2023 BIANNUAL TRACKING REPORT

US-ASEAN BUSINESS COUNCIL, INC.

Plastic Waste Management in ASEAN

Presented By

US-ASEAN Business Council

Sustainability Committee

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Overview

What this paper does:

This document provides a landscape overview and sizes the problem of plastics generation and plastic waste management in ASEAN as of Q1 2023. It also tracks waste management, recycling regulation, and major ongoing initiatives – existing and upcoming – to tackle the problems and opportunities presented by of plastic waste.

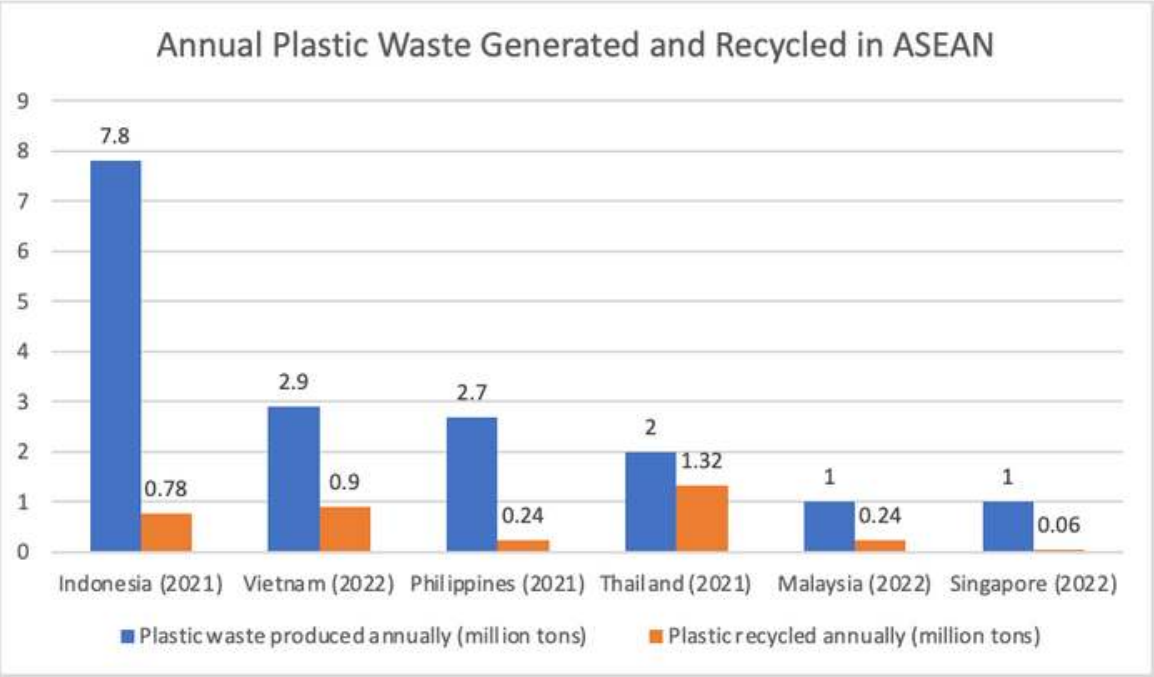
Problem:

Plastic material is a convenient and versatile commodity used on a global scale with diverse applications such as in electronics, healthcare, agriculture, transportation, construction, and most significantly, packaging. With ASEAN's growing population and urbanization, plastic generation has increased, as has the amount of plastic waste. Annually, global plastic waste generation totaled around 400 million metric tons. The mismanagement of plastic waste is a major cause of severe environmental issues on a transnational scale. Plastic is also estimated to account for 80% of all marine debris in the oceans.

Overview

ASEAN Focus:

In six of the 10 ASEAN countries alone, more than 31 million tons of plastic waste were generated in a year, according to the ASEAN Secretariat. Unfortunately, plastic waste is largely mismanaged in the region and not well documented, often due to lack of adequate waste and recycling infrastructure or other structural issues. The graph below illustrates the amount of plastic waste generated per country, as well as the amount that is recycled.



**Please see the Appendix for data sources. Not enough data was obtained for analysis of Brunei, Cambodia, Laos, and Myanmar.*

In a global list of top 10 countries ranked by mass of mismanaged plastic waste, Southeast Asia fielded five name: Indonesia, the Philippines, Vietnam, Thailand and Malaysia. Statistics on the amount of plastic waste that is mismanaged for the rest of Southeast Asia are also not readily available.

Overview

This report also touches on a complex formal and informal economy around plastic waste in ASEAN. What is exported, imported, or recycled can confound traditional metrics and measurement. For example, the import and export of plastic waste between countries within ASEAN and the rest of the world makes it difficult to ascertain how much plastic waste ends up in each country. Furthermore, recyclable plastics are high-value and may be exported to other countries in ASEAN and recycled by the informal waste sector.

While almost all countries in ASEAN look towards legislation and management of plastic waste within their country, another way forward would be a finding a regional, ASEAN approach to address this transnational issue. Additionally, this report shows that many ASEAN governments have begun making plans to move towards a circular economy. Formalizing recycling economy and additional legislative clarity on plastics recycling for different types and classes of plastics are important steps towards supporting the development of the circular economy.

Brunei

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Plastic Waste Management Regulations

Problem Scope:

Brunei is not a major plastic waste contributor – it is not a major producer of plastic, nor is it a major global polluter. The waste sector in Brunei Darussalam accounts for only 0.001% of the total greenhouse gases emission. Brunei Darussalam generates around 1.15 kilograms of waste per capita per day. Most of the plastic waste is derived from Brunei Muara District, the smallest and most populous of the four districts in Brunei, with over half of the country's population (United Nations Framework Convention on Climate Change, 2017). Currently, 70% of waste generated in Brunei is disposed into landfills.

The exact amount of plastic waste imported is not publicly verifiable. Based on the recent Greenpeace Southeast Asia's ASEAN Policy Brief 2019, there was a clear six-fold increase in plastic waste volume imported into Brunei Darussalam, from 30 tons in 2016 to 185 tons in 2018, following China's import ban in 2018.

The economy of Brunei Darussalam is highly dependent on the oil and gas industry. Much of the wastes resulting from this industry are dealt with by the respective companies Brunei Shell Petroleum (BSP), Brunei Liquified Natural and Gas (BLNG) and the Brunei Methanol Company (BMC). In the absence of a full-scale and proper recycling treatment and disposal facilities for these toxic and hazardous wastes, Brunei is a net exporter of plastic waste, with the waste arranged for export under the Basel Convention.

Environmental Consequences:

The exact amount of marine debris that Brunei experiences is unknown, but it is serious enough that Brunei conducts nation-wide marine debris clean-ups campaigns. 80% of waste collected from beaches are plastic, with most of these being plastic bottles.

Existing Plastic Regulations:

To further strengthen waste management in Brunei, the Government of Brunei, through the Department of Environment, Parks Recreation has developed waste management regulation under the Environmental Protection and Management Order (2016).

Brunei has also increased the tax on single-use plastics from 3% on excise duty on plastic product import ($0.02/kg-0.20/kg) to $0.30/kg-$0.50/kg. Brunei has also made an Amendment of the Hazardous Waste (Control of Export, Import and Transit) Order 2013, in compliance with obligations under the Basel Convention, to include plastic waste considerations. The Amendment of the Hazardous Waste (Control of Export, Import and Transit) Order, 2013, also includes requirements that specifically mention plastic waste.

EPR/Recycling:

Recycling is still in its early stages in Brunei Darussalam. The Department of Environment, Parks and Recreation (DEPR), Ministry of Development, aims to achieve a recycling rate of 15% by 2015 and 20% by 2020. Recycling bins for papers, plastics, and metals, are found in waste collection centers in the Brunei Muara District (the largest of all the four Districts in Brunei Darussalam that houses almost 80% of the country's population). These recycling bins are currently not introduced to other districts.

Additionally, the local capacity for recycling is limited and has dropped by 65% in 2022, while more 20 percent of our total household waste stream in plastics. The DEPR has an official list of recycling companies that interested parties can engage, most of which are not equipped to handle plastics. There is just one waste recycling facility on the list that targets used PET/HDPE plastics.

COVID-19 has worsened the plastic pandemic. During the COVID-19 pandemic, local recycling companies were not accepting plastic bottles for recycling. It is unclear if this has since changed.

Non-Binding Initiatives:

The Brunei government has launched specific community-level initiatives such as the Sungai Brunei Clean Up, Floating Waste & Debris Booms, Nationwide Coastal Clean-Up. These national projects collect waste and transports them to a landfill. Additionally, the Brunei Vision 2035 aims to cultivate a green-oriented and sustainable economy, and includes the adoption of the 3Rs practices, as well as Plastic Bottle Free Initiative and the No Plastic Bag Everyday Initiative, which are nation-wide initiatives that promote the use of reusable and biodegradable bags and bottles.

