East Asia and Pacific Region: **MARINE PLASTICS SERIES**

Reducing Plastic Waste in the Philippines

An Assessment of Policies and Regulations to Guide Country Dialogue and Facilitate Action

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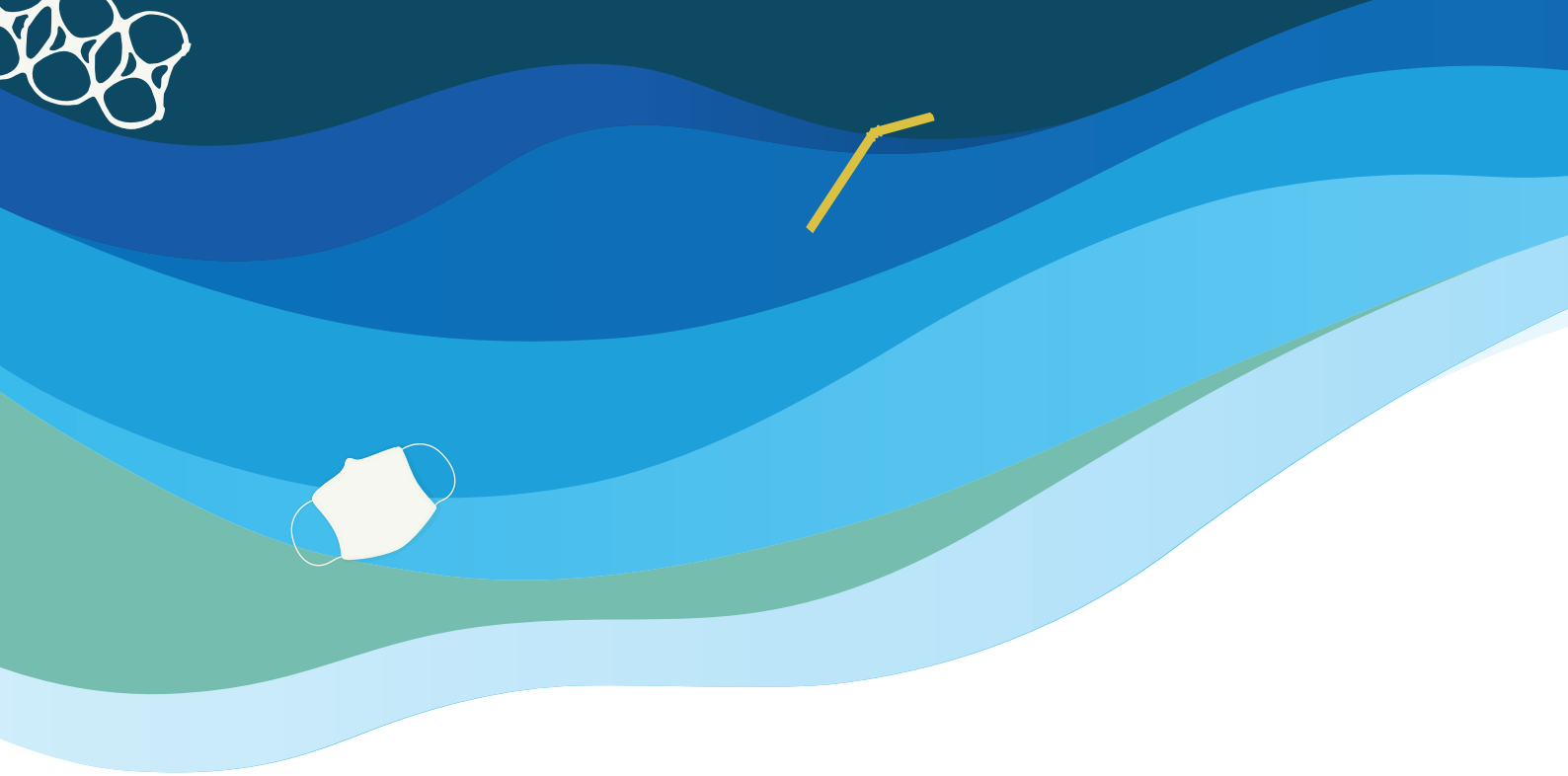

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EXECUTIVE SUMMARY

Solid waste management (SWM) in the Philippines continues to be hampered by gaps and issues despite the passage of the Ecological Solid Waste Management Act of 2000. One of these issues involves plastic waste whose impacts have extended beyond the country's terrestrial boundaries. Studies have shown that the Philippines, together with China, Indonesia, Thailand, and Vietnam, accounts for 55 to 60 percent of plastic waste entering the ocean.

Globally, the Philippines has one of the highest rates of mismanaged plastic waste recycling, with only about 28 percent of the key resins it consumed in 2019 being recycled. Unrecycled plastics are disposed of in dumpsites and landfills, remain as litter, or accumulate in sewers, drainage systems, and rivers before being discharged into surrounding marine water bodies.

This study assesses national-level policies governing the management of plastics waste in the Philippines. The study aims to support the government's efforts to improve the management of such waste and to facilitate circular-economy practices. The study included a desk review and analysis of current SWM conditions, existing policies, and current and pending legislation related to recycling and plastics waste management. Consultations with key stakeholders in the private and public sectors in plastics waste management supplemented the review.

The following gaps in current SWM systems were identified and analyzed:

- Mixed waste collection;
- Inadequate infrastructure for segregation, recovery, and recycling;
- Limited public funds and technical capacity to cover full SWM services at the local government unit (LGU) level;
- Lack of recycling capacity;
- Poor quality of collected plastic waste;
- Lack of integration of the informal sector in the plastic value chain;
- Lack of readily available information on government support for investments in recycling technology and capacity; and
- Absence of robust policy to address problematic and unnecessary single-use plastics (SUPs), among others.

Using a business-as-usual (BAU) scenario over a 20-year period from 2020 to 2040, the study identified four interconnected problems related to plastic waste management—namely: plastics leakage, impacts of the phaseout of single-use plastics, challenges in plastics recycling, and the need to scale up plastics recycling.

The study arrived at an approach focused on bridging gaps and shortcomings in existing and planned policies and legislation through a combination of upstream and downstream measures for maximizing recycling plastic waste and preventing these materials from entering the ocean. The measures were crafted into four integrated pathways to be implemented over a span of 10 years with the intent of zero plastics entering the ocean by 2032. These four pathways are listed below:

- **Capturing and containing** plastic waste through improved collection, segregation, and sorting capacities, and through management approaches at local showcase sites to model and foster replication of best practices.
- **Reducing problematic SUPs** through legislation that targets the phaseout of priority unnecessary and problematic SUPs while promoting collaboration and cooperation with producers of plastics and plastic packaging over the medium term and long term. This will include the establishment of an industry-led system for monitoring and assessing progress toward targets.
- **Developing the market for recycling and manufacturing of recycled products.** This will translate into improved recycling economics, returns on investments in recycling technology and SWM infrastructure, and a higher demand for recycled resins through contracts with the plastic manufacturing industry. Over the medium term to long term, new legislation will be passed, and standards developed, on the content and quality of recycled products.
- **Designing for plastic circularity** with the building of consensus on voluntary targets and actions by industry to phase out problematic SUPs, thereby curbing the expansion of virgin plastics, increasing recycled content in plastic products, and designing products to enhance the life cycle of plastics and promote a circular economy.

Photo: Shutterstock / Jill Gulles.

CHAPTER 1:

INTRODUCTION

Prior to the COVID-19 pandemic, the Philippines had one of the fastest-growing economies in the Asia Pacific region with a sustained average annual growth of 6.3 percent between 2010 and 2019 (World Bank 2020). The economic and population growth translated into a high material footprint (the amount of natural resources extracted to meet the country's demand) that almost doubled from 198 million tons in 1990 to 364 million tons in 2010. The country now consumes more natural resources than it did 40 years ago and produces more carbon emissions than its biological capacity (Global Footprint Network 2012).

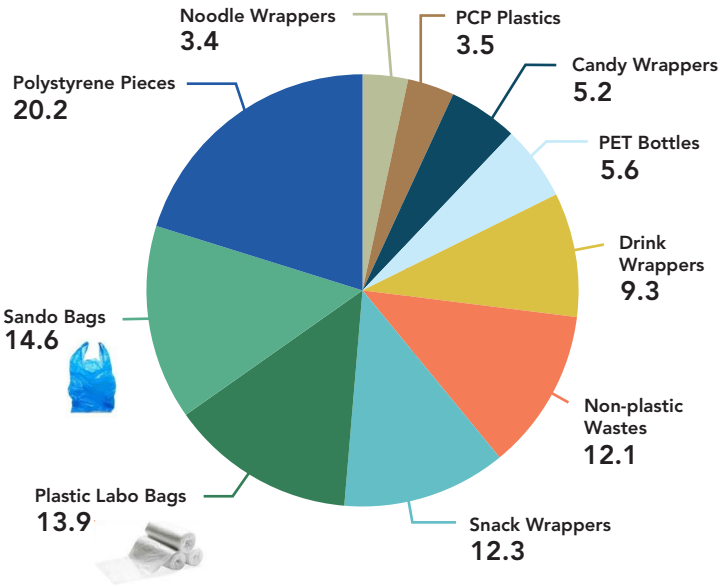
This ecological deficit is aggravated by the current "take, make, and dispose" practice instead of "repair, reuse, and recycle," since take-make-dispose contributes to increased land- and sea-based pollution. Materials are usually consumed and discarded at a fast rate, with limited consideration of products' life cycle, other possible uses, proper treatment, or disposal methods.

Take-make-dispose practices apply to, and are highly evident in, plastic waste management in the Philippines. Available studies indicate that plastic waste makes up over a tenth of recyclable municipal solid waste (NSWMC 2019). Most of the plastic waste is generated by multiple sources including households; commercial establishments (for example, retail stores, eateries, and restaurants); industries (for example, manufacturing, shipping, and export-processing zones); and governments and institutions (for example, offices and hospitals). It comes in the form of packaging (food and beverage wrappers, sando bags, multi-material sachets, and packaging made of polystyrene materials), especially in highly urbanized areas. These types of plastic waste were recovered from the Pasig River in Metro Manila during a survey conducted in 2020–2021 (see figure 1).

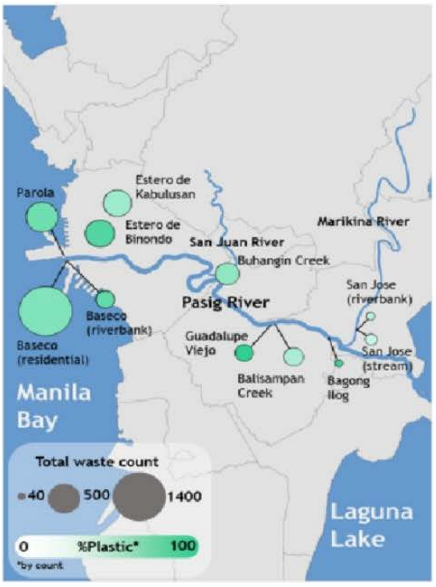
Although a significant number of relevant laws and policies exist, the system for plastic waste management in the Philippines remains weak, fragmented, and inefficient. It is estimated that the country has the third-highest rate of mismanaged plastic waste worldwide (Jambeck et al. 2015). As of 2019, the Philippines recycled only about 28 percent (321,875 tons per year) of the key resins consumed. These are polyethylene terephthalate (PET), excluding polyester applications; polypropylene (PP); high-density polyethylene (HDPE); and linear low-density polyethylene (LLDPE)/ low density polyethylene (LDPE). PET polyester was excluded since estimates report that less than 1 percent gets collected for recycling due to the absence of a dedicated recycling sector for PET polyester products (World Bank 2021c). In addition, while the total value yield from plastic recycling in the Philippines is US$1.1 billion per year (assuming all key resins had 100 percent collected-for-recycling (CFR) rates and obtained the maximum value in the market), only 22 percent of this figure is currently unlocked. Recycling rates vary depending on the price of virgin plastic, the end use for recycled resin, and other market factors (World Bank 2021c).

Figure 1.
RESULTS OF PLASTIC FIELD SURVEYS, MONITORING, AND DIAGNOSTICS IN THE PASIG RIVER, PHILIPPINES

10 Most Common Waste Types (% of total)
(as of December 2020 fieldwork)



Waste Items per Quadrant



Source: World Bank 2021d.

The remaining unrecycled plastic is either deposited in landfills or discarded freely in the environment. This has led to a buildup of plastic waste in sewers, stormwater drainages, rivers, and the sea, leading to human health and sanitation risks; marine-life ingestion of microplastics and their entanglement with plastic materials; clogged infrastructure and flooding; and economic losses for sea-based industries, including fisheries, tourism, and shipping. Globally, the cost of such after-use externalities, plus the cost associated with greenhouse gas (GHG) emissions from SUP packaging (which constitutes the bulk of marine litter), is conservatively estimated at US$40 billion annually. This cost exceeds the profit pool of the plastic-packaging industry (Ellen MacArthur Foundation 2016). Marine litter also has adverse effects on human health, since microplastics can find their way into seafood and other marine products.

The Philippines, together with China, Indonesia, Thailand, and Vietnam, accounts for 55 to 60 percent of plastic waste entering the ocean (Ocean Conservancy 2017).

The management of marine plastics is a regional priority in the East Asia and Pacific region. The Philippines is building up analytical studies on solutions, economic assessments, technology prioritization, and hotspot assessments on plastic leakage, while also identifying blended finance options to make critical investments in the sector. Policy assessment and recommendations at the national level would complement these ongoing efforts of the Philippine government to help facilitate a circular economy in the country's management of plastic waste.

CHAPTER 2:

METHODOLOGY AND LIMITATIONS

The study was guided by the following four principles, which provided the scope and direction for discussions with national government agencies (NGAs) and the private sector on the coverage and efficacy of existing and proposed national laws and policies:

- Policy options encompass sustainable pathways and solutions that contribute to a circular economy and embody humanitarian, socioeconomic, and environmental objectives and targets adopted in national laws and policies, as well as international instruments subscribed to by the government of the Philippines (GOP), such as the United Nations (UN) Sustainable Development Goals (SDGs).
- Plastics waste management is not a separate or isolated task but rather an integral and necessary part of an effective SWM system.
- Collaboration, coordination, and commitment across countries, NGAs, LGUs, private and informal sectors, academia, nongovernmental organizations (NGOs), and consumers are essential to addressing the crisis of plastic litter in the ocean. No single government or sector can do it on its own.
- Evidence of national benefits and impacts derived from new and amended laws and policies will take time. Investments in implementation experiences are required to demonstrate and refine progressive policies and solutions and unlock investments.

