offering single-use plastic bags in 2021, Speedmart adopted this policy in May of the previous year, and Mydin Mohamed Holdings Bhd announced it would cease providing plastic bags from January 2024 (The Edge Malaysia 2024).

4. Challenges

Malaysia, as a rapidly developing Southeast Asian nation, faces significant challenges in addressing plastic pollution due to its unique geographical, climatic, and economic circumstances. The country's extensive coastline and tropical climate contribute to the complexity of the issue, while the robust national industrial sector, particularly in plastic manufacturing, adds to the scale of the problem.

Geographically, Malaysia's position as a coastal country with numerous rivers and a vast marine environment makes it particularly vulnerable to plastic pollution. The extensive shoreline and river systems serve as conduits for plastic waste to enter the ocean, exacerbating the issue of marine debris (Fauziah et al. 2021). With regards to its long shorelines, the transboundary nature of marine plastic pollution adds another layer of complexity to Malaysia's challenges. Addressing the issue will require not only domestic action but also regional and international cooperation. The tropical climate, characterised by heavy rainfall and frequent flooding, further facilitates the transport of plastic waste from land to sea, making containment and clean-up efforts more challenging and at the same time more urgent.

From an industrial perspective, Malaysia's plastics and plastic manufacturing industries are significant players in the country's industry landscape (see Section 1. Context, above). This large-scale industrial activity plays a major role in the plastic waste problem, as the high volume of plastic products constantly introduced into the market and the low volume of recycling and management directly exacerbates environmental pollution levels.

Moreover, rapid economic development and urbanisation in Malaysia have led to a surge in solid waste generation, including plastic waste. This increase in waste generation, coupled with a waste management infrastructure that would benefit from substantial investments and improvements, poses a significant challenge to effective plastic pollution control.

One of the most pressing issues Malaysia faces in this regard is the low rate of plastic recycling. Despite efforts to promote recycling, the country struggles with insufficient recycling facilities and a lack of public awareness about proper waste segregation and disposal practices (Ma et al. 2020). This situation is further complicated by Malaysia's role as a major importer of plastic waste. The influx of imported plastic waste has further strained the country's waste management capabilities and raised concerns about illegal dumping and environmental degradation. In addition, Chen et al. (2021) argue that most manufacturers using recycled plastics will firstly opt for imported plastic as raw materials, because of guaranteed supply, lower price, large volumes and homogeneous resins. The foreign competition for plastic recycling feedstock is thus putting additional strain on domestic waste management, for it diminishes the market for recyclables.

Finally, the problem of policy enforcement remains a significant challenge. The lack of consistent and stringent enforcement of environmental regulations has hampered efforts to curb plastic pollution effectively (Chen et al. 2021). This is compounded by insufficient awareness among the population about sustainable behaviours and habits related to plastic use and disposal (Ma et al. 2020).

5. Way forward

Eight ways are conceivable for Malaysia to go forward in managing plastic pollution.

1. Malaysia would benefit from strengthened and harmonised national legislation so as to establish a comprehensive national legislation that would specifically target plastic pollution while avoiding regional variation in implementation. The government has planned to develop a nationwide law that addresses plastic disposal and pollution. This legislation could provide a unified framework for implementing existing roadmaps and plans, ensuring consistent implementation across regions. The global plastics treaty – once it is adopted and depending on the content of its provisions – could provide guidelines and best practices from other countries for developing such legislation, helping Malaysia align its national laws with international standards.
2. An enhanced Extended Producer Responsibility (EPR) scheme would be advantageous for Malaysia. While the country has taken the initial steps to implement an EPR scheme for plastic products, progress could be accelerated by the implementation of a mandatory EPR scheme, as outlined in the Malaysia Plastics Sustainability Roadmap 2021–2030.
3. As outlined above in Section 4, Malaysia could consider expanding the already existing network of recycling facilities, e.g. through public investments in improving waste management infrastructure, and in particular by increasing the number of material recovery facilities (MRFs) nationwide, as suggested in the plastics industry's *Plastics Neutrality Masterplan*.
4. Plastic waste imports could be further restricted. Despite tightening import license criteria, Malaysia remains the fourth-largest importer of plastic waste worldwide. Further reducing imports through stricter regulations would alleviate the strain on the country's waste management capabilities.
5. In order to promote circular economy principles, Malaysia would need to emphasise and commit resources to the transition to a circular economy, as outlined in the Twelfth Malaysia Plan 2021–2025. Actions in this direction could include promoting eco-design principles, increasing the use of recycled content in products, and fostering innovation in sustainable materials. The global plastics treaty could provide a platform for sharing best practices and technologies related to circular economy approaches, benefiting Malaysia's efforts in this area.
6. While various awareness-raising efforts are included in existing roadmaps and plans, public understanding of sustainable behaviours related to plastic use and disposal, e.g. better information about proper waste segregation, still remains to be improved. Therefore, Malaysia would benefit from intensifying its Communication, Education, and Public Awareness (CEPA) programmes, as outlined in the Roadmap towards Zero Single-Use Plastic 2018–2030. The global plastics treaty could support these efforts by providing resources, educational materials, and platforms for international knowledge exchange.
7. Consistent and stringent enforcement of environmental regulations will be indispensable in Malaysia's efforts to curb plastic pollution effectively, including by strengthening enforcement capabilities, enhancing on-site inspections, and verifying imported waste.
8. Initiatives like the Malaysia Sustainable Plastic Alliance (MaSPA) demonstrate the potential of collaboration between public and private entities. By encouraging such partnerships, the government would help drive sustainable practices within the industry.

Addressing the plastics challenge in Malaysia, as outlined above, therefore requires striking a balance between the economic interests of plastics manufacturers, producers, and waste importers and the environmental, health, and societal costs currently solely borne by society. A comprehensive national policy on plastics would send a clear signal of a shared understanding of the widespread ecological and health impacts caused by plastic pollution. Such a policy would emphasise the need for shared responsibility, ensuring that the costs of mitigating these impacts are distributed fairly while carefully weighing economic interests against the need for sustainable solutions.

How would the Global Plastics Treaty help? Through its provisions the treaty could:

- By developing clear definitions and standards for materials, including bioplastics, and specifying what constitutes an 'environmentally friendly' material
- By providing a clear way forward and policy guidelines in terms of plastic pollution prevention
- By incentivising actions across the globe, the Treaty has the potential of reducing the volume of plastic waste and the trade in plastic waste, thereby potentially limiting the pressures on the Malaysian waste management and recycling system
- By providing a framework for standardizing EPR schemes across countries, facilitating knowledge sharing and potentially creating opportunities for cross-border cooperation in plastic waste management
- By supporting the introduction of EPR in other countries through its provision and guidance on EPR, thereby potentially levelling the playing field for producers in Malaysia
- By raising financial resources through the Treaty's financial mechanism to provide funds for investments into waste management
- By setting global rules and guidelines for the restriction of the plastic waste trade
- By enhancing capacities and strengthening regulatory framework through Treaty support for capacity-building initiatives and technical assistance
- By providing frameworks for international public-private partnerships, opening up new opportunities for Malaysia to collaborate with global stakeholders in addressing plastic pollution

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