Upcoming Legislation: According to the DEPR's Environmental Planning and Management Division, it is not feasible to ban plastic bags as other factors need to be considered, such as inadvertently penalizing the retailers and the public.

Cambodia

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Plastic Waste Management Regulations

Problem Scope:

Cambodia is not a major producer of plastic products in Southeast Asia and imports most of its plastics. However, it still generates 94,000 tons of plastic annually, with plastic waste making up around 21% of waste that ends up in landfills. Cambodia does not yet have adequate infrastructure or sufficiently advanced technologies for waste management and recycling. Out of 4 million metric tons of waste generated annually in Cambodia, only 63% (2.5 million metric tons) of waste ends up in landfills, while most of the remainder is dumped in public areas or in waterways. In terms of plastic waste, the figures are unknown as to where the plastic waste ends up.

Imports of plastic bags are estimated at over US$100 million per year, and most of these imports are from Thailand and Vietnam. One of Cambodia's top priorities is to regulate the import and sales of single-use plastics – the Ministry of Environment (MoE) is currently working on legislation for it.

Environmental Consequences:

The coastal region of Cambodia constitutes 7.1% of its total population, and features beaches, forests, mangroves, and offshore coral reefs. The threat of pollution to the Cambodian coastal ecosystem and wildlife are much the same as those encountered in neighboring countries in the region – improper disposal of waste into the environment may harm wildlife and leach toxic chemicals into the land and groundwater.

Existing Plastic Regulations:

Cambodia's Law on Environmental Protection and Natural Resource Management (1996) tasked the Ministry of Environment as the leading agency for formulating policies and regulations and coordinating waste management and pollution control actions. In 2008, the Ministry of Environment developed Cambodia's interpretation of the 3R (reduce, reuse, recycle) strategy, supported by the United Nations Environment Programme.

Cambodia

In 2017, the Ministry of Environment introduced a new regulation Sub-Decree No. 168 on the management of plastic bags in 2017 that aims to increase effectiveness of plastic reduction that places controls on the importation, production, distribution, and the use of plastic bags to improve the public health, environment, and landscape. Customers at shopping centers and supermarkets are charged a small amount per plastic bag. There is also a tax exemption on the import of biodegradable or bioplastic bags. The Ministry of Environment has previously considered a complete ban on plastic bags but acknowledged that this would be difficult.

A new sub-decree to regulate single-use plastics and foam containers is currently being developed by the Ministry of Environment, with support of the United Nations Development Programme, the World Bank, and the National Waste Management taskforce. The new regulation aims to reduce the use of single-use plastics (plastic bags, styrofoam, straws).

Limitations:

Several regulations, guidelines and initiatives have been developed over the past two decades. However, the lack of monitoring and implementation capacities remains the major challenge.

Cambodia's waste management sector also faces severe inadequate financing. Funding for waste management in Cambodia is derived from user fees, the government budget, and through development partners such as Asian Development Bank (ADB) and Japan International Cooperation Agency (JICA).

There are currently no laws on whether recycled products are food-grade or medical-grade, or whether it meets minimum standards for food grade products.

Plastic Waste Management:

There is currently no frameworks in regarding EPR, and very limited plastics recycling. In 2019, there were no formal recycling initiatives in the country. In the informal sector, plastic waste is collected by waste pickers who collect high-value recyclable materials such as PET plastic bottles and cardboards. Since most households and businesses do not segregate their waste at source, the informal sector (known as edjai) largely operates at the beginning of the supply chain. This waste is sold to middlemen and is then exported to Thailand and Vietnam.

Plastics recycling is limited in Cambodia, with PET and HDPE being the main plastics that are currently being recycled. As of 2021, there are around 50 plastic recycling initiatives operating throughout Cambodia, for plastic bags, plastic bottles. Other types of the non-recyclable low-value plastic remain a challenge and will end up in either a landfill, incinerated, or as a source of pollution.

Non-Binding Initiatives:

In April 2019, the Ministry of Environment established a special taskforce to promote the 4Rs - refuse, reduce, reuse, and recycle plastic. Siem Reap NGOs and local authorities have also held dedicated river clean-ups on the shorelines of Tonle Sap Lake, in a bid to encourage communities to clean up their environment.

Cambodia

Upcoming Legislation:

Cambodia currently exports some of its recyclable waste through middlemen to Thailand and Vietnam. However, Thailand will ban plastic waste importation in 2020 while Vietnam will implement a similar ban in 2025. As a result, large quantities of plastic waste will remain in Cambodia and will affect the environment if not treated appropriately.

Cambodia is also currently proposing a phased approach from voluntary to mandatory EPR, though this was reported by UNDP and not Cambodia.

First, EPR efforts will focus on "low hanging fruit" products, including plastics like PET, HDPE, and LDPE which are easier and faster to introduce for EPR as the recycling process for these plastics is much cheaper and requires less specialized technology. There are currently some existing recycling systems in place. There will also be measures to ban "non-essential products" such as straws, cups, cutlery, and expanded polystyrene. Cambodia will call for voluntary contributions to EPR pilots, particularly from large corporations, and develop simple PROs to facilitate waste collection and treatment with waste management companies/operators.

Future actions that Cambodia may take would be developing and enforcing regulations, EPR instruments and performance standards, including specifying the obligations of producers with mandatory collection and recycling targets, and deciding on performance guidelines and standards (e.g. requirements for minimum recycled amounts for plastics, food-grade standards). UNDP has also proposed that Cambodia explore measures such as take-back and deposit refund systems, advanced disposal fees, refills, and refunds, and an EPR fund.

Indonesia

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Plastic Waste Management Regulations

Problem Scope:

Indonesia is the second-largest plastic polluter in the world after China, producing approximately 7.8 million tons of plastic waste annually. This is largely due to the rapid urbanization that Indonesia has experienced in the past two decades. As a result, there have been gaps between the fast-growing urban population and the provision of certain infrastructure, including inadequate waste management. Very little plastic is recycled, and approximately 62% (4.9 million tons) of plastic waste is mismanaged – uncollected, disposed of in open dumpsites, or leaked in improperly managed landfills. Rural areas generate the largest amounts (two-thirds) of mismanaged plastic waste (MPW) due to very limited waste collection rates.

Indonesia has also emerged as an alternative plastic importer since the 2017 plastic waste import ban in China, though it is not importing as much plastic waste as Malaysia and Vietnam. In 2017, Indonesia imported 129 thousand tons of plastic waste. In 2021, Indonesia imported 165 thousand tons of plastic waste.

Indonesia also produces plastics locally. The food packaging and beverage industry was the largest end-user of plastics in 2015. Local plastic production is set to grow in the face of consumer demand, and the Indonesian government is keen to grow this sector of the economy. Indonesia imports 50% of its plastic raw materials, such as plastic ore, polyethylene (PE) and polypropylene (PP) from the Middle East, Singapore, China, and South Korea. Local petrochemical companies are only able to meet two-thirds of total local demand. The import costs are lowered through the Government-Borne Import Duty (BMDTP) facility, designed to boost local production of plastics.

Environmental Consequences:

Limited collection services and access to disposal infrastructure hinders improvements in waste handling behaviors. Direct disposal in water is the main pathway of plastic waste reaching rivers, often resulting from populations not having access to waste collection services. An estimated 350 thousand tons of plastic waste are discharged into the marine environment from land-based sources in Indonesia annually, two thirds of which come from Java and Sumatra. In addition, approximately 10 billion plastic carry bags, equal to 85,000 tons, are released into its local environment each year. For example, four of Indonesia's rivers - Brantas, Solo, Serayu, and Progo – rank among the top 20 most polluted rivers worldwide.

Existing Plastic Regulations:

National and subnational laws have been passed approaching solid waste management broadly, and some focus on plastic waste. These laws assign many agencies the responsibility of policy implementation and enforcement. Some of these laws address plastic pollution. Indonesia has adopted the Solid Waste Management Law of 2008 (No. 18/2008), which focuses on municipal solid waste management. It mandates all stakeholders to take part and contribute to improving overall waste collection and management and makes it illegal to operate open dump sites. However, the Ministry of Environment and Forestry recorded 167 open dump sites still in operation in 2018, a decade after the law was adopted.

Indonesia has also introduced Extended Producer Responsibility (EPR) in the waste management sector, stipulated in Act 18/2008 and PP 81/2012. Under the law, all individuals are obliged to reduce and manage their waste under through reduction, reuse, and recycling (3Rs). Products and product groups targeted by EPR nationally include consumer goods packaging and food and beverage packaging. The regulation No. P.75/2019 on Extended Producer Responsibility (EPR) targets producers and the waste generated from their goods, packaging, and services. The measures include targets for use of 100% recyclable materials and 50% recycled content for all plastic types, glass, aluminum, and paper, implementing designs that incorporate recycled content in packaging and takeback programs.