The study commenced with a desktop review and analysis of existing and planned legislation and policies, consultations with key players at the national level, inputs from completed and ongoing Bank studies and other relevant work, and a review of relevant policies and approaches from other parts of the world.

Table 1 presents the consultation schedule with key policy experts and agencies. Annex B lists relevant NGAs and other key actors, including their mandates.

The study utilized the business-as-usual (BAU) scenario in forecasting the amount of plastic waste that will be generated, processed, recycled, and disposed of and leaked into the environment over a 20-year period to gain insight into the relevance of current and pending laws and policies on plastic waste management and reduction of ocean pollution.

Consultations were underway in late February 2021 and were conducted via online interviews due to COVID-19 pandemic restrictions. The consultations brought out views and concerns from different groups, as well as approaches towards solutions, as the country moves forward in defining solutions for its plastics problems and renewing the dialogue with these organizations and individuals to build consensus regarding essential next steps.

Table 1.
CONSULTATION SCHEDULE

List of stakeholders consulted	Date
GA Circular (research and strategy firm) and Mr. Reynar Rollan (independent consultant)	February 8, 2021
University of the Philippines National Engineering Center (UP NEC)	February 11, 2021
Mr. Reynar Rollan	March 8 and 17, 2021
Climate Change Commission (CCC)	March 24, 2021
Philippine Alliance for Recycling and Materials Sustainability (PARMS)	April 5, 2021
Department of Finance (DOF) and CCC	April 6, 2021
National Economic and Development Authority (NEDA)	April 8, 2021
Board of Investments (BOI)	April 8, 2021
Department of Science and Technology (DOST)	April 19, 2021
Department of Interior and Local Government (DILG)	April 22, 2021
National Anti-Poverty Commission (NAPC) and Informal Workers Sector	April 22 and 29, 2021
Department of Environment and Natural Resources (DENR)	April 29, 2021
House of Representatives (HOR) and CCC	May 4, 2021
Cabinet Cluster on Climate Change and Disaster Risk Reduction (CC CCAM DRR) and international development partners	May 25, 2021

Source: World Bank.

Photo: Shutterstock / Franz12.

CHAPTER 3:

CURRENT AND FORECASTED SOLID AND PLASTIC WASTE MANAGEMENT IN THE PHILIPPINES

Despite the passage of the Ecological Solid Waste Management Act of 2000, which was approved by the President's Office in early 2021, the Philippines continues to operate a collection and disposal system with varying degrees of compliance with requirements regarding waste segregation, segregated waste collection, and reuse and recycling of waste and proper disposal. Figure 2 illustrates a modification of the current SWM system as implemented in Metro Manila. This report infers that similar approaches are practiced in different parts of the country depending on the level of enforcement of RA 9003 and the capacity of the LGUs.

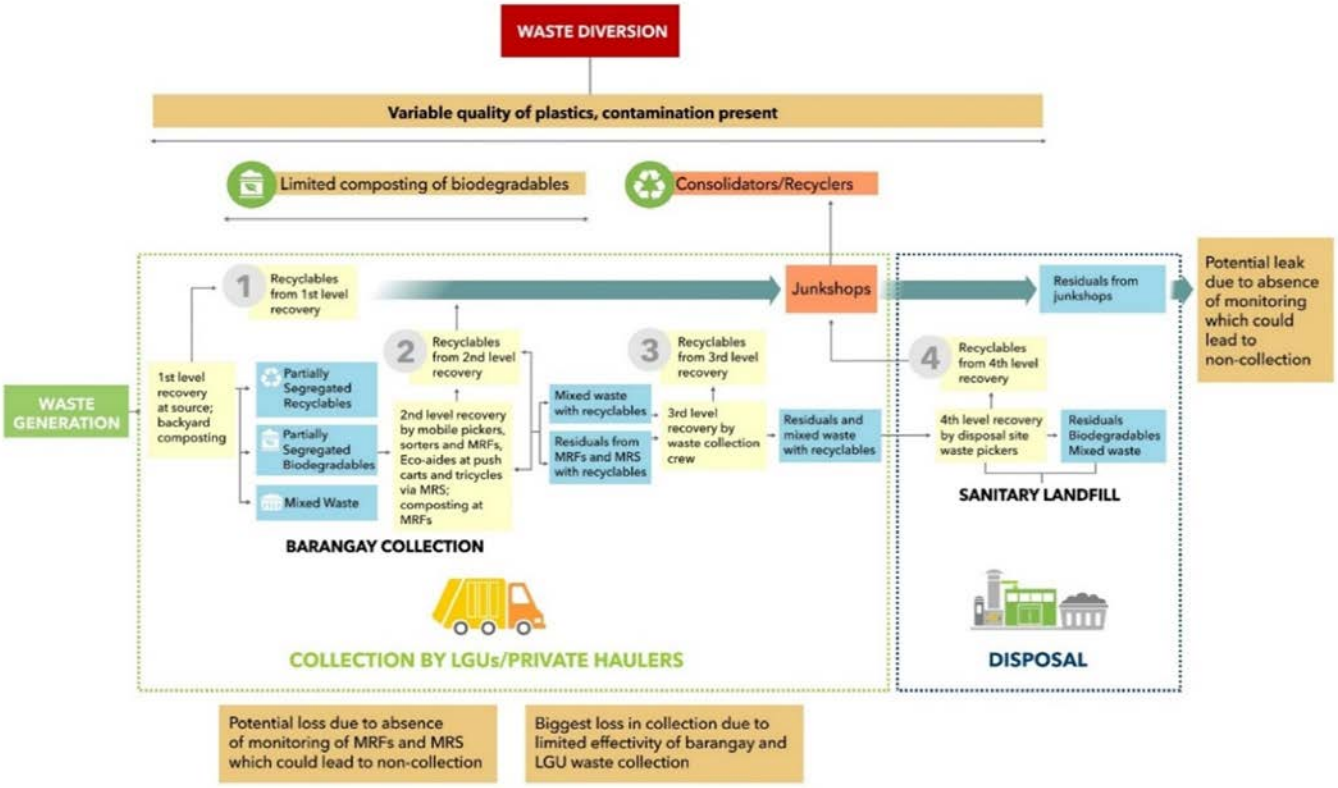
As shown in Figure 2, collection for recycling takes place at different levels starting at the source, then at collection pick-up points and push carts, then at collection vehicles, and eventually at disposal sites. The separated recyclable materials, including valuable plastics, eventually end up at junk shops for final sorting and baling before being delivered by consolidators to recyclers. It is estimated that only 28 percent of recyclable plastic is actually being recycled; the balance leaks into the environment or is disposed of as part of the mixed waste stream. Composting of the biodegradable portion (which is about 50 percent of municipal solid waste) of the solid waste stream is performed to a limited extent by individual households (for example, backyard operations); schools (for example, community projects); and Materials Recovery Facilities (MRF) (that is, decentralized, barangay-level operations). There are no centralized, industrial-level composting/anaerobic digestion facilities in the Philippines to process biodegradable wastes, and there are no data on how much biodegradable waste is actually being composted nationwide.

The diagram also highlights the inferred solid waste/plastics waste leakage at the household level, as well as during collection, at MRFs, junk shops, and other sorting and processing sites. Plastic leakage to the environment is estimated to comprise 35 percent of postconsumer plastic (WWF-Philippines 2020). In the Philippines, these leaked plastics make up 75 percent of the Philippines' marine plastic pollution with the remaining 25 percent made up of lost or abandoned fishing nets or gear (Ocean Conservancy 2017).

The current SWM system is used as the basis of the BAU scenario analysis in this study. Under the BAU scenario, the following conditions are forecasted to take place in the next 20 years.

- Plastic production and consumption in the Philippines will increase by more than 50 percent over the next 10 years and by as much as 230 percent by 2040 if the current growth rate is maintained.

Figure 2.
OVERVIEW OF EXISTING MUNICIPAL SOLID WASTE MANAGEMENT SYSTEMS IN THE PHILIPPINES



Source: World Bank 2021a.

- Plastics recycling will fall behind recyclable plastic production and consumption from 2 million metric tons of unrecycled plastics in 2020 to more than 3 million tons in 2030 and 5 million tons in 2040. This will result if the plastic recycling industry is left to develop on its own under existing conditions and challenges.
- The volume of plastic products that are problematic to recycle (for example, multilayer and multi-material plastics) will continue to grow by more than 200 percent by 2040.
- The volume of plastic waste leaking into the environment will double over current levels during the same time.
- Inefficient and fragmented SWM services, including collection systems, MRFs, and end-of-pipe disposal facilities, will be further challenged with increased volumes of mixed solid waste (conservatively estimated to increase by 17 percent over the next 10 years). This will compound the various socioeconomic and environmental hazards and implications associated with existing practices and heighten local governments' capital and operating expenditures.
- Increased plastic production will have a negative impact on the country's ambition for GHG mitigation for the period 2020 to 2030, specifically for the relevant sectors of industry, transport, energy, and waste.

Table 2 presents an overview of plastics waste production and management in the Philippines under the BAU scenario, and Box 1 shows the considerations and assumptions used in formulating the BAU scenario.

Table 2.
OVERVIEW OF PLASTICS WASTE PRODUCTION AND MANAGEMENT IN THE PHILIPPINES UNDER THE BAU SCENARIO

Profile (by year)	2020	2030	2040
Population (millions)	110.9	125.3	137.5
Household solid waste generation (million metric tons)	16.1	18.9	22.4
Plastics waste generation 2020 and plastics consumption growth rate by 2030 and 2040 (million metric tons)	4.7	7.2	11.1
Recyclable plastic waste generation (million metric tons)	2.4	3.7	5.7
Residual plastic waste generation (metric tons)	2.3	3.5	5.4
Plastics recycling capacity (million metric tons)	0.3	0.5	0.7
Plastics waste leakage to the environment (million metric tons)	1.6	2.5	3.9
Utilization of plastic waste as refuse-derived fuel (RDF) (million metric tons)	0.1	0.1	0.2
Recycled plastics export (million metric tons)	0.1	0.2	0.3
Plastics waste disposal (net; million metric tons)	2.6	3.9	6.0

Source: World Bank.

BOX 1.
CONSIDERATIONS AND ASSUMPTIONS USED IN FORMULATING THE BAU SCENARIO

The BAU scenario was generated using population forecasts to 2040, available data from waste analysis and characterization studies (WACS), and global trends in plastic production and consumption. The results provided the national consultations done by this study with insights into the relevance of various policy options. Specifically, the BAU scenario took into consideration the following:

- National population forecasts from the Philippines Statistics Authority (PSA);
- WACS data, such as the per capita rate of solid waste generation and the plastic waste content in household solid waste;
- Data from the Global Alliance for Incineration Alternatives (GAIA 2019), World Wide Fund for Nature – Philippines (WWF Philippines 2020), and related World Bank studies (World Bank Group 2021b);
- Projected growth rate in solid waste generation in the Philippines from the Asian Development Bank (ADB 2019); and
- Projected growth in plastic production and consumption in LMI countries from a Pew Charitable Trusts and SYSTEMIQ (2020) report.

The forecast is a broad assessment of general trends in plastic consumption, recycling, disposal, and leakage under a BAU scenario over the next 20 years. BAU assumes no new interventions are made in relation to current solid waste and plastic-related policies, economics, and infrastructure, and that cultural norms and consumer behaviors do not change.

Furthermore, the BAU analysis quantifies plastic consumption and leakage rates for household-generated solid waste and plastics only. Excluded from the analysis are industrial, institutional, and commercial solid waste and household-generated hazardous waste.

A comprehensive assessment is required to validate national and local trends.

Source: World Bank.

Photo: Shutterstock / Kosol Phunjui.

CHAPTER 4.

INVENTORY AND ANALYSIS OF NATIONAL LAWS AND POLICIES ON SOLID WASTE MANAGEMENT AND PLASTIC WASTE REDUCTION

A desktop study was used to provide an inventory of related legal and policy instruments. This desktop study's objective was to help provide a clear analysis of the issues and challenges of plastic waste reduction. The inventory reviewed and prioritized existing and proposed national legislation and policies encompassing the management and control of plastic production, generation, collection, recycling, disposal, and the leakage of plastic waste into the ocean. The inventory included legislation and policies linked to the larger and related problematic issue of SWM as highlighted in the previous section.

4.1 POLICY INVENTORY

The four bullet points below provide highlights of this study's policy inventory, and Table 3 lists and summarizes the results of the inventory.

- Eight laws cover SWM, tax and incentive systems, investments, customs and tariffs, labor, occupational health and safety, and focused sectoral interventions to alleviate poverty. These are often accompanied by provisions on the creation of an interagency board as well as stipulations for funding, monitoring, and strategy and action plans.
- Four legislative bills to regulate the production and management of SUPs are pending in the House of Representatives (HOR) or Senate of the Philippines.
- Four government plans serve as voluntary guiding frameworks for government agencies and stakeholders dealing with solid/plastic waste management. The plans provide relevant strategies and actions for improving SWM and reducing marine litter within a specified timeframe. Funds to implement the plans are based on current available budgets of the various agencies.
- A national budget call for FY 2022 provides guidelines for national government budget preparation. These guidelines take into account the additional resources available for local governments to implement devolved responsibilities, including those related to SWM under the Local Government Code (LGC) of the Philippines.

Table 3.
INVENTORY OF LEGAL AND POLICY INSTRUMENTS ON SOLID/PLASTIC WASTE MANAGEMENT

Classification	Title
Existing laws	• Ecological SWM Act of 2000 (RA 9003) • Omnibus Investment Code of 1987 (EO 226) • LGC of 1991 (RA 7160) • An Act Strengthening Compliance with Occupational Safety and Health Standards and Providing Penalties for Violations Thereof (RA 11058) • Corporate Recovery and Tax Incentives for Enterprises Act (CREATE) Act (RA 11534) • Customs Modernization and Tariff Act (CMTA) (RA 10863) • Food and Drug Administration (FDA) Act of 2009 (RA 3720, as amended by RA 9111) • Magna Carta for the Poor (RA 11291)
Proposed legislation	• On SUP regulation: House Bill (HB) 9147 • On SUP taxation: HB 9171 • On plastic labeling: HB 33 • On extended producers' responsibility – EPR: Senate Bill 1331
Existing and upcoming policies	• Philippine Development Plan (PDP) 2017–2022 • Philippine Action Plan on Sustainable Consumption and Production (PAP4SCP) (draft) • Philippine Green Public Procurement (GPP) Roadmap • National Plan of Action for the Prevention, Reduction and Management of Marine Litter (NPOA-ML) (draft)
Existing executive issuances	• National Budget Call for FY 2022 (DBM Memorandum Circular 138) • Executive Order 138 (on the full devolution of certain functions of the Executive Branch to local governments)

Source: World Bank.