Taxes on single-use plastic have also been introduced, but there may be delays in the implementation as the government considers the economic impact of the pandemic on businesses. Indonesia will be imposing an excise tax on plastics under the plastic and packaged sweetened beverages (MBDK) excise tax exercise, and it will take into effect in 2023. President Joko "Jokowi" Widodo on November 30th officially ratified Presidential Regulation No.130/2022 in December 2022. The tax mandate for both plastic and sweetened drinks has been listed for several years, but the tax had not previously been enforced.

Some cities in Indonesia have also imposed a ban on plastic bags. In July 2020, Jakarta banned single-use plastic bags. Bali banned single-use plastic bags as of June 2019 and has also banned single-use plastics by the end of 2022. Balikpapan and Denpasar have also enacted plastic bag bans.

Recycled content in food:

Indonesia does have laws encouraging producers to include recycled content in their packaging and have comprehensive regulations for recycled content in food-grade packaging as well. Notably, the regulation No. P.75/2019 on Extended Producer Responsibility (EPR) encouraged producers to add recycled content to plastic packaging. Indonesia's National Agency of Drug and Food Control (BPOM) has published new regulations for food packaging in 2019. According to the regulation, manufacturers are required to ensure that packaging materials do not endanger human health. The scope of the regulation covers both new and recycled materials, including plastics, inks and dyes, paper and paperboard, resins and polymer coatings, metals, ceramics, and glass. A set of annexes are provided with a list of chemicals defining how different types of food contact materials are to be regulated. Any substances used in food contact materials that are not listed under the approval list are required to get BPOM approval.

There are currently no laws on whether recycled products can be considered medical-grade. There seems to be no disambiguation between plastic and medical plastic waste. Since the onset of the COVID-19 pandemic, the total medical waste generated in Indonesia has increased by 30%, from 293.87 tons per day before the pandemic to 382.03 tons per day. To manage waste generated from COVID-19, MoEF issued circular letter No. SE.2/MENLHK/PSLB3/PLB.3/3/2020, allowing healthcare facilities to dispose of medical waste using treatment facilities such as incinerators or autoclaves, in burial pits, or using third-party waste handlers, even if these waste management facilities are not licensed to receive medical-grade waste by the MoEF.
Limitations: Indonesia's waste management sector faces severe inadequate financing. 13 cities in Indonesia have a centralized wastewater treatment system, and only 14% of wastewater is treated.

Awareness remains another key barrier. There remains only a low level of awareness that waste is transported through waterways to oceans. Indonesia is also deploying research and innovation to solve marine plastics pollution. The National Plan mandates the development of biodegradable plastics from cassava, seaweed and palm oil; innovation to stimulate the circular economy; waste-to-energy solutions; and a science- and technology-based management system to control plastic debris. Research into marine plastics is also carried out at universities and the Indonesian Institute of Sciences.

Plastic Waste Management:

Presidential Regulation No. 97/2017 on National Policy and Strategy on Management of Household Waste and Household-like Waste (JAKSTRANAS) was a roadmap towards the 2025 Clean-from-Waste Indonesia. It targets to reduce waste by 30% and to manage waste properly by 70% of total waste generation in 2025. This included targets from the Ministry of Environment and Forestry to reduce marine plastic by 70% by 2025. This was followed by the Presidential Regulation No. 83/2018 on Marine Debris Management (National Plan of Action on Marine Plastic Debris), which involved 18 ministries, local governments, private sectors, and NGOs with a planned budget of US$1 billion to form the National Coordination Team for Marine Debris Handling, coordinated by the Secretariat for National Coordination Team (operationalization and funding are supported by UNDP). This has led to a 15.3% reduction in marine plastic waste.

Indonesia

Recycling Plants:

Only 10 percent – 680,000 tons – of that plastic waste was recycled in the approximately 1,300 recycling centers operating in the country. Several plastic recycling companies in the country, such as recycler PT Tridi Oasis Group, have also secured foreign investment to further expand their businesses, enabling them to turn more plastic waste into raw materials for industry. However, much of the country's plastic waste is mixed with other types of waste, preventing the industry from processing it into new raw materials. Recyclers have been hindered by the failure of waste processing companies to process the waste they collected. The cost of recycling is higher because the industry needs to sort and clean the plastic waste before recycling it – hence, waste pickers are not incentivized to sort and clean the waste plastic. PET currently accounts for most of the plastic recycling, and currently accounts around 30% to 48% of total income for waste collectors.

Non-Binding Initiatives:

There are numerous clean-up efforts underway in Indonesia. For example, an extensive clean-up of the Citarum River in Java involving both military and civilian volunteer efforts was initiated through the Citarum Harum campaign, launched in 2018. The World Bank and the Government of Indonesia are also investing US$326 million to halve the daily amount of waste dumped into the river by 2025.

Upcoming Legislation:

The Ministry of Environment and Forestry is encouraging producers to right size their plastic products so that the products are suitable for waste collection and recycling.

Lao PDR

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Plastic Waste Management Regulations

Problem Scope:

Laos is not a major producer of plastics in Southeast Asia, but the rate of waste generation in the country has been increasing steadily, with a sharp increase in waste particularly in urban areas like the capital Vientiane.

In 2020, Laos generated 910,000 tons of waste, with plastics contributing between 16% to 24% of total waste. Laos does not yet have adequate infrastructure for waste management and recycling. Between 35% (rural) and 60% (urban) of waste generated is collected and disposed of at registered landfills. Uncollected waste is burned or openly dumped, often into waterways.

Environmental Consequences:

A UN study of six Lao cities found that 95% percent of plastic pollution is caused by only 10 items — all single-use plastics. Single-use food and drink packaging – including disposable beverage bottles, plastic caps and lids, and shopping bags – were the top plastic product category, accounting for nearly half of this pollution. Plastic pollution also affects fish populations, blocking drains, causing air pollution, and harming tourism destinations. A World Bank study in 2021 found that there are an estimated 10,000 deaths each year in Laos – over 20% of total deaths in Laos – stemming from environmental health factors, with almost half these deaths attributable to air pollution – including from air pollution derived from open burning of waste.

Existing Plastic Regulations:

Under the Lao PDR National Constitution, written in 1991, Article 17 states that all Lao citizens must protect the environment and natural resources. Under Article 38 of the Environmental Protection Law (2012), Laos also distinguishes disposal of general wastes with recycled and reusable waste. Laos is a signee of the Ha Noi 3R Declaration, which provides 33 sustainable 3R (reduce, reuse, recycle) goals for Asia and the Pacific, as well as transition towards a resource-efficient and green economy.

Ministry of Public Works and Transport (MPWT) and the Ministry of Natural Resources and Environment (MoNRE) have the main responsibility for policy around waste management. The Department of Housing and Urban Planning (DHUP) under MPWT has overall responsibility for urban planning and development.

Limitations:

Lao PDR's policy framework and long-term vision documents have an increasing focus on green growth and has shared national strategy plans that deal with recycling and waste management. However, Lao PDR is still in the early stages of policy development in this area. Laos also lacks local infrastructure for recycling and waste disposal.

Plastic Waste Management:

Waste collection services are limited throughout Lao PDR. Laos is currently not considering any EPR laws. This is due to the lack of existing collection services and the limitations of people being able to afford to pay for these services, which are not subsidized by the government. Collection services are predominantly only found in some urban areas.

Laos also does not yet have a government-organized recycling program. Some private companies have become established, but these companies typically provide a limited number of drop-off points rather than formal collection services. Most collections are made by the informal sector, such as street material pickers, recyclable collectors, and waste collectors. This recycling industry tends to focus on the most

Other types of non-recyclable low-value plastic remain a challenge and will end up in either a landfill, incinerated, or as a source of pollution.

Non-Binding Initiatives:

In 2019, the Government of Lao approved a National Green Growth Strategy 2030 aimed at strengthening the balance between economic expansion, environmental protection, and social development. This Strategy also focuses on developing the industrial sector and promoting manufacturing industries and implementing financial mechanisms to help entrepreneurs utilize material-saving technologies, including recycling. From an urban development perspective, there is also a focus on improving waste management systems and developing people's awareness around disposal and the 3Rs.

Upcoming Legislation:

There is no present legislation in Laos that is being included to address plastic waste.

Malaysia

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Plastic Waste Management Regulations

Problem Scope:

In 2018, Malaysia's plastic manufacturing industry contributed approximately US$7.23 billion (RM 30.98 billion) to the economy, making up 4.7 percent of Malaysia's GDP and resulting in the production of 2.45 million tons of plastic resin. Most rigid plastics can be recycled. However, the mismanagement of plastic waste has led to significant environmental consequences, particularly for marine life and communities near Malaysia's coastlines. According to the World Bank, approximately 81 percent of key plastic resins' material value in Malaysia is lost due to 1.07 tons being discarded rather than recycled.

In 2021, Malaysia was the largest plastic waste importer globally. Following China's waste import ban that became effective in 2018, Malaysia experienced a surge in plastic waste imports. During the first seven months of 2018, Malaysia received 465,000 tons of plastic waste from its ten biggest source countries, up from 316,000 tons in 2017 and 168,000 tons in 2016. In 2019, Malaysia banned the import of 24 types of plastic scraps, slowing the surge in imports. The government also began efforts to close illegal plastic recycling plants in violation of the Environmental Quality Act 1974, closing 140 illegal plants in 2019.

Most of the plastic waste in Malaysia is sent to landfills. In 2022, Malaysia's recycling rate was 33.17 percent, up from 31.52 percent in 2021. The most widely produced resins in Malaysia are PET, HDPE, LDPE, and PP, with PET packaging having the highest collected for recycling (CFR) rate since many end-use products are easily identified and collected. Malaysia seeks to reach a 40 percent recycling rate by 2025 under the 12th Malaysia Plan (2021-2025). According to the Solid Waste and Public Cleansing Management Corporation (SWCorp), the national recycling rate reached 33.17 percent in 2022.

Environmental Consequences:

Given the high level of waste being diverted to landfills and Malaysia's limited waste management capacity, local environmental experts predict there will be no more available space in landfills by 2050 if significant action is not taken. Additionally, the mismanagement of plastic waste has led to significant levels entering the ocean each year. A 2021 study estimated that four of the rivers accountable for the highest levels of plastic emissions globally were in Malaysia: the Klang River (4th), the Sarawak River (22nd), the Langat River (27th), and the Kelantan River (41).

Existing Plastic Regulations:

The Environmental Quality Act, 1974, Environment Quality (Schedule Wastes) Regulation 2005, and Solid Waste and Public Cleansing Management Act 2007 provide definitions for different types of waste, including municipal and hazardous waste. The Solid Waste and Public Cleansing Management Act 2007 regulates the management of controlled solid waste and public cleansing. Under the 2015 Separation at Source regulation, residents are required to separate solid waste according to categories of paper, plastics, and others, carrying a fine between RM50 and RM500 for landed property owners and joint management bodies that fail to comply. Joint management bodies that fail to provide recycling facilities can face a maximum fine of RM1,000. However, low enforcement and a lack of coordination between agencies has affected the quality of recyclables, contributing to Malaysia's low recycling rate.

The Customs (Prohibition of Import) Order 2017 controls the import of plastic waste, only allowing premises that fully comply with the Environmental Quality Act 1974 to import plastic waste for recycling. The National Solid Waste Management Department issues Approved Permits (AP) for importing plastics for recycling.

Under the Malaysia Roadmap Towards Zero Single-Use Plastic 2018-2030, Malaysia began to charge a minimum RM0.20 for single-use plastic bags in 2021.

Under MS 2565:2014 Halal Packaging–General Guidelines section 3.2(d), food-grade recycled content cannot be used for halal food contact packaging.

The Solid Waste and Public Cleansing Management Enactment 2022 was approved by Sabah's Legislative Assembly to regulate and monitor solid waste management and public cleansing in the state.

Plastic Waste Management:

Under the Malaysia Plastics Sustainability Roadmap (2021 - 2030), the Ministry of Natural Resources, Environment and Climate Change (NRECC), a merger of the former Ministry of Energy and Natural Resources (KeTSA) and the Ministry of Environment and Water (KASA), is focusing on addressing four types of plastic most highly produced and disposed of in Malaysia: PET, HDPE, LDPE/LLDPE, and PP. Although there is currently no extended producer responsibility (EPR) scheme in place, the ministry is currently developing a governance framework and implementation plan for EPR under the Malaysia Plastics Sustainability Roadmap (2021 - 2030) in order to implement a voluntary EPR system in 2023.

Malaysia

In May 2022, the state of Selangor banned the importation of recyclable plastic waste to curb pollution. Local authorities would no longer consider new licenses for plastic waste recycling plants; however, existing plants were allowed to continue operations, subject to additional conditions.

Malaysia has struggled to increase its low recycling rate due to the low number of recycling and recovery facilities and the local industry's focus on materials that are easy to collect and are high in value. Waste materials like transparent PET bottles are being recycled in at higher volumes, but many other waste materials are rarely recycled due to a lack of technological capacity or business viability. Demand for recycled plastic is also low in Malaysia, with many recycled plastic suppliers being smaller businesses who face challenges due to technological capacity, scale, and heavy reliance on informal, fragmented waste supply networks. Additionally, the cheaper price of virgin plastics due to low oil prices disincentivizes producers from incorporating greater use of recycled plastic into their goods. In 2019, state-owned petroleum company Petronas signed an MoU with chemical recycling company Plastic Energy Ltd to perform a feasibility study for a chemical recycling project that converts mixed plastics waste into polymer.

Non-binding Initiatives:

There are several clean-up initiatives underway in Malaysia. The Selangor Maritime Gateway (SMG) initiative is a Klang River rejuvenation project by the Selangor state government and an extension of the billion-dollar River of Life project in Kuala Lumpur.

Upcoming legislation: Under the Malaysia Plastics Sustainability Roadmap (2021 - 2030), the NRECC seeks to first address plastic sustainability and circularity in the packaging industry, before expanding to the electrical and electronics, construction, and automotive industries. The NRECC will implement a phased approach to EPR, adopting a voluntary EPR system in 2023 and then transitioning to a mandatory EPR system for packaging in 2026. Malaysia plans to set a minimum threshold of recycled content for packaging in 2025-2026, automotives in 2027-2029, and construction in 2030. A mandatory waste management plan to divert plastic waste from landfills is set to come into force for the construction sector in 2028-2029. From 2023 to 2030, the NRECC will seek to progressively phase out problematic single-use plastics that were identified in 2022.

Malaysia created the National Solid Waste Management Policy 2016, which aims to develop a comprehensive waste management system based on a waste management hierarchy. According to this plan, there are indications that there may be future considerations of a pay-as-you-throw initiative. However, there has been little movement on further legislation on plastics and single-use plastics due to the political situation.

Myanmar

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Plastic Waste Management Regulations

Problem Scope:

Myanmar is not a major producer of plastic products in Southeast Asia. Myanmar generates one of the lowest amounts of municipal solid waste at 0.84 million tons per year in ASEAN. A 2017 study found that the waste was composed mainly of organic materials (77%), while the remainder comprises plastic (13%), paper (7%) and others (3%).

In Myanmar, there are two main disposal sites (in Yangon and in Mandalay), which are open dumpsites. Insufficient collection coverage and cleanliness have led to key environmental and operational issues, such as landfills that are almost at their full capacity and toxic waste components. There are currently no measures to prevent the entrance of citizens to these sites, or to contain leachate, dust, and landfill gas emissions. An additional problem is that the landfill sites in the cities were slated to reach end of their lifecycle in 2017 and 2020. We have no updated information on the status of landfills in Myanmar.

Myanmar previously exported its recyclable plastic waste to China, where it was then broken down, processed, and repurposed. However, after China's move to restrict imports of recycled plastic recyclables, Myanmar's PET exporters were no longer able to import their recycled plastic into China. While other international alternatives are available, they do not meet the price and quantity that China previously demanded. This decreased demand for most of Myanmar's plastic industry, lowering prices.

Environmental Consequences:

In 2018, Yangon's Htein Bin rubbish dump burned for 14 days, despite attempts to put out the fire. While residents say that the dump catches fire most years, this fire lasted unusually long. More than 20 people were hospitalized for smoke inhalation and injuries linked to the fire.

Myanmar

Plastic Waste Management:

Myanmar has a National Waste Management Strategy and Action Plan for Myanmar (2017-2030), which sets out the strategy based on principles of inclusiveness, zero waste, zero emissions to achieve a greener, cleaner and healthier environment in the country. As of time of research, there were no concrete actions and activities to support the implementation of the plan. The country is weak in developing an action plan and projects as well as in their implementation.

There are currently no frameworks in regarding EPR, and very limited plastics recycling. Infrastructure for recycling is not developed and few recycling facilities exist in Myanmar. The majority of waste collection is carried out by the informal sector, and there is little to no separation at the source, with the main method of disposal either incineration or disposal in dumpsites. In 2019, PET and HDPE were the main plastics being recycled. There is not enough data to ascertain current trends for recycling.

In Myanmar, non-governmental organizations are playing an active role in handling and promoting awareness about plastic waste. For example, the Prevent Plastics project partners with various entities to promote sustainable waste management practices, educate stakeholders, and encourage eco-friendly packaging.8 Another initiative is RecyGo, which is Myanmar's first registered waste management company that provides waste segregation, awareness training, and collection services. Additionally, Thant Myanmar is a non-profit organization that collaborates with multiple stakeholders to conduct research, education, training, and campaigns to reduce plastic pollution. In 2022, Thant (Myanmar) initiated a program to purchase garbage for K100 a viss in areas where waste collection by Yangon City Development Committee is not available, as part of their environmental protection and anti-plastic efforts.