Annex A provides an overview of the legal and regulatory landscape on SWM/plastic waste management.

This review focused on the legal or administrative gaps and limitations in policy instruments for plastic waste reduction and on the practices and capacities of responsible implementing NGAs. It showed that six of the policy instruments are explicitly aimed at regulating and managing solid/plastic waste and reducing plastic leakage into the ocean. These are RA 9003, the three bills on regulating SUPs, PDP 2017-2022, and NPOA-ML.

The other laws and policies that could be used to encourage improved SWM and plastic reduction are noted below:

- Investment and market-based instruments (for example, under the Omnibus Investment Code, CMTA, CREATE Act, and National Budget Call for FY 2022);
- Employment and social welfare legislation to support and engage informal workers (for example, Labor Code of the Philippines, an Act strengthening compliance with occupational safety and health standards and the Magna Carta for the Poor); and
- Plans that guide government agencies and other stakeholders in the sustainable development of coastal and marine areas and contiguous watershed areas such as the draft Manila Bay Sustainable Development Master Plan (MBSDMP).

4.2 POLICY GAPS AND CHALLENGES

RA 9003, which was passed in 2001, is considered the landmark legislation for managing waste in the country and serves as the main legal framework on SWM in the Philippines. It has the following provisions relevant to plastic waste management:

RA 9003 gives LGUs the primary responsibility to manage solid waste collection, segregation, and disposal, and requires them to create and implement SWM plans. Under this legislation, households and commercial waste generators are mandated to practice waste minimization using the 3Rs (reduce, reuse, and recycle) to achieve 25 percent waste reduction within five years of the implementation of the Act, stating that the reduction should be increased every three years thereafter. The Act also mandates a segregation of solid waste at source and the creation of the MRFs in every barangay or cluster of barangays.

Twenty years after the passage of RA 9003, the following issues relating to recycling and plastic waste management remain:

1. Mixed waste collection

Although a few LGUs have adopted a "no segregation, no collection" policy, many LGUs still practice mixed waste collection. This happens as the bulk of recyclable waste extraction takes place at multiple points of aggregation. As a result, almost 60 percent of the plastic waste is not collected. In China, Indonesia, the Philippines, Thailand, and Vietnam, the bulk of plastic extraction for recycling takes place at points of aggregation, rather than at individual households—leading to this figure of almost 60 percent of the plastic waste not being collected (GAIA 2019; Ocean Conservancy 2017).

The current practice of at-source segregation, separation, and recovery of recyclable waste also varies by area depending on the degree of enforcement imposed by the barangay or the LGU. This leads to significant variations of effectiveness in terms of segregated waste quantity, quality, and coverage, resulting in excessive litter and increased volumes of mixed waste.

2. Inadequate infrastructure for segregation, recovery, and recycling

It is difficult to secure land to build MRFs and sanitary landfills, particularly in urban areas where there is limited land availability. More generally, the difficulty of securing land is attributed to the limited LGU funds to buy land and the convoluted process to procure public land due to unclear land classification and stringent land-use laws, especially in highly urbanized areas. There is also the challenge of the negative perception of residents concerning SWM facilities within their vicinity.

Regarding recycling facilities, current legislation does not require the provision of public infrastructure for recycling. As such, only MRFs and sanitary landfills dominate the public infrastructure scene on SWM, and no proposals are seen related to public recycling facilities based on recent submissions to the Public Investment Program and Three-Year Rolling Infrastructure Program of the government. The few existing and upcoming recycling facilities/projects are private-led.

3. Limited public funds and technical capacity to cover full SWM services at the LGU level

Public funds for SWM are insufficient to cover the full cost of public SWM services and, so far, focus only on the collection and disposal of waste. This perpetuates the fragmented implementation characterized by varying degrees of implementation and capacity to tackle the full range of SWM services.

Operational expenditures for SWM require a solid cost-recovery system for long-term sustainability of the system. These expenditures are almost always substantially higher than capital costs and are often the most challenging to sustain. Even when capital costs are accounted for (often funded separately), operating expenses can easily account for 70 percent or more of the total required budget for SWM.

4. Lack of recycling capacity

Small and medium enterprises (SMEs) account for the largest sector of the Philippine plastics value chain. They typically struggle to meet the requirements of multinational buyers from the packaging sector on the volume and quality of feedstock and the buyers' demands in terms of finances and operational quality (World Bank 2021c). As such, they are not able to capitalize on the growing demand at the global level for recycled resins. These challenges include the following (Ocean Conservancy 2017; World Bank 2021c):

Stock quantity requirements

- The level of feedstock is not enough to serve large buyers or make the business viable. SMEs may need to rely on imported waste if their business has not yet been affected by the lower prices of virgin resin.
- Contracts to harvest feedstock from local sources require strong (insider) relationships with LGUs. Even then, these contracts have a short lifespan. They are co-terminus with the three-year term of the local government administration, assuring businesses of feedstock only for a short term.

Stock quality requirements

- Given the poor segregation practices and poor packaging design that complicate the recycling process, contamination rates of up to 20 to 30 percent of the feedstock received within the Philippines are observed. SMEs may need to rely on imported waste to fill their quota if their

business has not yet been affected by the lower prices of virgin resin.

- SMEs rarely have the funds to purchase and operate advanced recycling technologies such as those needed for producing food-grade recycled resins. They also need to secure FDA certification—whose regulations/guidelines remain unclear—to ensure that the resins are safe for food contact applications. In fact, there is currently no local production of food-grade recycled polyethylene terephthalate (PET) for local consumption or exports. The Indorama Ventures plant is only expected to begin operations in 2022. This is a large hindrance considering that the demand for food is a major driving force behind the increasing demand for plastics in the country. In fact, the revenue generated by the food industry has almost doubled from US$11,980 million in 2010 to around US$20,245 million in 2019. Directing plastic waste for food contact applications can secure higher margins for the plastic waste industry than if the collected plastic waste were diverted to other end-use applications or co-processing.

Other buyer requirements.

- SMEs usually lack liquidity and are unable to meet the environmental, health, and safety compliance standards of their operations.

5. Poor quality of collected plastic waste

A major challenge for producing recycled plastic products is that 61 percent of the packaging mix in the Philippines is composed of low-value flexible packaging (for example, sachets) (World Bank 2021c). The high presence of flexible packaging can be attributed to the current business mindset of innovation and cost optimization. While dematerialization results in a significant reduction of plastic used, the positive effect is countered by the resulting poor recovery and recyclability rates of the collected waste (Mordor Intelligence 2020).

The average material value of this kind of waste is often not high enough to motivate collection and diversion, especially in remote areas considering the high transportation costs in the Philippines (GAIA 2019; Ocean Conservancy 2017). These packaging materials are also difficult to recycle since they have different plastic components with differing processing requirements. Consultations with a National Anti-Poverty Commission – Workers in the Informal Sector (NAPC-WIS) representative provided the following information: While some LGUs and civil society groups have been helping local cooperatives or women's groups collect low-value recyclable plastics and convert them into bags and other handicrafts (downcycling), there has been no systematic separation and recycling of low-value recyclable plastics. In addition, while downcycling of sachets and other low-value plastic recyclables may have positive social impacts in local communities, it falls far short of capturing the full potential value of plastic recycling to make it a sufficient and viable program.

6. Lack of integration of the informal sector in the plastic value chain

While the informal sector serves as the backbone of plastic waste collection and recycling in the Philippines, the sector lacks financial resources, incentives, skills, and technology to increase and improve its capacity, stability, and productivity. These individuals and groups are also not integrated into the plastic value chain.

7. Lack of readily available information on government support for investments in recycling technology and capacity

Information on available incentives for recycling and good practices is not easily accessible. At present, the only publicly available document with provisions related to plastic waste reduction is the Investments Priority Plan of 2020 (IPP 2020). IPP 2020 identifies green ship recycling based on international standards and privately owned MRFs as eligible for incentives under the environment and climate-change related projects.

The CREATE Act was passed into law on March 26, 2021. The CREATE Act's purpose is to grant tax relief for companies in financial need, provide transparent tax provisions and further increase the competitiveness of the Philippines. The Act is part of the corporate fiscal reforms undertaken by the country since 2019. Its implementing rules and regulations have yet to be finalized alongside a Strategic Investments Priority Plan (SIPP). Experts interviewed indicate that the list of projects identified in the 2020 IPP will be carried over into the SIPP.

Scant information on incentives to the recycling industry include the granting of "pioneer status" to PET Value Philippines in 2021 as the country's first bottle-to-bottle, food-grade recycling facility. According to Executive

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Order No. 226, "pioneer status" refers to a preferred area of investments that

- Involves manufacturing or processing on a commercial scale and not merely the assembly or packaging of goods or raw materials produced outside the Philippines; or
- Uses a design, formula, scheme, method, process, or system of production or transformation of any element or raw material or finished good that is new and untried; or
- Engages in agricultural activities/services essential to the achievement of the country's self-sufficiency program; or
- Produces nonconventional fuels or manufactures equipment that utilizes nonconventional sources of energy; or
- Conforms to other specific criteria as provided for in the annually drawn investments Priorities Plan.

The P2.28 billion multiphase project is a partnership between Coca-Cola Beverages Philippines, Inc. (the bottling arm of Coca-Cola in the Philippines) and Thailand-based Indorama Ventures. This partnership is intended to produce more-sustainable packaging innovations and to help improve the collection and recycling rates of polyethylene terephthalate (PET) plastic bottles.

There is also lack of a clear interagency approach to recycling within the NSWMC.

Beyond the information provided above, there is no clear government plan or support to advance plastics management in the Philippines, including recycling. This situation challenges the ability to build a business for investments in recycling, which would create opportunities for plastic recycling, the production of value-added recycled products and the introduction of improved services and technologies.

The Plastics Industry Association of the Philippines is currently drafting a plastics industry roadmap. This study requested a copy of the roadmap, but the industry source was reluctant to share a copy since the draft has not been completed and shared with Association members. Points raised in their advocacy regarding plastics waste management include the following:

- Regulation and responsible use through 3R (reduce, reuse, and recycle) and not through banning;
- Anti-littering and waste segregation campaign;
- Focus on resource recovery for recycling in line with RA 9003;
- Accredit junk shop and recyclables dealers and require them to accept no-value or low-value recyclables (consolidated sale);
- Integration of SWM in school curricula;

- Private-public sector initiative for information, education, and communication; and
- Increased government, private, and NGO linkages and partnerships for concrete programs (for example, financing plans for SMEs to upgrade their technologies).

The advocacy plan—as depicted in a June 2020 PowerPoint presentation during a stakeholder consultation on the draft National Plan of Action for the Reduction of Marine litter (NPOA-ML)—is a step in the right direction. However, it does not fully address the challenge of unlocking the potential of up to US$1.1 billion per year in material value from recycling plastics (World Bank 2021c). It needs government enabling policies and clear commitment to realize this potential.

8. Absence of robust policy to address problematic and unnecessary SUPs

RA 9003 Section 29 stipulates that within one year from the enactment of this Act, the Commission shall, after public notice and hearing, prepare a list of non-environmentally acceptable products as defined in this Act that shall be prohibited according to a schedule that shall be prepared by the Commission. It also adds that non-environmentally acceptable products shall not be prohibited unless the Commission first finds that there are alternatives available to consumers at no more than ten percent greater cost than the disposable product.

The implementation of this mandate took effect incrementally with NSWMC issuing Resolution No. 9-2006, creating a Technical Working Committee for Phasing out NEA (Non-Environmentally Acceptable) Products and Packaging Materials and Resolution No. 19, Series of 2009 adopting the Guidelines on the Phasing Out of Non-Environmentally Acceptable (NEA) Products and Packaging Materials. Insofar as plastics are concerned, the following products were identified for assessment: plastic packaging (sando bags, polystyrene, laminates, and sachets), including food containers and baby products with phthalates (NSWMC 2013).

It was only during the last quarter of 2020 that the DOST conducted a rapid assessment focused on single-use plastic straws—commonly used for soft drinks, coffee stirrers and equivalent alternative materials. The findings of the rapid assessment were shared in a public consultation in January 2021 and provided the foundation for NSWMC to include plastic soft drink straws and plastic coffee stirrers in the list of NEAPs (based on feedback from the May 2021 DENR consultation).

In addition, NSWMC passed Resolution No. 1363, directing the DENR to prepare and implement the ban of unnecessary SUPs by NGAs, local government offices and all other government-controlled offices. The Resolution listed seven SUPs that are considered unnecessary as part of the solid waste avoidance and minimization strategy of the government. It is unclear whether this resolution has been adopted and implemented because the representatives from the recycling and manufacturing industries respectively voted to oppose the resolution, while the representatives from the DOST and Trade and Industry respectively abstained from voting (NSWMC 2020).

A significant number of local governments in the Philippines have passed ordinances regulating the use and imposing levies on SUP products (NSWMC 2013). A 2021 online article of the Philippine News Agency reported that there are 489 cities, municipalities, and provinces in the country that have issued SUP-related ordinances in the past 10 years (Philippine News Agency 2021). Despite these efforts, there seems to be very limited information that shows the effectiveness of the bans on reducing plastics and litter or even diversion from landfills in the country.

In the absence of national laws on plastics waste management, legislative bills were filed at the 18th Congress (CY 2021) focusing on regulating the production, importation, sale, provision, use, recovery, collection, recycling, and disposal of SUPs and providing penalty, levy and incentive systems for industries, business enterprises and consumers. Worth noting is House Bill Number (HB) 9147 that seeks to regulate the production, importation, sale, distribution, provision, use, recovery, collection, recycling and disposal of SUPs, HB 9171 (on taxation) and HB 33 (on plastic labeling).

The CCC and the DOF (see DOF 2021) have actively promoted the ban of SUPs as a way to advance sustainable solid waste practices and curb plastics pollution.

The issues cited above relate to a combination of poor enforcement and major gaps in RA 9003. Table 4 presents the provision of RA 9003 which relate to recycling and plastic waste management and the gaps which need to be addressed.