The Philippines

USABC 2023 Plastic Waste Management Report

Plastic Waste Management Regulations

Problem Scope:

The Philippines had one of the highest rates of mismanaged plastic waste, recycling approximately 28 percent of key plastic resins in 2019 with the remainder either going to landfills or discarded in the environment. This mismanagement of plastic waste results in an estimated annual loss of US$790-890 million in material value of plastic materials. Approximately a third of municipal solid waste is recyclable waste; however, 61 percent of plastic entering the local market is heavy, low-value flexible packaging that is difficult to recycle.

Following the announcement of China's waste import ban in 2017, the Philippines saw plastic waste imports increase significantly. From 2016 to 2018, waste imports almost tripled, reaching 11,900 tons in 2018.

However, the Philippines was a net exporter of plastic scrap in 2018 and 2019. Compared to its neighboring countries, the Philippines faces high logistics and electricity costs, reducing the profitability of the recycling industry which is predominately made up of small businesses. The Philippines is only able to formally recycle and process 15 percent of post-use plastics, which is most pronounced for PE (90 percent gap between consumption level and recycling capacity), followed by PP (88 percent gap), and PET (61 percent gap).

Environmental Consequences:

The Philippines is estimated to be the third largest polluter of the world's oceans, discharging an estimated 0.28 to 0.75 million tons annually. A 2015 report by McKinsey and the Ocean Conservancy found that 74 percent of plastic leakage is made up of waste that had previously been collected. Many open dumpsites are located within a kilometer of a waterway. The report estimates that between 70 to 90 percent of illegally dumped waste eventually ends up in waterways. The Environment Management Bureau estimates that waste generated by the Philippines from 2022 to 2025 could potentially reach 92 million tons.

The Philippines

Existing Plastic Regulations:

The Ecological Solid Waste Management Act of 2000 (RA 9003) is an integrated solid waste management plan based on the 3Rs (reduce, reuse, and recycle) and defines various types of waste, including solid waste, municipal waste, hazardous waste, and special wastes. The National Solid Waste Management Commission (NSWMC), led by the Department of Environment and Natural Resources (DENR) is responsible for prescribing policies to reach the objectives of RA 9003 as well as oversee the implementation of solid waste management plans and programs.

RA 9003 Section 29 stipulates that the Commission shall prepare a list of non-environmentally acceptable products (NEAPs) as defined by the Act within one year from its enactment. If the Commission finds that there are alternative products that are no greater than 10 percent of the NEAP's cost, the NEAP will be prohibited. Plastic packaging products identified for assessment include sando bags, polystyrene, laminates, and sachets. In 2020, the DEA conducted an assessment on single-use plastic straws, which provided the foundation for the NSWMC's inclusion of plastic soft drink straws and plastic coffee stirrers in the list of NEAPs in 2021.

The National Solid Waste Management Strategy (NSWMS) for 2012-2016 outlined medium-term plans to implement provisions of RA 9003, the National Solid Waste Management Framework, and mainstream policies into the Philippine solid waste management sector. The Commission has yet to develop an updated strategy following 2016. The NSWMC was a member of the planning committee for the Philippine Development Plan (PDP) for 2017-2022, which targeted a national waste diversion rate of 80 percent by 2022 primarily through improvements in the enforcement of RA 9003. However, the waste diversion rate stood at 54 percent in 2021 due to insufficient waste management infrastructure as well as limited technical and financial capacities of many local government units (LGUs).

In 2021, 489 cities, municipalities and provinces had SUP-related ordinances in place, including Muntinlupa, Quezon, and Pasig in Metro Manila.

Plastic Waste Management:

Under RA 9003, LGUs are given primary responsibility for managing solid waste collection, segregation, and disposal and are also required to create and implement solid waste management plans. Although RA 9003 Sections 21 and 22 make provisions for mandatory segregation at source, many LGUs still practice mixed waste collection. Additionally recycling efforts are also hampered by a lack of infrastructure capacity since there is no current legal requirement for the provision of recycling as a part of public infrastructure. The Philippines has sought to establish sanitary landfills to replace illegal dumpsites, which dropped from 806 in 2008 to 353 in 2018. In 2021, only 32 percent of cities and municipalities had access to sanitary landfill facilities. The PDP for 2023-2028 seeks to have 50 percent of cities and municipalities served by sanitary landfill facilities by 2028.

The Philippines

Extended Producer Responsibility Act of 2022 (RA 11898), amending Republic Act No. 9003, institutionalized extended producer responsibility (EPR) for plastic packaging waste, covering flexible plastics, rigid plastics packaging, rigid plastic promotional items, plastic bags, and polystyrene. Large enterprises, defined as those with over PHP 100 million (US$1.75 million) in assets, that fail to register their EPR programs or fail to meet diversion targets will receive fines between PHP5 million and PHP20 million. Waste recovery actions listed under the law include buying back waste from consumers, undertaking waste clean-up efforts, and establishing waste diversion or disposal facilities. Large enterprises can apply for tax incentives for their EPR activities. Large enterprises will be required to recover up to 20 percent of their plastic packaging waste by the end of 2023, incrementally increasing up to 80 percent by the end of 2028.

In January 2023, the Implementing Rules and Regulations (IRR) of the EPR Act was signed by Environment Secretary Antonia Yulo-Loyzaga, following a series of public consultations across different regions. Large enterprises are expected to initiate efforts for plastic recovery and diversion schemes mandated by the EPR Act, and producers and manufacturers will need to register their information through an online registry.

Non-binding Initiatives:
There have been several river clean initiatives and rehabilitation projects in the Philippines, including initiatives for the Tullahan River, Pasig River, and Manila Bay. Local governments have also sought to increase public awareness on proper disposal and incentivize residents to adopt more sustainable habits through exchange programs that enable residents to receive cash or food for their recyclable waste.

Upcoming legislation:
In November 2022, the Lower House passed House Bill 1811 to impose a PHP100 (US$1.75) per kilogram excise tax on single-use plastics, which would gradually increase beginning in 2026. If approved by the Senate, the tax is expected to generate P38 billion in revenues.

Singapore

USABC 2023 Plastic Waste Management Report

Plastic Waste Management Regulations

Problem Scope:

Singapore is not a major producer of plastic products, but it generates around 930,000 tons of plastic annually, with plastic waste making up around 12% of total annual municipal waste generated. While around 60% of general waste generated in Singapore is recycled, only 4% (37,000 tons) of plastic waste was recycled in 2019. The Singapore government targets to increase the overall recycling rate to 70% by 2030.

Environmental Consequences:

Most general recycled waste, including plastic waste, is exported abroad for processing to countries like Malaysia, Indonesia, or Thailand. In 2016, it was reported that Singapore exported almost 75% of the 59,000 tons of plastic that they said that they recycled (42,000 tons of plastic waste) to China, Malaysia, Vietnam, and Indonesia – some of the world's top plastic polluters.

Due to the lack of space, a major goal of Singapore is to reduce the amount of general waste that ends up in its landfill. In Singapore's 2019 Zero Waste Masterplan, it lists reducing the waste sent to Pulau Semakau Landfill (Singapore's only landfill) each day by 30% by 2030 as a key target. The government has tried encouraging consumers to reduce their food waste and use of plastic disposables, as well as put in measures to improve household recycling.

Existing Plastic Regulations:

Singapore's Resource Sustainability Act 2019 (No. 29 of 2019) ("RSA") imposes obligations relating to the collection and treatment of certain waste and requires reporting of packaging imported into or used in Singapore. Producers with an annual turnover of more than $10 million must submit a report to National Environment Agency (NEA) related to the packaging, as well as a plan with a target implementation date of no later than 3 years from the time of submission to reduce, re-use, or recycle packaging in Singapore.

The Producer Responsibility Scheme under the RSA currently relates to consumer electrical and electronic waste (e-waste). There are plans for Extended Producer Responsibility for packaging, including plastics, to be introduced under the RSA no later than 2025.

Singapore

There is currently no specific regulation on recycled materials (e.g., rPET) in food packaging in Singapore's regulations, just general safety requirements to comply with.

The Hazardous Waste (Control of Export, Import and Transit) Act (Chapter 122A) ("HWA") incorporates the principles and text of the Basel Convention, regulating the export, import and transit of hazardous and other waste, including plastic waste. Currently, the export, import, or transit of hazardous waste is generally prohibited under the HWA, unless a permit is obtained.

Limitations:

Given Singapore's density and limited size, there is not a cogent business case for the nation to build up its recycling capabilities. As Singapore is not a major producer of plastic nor is it a major importer of waste, it makes business sense for waste collectors to either package waste and export it to another country for processing or to send the plastic waste for incineration. This is reflected in the modest recycling targets set by the government, which acknowledge that most of the waste will be processed overseas.