Table 4.
GAPS IN RA 9003 THAT ARE RELATED TO RECYCLING AND PLASTIC WASTE MANAGEMENT

Current RA 9003 Provisions	Gaps in Relation to Recycling and Plastic Waste Management
Local Government Solid Waste Management Plans (Section 16)	Provisions for monitoring of the plan—notably recycling and waste processing—were not provided.
Waste Characterization (Section 19)	Provisions for the separate identification and quantification of all plastic types including SUPs.
Establishing Mandatory Solid Waste Diversion (Section 20)	Operational definition of waste diversion was not provided.
Mandatory waste segregation at source (Sections 21–22)	Provisions for monitoring were not provided; Filipino cultural views regarding waste management were not considered.
Establishment of LGU Materials Recovery Facility (Section 32)	The geography and capacity of the barangays, waste generation and collection capacity, realistic operation and maintenance, and competition with existing junk shops were not considered. Mass balance of the facilities was not required.
Collection and transport of solid waste (Sections 23–25) and Section 3. Components and Elements of Local Government Solid Waste Management Plans of the IRR	Barangays were made responsible for waste collection without considering the capacity of these government units.
Recycling programs (Sections 26–33), which have provisions on eco-labeling, reclamation, and buyback centers for recyclables, nonenvironmentally acceptable products (NEAP), establishment of LGU MRFs, and other aspects of recycling market development	Role of the informal sector was not defined and provisions for integration into the SWM system were not included. Formulation of recycling standards was not required in the subsequent IRR.
Waste management facilities (Sections 36–42), which include prohibition against the use of open dumps for solid waste and the siting, establishment, and operation of sanitary landfills (SLFs)	Limited provisions to support proper O&M of facilities. Formulation of industry-based standards for O&M was not required in the subsequent IRR.
Solid Waste Management Fund (Section 46)	The Solid Waste Management Fund in the National Treasury, which could have been accessed to finance the implementation of solid waste management projects including recycling facilities, has not been established.

4.3 LAWS AND POLICIES THAT COULD POTENTIALLY SUPPORT THE EFFECTIVE IMPLEMENTATION OF RA 9003

The plans and policies that can effectively support the effective implementation of RA 9003 are presented as follows:

4.3.1 Existing Plans and Policies

The Philippine Development Plan (PDP)

The PDP for 2017–2022, which was published by NEDA, targets a national solid waste diversion rate of 80 percent by 2022. This means that 80 percent of solid waste generated by households, industries, and commercial sectors should be recycled, recovered, or reused, and only 20 percent shall be disposed of in sanitary landfills. To achieve the target, key PDP strategies to improve SWM are the following:

- Enforce the compliance of LGUs to RA 9003;
- Promote the practice of the 3Rs and proper waste management (segregation, collection, transfer and transport, processing and recovery and disposal);
- Promote strategic clustering of sanitary landfills and SWM technologies to address their large capital requirement, and allow low-income LGUs to pool their resources to finance such facilities; and
- Provide alternative livelihood activities for waste pickers in the remaining dumpsites identified for closure.

In addition, sustainable consumption and production are promoted through the following initiatives:

- Formulate a "polluters pay" policy and implement corresponding measures;
- Establish a sustainable market for recyclables and recycled products;
- Strengthen the certification of, and establish information systems for, green products and services;
- Strengthen the implementation of the Philippine Green Jobs Act (RA 10771);
- Promote green procurement in the public and private sectors; and
- Strengthen the promotion, development, transfer, and adoption of eco-friendly technologies, systems, and practices in the public and private sectors by increasing access to incentives and facilitating ease of doing business and other related transactions, among others.

The creation of the next PDP can provide a window of opportunity to review the diversion target and ensure the proper implementation of the recommendations above.

National Plan of Action for the Prevention, Reduction and Management of Marine Litter

The Philippine government through DENR has finalized the NPOA-ML whose overarching goal is "Zero waste to Philippine waters by 2040" to support the vision of "A Philippines free of marine litter through shared participation, responsibility, and accountability." The plan is a strategic document providing overall direction, indicators, and targets to manage and minimize marine debris, including plastics. Its main strategies include establishing science- and evidence- based baseline information on marine litter; promoting circular economy and supporting sustainable consumption and production; enhancing recovery and recycling coverage and markets; preventing leakage from collected or disposed plastic waste into water bodies; implementing a sea-based litter prevention and management program; and institutionalizing a management program for marine litter. The plan also calls for the adoption of national-level laws and policies to address marine litter, including the improvement of recycling and waste management operations.

The plan was developed in part to help strengthen the implementation of RA 9003—particularly on enhancing recovery and recycling coverage and markets, promoting circular economy and sustainable consumption and production, and encouraging cost-effective financing, as well as providing a roadmap to further strengthen LGU capacities. The NPOA-ML has yet to be approved by the DENR Secretary.

National Budget Call for FY 2022

The call lays out the guidelines for preparing the national budget for FY 2022. Among other things, the call highlighted the national government's plan to fully devolve select functions of the Executive Branch to LGUs by 2022. This comes in light of the Supreme Court ruling on the joint Mandanas-Garcia petitions (G.R. Nos. 199802 and 208488, July 3, 2018), which, when rolled out beginning in 2022, will prompt LGUs to receive a substantial increase in IRA. With increased funding, LGUs are expected to be responsible for the funding and delivery of functions that should have already been fully devolved to them under the LGC. Given the planned devolution, the budget call for FY 2022 instructs the NGAs to focus on the development of policies and standards and the provision of technical, monitoring and implementation assistance to the LGUs, and explore cost-sharing arrangements in the implementation of devolved programs and projects. This will mean shifting to more of an oversight role for NGAs instead of being at the core of public service delivery. The expected funding could potentially provide additional budget for SWM/plastics reduction/recycling programs depending on the LGU budget priorities and capacity to manage the transition and related budget requirements with technical support from relevant NGAs like DENR.

4.3.2 Pending Legislative Bills on SUP Regulation, Taxation, and Eco-labeling

The following actions could potentially address plastics waste reduction in the country: Considering a combination of regulatory approaches to limit or manage the use of SUPs. These approaches include bans and restrictions (HB 9147); use of economic instruments (HB 9171); and application of standards, certification, and labeling (HB 33), including options for postconsumer use such as recycling and reuse and soft measures, such as improving capacity and public awareness.

However, various government agencies, the private sector, and other stakeholders have raised a number of critical factors for consideration in the development and refinement of national law(s) proposed to regulate, tax, and label plastics or during preparation of Implementing

Rules and Regulations. These considerations include the need to do the following:

- Conduct baseline assessments to obtain a better understanding of which SUPs are the most prevalent and problematic in the Philippines and to identify the sources, extent, impacts of mismanagement;
- Conduct science-based or evidence-based studies to identify the most problematic SUPs for phaseout;
- Research and develop technology transfers of affordable, accessible, and sustainable alternative materials and products;
- Conduct life-cycle analyses for SUPs and their alternatives;
- Monitor, evaluate, and report on the progress of policy interventions and management programs over time;
- Schedule the phaseout period and effective dates of SUP product bans; and
- Provide technical assistance and meet the capacity-building needs of local governments to strengthen their capacities in the local implementation of SWM programs and plastic waste reduction measures.

Annex E presents a detailed discussion of factors to consider in developing legislation on SUPs.

The issues identified above are not easy to resolve within the less than one-year target of passage into law by the bill's proponents, especially under the conditions of the COVID-19 pandemic. Further consideration is warranted on the targeted passage of these bills into law within the next few months, versus building consensus on the objectives, targets, timeframes, roles, and responsibilities, and the environmental and socioeconomic impacts among stakeholders. If the bill is enacted, further effort is required for the following:

- Development of the implementing rules and regulations;
- Awareness raising and information dissemination on the law's objectives, targets, timeframes, roles, and responsibilities;
- Monitoring and assessing the environmental and socioeconomic impacts on stakeholders; and
- Provision of technical and capacity-building assistance to LGUs aligned with the proposed LGU-assistance component of the NPOA-ML, as well as the Budget Call for FY 2022 for NGAs to provide technical assistance to LGUs to effectively perform their devolved SWM functions.

4.3.3 Enabling Plans and Fiscal Opportunities to Improve RA 9003 SWM Implementation in the LGUs

Beyond the day-to-day SWM operational and capacity challenges for LGUs, there is a fundamental issue for the training and capacity building needed to effectively understand the roles and requirements of LGUs' devolved functions under the LGC.

Under the LGC, LGUs have several SWM-related responsibilities including the following:

- Development of an efficient and effective system for solid waste collection and disposal;
- Provision of basic services and facilities for servicing the needs of local residents;
- Industry-related research and development, including technology transfer;
- Provision of investment support services, including access to credit financing; and
- Enforcement of pollution-control laws.

The three-year political cycle for LGUs requires regular training and capacity building following the change of administration at the barangay, city, and provincial levels. Interactive training, LGU to LGU study exchange and other forms of technical assistance requires funding. Public bases to explore sources of funding for technical assistance to LGUs include NPOA-ML, which identifies strengthening LGU capacity as one of its enabling actions; the proposed SUP bills; and the national budget call for FY 2022.

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CHAPTER 5:

APPROACH TO ZERO PLASTIC OCEAN POLLUTION

As indicated in the preceding sections, much of the policy discourse on plastic waste reduction in the Philippines has focused on either upstream solutions (banning SUPs, material redesign, and plastic reduction and substitution) or downstream solutions (recycling and disposal). The BAU scenario and the policy review indicate that this is a false dichotomy.

Upstream solutions that aim to reduce or substitute plastic use are critical and should be prioritized but will need to be scaled carefully to limit adverse social or environmental effects. For example, an SUP ban can reduce problematic and unnecessary plastic products (for example, plastic bags, straws, and plastic stir sticks) but will be challenged to reduce food wrappings because of food safety and public health issues, among others. Such wrappings represented approximately 50 percent of the plastic waste types found in the World Bank field survey.

Similarly, downstream solutions are essential but limited by economic viability and the realistic speed of infrastructure development in the face of growing plastic waste production. Moreover, given the potential negative impacts on human health and the environment of some downstream disposal technologies, their application should be weighed against different trade-offs and carefully controlled.

In sum, modelled on their own, no "single-solution" policy or strategy can be expected to achieve a target of zero plastics going into the ocean over the next ten years.

It is evident from the World Bank and other studies on solid waste management and plastics recycling that technology is not the main impediment preventing the Philippine government from addressing its ocean plastics crisis. Instead, it is the combination of a fragmented policy framework, lack of enforcement of existing regulations and limited experience in the application of innovative business models and funding mechanisms. Although technical solutions exist, incentives (as well as disincentives for BAU practices) are not effectively in place to induce the scale-up of required changes fast enough.

Achieving the vision of zero ocean plastic pollution in the country will require policies to steer technological advances, introduce innovative and new business models, and provide access to additional financing. Most crucially, achieving this goal requires accelerating both upstream and downstream innovation to move to a productive scale. This massive innovation scale-up requires a focused and collaborative effort of both the public and private sectors that could help the country move away from an unsustainable BAU model. Solutions will require the following:

- Appropriate policies to reduce and eliminate the leakage of plastics to the ocean;

- Elimination of, or replacement of, problematic plastics with new materials or new delivery models;
- Enhanced plastics sorting infrastructure and recycling infrastructure;
- Enhanced marketing of value-added products of the recycling industry; and
- Inspiring public-sector and private-sector stakeholders and individual community members to make the transition to a plastics circular economy.

An integrated approach that delivers the benefits of today's plastics is proposed to significantly reduce ocean plastic pollution. Figure 3 presents a combination of measures across four pathways to prevent plastics from entering the ocean. It is based on this study's analysis of the current situation in the Philippines and is presented across a reasonable timeline. However, action on all fronts must start now, given that some measures will take longer than others to be impactful. Annex F presents a background summary table on the issues and policy recommendations in this approach to zero plastics to the ocean.

The integrated approach consists of four main pathways: Pathway 1: Capture and contain; Pathway 2: Remove problematic SUPs; Pathway 3: Develop recycling and r-manufacturing (reduce-reuse-recycle manufacturing) targets; Pathway 4: Design for plastic circularity.

5.1 CAPTURE AND CONTAIN ALL WASTES

This pathway focuses on expanding the collection of plastics waste as an integral component of SWM systems by:

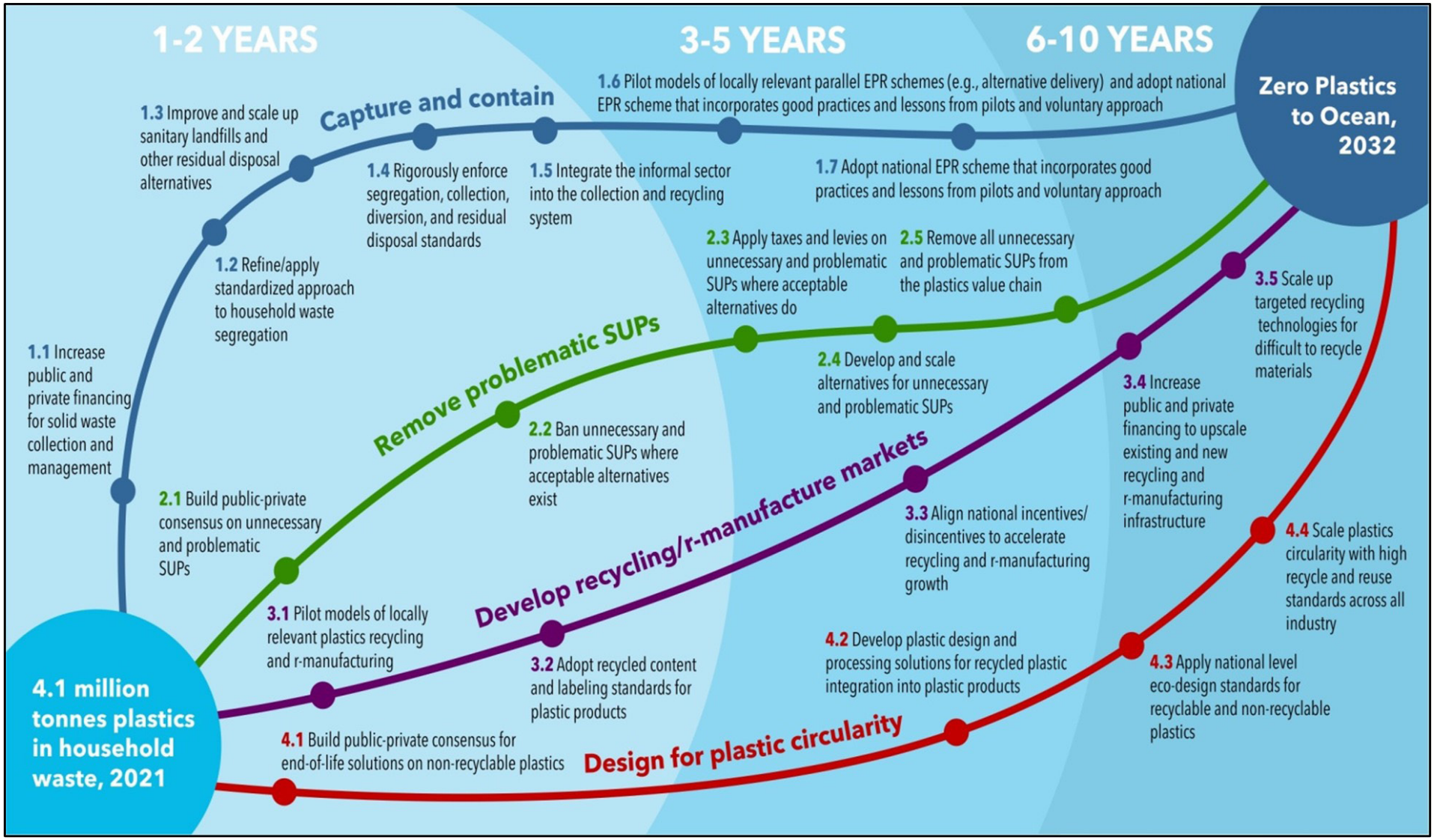
- Incentivizing in-house waste segregation;
- Rigorously and consistently enforcing RA 9003 standards for segregation, collection, recycling, diversion, and residual storage and disposal;
- Implementing arrangements with the plastics industry and other manufacturers to cost share and develop sustainable financing mechanisms to support investments in capturing and containing recyclable plastics; and
- Applying the polluters pay principle to carry eventual additional costs caused by the manufacture and distribution of plastics and plastic packaging materials.

The objective is to operationalize an optimized solid waste segregation and collection system that adequately captures the waste stream and stops the leakage of plastics. As other pathways develop, new and expanded recycling facilities will process increasing volumes of recyclable plastics (Pathway 3), and the percentage of nonrecyclable plastics will decrease (Pathways 2 and 4). During the transitional period, residual plastic waste diverts to end-of-pipeline options, including storage in sanitary landfills and use as RDF in cement kilns. This pathway also addresses the integration of the informal workers into the plastic value chain through the provision of formal employment, improved working conditions, basic health coverage, access to social programs such as skills retooling and alternative livelihoods skills for workers and their families.

Several enabling conditions can help accelerate the scale-up of Pathway 1 to achieve its full potential. These include:

- Improved monitoring and enforcement of existing waste segregation, collection, diversion, and residual disposal regulations. This will not only increase compliance with RA 9003 and its local ordinances, but also provide data and other information on the operation of the waste management system, reduce leakage and illegal dumping of waste, and boost the value of the waste stream.
- Review contractual agreements and arrangements with waste-collection operators (for example, contract duration and performance-based remuneration) to incentivize investments in equipment, vehicles, and human resources to improve the coverage and quality of segregated waste collection and the prevention of leakage and illegal dumping.
- Apply system-focused segregation and collection, such as scheduling the frequency of collection of wet (organic biodegradable), dry (recyclable) and hazardous wastes, and/or providing equipment and vehicles with separate compartments for the collection of segregated wastes.
- Advance voluntary EPR schemes to help finance the collection of plastic waste (that is, branded postconsumer packaging and products) as part of a system-focused segregation and collection process managed by the local government. Such collaborative efforts would more clearly inform the government about the plastic industry's position and performance on plastics reduction and recycling, as well as provide the proof of

Figure 3.
INTEGRATED APPROACH TO ZERO PLASTICS TO THE OCEAN



Source: World Bank.

Note: In this context, "r-manufacture" refers to production processes that reduce, reuse, and/or recycle plastics.

concept for impactful and comprehensive national EPR legislation in the future.

- Promote and incentivize households to collect and segregate at source through information, education, and communication, and by sharing the benefits (social, economic, and financial) of collected and recycled products (for example, inclusive benefit sharing).

5.2 REDUCE PROBLEMATIC SUPs

While measures targeted at waste collection can reduce ocean plastic leakage, there is also a need to reduce the overall amount of plastic entering the system, specifically problematic and unnecessary SUP products and packaging that are large contributors to ocean litter. The removal of problematic and unnecessary resins from packaging can have an indirect impact on the economics of collection and have associated benefits from the efficiency of recycling. Reducing the amount of problematic and unnecessary material in the value chain, especially material of particularly low-value or difficult to recycle, can simplify and improve collection and segregation (Pathway 1).

The current House Bills on plastic waste reduction ban the production of a set of unnecessary plastic products and packaging that are problematic in the waste stream, leak to the environment, and/or are not recyclable at scale. One of the enabling conditions to be addressed in this pathway is a consensus among the public and private sectors and consumers on the definition and description of unnecessary and problematic SUPs. There is some concern about the current definition of SUPs and the lack of science and evidence supporting alternatives. An agreed definition is needed to clearly define applicable plastic items and ensure that viable and environmentally sound alternatives are available at scale.

Challenges and enabling conditions addressed in this pathway include enforceability of bans and the use of taxes and levies imposed on manufacturers, retailers, or consumers of SUPs. Taxes and levies are a market-led measure that can disincentivize usage of specific plastic products. However, their impact is subject to debate, particularly when considering alternative options and their respective socioeconomic impacts and environmental footprints. Annex E provides a full but concise discussion of the proposed bills in relation to the pathway.

Other enabling conditions to help accelerate the reduction in problematic SUPs include

- Establishing a holistic approach to reduce plastic production and consumption rather than simply replacing them with other short-lived materials. In addition to SUP bans on problematic and unnecessary SUPs (Pathway 2), related actions include decreased plastic usage (for example, product redesigns and reduced overpackaging), consumer reuse models (that is, switching from SUPs to reusable items like washable utensils and tableware) and new product delivery models (for example, refill services, shifting products to services, e-commerce, and dispensers) (Pathway 4).
- Assessing (that is, socioeconomic, financial, and environmental assessment) and defining SUP substitutes and alternative materials that meet functional requirements for specific applications but are more easily recycled or composted after use (Pathway 2). Possible substitutes include paper, coated paper, and industrially compostable or home-compostable materials.
- Working collaboratively with the packaging industry to take action and eliminate problematic plastic packaging to move from single-use toward viable reuse models. The private sector would lead the removal of nonrecyclable plastics from packaging and the government would act as a facilitator for discussion, enabling pilot tests of alternative models in collaboration with industry leaders and ultimately legislating incentives or penalties on agreed problematic plastics.

5.3 DEVELOP THE MARKET FOR RECYCLING AND THE MANUFACTURING OF RECYCLED PRODUCTS

This pathway targets a "pull" effect to improve the economics of waste collection (Pathway 1). Evidence is visible for highly recycled plastics in the Philippines where established recycling markets for PET, PP, HDPE, and linear low-density polyethylene (LLDPE) and low-density polyethylene (LDPE) ensure about a 28 percent retrieval rate (World Bank 2021c). While measures like recycled content standards, EPR and eco-design standards can help ensure consistent and quality feedstock as well as strong demand from recyclers (Pathway 4), recycling markets need to be scaled up to meet demand.

Several enabling conditions can help accelerate this system intervention and allow it to achieve its full potential, including:

Improved recycling economics (Pathway 3) through:

- Increased demand for recycled plastic to meet voluntary public commitments by industry and policy requirements in terms of recycled content. This would lead to higher prices for recycled content;
- Access to technology for improved mechanical sorting and recycling; and
- Gradually increased cost for virgin plastic via taxation to the degree that recycling is more financially competitive.

Increased and improved investments (Pathway 3) through:

- Targeted investment in recycling technologies, especially the types that have not yet reached commercial viability, including improved technology to reduce sorting and recycling losses, address capacity restraints, and create higher-quality output that meets food-grade standards.

More investment in infrastructure capacity across local governments to accommodate increasing solid waste (Pathway 1).

Higher demand for recycled content (Pathways 3 and 4) through:

- Legislation and effective enforcement aimed at driving demand (for example, recycled content taxes, virgin feedstock tax, minimum recycled content requirements, and potential modulation of extended producer responsibility schemes according to recycled content);
- Public procurement policies that can leverage volume to create increased demand for recycled content and recyclable products;
- Industry commitments by plastic producers and retailers;
- Long-term agreements with both the private and public sectors to guarantee demand for recycled polymers and mitigate investment risks; and
- Enhanced matchmaking mechanisms to enable secondary markets for recycled materials.

Incentives and policies aimed at improving collection systems (Pathway 1) through:

- Optimized convenience and quality of collection services;
- Developed EPR schemes to provide price support for LGUs and the informal sector;
- Increased source separation in collection systems through regulation; and
- Simplified source separation in collection systems through education, incentives, and improved labeling standards.

One early measure to be addressed in this pathway is the creation of opportunities for "implementation" experiences. As stated earlier, the application of an integrated approach to SWM and plastics recycling—inclusive of innovative technologies, business models and sustainable financing mechanisms—is lacking in the country. External assistance is needed for on-the-ground demonstration and learning from practical experience so that local governments and the recycling industry will be able to make the necessary advances on their own. The national government—in partnership with international development agencies and financial institutions, donors, and the private sector—need to fill this gap and help the local governments pull ahead of the ever-increasing burden of solid waste and plastics waste management.

Investments in model or pilot demonstration projects in partnership with local governments and the plastics recycling industry will not only showcase the benefits of improved plastics recycling and manufacturing markets but also drive investments in scaling up across the country. This is seen as an essential step to create buy-in conditions from other LGUs to eventually establish public-private partnerships (PPP). Properly documented and monitored, fully scaled models will create fast scale-up and replication conditions in other areas of the country and achieve best-possible implementation conditions for successful and optimized integrated SWM solutions.

5.4 DESIGN FOR PLASTICS CIRCULARITY

This pathway addresses the decoupling of economic growth from plastic growth so that plastic consumption per person is reduced, rather than the 50 percent increase calculated under the BAU scenario. Potential reductions include eliminating unnecessary items and over-packaging; expanding reuse options that can replace the utility currently provided by plastic (for example, glassware), including products intended

Photo: Shutterstock / MDV Edwards.

for consumers to reuse (shopping bags, refillable containers); and new delivery models such as refill systems.

Voluntary private-sector initiatives are more likely to drive progress around eco-design in the short term by driving short-term momentum in the market. For instance, several multinational companies including Danone, Nestlé, and PepsiCo have committed to making their packaging 100 percent recyclable, reusable, or biodegradable by 2025 (Ocean Conservancy 2017). The Philippines government can support this commitment by working with the private sector to enable policies that encourage noncommitted companies to follow.

To date, plastic reductions implemented in the Philippines have focused on bans and regulating plastic bags, straws, and other small-mass items. The World Bank plastics field survey report and 2019 GAIA report suggest that greater reductions could be achieved by focusing on the absolute mass of plastic avoided. For example, sachet packaging is an iconic single-use, multilayer/multi-material waste item in the Philippines. It makes up approximately 10 percent of plastic waste in the Philippines (GAIA 2019), and after consumption, these low-value plastic materials are often not collected and are a major source of ocean pollution. In some countries, such as India, market observations suggest that full-size bottles are currently more expensive per use for consumers than buying sachets, but regulations—such as EPR with full end-of-life cost recovery—could make recyclable rigid plastic packaging less expensive than sachets in the future. New delivery models could also offer a better alternative for delivering products to consumers.

Several enabling conditions can help accelerate the implementation of Pathway 4. These actions are primarily medium term to long term. They include

- Policy interventions that promote the use and increased value of recycled polymers and that incentivize producers to develop products with end-of-use considerations (Pathway 3). Examples include design for recycling standards; recycling targets; minimum recycled content targets; taxes on the use of virgin plastic feedstock; regulations on certain pigments, polymers, and additives; disclosure mandates; and regulation on the labeling of plastic products.
- Greater industry collaboration and engagement, including
  - Development of new polymer production and packaging designs in coordination with recycling and sorting technology companies; and
  - Harmonization of materials and packaging formats across companies.

- Increased public-sector and private-sector research and development investments in the design of recycling and associated technology, including investments in products that meet recycling specifications without sacrificing product safety, stability, or purity.
- Shifting consumer preferences, driving higher demand for recycled content and higher recyclability of plastic products.
- Voluntary commitments by producers and retailers to increase recyclability and integrate recycled content in plastic products.

The experiences of other countries will help guide the development of this Pathway 4. Annex G summarizes relevant experiences. A starting point will be to conduct multistakeholder consultations and roundtable meetings of experts to generate consensus on this integrated approach to plastics waste reduction, building upon the consultations done through this study.

All pathways need to be accompanied by simultaneous and calibrated efforts by government, industry, and other stakeholders to enable a "whole-of-government" and "whole-of-society" approach.

The integrated implementation of the pathways is aligned with the objective of the Philippine Development Plan 2017–2022 to fulfill its waste diversion target of 80 percent, the upcoming Philippine Action Plan on Sustainable Consumption and Production to promote the country's transition to a circular economy, and the NPOA-ML to implement its 10-point strategy and actions to manage marine litter. See annex A for the description of the plans. The pathways are intended to identify practical ways to strengthen RA 9003 and provide inputs in the preparation of a new Philippine Development Plan (2023–2028).

Furthermore, the pathways provide an opportunity to lead with integrated and sustainable solutions adapted to the Philippine context and based on lessons that can be adapted from East Asia, Europe, and the United States. The pathways also intend to contribute to securing the government's international commitment to reduce pollution and manage solid waste under the SDS-SEA (Partnerships in Environmental Management for the Seas of East Asia 2018), the Association of South East Asian Nations (ASEAN) ministerial declaration to combat marine litter (ASEAN 2019), UNSDG 14.1 (on marine litter), and related agreements on climate change. The Philippine Climate Change Act of 2009 (RA 9729) mandates LGUs to be the frontline agencies in formulating, planning, and implementing climate change action plans in their respective areas. Moreover, waste management processes mandated by RA 9003 (such as waste avoidance, waste segregation, reuse, repair, recycling, and composting), when adopted by the LGUs, automatically become a compliance strategy to RA 9729.

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CHAPTER 6:

SHORT-TERM RECOMMENDATIONS

This section provides a set of recommended interventions that address the policy and implementation gaps and shortcomings described in the preceding sections. The interventions below are designed to stem plastic waste and reduce leakage through immediate policy actions over the next two years.

The recommendations are presented in a sequence of actions over the next two years that need to be achieved before other intervention solutions can be implemented. Table 5 presents these measures and the rationale for their implementation.