While the NEA has measures to prevent waste collectors from dumping recyclables, it cannot recycle plastic waste that has been contaminated. Common contaminants include food and liquid waste, Styrofoam, tissue paper, electronic waste, furniture, and items meant for reuse like clothing. This poses another barrier to recycling that occurs at material recovery facilities, where only 50-60% of materials received from household collections per day are suitable for recycling. NEA figures show that over half of Singaporeans engage in recycling practices regularly, but they do not have an exhaustive knowledge of what can be recycled or how to dispose of the recyclables properly.

Global trade barriers on exporting waste, including the Chinese ban on plastic waste imports and the Basel Convention, may push Singapore's waste collectors and government to look at improving its local plastic sorting/processing capabilities. The Basel Convention, which Singapore is a party to, will put restrictions on the export of contaminated and unsorted mixed or non-recyclable plastics out of Singapore. Before the amendments, exporters could ship contaminated, mixed, or non-recyclable plastics across Singapore's borders without requiring the permission of the country to which they were exporting the waste to. Plastic waste that is clean, homogeneous, and sorted will not have to go through this new procedure. Given that incineration of plastic waste is not a viable long-term strategy, Singapore will likely begin to look into other ways of reducing its plastic waste and improving its waste processing capabilities.

Plastic Waste Management:

Singapore currently collects waste through the National Recycling Programme (NRP). Public Waste Collectors (PWCs) are required to collect commingled recyclables (paper/cardboard, plastic, metal, and glass) from all residential properties. Currently, the recyclables are sorted at Materials Recovery Facilities (MRF) operated by PWCs before they are sent to the recycling plants.

Singapore

In support of the Zero Waste Masterplan, Singapore has announced a US$3 billion project called the Tuas Nexus Integrated Waste Management Facility, which will be funded through green bonds. When completed, the facility will be the primary consolidation point and sorting center for recyclables in Singapore. With better economies of scale and by using advanced automatic sorting equipment, the facility will help to achieve a higher yield of sorted recyclables.

There is currently no EPR framework for plastics specifically in Singapore. However, there are plans to target packaging – which includes single-use plastics – by 2025. NEA has also announced plans to implement a Deposit Refund Scheme for beverage containers. According to 2018 statistics, packaging waste is about one third of Singapore's disposed domestic waste – approximately 55% of this is plastic waste.

Non-Binding Initiatives:

Plastics recycling is limited in Singapore, and most plastic is either incinerated or exported. This is despite attempts by regulatory authorities like the NEA to increase the recycling rate. Recycling companies and environmental activists have also been active in promoting initiatives and providing public education about the benefits of recycling. Singapore launched the Singapore Packaging Agreement (SPA) in 2007, a joint initiative by the Singapore government, industry and non-governmental organizations (NGOs) to reduce packaging waste. This scheme was voluntary until 2020, when mandatory reporting of packaging data and 3R plans for packaging was introduced.

Still, there has been some interest in boosting plastic recycling capabilities. In 2021, the Plastics Recycling Association of Singapore announced plans to launch a pilot studying the feasibility of setting up Singapore's first recycling facility for PET plastic bottles. This study is still ongoing. In 2022, ExxonMobil announced plans to build recycling facilities to process plastic waste – one of the assessed sites is Singapore.

Upcoming Legislation:

Singapore has tabled a compulsory carrier bag charge at large supermarkets of at least 5 cents for every disposable bag – regardless of material – as a proposed amendment to the Resource Sustainability Act. The measure aims to reduce packaging and food waste in Singapore. The carrier bag change was first announced in early 2022 and will take into effect by mid-2023. Many supermarkets and retailers have already begun voluntarily charging per bag. All participating retailers are required to declare the use of funds collected.

Thailand

USABC 2023 Plastic Waste Management Report

Plastic Waste Management Regulations

Problem Scope:

Thailand has been one of the largest plastic importers in the world. Following the announcement of China's waste import ban in 2017, Thailand experienced a surge in plastic waste imports, increasing from 14,000 tonnes of scrap plastics in the first half of 2017 to 253,000 tonnes in the first half of 2018. The surge in plastic waste imports led Thailand to temporarily ban plastic scrap shipments. In 2018, the government ruled that Thailand would fully ban plastic waste imports by 2021. However, due to the COVID-19 pandemic, the implementation of the plastic waste import ban was delayed.

In February 2023, the Cabinet announced that Thailand will ban the import of all plastic waste by 2025. Regulation to restrict plastic waste imports will be undertaken in phases. In 2023, plastic waste imports will be restricted to 14 recycling plants in the tax-free zone, which may not receive more than their combined production capacity of 372,995 tons of plastic waste. In 2024, plastic waste imported to these plants will be reduced to half of their combined production capacity. To be processed in areas outside the tax-free zone, importers of plastic waste must provide evidence of the necessity of imports for their production demand.

In addition to being a major importer of plastic waste, plastic production has been an integral part of the Thai economy. Thailand has the largest petrochemical sector in Southeast Asia. In 2018, the plastics industry contributed 1,100 billion baht (US$36.9 billion) and represented 6.71 percent of Thailand's GDP. Five industries make up 86 percent of Thailand's plastic consumption: packaging (42 percent), electrical and electronics (16 percent), construction (14 percent), automotive (7 percent), and filament (7 percent).

Thailand

Annually, Thailand generates approximately 2 million metric tons of plastic waste; however, only a quarter is recycled. The World Bank estimates there is a 76 percent gap between Thailand's consumption level and recycling rate of key resins due to low domestic demand for recycled plastics. The gap is most pronounced for PET polyester (97 percent gap), followed by PP (81 percent gap), HDPE (79 percent gap), and LDPE/LLDPE (79 percent gap). The gap is least pronounced for PET packaging, which has a 25 percent gap. The informal sector primarily collects post-consumer resins in Thailand, leading to a prioritization of higher-value plastics for recycling. Thailand annually disposes of 2.88 million tonnes of plastic, resulting in an estimated US$3.6-4.0 billion of key plastics' material value due to the disposal of recyclable plastic.

Almost a quarter of collected plastic waste is disposed of in controlled dumpsites, burned, or buried, and approximately 214,000 tons of plastic waste is uncollected per year. Most mismanaged plastic waste that ends up in the marine environment is generated in rural areas (70.1 percent), where there are relatively lower collection rates and a higher number of disposal facilities. Although Bangkok has relatively high waste collection rates, Bangkok is also a significant contributor, making up approximately 18.4 percent of exposed mismanaged plastic waste.

Environmental Consequences:
Thailand is a significant source of marine plastic debris. Thailand was previously estimated to be the sixth largest contributor of marine plastic debris, annually discharging 0.15-0.41 million tons of plastic marine debris. During the early stages of the pandemic, there was a 15 percent increase in plastic waste on average in Thailand due to the increased use of single-use plastic for food delivery and personal protection. However, in 2021, Thailand became the tenth largest contributor to marine plastic waste in the world, largely due to significant reductions in plastic bag usage.

The Phase 1 of the Action Plan on Waste Management (2020-2022) recommended the voluntary ban on the use of seven types of single-use plastics. Single-use plastic products were identified to be replaced include cap seals, Oxo plastics, microbeads, plastic bags less than 36 microns thick, plastic cups less than 100 microns thick, plastic straws, and foam food containers. In 2018, Thailand began to phase out the use of sealed caps on bottled water in order to totally eliminate their use by the end of 2019. In 2020, Thailand banned single-use plastic bags in major stores and has reduced overall plastic bag usage by 43 percent over the last two years. In 2022, Thailand banned styrofoam packaging and single-use plastic in national parks to protect local wildlife.

The National Waste Management Master Plan (2016-2021) sought to reduce waste generation and improve waste collection through the advancement of the 3Rs, establishing centralized facilities for municipalities to dispose of municipal solid waste (MSW) and hazardous waste, and the participation of all relevant sectors in SWM management. The plan outlined several targets to improve MSW management, including the proper disposal of 75 percent of MSW and the implementation of systems for separation-at-the-source by 50 percent of local governments by 2021.

Thailand

In 2022, the Ministry of Public Health published the Notification of the Ministry of Public Health (No. 435) B.E. 2565 (2022) Issued under the Food Act, B.E. 2522 (1979) on Determination of Quality or Standard of Plastic Containers, which established a quality standard for plastic food containers and lifted the ban on the use of recycled materials for food containers. Food containers made of plastic that underwent physical reprocessing mechanical recycling must be made of recycled plastics with PET food-contact grade raw material. Containers made of recycled plastic pellets that have undergone processes to remove contaminants must submit a safety assessment report from the Safety Assessment Unit or be made of recycled plastic pellets that have been certified according to industrial product standards. Later that year, PTT Global Chemical Plc (PTTGC) launched the first food-grade recycled plastic resin plant in Thailand.