Table 5.
PROPOSED SHORT-TERM MEASURES TO IMPLEMENT THE PATHWAYS TO ZERO PLASTICS BY 2032

Pathway/Actions for 1–2 years	Rationale
Pathway 1. Capture and contain all wastes	
1.1 Complete a comprehensive review and assessment of existing collection, segregation, diversion, and residual disposal practices. This includes a review on strengthening WACs compliance and refining monitoring and evaluation indicators with selected LGUs to enhance and validate the knowledge and understanding of current capacities and challenges, and to facilitate sound planning and decision-making for optimized solutions.	1.1 The NSWMC administers a solid waste management fund to implement RA 9003 and provide technical assistance to LGUs. However, the fund is not functional despite the legal requirement to finance it through imposed fines and permits, donations, and grants. More reliable and diverse sources of funding must be secured to build up the fund and finance the implementation of RA 9003. Prior to seeking additional funding for SWM, a comprehensive review is needed to improve operational efficiencies and related cost savings.
1.2 Support knowledge-based planning and decision-making for optimized solutions through professionally prepared feasibility studies with selected LGUs focusing on collecting, containing, processing, and the residual management of 100 percent of the municipal solid waste from each selected LGUs, including the transition/adjustment issues and options and engagement of informal waste workers in a formal waste management system.	1.2 There is a lack of comprehensive and reliable data on LGU compliance with RA 9003 diversion and residual disposal standards (for example, diversion of at least 25 percent of all solid waste in 2001, with waste-diversion goals increased every three years thereafter). Similarly, information on the locations, operating capacities and remaining working life of existing and planned sanitary landfills and other approved residual disposal processes are lacking, presenting an obstacle to national SWM planning and decision-making.
1.3 Develop a nationwide harmonized segregation standard and support mechanism. This includes technical assistance and financing for local governments to promote, implement, and enforce a practical system of source segregation (for example, households, industries, and commercial enterprises) and the efficient and effective collection of segregated waste materials.	1.3 Recyclers in the Philippines consistently reported challenges in sourcing high-quality plastics due to high contamination rates. At a bare minimum, segregating MSW between wet (organic) and dry (inorganic) waste and hazardous waste will significantly reduce contamination, as organic waste is the main contaminant of recyclables recovered from the MSW system. Effective and efficient collection ensures higher operational efficiencies and cost-savings for waste collectors.
1.4 Replicate and scale up good practices and experiences in comprehensive SWM assessment, planning, and decision-making to LGUs across the country, including mainstreaming informal waste workers.	1.4 Facilitating LGU-to-LGU practical training and capacity building based on real-life experiences has proven to be a "best practice" in the sharing of knowledge and good practices.

Pathway/Actions for 1–2 years	Rationale
Pathway 2. Reduce problematic SUPs	
2.1 Conduct a thorough science-based assessment of the most prevalent and problematic SUPs and alternative products and services to phase out and replace problematic SUPs. This includes consideration of socioeconomic, environmental, and cultural barriers and challenges, in collaboration with industry.	RA 9003 is the main law that addresses solid waste management as a whole. However, it is unable to address the specific challenges of plastic wastes, especially in dealing with nonrecyclable plastics and low-value plastic waste that makes up about 10 percent of total municipal solid waste and often ends up as litter (NSWMC 2019). In response to this policy gap and to address the inextricable links between plastics pollution and climate change, a number on bills on SUPs have been filed in the 18th Congress to regulate the production, use, recycling, and disposal of SUPs. Discussions and negotiations are ongoing driven by the CCC and the DOF. There is a need to provide expert information and studies to ensure the SUP legislation is robust, science-based, and enforceable. Annex E presents discussions on the factors to consider in crafting robust legislation.
2.2 Establish voluntary targets and objectives with producers of plastics and plastics packaging for phasing out problematic SUPs and set in place an industry-led system for monitoring and assessing progress towards voluntary targets.	
2.3Implement the phaseout of an initial priority list of unnecessary and problematics SUPs (that is, low-hanging fruit). This includes engaging relevant national and local governments, government agencies, industry, consumers, and other stakeholders in the plastics value chain, putting in place an effective monitoring to enable enforcement and to assess the benefits and impacts of such phaseouts.	
2.4 Conduct a valuation study on the impacts of applying taxes and levies on unnecessary and problematic SUPs where acceptable alternatives do not exist. This includes an analysis of potential market-based instruments (such as taxes, fines, and fees for using SUP products) to encourage behavioral change by industry and consumers.	
Pathway 3. Develop the market for recycling and the manufacturing of recycled products To be done cognizant of the comprehensive assessment and feasibility studies conducted under Pathway 1:	

3.1 Develop and compare options for advancing the recycling and manufacturing industry as an integral component of SWM in the selected LGUs covering, for example,
  • Sanitary landfilling with minimum recycling (BAU);
  • Mixed waste incineration-to-energy from waste facility; and
  • Fully integrated waste management and plastics recycling system.
• Develop and secure markets for r-resins (recyclable resins) and take-off volumes (volumes needed to make buy-in attractive): Forge buy-in conditions and commitments of major manufacturers to accept produced r-resins, which is a key factor to immediately kick off a financially viable recycling operation.
• Identify options for financing and managing the integrated facility, including government, industry, private sector, financial institutions, investors, and donors.
• Implement pilot integrated waste management and plastics recycling projects in collaboration with concerned LGUs, partners, and investors.
• Monitor progress and evaluate the impact and benefits of the integrated facilities, using them as learning sites for upscaling and replicating such facilities elsewhere.
	3.1 The immediate step under Pathway 3 is to develop and operationalize full-scale facilities and technologies that will advance solid waste management and plastics reduction and management. Using individual LGU or clustering of LGU approaches to achieve economies of scale, the pathway targets a quantified analysis of salient technical, financial, legal, socioeconomic, and environmental aspects of various options that will achieve RA 9003 and related environmental standards and objectives for solid waste, plastics reduction, and marine litter.

Pathway/Actions for 1–2 years	Rationale
3.2 Develop and adapt recycled content and labeling standards for plastic products in collaboration with industry and through legislation (a bill on eco-labeling is currently pending).	3.2 Currently, there are no minimum recycled content standards or requirements in the Philippines. However, there are product standards related to plastics set by the Department of Trade and Industry's Bureau of Product Standards, which need to be reviewed. The draft NPOA-ML has identified the review and development of recycled content standards under one of its programmatic actions on enhancing recovery and recycling coverage and markets.
Pathway 4. Design for plastics circularity	
4.1 Build consensus on end-of-product-life solutions for nonrecyclable plastics: • Convene multi-stakeholder consultations with NGAs, LGUs, industry, international development partners, and civil society to secure commitments and investments to implement "zero plastics to the ocean." • Work with key industry players (for example, Coca Cola, Danone, Nestle, and local businesses) to curb the expansion of virgin plastic production through voluntary corporate commitments and demonstrations of recycled content in plastics products (linked to Pathways 1–3).	4.1 This pathway addresses the decoupling of economic growth from plastic growth, so that plastic consumption per person is reduced rather than having the 50 percent increase calculated under the BAU scenario. Potential reductions include eliminating unnecessary items and over-packaging; expanding reuse options that can replace the utility currently provided by plastic (glassware), including products intended for consumers to reuse (shopping bags, refillable containers); and new delivery models such as refill systems. Prior to developing policy and other enabling actions to implement the above, it is important to conduct dialogues and engage with relevant stakeholders, particularly industry players to commit to implement pathways to zero plastics.

The above short-term actions are identified in the Integrated Approach to Zero Plastics to the Ocean, which addresses how the two main policies in focus—the existing SWM Act (RA 9003) and the proposed legislative bills on SUPs—can be effectively harnessed and implemented to support plastics waste reduction.

The impact of a delay is evident in the BAU scenario, meaning that the next two years are crucial for implementing an ambitious set of "no regret" actions so that key measurable milestones across the four pathways can be achieved by 2024. Only by achieving key short-term milestones can the groundwork be laid for the further solutions required to achieve the 2032 target.

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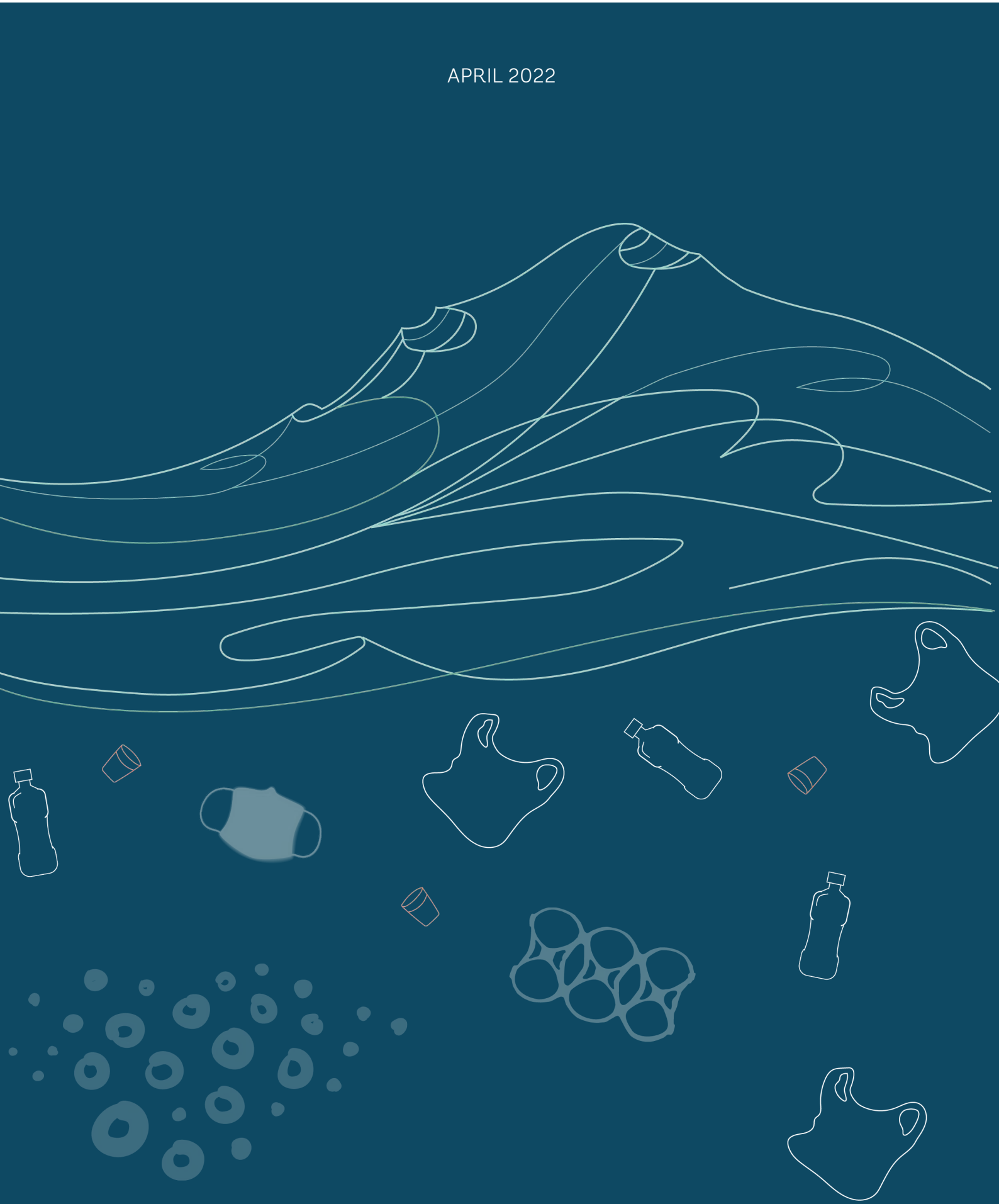

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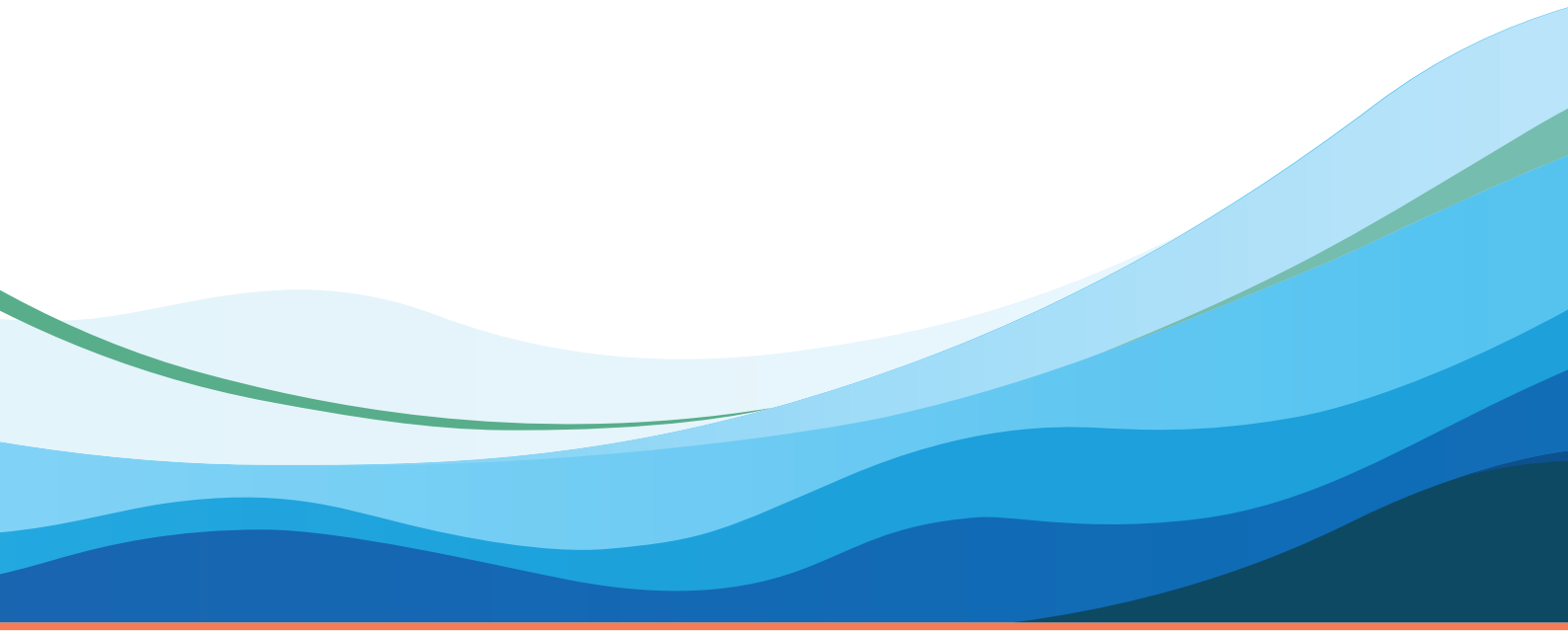
Appendices

REDUCING PLASTIC WASTE IN THE PHILIPPINES

An Assessment of Policies and Regulations to Guide Country Dialogue and Facilitate Action