In 2023, Thailand's Industry and Finance ministries introduced a corporate income tax reduction for companies that buy biodegradable plastic products between 2022 and 2024 to support Thailand's bio-circular, and green (BCG) economic model. The tax reduction will be approximately 25 percent of what companies spend to buy biodegradable plastic products. The tax incentive was first implemented in 2019 but expired at the end of 2021. Companies will be required to buy biodegradable plastic products from Industry Ministry-certified manufacturers. As of January 2023, seven companies have been certified and 72 licenses on biodegradable plastic products have been granted.

Plastic Waste Management: Several government bodies are responsible for the management of plastic waste, including the Ministry of Natural Resources and Environment (MNRE), the Pollution Control Department (PCD), the Department of Local Administration (DLA), the Department of Industrial Works (DIW), and the Ministry of Energy (MOE). Local government organizations (LGOs) are largely responsible for implementing policies and directives as well as waste collection, transportation and disposal. Although there are implementing laws and ministerial policies that outline the role of LGOs in the provision of separate containers for different kinds of waste and public awareness-raising efforts, many LGOs have yet to issue local ordinances enabling these provisions or invest in necessary infrastructure for effective separation-at-the-source collection. Most LGOs utilize single-stream rear-loaded compact garbage trucks for mixed waste, complicating the recycling process.

Thailand does not currently have an extended producer responsibility (EPR) policy in place. EPR has been mentioned in Thailand's Roadmap on Plastic Waste Management 2018-2030 and Action Plan on Waste Management Phase 1 (2020-2022). The Thai government began to hold public consultations on EPR in 2020. In 2022, the MNRE established a circular economy packaging steering community to work with other stakeholders to develop a suitable EPR policy and the Pollution Control Department is currently in the process of drafting regulations or laws.

Thailand

Non-binding Initiatives:

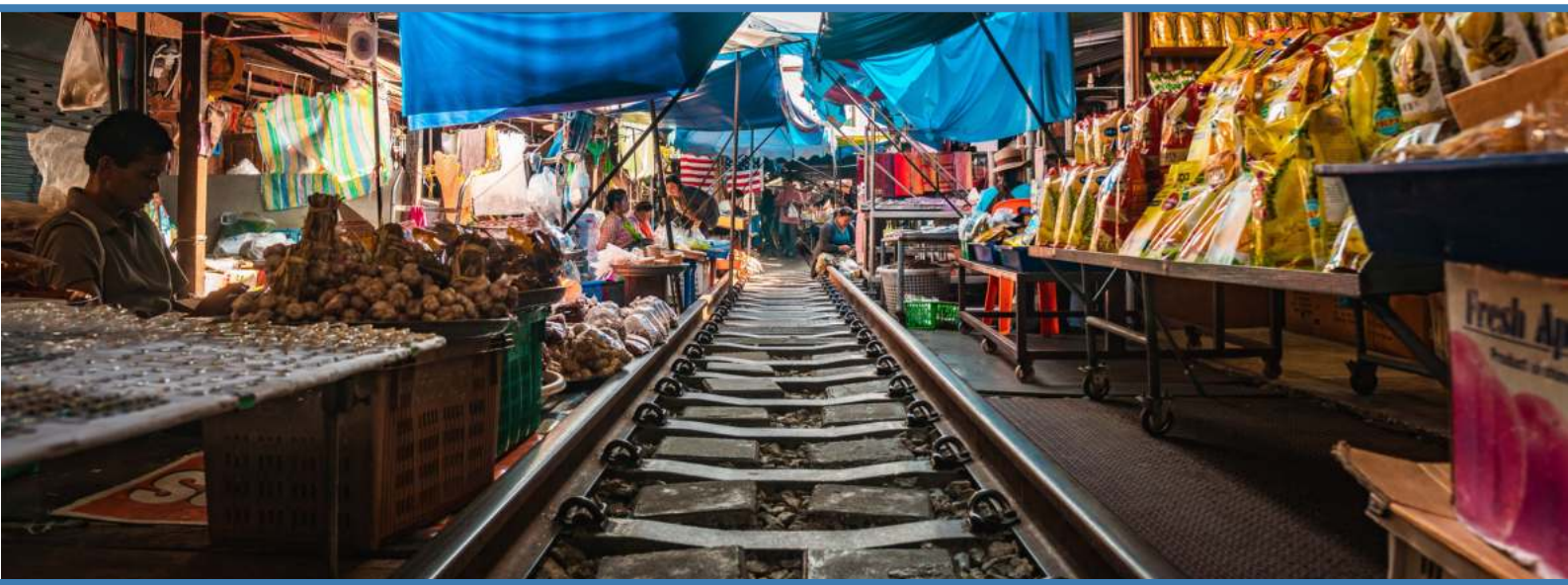
Several clean-up initiatives and waste management pilots have been implemented in Thailand. In 2018, efforts across 24 provinces collected a total of 33 tonnes of plastic waste. Currently there is a river cleanup initiative underway for Chao Phraya River, which is estimated to be the 15th most polluting river in the world in terms of emitting plastic waste. In 2022, City Hall launched waste separation pilots in three districts in Bangkok, covering approximately 1,000 households. Thai agencies have also launched several campaigns to improve public awareness of the domestic plastic waste crisis and related environmental consequences. The MNRE Department of Environmental Quality Promotion and Ministry of Interior have worked jointly to conduct public awareness campaigns across 7,000 locations, including schools, convenience stores, and open markets. The Department of Environmental Quality Promotion has also collaborated with the Pollution Control Department on several public awareness initiatives, such as the Everyday Say No to Plastic Bags campaign to encourage the general public to limit their use of single-use bags.

Upcoming legislation:

Two major plans related to plastic waste management are set to be released this year.

On February 7, the Action Plan on Plastic Waste Management Phase II (2023-2027) was presented to the Cabinet and approved, and published on the Department of Pollution Control's website. The plan focuses on four key areas including the removal of plastic waste from landfills for recycling by 2027. Representatives from the Department of Pollution Control have previously stated that the plan will include targets to half the number of landfills by 2027 and completely remove landfills by 2037.

Thailand is set to release its Draft Action Plan on Marine Plastic Debris for 2023-2027 to provide a framework for relevant sectors and provide further support to the implementation of the Roadmap on Plastic Waste Management (2018-2030).



Vietnam

USABC 2023 Plastic Waste Management Report

Plastic Waste Management Regulations

Problem Scope:

Vietnam has become one of the largest plastic scrap importers in the world, following the announcement of China's waste import ban in July 2017. In November 2017, Vietnam's plastic waste imports reached a peak of 100,000 tons, making it the largest importer of scrap plastics at the time. The surge led Vietnam to temporarily stop issuing new licenses to import waste in 2018 to crack down on illegal shipments and ease congestion at its ports.

Vietnam is also a major plastic waste generator in ASEAN. In 2021, Vietnam generated up to 2.9 million tons of plastic waste, collected approximately 2.4 million tons of plastic waste, and recycled 0.9 million tons. A significant amount of plastics waste is mismanaged, and the rest is either burned, buried in dumps, sent to landfills, or dumped in waterways. According to the World Bank Plastic Pollution Diagnostics report, plastic waste accounts for the majority of waste found in river and coastal sites, accounting for 71% of waste by weight. More than 60 percent of plastic waste found was from single use plastics.

Take-away food packaging is estimated to be the largest contributor to plastic waste in Vietnam. In 2022, Vietnam's plastics industry produced 9.54 million tons of products, contributing an estimated US$17.5 billion to the national economy. However, Vietnam has lost an estimated 75 percent of material value of PET, PP, and HDPE, and LDPE plastics consumed in 2019 due to the disposal of recyclable plastic.

Environmental Consequences:

Vietnam is estimated to be the fourth largest polluter of the world's oceans, discharging an estimated 0.28 to 0.73 million tons annually. Single-use, low-value plastic items, such as plastic bags, food containers, and straws, have been the largest contributors to plastic waste polluting Vietnam's waterways. Rapid economic growth, urbanization, and changing lifestyles have led plastic consumption to increase at a much faster rate than improvements in Vietnam's waste-process capacity, exacerbating challenges presented by plastic waste mismanagement.

Vietnam

Existing Plastic Regulations:

The Law on Environmental Protection No. 55/2014/QH13 regulates the management of wastes and other pollutants as well as the reduction, reuse, recycling, and treatment of plastic waste. The revised Law on Environmental Protection No.72/2020/QH14 (LEP 2020) came into effect in January 2022, introducing the concept of circular economy through fostering extended producer responsibility (EPR) policy, highlighting the responsibility of producers and importers to recycle products and packaging. Decision 687 is another statement that has since been issued by the Vietnamese government on circular economy development. The decision also sets out goals to reuse, recycle and treat plastic waste.