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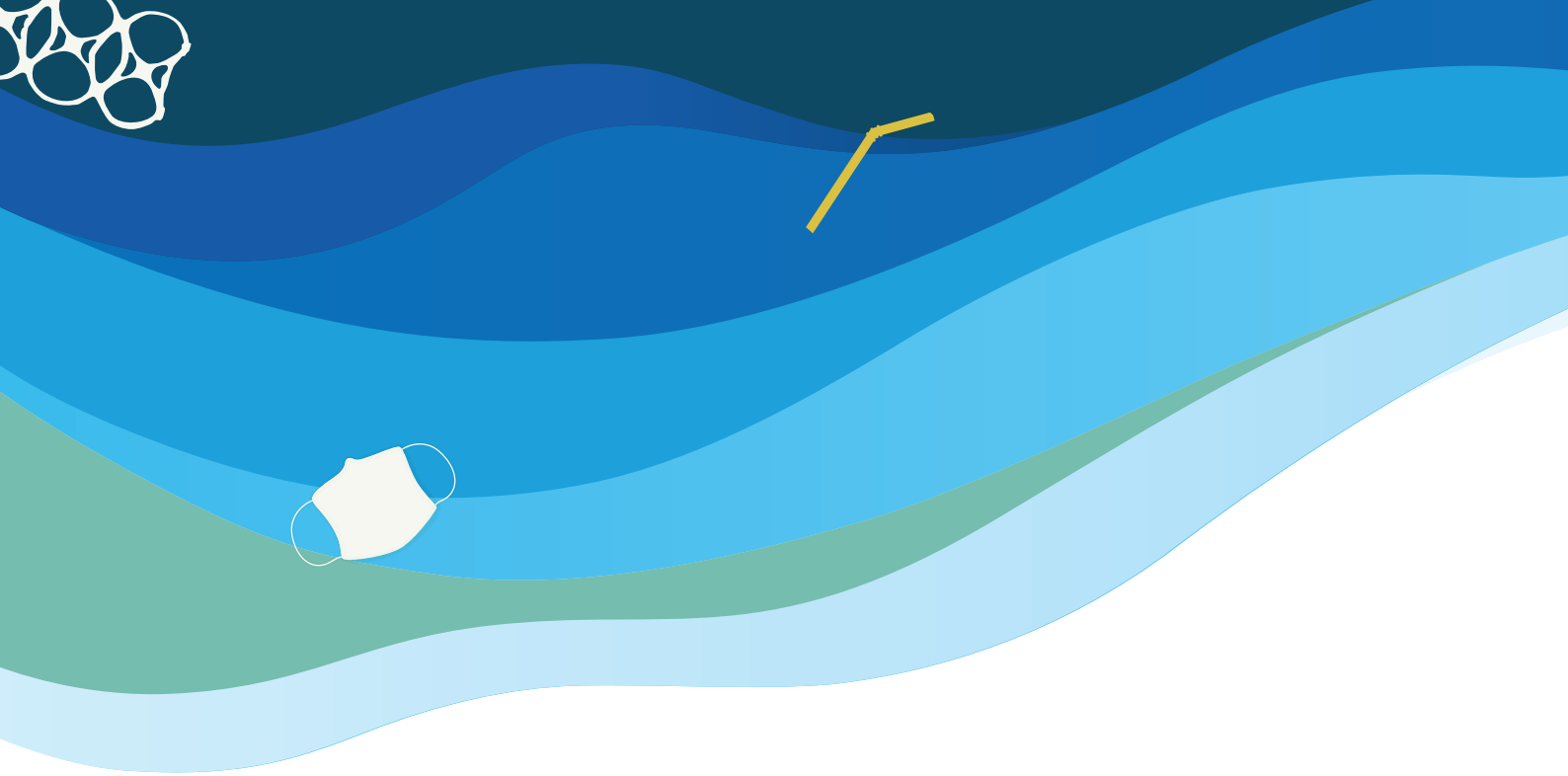

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Appendices

REDUCING PLASTIC WASTE IN THE PHILIPPINES

An Assessment of Policies and Regulations to Guide Country Dialogue and Facilitate Action

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This set of annexes presents the main points of the research to help frame the project's consultations with national government agencies and other policy actors. The document also provides summaries of the reviews that support the main report's various sections.

CONTENTS

ANNEX A:

MAIN POLICY AND REGULATORY LANDSCAPE ON PLASTIC WASTE MANAGEMENT IN THE PHILIPPINES

Table A1.
INVENTORY ON THE POLICY INSTRUMENTS ON SOLID/PLASTIC WASTE MANAGEMENT IN THE PHILIPPINES

Laws/ Policies	Purpose and SWM-Specific Provisions	Main Responsible Entities from the Public Sector
Laws – binding regulatory frameworks often accompanied by implementing rules and regulations; an interagency board; and provisions for funding, strategy, and plans		
Ecological Solid Waste Management Act of 2000 (RA 9003)	RA 9003 was passed in 2001 and is considered landmark legislation for managing wastes in the country. It serves as the main legal framework on solid waste management (SWM) in the Philippines, with provisions on the following: • Mandatory segregation at source (Sections 21–22); • Collection and transport of solid wastes (Sections 23–25); • Recycling program (Sections 26–33), which has provisions on eco-labelling, reclamation and buy-back centers for recyclables, non-environmentally acceptable products, recycling market development, and the establishment of LGU MRFs; and, • Waste management facilities (Sections 36–42), which includes a prohibition against the use of open dumps for solid waste; and regulations on the siting, establishment, and operations of a sanitary landfill. RA 9003 also established the National Solid Waste Commission (NSWMC), a multisectoral body that oversees the implementation of SWM in the country and prescribes policies to achieve the objectives of the Act. The DENR serves as the lead agency. The National Ecology Center, lodged under the Commission, is to provide consulting, information, training, and networking services for the implementation of the Act. The associated SWM fund is a special fund in the National Treasury to be financed by revenues gained from the imposition of fines, penalties, and other charges imposed by the Act. This fund will also be financed by donations, grants, and contributions from domestic and foreign sources. Most importantly, the Act gave LGUs the primary responsibility to manage solid waste collection, segregation and disposal and require them to create and implement solid waste management plans (SWMP). Under this legislation, households and commercial waste generators shall practice waste minimization using the 3Rs (reduce, reuse, and recycle). The Act mandates that LGUs divert 25 percent of their generated waste within five years of the effective date of the Act and states that the reduction should be increased every three years. The Act also mandates the segregation of solid waste at source and the creation of MRFs in every barangay or cluster of barangays.	• Department of Environment and Natural Resources (DENR) (Chairman) • Department of Interior & Local Government (DILG) • Department of Science and Technology (DOST) • Department of Public Works and Highways (DPWH) • Department of Health (DOH) • Department of Trade and Industry (DTI) • Department of Agriculture (DA) • Public Information Authority (PIA) • Metro Manila Development Authority (MMDA) • Technical Education and Skills Development Authority (TESDA) • Leagues of Provinces • League of Cities • League of Municipalities • Liga ng Barangay • Private Sector • Representative from the NGO sector • Representative from the recycling industry • Representative from the manufacturing and packaging industry

Laws/ Policies	Purpose and SWM-Specific Provisions	Main Responsible Entities from the Public Sector
Local Government Code of 1991 (RA 7160)	The Code paved the way for the devolution of select functions by defining the powers, responsibilities, and institutional arrangements of LGUs at various geographical scales in the Philippines; allocating additional resources to LGUs; and providing guidelines and safeguards for carrying out the provisions of the Code. Under the LGC, LGUs have several SWM related responsibilities, including the following: • Development of an efficient and effective system for solid waste collection and disposal; • Provision of basic services and facilities for servicing the needs of the local residents; • Conduct of industry-related research and development (R&D), including technology transfer; • Provision of investment-support services, including access to credit financing; and • Enforcement of laws on pollution control. Executive Order No. 138 states that "the functions, services, and facilities which shall be fully devolved from the NG (national government) to the LGUs (local government units) no later than the end of FY (fiscal year) 2024, shall include those indicated under Section 17 of RA No. 7160 and other existing laws which subsequently devolved functions of the NG to LGUs." The order requires national government agencies (NGAs) to fully transfer the task of delivering basic services to local governments by 2024. A committee of devolution was also created to oversee the transition and provide technical and capacity-development assistance to LGUs to implement the devolved functions stated in the Local Government Code (LGC), which took effect in 1991. Among the devolved functions are the SWM functions cited above. Although the Code is already in force, many LGUs still rely on the national government for providing certain services because they lack resources. EO 138 states that LGUs will have more funds starting 2022 because of the Supreme Court Ruling on the Mandanas-Garcia Petition (Mandanas ruling) issued in 2018, which mandated that LGUs are entitled to a share of all national taxes, not just the national internal revenue taxes.	• LGUs • NGAs
Department of Budget and Management (DBM) Memorandum Order 138	Prior to the issuance of EO 138, DBM issued a memorandum to prepare for the rollout of the Supreme Court decision the Mandanas ruling, which will take effect in 2022. The ruling provides the LGUs greater access to funds for devolved services. The DBM memorandum issued guidance on policy and standards development of service delivery, provision of technical assistance, monitoring, and performance assistance of LGUs. This will involve strengthening their oversight functions, shifting from "rowing" to "steering". NGAs shall also treat LGUs as partners in development and consider cost-sharing arrangements in the implementation of devolved projects. This could potentially offer the fiscal space for LGUs to augment their budgets to effectively implement SWM activities. Discussions on the implementation and transition plans are ongoing amongst relevant agencies	• DBM • DENR • DILG • LGUs
Omnibus Investment Code of 1987 (EO 226)	The Code integrates the basic laws on investments, clarifying and harmonizing their provisions to encourage and guide domestic and foreign investments, especially in preferred areas of activities. It also states that enterprises that have secured a pioneer status under the Code enjoy more incentives than their non-pioneer counterparts. The criteria are laid out in Article 17 of the Code while the preferred areas of activities are specified in the Investment Priorities Plan (IPP), which is regularly updated. Under IPP 2020, green ship recycling and privately owned MRFs are eligible for incentives.	• BOI • DTI • DOF

Laws/ Policies	Purpose and SWM-Specific Provisions	Main Responsible Entities from the Public Sector
Corporate Recovery and Tax Incentives for Enterprises (CREATE) Act (RA 11534)	Passed into law this year, the Act aims to grant tax relief for companies in financial need, provide transparent tax provisions, and further increase the competitiveness of the Philippines (ASEAN Briefing 2021). The Act also amends certain provisions of relevant laws and policies such as the Omnibus Investments Code, the amended National Internal Revenue Code of 1997, and the Special Economic Zone Act (RA 7916). The law has yet to take effect; its implementing rules and regulations are currently being drafted. Information shared on the DTI's website indicate that it will focus on VAT and income-tax reforms for businesses. This law appears to have marginal utility to this study.	• DTI • DOF • DBM • NEDA • Bureau of Internal Revenue (BIR) • Bureau of Customs • Investment-promotion agencies
Customs Modernization and Tariff Act (CMTA) RA 10863)	Enacted in 2016, this Act requires upgrading of customs rules and procedures and smooths out kinks in the supply chain but also includes measures to protect the Philippines or Philippine industries in case of trade discrimination or harmful imports. A corresponding tariff list includes imports on resins and plastics though there are no cases of tariff discrimination involving resins and plastics so far. This law appears to have marginal utility to this study.	• DOF • Bureau of Customs • DTI • BIR • Tariff Commission
Labor Code of the Philippines (PD 442)	This decree institutes a labor code to afford protection to labor, promote employment and human resources development and ensure industrial peace based on social justice. The law determines all employment practices and labor relations in the Philippines but has not direct reference to informal workers.	• Department of Labor and Employment (DOLE)
Strengthening Compliance with Occupational Safety and Health Standards Act (RA 11058)	The Act requires employers to comply with occupational safety and health standards, including updated training requirements, mandated on-site clinic facilities, audit and tracking of compliance, informing workers on all types of hazards in the workplace and giving workers The Act covers formal employment and does not have any direct references addressing the concerns of informal sector.	• DOLE • Office of Occupation-al Safety and Health Standards
Food and Drug Administration (ACT) (RA 3720and updated by RA 9111)	The creation of the Food and Drug Administration with the purpose to protect and promote the right to health of the Filipino people and to establish and maintain an effective health products regulatory system. "Health products" means food, drugs, cosmetics, devices, biologicals, vaccines, in vitro diagnostic reagents and household/urban hazardous substances and/or a combination of and/or a derivative thereof. It shall also refer to products that may have an effect on health that would require regulations as determined by the FDA. FDA's current focus is on the review and approval of COVID 19 vaccines and other drug products in light of the global pandemic. There have not been any issues raised on plastic packaging so far according to officials interviewed.	• DOH • FDA • Other specialized bureaus under DOH
Magna Carta for the Poor (RA 11291)	Law adopting an area-based, sectoral, and focused intervention to poverty alleviation where every poor Filipino must be empowered to meet the minimum basic needs through the partnership of the government and the basic sectors. The National Anti-Poverty Commission (NAPC) is currently developing sectoral plan of actions including workers in the informal sector.	• LGUs • Department of Social Welfare and Develop-ment (DSWD) • Presidential Commission on Urban Poor • National Anti-Poverty Commission

Laws/ Policies	Purpose and SWM-Specific Provisions	Main Responsible Entities from the Public Sector
Proposed legislation		
Proposed legislative bills regulating single-use plastics	At present, there are several House (HB) and Senate Bills (SB) that have been filed in Congress addressing single-use plastics and other plastic products. In particular HB 9174, on SUP products regulation, consolidates several HBs, promoting the phaseout of single-use plastic products over specified periods of time, as well as phasing in Extended Producer Responsibility (EPR), the application of fees and fines to disincentivize SUP usage/ production, and the promotion of government-based R&D to help local manufacturers shift to alternative materials. HB 9171 (on taxation) HB 33 (on plastic labeling). SB 1331 or Extended Producers Responsibility Act of 2020 aims to amend some sections of RA 9003 to institutionalize the EPR practice in waste management.	• House of Representatives • Senate • DOF • CCC
Plans – serve as guiding framework documents to develop strategies and actions. Funds to implement the plans are based on current budgets from the various agencies.		
Philippine Development Plan 2017-2022	The plan is whole-of-society approach for economic recovery and getting the country back on track towards achieving a "matatag (resilient), maginhawa (healthy), at panatag na buhay (prosperous living)" for every Filipino. The plan provides a national solid waste diversion rate of 80 percent by 2022, meaning that 80 percent of solid waste generated by households, industry, and commercial sectors should be eventually recycled, recovered, or reused, and only 20 percent residual waste is disposed of in sanitary landfills or other approved processes.	• NEDA
Philippine Action Plan for Sustainable Consumption and Production (PAP4SCP)	This Plan is a guidance document on the country's transition to a circular economy and contribute to the realization of the country's goal of having more Filipinos produce and consume green goods and services to accelerate the shift towards sustainable and climate-smart practices and lifestyles as indicated in the Philippine Development Plan (PDP) 2017–2022 and Ambisyon Natin 2040. The plan, which was developed since 2018, has yet to be finalized for formal adoption.	• NEDA
The Philippine Green Public Procurement Roadmap	The Roadmap is a voluntary plan developed in 2017 through the EU Switch Asia program to guide government procurement policies. There are no publicly available data on the implementation of the plan amongst the NGAs.	• DBM
Action Plan and Investment Report for the Manila Bay Sustainable Development Master Plan (MBSDMP)	This document provides strategic direction for the sustainable development of Manila Bay, which houses part of the Philippines' growing metropolitan hub. Its focal themes are improved water quality, human settlements, ecosystem protection, disaster-risk reduction, climate-change adaptation, and inclusive growth. The plan is aligned with the Philippines Development Plan PDP 2017–2022 and the *Ambisyon Natin 2040*.	• NEDA with 13 mandamus agencies and Manila Bay LGUs