The National Strategy on Solid Waste Management to 2025 (with a vision to 2050) seeks to improve the rate of waste collection and treatment and encourage greater rates of reuse and recycling. In June 2018, Decision No. 491/QD-TT adjusted several targets under the National Waste Management Strategy, seeking to increase the retail sector's use of environmentally friendly plastic bags to 100 percent by 2025, progressively end the use of biodegradable plastic bags from 2026, and collect and treat 100 percent of non-household hazardous waste and 90 percent of urban domestic solid waste by 2025. In 2019, the average collection rate for domestic solid waste was 85.5 percent in urban areas and 40-60 percent in rural areas. The Ministry of Natural Resources and Environment seeks to increase the collection and processing of urban household wastes to 96 percent by the end of 2023.

In 2020, Vietnam released the National Action Plan for Management of Marine Litter by 2030 under Resolution No. 1746/QD-TT, which sets specific targets for plastic waste to decrease marine plastic litter by 75 percent by 2030 and collect 100 percent of abandoned, lost, or discarded fishing gear by 2050. The action plan also seeks to prevent the use of single-use plastics and non-biodegradable plastic bags in coastal tourism areas and conduct beach cleanup campaigns to make 100 percent of protected marine areas free of plastic waste by 2030. The plan includes efforts to plan and implement programs to increase awareness of the impact of single-use plastics to oceans, promote marine plastic litter collection programs that sort and process waste, and encourage recycling among organizations and individuals. Under Decision No. 2395/QD-BTNMT, the Ministry of Natural Resources and Environment (MONRE) and specific units are responsible for carrying out tasks to implement the action plan.

In 2020, Vietnam also introduced Prime Minister Decision No. 28/2020/QD-TT, revising the list of scrap and waste allowed to be imported under Prime Minister Decision No. 73/2014/QD-TT. Thirteen types of scrap and waste were banned under the decision, including plastic waste and scrap from Polymer Vinyl Clorua (PVC) and polymers styrene (PS) which had been allowed to be imported under the prior regulation.

Vietnam

Non-biodegradable plastic bags are identified as taxable items under Article 3 of the Law on Environmental Protection Tax No. 57/2010/QH12, with tax rates specified under Resolution No. 579/2018/UBTVQH14. Circular 159/2012/TT-BC, supplementing 152/2011/TT-BTC and guiding the implementation of Decree No. 67/2011/ND-CP, identified taxable non-biodegradable plastic bags according to plastic type, requiring producers and importers to pay a tax of VND50,000 (US$2) per kilo. Circular No. 07/2012/TT-BTNMT outlines criteria and procedures for recognition of environmentally friendly plastic bags.

In 2021, Vietnam issued Decision No. 1316/QD-TT on approving the Scheme for strengthening plastic waste management. The decision sets targets to decrease marine plastic waste, decrease use of single-use products and non-biodegradable bags, and develop legal policies and sustainable production and consumption to promote the development of a circular economy. In April 2022, Vietnam issued Decision 450/QD-TT to promote environmental protection to 2030 with a vision to 2050, aiming to develop a circular economy and taking into account Vietnam's goal to be carbon neutral by 2050. The decision emphasizes the importance of reusing, recycling, sorting, and treating plastic waste, with Vietnam set to abandon the circulation and consumption of single-use plastic products and non-biodegradable plastic packaging after 2025. Vietnam will also stop manufacturing and importing goods containing microplastic beginning in 2030.

Plastic Waste Management:

The Vietnamese government has also made several notable steps to bolster efforts to transition to a circular economy. The implementation of Vietnam's EPR regime is set to come into effect beginning in 2024. Articles 54 and 55 of the Law on Environmental Protection 2020 serve as the legal basis for EPR, targeting six sectors: packaging, electrical goods, tires, batteries, lubricants, and electric vehicles. On January 10, 2022, Decree 08/2022/ND-CP (Decree 8) and Circular No. 02/2022/TT-BTNMT on the Detailed Implementation of some Articles in the Law on Environmental Protection came into effect to provide guidance on EPR implementation. EPR in Vietnam falls under three mandatory frameworks: Packaging Recycling Obligations, Product Recycling Obligations, and Waste Treatment Obligations, which will require those subject to the obligations to report on recycling activities based on given rates and specifications or annually contribute to the Vietnam Environmental Protection (VEP) Fund, which will support the recycling of their waste. Waste treatment obligations came into effect on January 10, 2022. Mandatory recycling rates will be increased every three years following the beginning of implementation. Vietnam will begin enforcing recycling obligations on January 1, 2024, for most packaging and product producers, with extended deadlines for producers and importers of electronics and vehicles.

However, Vietnam's current municipal solid waste system is designed to primarily transfer collected waste into landfills or incineration facilities. Although the Law on Environmental Protection 2020 stipulates that households must sort domestic waste before discharge by December 31, 2024, there has been limited implementation of separate collection of waste and recyclable materials at the source.

USABC 2023 Plastic Waste Management Report

Vietnam

The revised Law on Environmental Protection contains articles seeking to address the formalization of collection services and enhanced "3R" (reduce, recycle, and reuse) efforts. However, low levels of public awareness about the impact of plastic waste on the environment and relevant regulations could present challenges to these initiatives.

Non-binding Initiatives:

In 2018, Vietnam adopted Resolution No. 36-NQ/TW on the Strategy for Sustainable Development of Vietnam's Marine Economy to 2030, with a vision to 2045, which seeks to position Vietnam as a regional leader in reducing ocean pollution. In 2020, Vietnam issued Directive No. 33/CT-TT, detailing the government's role in strengthening the management, reuse, recycling, treatment, and reduction of plastic waste. The directive assigns the MONRE as the primary institution for the management of plastic and waste, making it the lead ministry for the implementation, research and development, and monitoring of related policies and their impact. The Ministry of Finance was made responsible for the amendment and supplementation of the Law on Environmental Protection Tax, including adjustments to taxable objects and tax rates. Other ministries were instructed to oversee the implementation of sector-specific activities and support educational and awareness-raising events.

There have been several clean-up initiatives underway in Vietnam, including initiatives targeting the Can Tho River, Mekong River, and Hau River. In addition to clean-up initiatives, local authorities have also worked to implement pilot zero-plastic-waste initiatives, including authorities in Ha Long Bay, Con Dao Island District, and Co To Island. Authorities in Ho Chi Minh City are seeking to stop the production and import of single-use plastic products, non-biodegradable plastic bags, and microplastic items by issuing a plan to bolster the management, reduction, recycling and treatment of the city's plastic waste during the period 2022-2025. According to Ho Chi Minh City's Department of Natural Resources and Environment, an estimated 9,000-9,5000 tons of domestic solid waste is generated daily, with an estimated 20-25 percent being recyclable items. As of 2020, approximately 69 percent of waste from Ho Chi Minh City was sent to landfills, with the remaining waste being sent to compost and incineration facilities. The city seeks to reduce 75 percent of plastic waste on Can Gio beach and implement preferential policies to encourage the reuse and recycling of plastic waste. A roadmap will be developed to supplement the environmental protection tax on single-use plastic products.

Vietnam

Upcoming legislation:

In 2023, two major draft legislations are set to be issued by MONRE to implement the EPR regime. A Draft Circulation is set to be issued in Q1 2023, focusing on the promulgation of rules on the management and use of contributions of producers and imports into the VEP Fund for supporting recycling and waste treatment. The Draft Circulation is currently pending approval by the MONRE. MONRE is currently drafting a Draft Decision of the prime minister on the promulgation of the norms of recycling costs and packaging, which is tentatively set to be issued during Q4 2023.

Vietnam's Deputy Prime Minister Le Minh Khai has also signed Decision 687, approving the national development plan on a circular economy in June. The plan aims to decrease greenhouse gas emissions per GDP by at least 15 percent compared to 2014. The decision also sets out goals to reuse, recycle and treat 85 percent of plastic waste and reduce 50 percent of plastic waste in the sea and ocean.

Appendix

Estimates for plastic waste generation and recycling in ASEAN were derived from:

- **Indonesia**: Estimates on Indonesia's plastic waste generation and recycling are taken from 2021 World Bank report .
- **Philippines**: Estimates on plastic waste production taken from 2021 World Bank report. Statistics on plastic recycling are taken from Sustainability Solutions Exchange.
- **Vietnam**: Statistics taken from the news report about the State of Plastic Waste Report in 2022 on waste generation. Recycling statistics taken from 2021 World Bank report on Vietnam's plastic circular economy prospects.
- **Thailand**: Estimates on Thailand's plastic generation are taken from an 2021 article by Heirich Boll Stiftung. This corroborates with the estimates for Thailand's plastic generation and recycling rate in a 2022 World Bank report. Formal collection and recycling rates are high with a combined rate of 88.8%, but nearly a quarter of collected plastic waste is disposed in formal open dumpsites or controlled dumped or openly burned/buried. This suggests a plastic recycling percentage of around 67%.
- **Malaysia**: Estimate on plastic generation taken from 2022 WWF-Malaysia report. Estimate on 2019 plastic recycling taken from article by the Circulate Initiative.
- **Singapore**: 2022 data on plastic recycling taken from the National Environment Agency.

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