Laws/ Policies	Purpose and SWM-Specific Provisions	Main Responsible Entities from the Public Sector
Draft National Plan of Action on Marine Litter (NPOA–ML)	The Plan is the guiding framework document on marine litter management with ten strategies and action plans (draft). Programmatic actions • Establish science-based and evidence-based baseline information on marine litter • Mainstream circular economy (CE) and sustainable consumption and production initiatives • Enhance recovery and recycling-coverage materials • Prevent leakage from collected or disposed waste • Reduce maritime sources of marine litter • Manage litter existing in riverine and marine environments Enabling/supporting actions • Enhance policy support and enforcement for marine-litter prevention and management • Develop and implement a strategic and targeted social-marketing and communications campaign using various media • Enable sufficient and cost-effective financing and other institutional resource requirements for the implementation of the National Plan of Action on Marine Litter (NPOA–ML). • Strengthen LGUs' capacities and local-level implementation of NPOA–ML The DENR, through the Environmental Management Bureau, conducted a yearlong multi-stakeholder consultation to develop the NPOA–ML. This was, in part, a move to partly address the gaps identified in RA 9003 regarding the specific challenges of plastics, packaging, and recycling. The NPOA–ML has yet to be approved by the DENR Secretary and therefore it remains to be seen how effective its implementation is going to be. Several international development agencies are interested in supporting DENR in its implementation of the NPOA–ML.	• EMB DENR is the lead but will engage other NGAs, the private sector, international development agencies, and civil society

Source: World Bank.

ANNEX B:

LIST OF RELEVANT STAKEHOLDERS FOR PLASTIC WASTE MANAGEMENT

Table B.**1 LIST OF RELEVANT STAKEHOLDERS FOR PLASTIC WASTE MANAGEMENT**

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
Department of Environment and Natural Resources (DENR)	**Environmental Management Bureau (EMB)** William P. Cunado, Director Vizminda A. Osorio, OIC Assistant Director **Solid Waste Management Division (SWMD)** Ma. Delia Cristina M. Valdez, OIC -Chief **Policy, Planning and Program Development Division (PPPDD)** Consolacion P. Crisostomo, Chief	Mandate under Republic Act (RA) 9003 (Ecological Solid Waste Management Act) and its Implementing Rules and Regulations (IRR): The EMB shall provide secretariat support to the National Solid Waste Management Commission (NSWMC) with a mandate to: • Prepare the national solid waste management framework • Develop a model provincial, city and municipal solid waste management plan that will establish prototypes of the content and format which provinces, cities and municipalities may use in meeting the requirements of the National Solid Waste Management Framework • Approve local solid waste management plans and assist in the implementation, monitoring, and evaluation thereof • Study and review of the following: • Standards, criteria and guidelines for promulgation and implementation of an integrated national solid waste management framework • Criteria and guidelines for siting, design, operation and maintenance of solid waste management facilities • Establish standards, criteria, guidelines, and formula for tipping charges and rates in relation to the operation of solid waste management facilities and technologies • Propose and adopt regulations requiring the source separation and post separation collection, segregated collection, processing, marketing and sale of organic and designated recyclable material generated in each local government unit • Provide technical and capability building assistance to local government units in the development and implementation of source reduction programs • Develop safety nets and alternative livelihood programs for small recyclers and other sectors that will be affected as a result of the construction and/or operation of solid waste management recycling plant or facility • Encourage private sector initiatives, community participation and investments in resource recovery-based livelihood programs for local communities • Assist local government units in the identification of markets for materials that are diverted from disposal facilities • Develop and prescribe procedures for the issuance of appropriate permits and clearances • Formulate and update a list of non-environmentally acceptable materials • Develop a mechanism for the imposition of sanctions for violations of environmental rules and regulations • Review the incentives scheme for effective solid waste management

1 Some of these contacts may have changed.

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
		• Encourage all local government agencies and all local government units to patronize products manufactured using recycled and recyclable materials • Manage the Solid Waste Management Fund • Other SWM roles of the DENR can be found in the RA. • Mandate of EMB as a whole can be found in Executive Order (EO) No. 192, series of 1987.
	Pasig River Coordinating and Management Office (PRCMO) Joan A. Lagunda, Assistant Secretary for Field Operations-Mindanao and Legislative Affairs and Concurrent OIC-Executive Director of the PRCMO	**DENR Administrative Order (DAO) No. 2020-02:** • Continue and enhance the plans and programs on the Pasig River System in line with the Manila Bay Rehabilitation Program to ensure the conduciveness of the system for aquatic life, transportation, and tourism
Department of Trade and Industry (DTI)		**SWM-related mandates of the DTI under RA 9003 and its IRR:** Assist the National Ecology Center (NEC) in the establishment and management of a SWM database and dissemination system, focusing inter alia, on the following: • Solid waste generation and management techniques, including management, technical, and operational approaches to resource recovery • Processors/recyclers, including the list of materials they recycle or purchase and their respective prices • Cleaner production/technologies that promote efficient SWM Within six months from the effectivity of this Act, publish, in cooperation with other agencies, a study of existing markets for processing and purchasing recyclable materials and the potential steps necessary to expand these markets (such study shall include but not be limited to an inventory of existing markets for recyclable materials, product standards for recyclable and recycled materials, and a proposal to stimulate the demand for the production of products containing post-consumer and recovered materials) Formulate and implement a coding system for packaging materials and products to facilitate waste and recycling and re-use Assist the NSWMC in establishing procedures, standards, and strategies to market recyclable materials and develop the local market for recycled goods; these measures include but are not limited to: • Measures providing economic incentives and assistance including loans and grants for the establishment of privately-owned facilities to manufacture finished products from post-consumer materials • Guarantees by the national and local governments to purchase a percentage of the output of the facility • Maintaining a list of prospective buyers, establishing contact with these buyers, and reviewing and making any necessary changes in collecting or processing the materials to improve their marketability • Grant's fiscal and non-fiscal incentives as provided under EO 226, series of 1987 (Omnibus Investments Code) through the BOI • Review and approve the importation of machinery, equipment, vehicles and spare parts for the collection, transportation, segregation, recycling, re-use and composing of solid wastes

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
		• Provide technical assistance to any interested parties duly supported by the LGUs intending to set up the multi-purpose environmental cooperatives or associations • Help encourage national and local governments to purchase environmentally preferable products and services **More information on the EO 226, series of 1987, can be found** here.
	Bureau of Philippine Standards (BPS) Neil P. Catajay, Director Ferdinand L. Manfoste, Assistant Director **Standards Development Division** Mario U. Gaudiano, Chief **Product Testing Division** Jay V. Illescas, Officer-in-Charge **Standards Mainstreaming Division** Ma. Teresita G. Del Rosario, Chief	**Mandate of the BPS under** EO 133, series of 1987**:** • Establish standards for all products of the Philippines for which no standards have as yet been fixed by law, executive order, rules and regulations and which products are not covered by the standardization activities of other government agencies • Test and/or analyze standardized and unstandardized products for purposes of product standard formulation and certification • Ensure the manufacture, production, and distribution of quality products for the protection of consumers • Extend technical assistance to producers to improve the quality of their products • Maintain consultative liaison with the International Organization for Standardization, Pacific Area Standards Congress, and other international standards organizations
	Bureau of Small and Medium Enterprise Development (BSMED) Jerry T. Clavesillas, Director Alicia M. Opeña, Assistant Director **Policy Research Division** Susan Mae C. Salonga, Chief **Program Development Division** Edwin C. Pasahol, Chief **Monitoring and Evaluation Division** Cynthia C. Dela Cruz, Chief	**Mandate of BSMED based on DOLE website (the specific source/administrative issuance is unknown and not available):** Promote and develop MSMEs in the country by • Developing/reviewing policies and strategies geared towards the advancement of MSMEs in the areas of entrepreneurship development, institutional strengthening, and productivity improvement • Initiating and implementing programs and projects addressing the specific needs of MSMEs in the areas of technology development and transfer, financing, marketing, and training

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
	Fair Trade Enforcement Bureau (FTEB) Ronnel O. Abrenica, Director Rosila F. Egmilan, OIC Assistant Director **Import Regulations Division** Sonia S. Tapales, Chief **Enforcement Division** Perpetua Werlina R. Lim, Chief **Product Standard Monitoring Division** Rosita P. Jaleco, Chief **Surveillance and Monitoring Division** Eleanor N. Perez, Chief	**Mandate of FTEB based on DOLE website (the specific source/administrative issuance is unknown or is not available):** Handles import regulation, sales promotion, product standards monitoring, business licensing, enforcement, mediation, and adjudication in relation to the Consumer Act, Price Act, and Business Name Law
	Board of Investments (BOI) Ma. Corazon H. Dichosa, Executive Director for Industry Development Services	See row on the SWM-related mandates of the DTI under RA 9003 and its IRR
Department of Science and Technology (DOST)	**Industrial Technology Development Institute (ITDI)** Annabelle V. Briones, Director **Environmental and Biotechnology Division (EBD)** Reynaldo L. Esguerra, Chief **Materials Science Division (MSD)** Josefina R. Celorico, Officer-in-Charge **Packaging Technology Division** Daisy E. Tanafranca, Chief **Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD)** Enrico Paringit, Executive Director	**Mandate of DOST under RA 9003 and its IRR:** • Conduct of study and development of new uses of recovered resources • Initiate study on the alternative usage of nonrecyclable and nonreusable materials • Develop and apply new and improved methods of collecting and disposing of solid wastes and processing and recovering materials and energy from solid wastes • Promote the development of clean technology (CT)/production (CP) program in industry and help provide technical assistance to implement CT/CP • Develop an environmental technology verification (ETV) program to evaluate the performance and fit of prospective technologies prior to their introduction locally **SWM-related mandate of ITDI under EO 128, series of 1987:** • Undertake applied research and development to develop technologies and technological innovations in the field of industrial manufacturing • Transfer research results directly to end users or preferably via linkage units of other government agencies • Undertake technical services such as standards, analytical, and calibration services mandated by law or as needed by industry • Conduct training and provide technical advisory and consultancy services to industry clientele and end users

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
Government Procurement Policy Board (GPPB)	**Technical Support Office (TSO)** Rowena Candice M. Ruiz, Executive Director	**Mandate of GPPB under** RA 9184 (Government Procurement Reform Act) **and its** IRR**:** • Protect national interest in all matters affecting public procurement, having due regard to the country's regional and international obligations • Formulate and amend public procurement policies, rules, and regulations, and amend, whenever necessary, the IRR • Prepare a generic procurement manual and standard bidding forms for procurement • Ensure proper implementation of this Act, its IRR, and all other rules and regulations on public procurement, by the procuring entities of the Act • Establish a sustainable training program to develop the capacity of government procurement officers and employees and to ensure the conduct of regular procurement training programs by the procuring entities • Conduct an annual review of the effectiveness of the Act and recommend any amendments thereto, as may be necessary **Mandate of TSO under** RA 9184 **and its** IRR**:** Provide support to the GPPB in the performance of its duties and responsibilities as specified in the Act and this IRR (the TSO is an attached agency of the DBM; it is under its administrative supervision for general oversight and for budgeting purposes)
National Economic and Development Authority (NEDA)	**Infrastructure Staff (IS)** Kathleen P. Mangune, Director Francis Bryan C. Coballes, OIC Assistant Director **Social and Other Public Infrastructure Division (SOPID)** Aldwin U. Urbina, Chief Economic Development Specialist Kevin Gilbert M. Manzano, Supervising Economic Development Specialist **Agriculture, Natural Resources, and Environment Staff (ANRES)** Nieva T. Natural, Director – to be routed through Demi Rei S. Salazar, Administrative Aide VI Diane Gail L. Maharjan, Assistant Director	**Mandate of NEDA under the** 1987 Constitution**:** • NEDA shall be the country's independent economic development and planning agency. Executive Order No. 230 of 1987 **further defines this role. It states that the agency shall** • Monitor macroeconomic and sectoral performances and prepare the necessary economic reports • Conduct development studies on macro-level plans and policies • Coordinate the formulation of continuing and integrated socioeconomic development plans, policies, and programs and the monitoring and evaluation of plan implementation • Coordinate the formulation of public investment programs and programming of official development assistance (ODA) from foreign governments and multilateral agencies and organizations • Be a member agency of the Development Budget Coordination Committee (DBCC), Investment Coordination Committee (ICC), Committee on Social Development (SDC), Committee on Infrastructure (INFRACOM), and Committee on Tariff and Related Matters (TRM) **Mandate of NEDA under the** IRR of RA 9003**:** Assist in the development of a coordinative mechanism that will ensure that LGUs are significantly guided in the preparation of LGSWMPs.

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
	Environment Division (ED) Julius T. Casabal, OIC–Chief Economic Development Specialist Lara Gianna V. Hidalgo, Economic Development Specialist II **Natural Resources Division (NRD)** Mary Jane M. Dela Rosa, OIC–Chief Economic Development Specialist Jane Desiree F. Andal, Supervising Economic Development Specialist Mary Descery Joy B. Bongcac, Senior Economic Development Specialist	
Department of Finance (DOF)	**Paola Sherina A. Alvarez,** Assistant Secretary of the International Finance Group (IFG) and Concurrent Spokesperson and Head of Communications of the Office of the Secretary (OSEC) Agency focal for sustainable finance and one of the heads of the interagency TWG on the matter ("Green Force")	**Mandates of the DOF under** EO No. 292 instituting the Administrative Code of 1987**:** • Formulate long-range, medium-term, and annual plans covering the government's resources mobilization efforts, in coordination with other concerned government agencies, and involving all public-sector resources whether generated by revenues and operations, foreign and domestic borrowing, sale or privatization of corporations or assets, or from other sources, and supervise the implementation of such plans • Formulate, institutionalize, and administer fiscal and tax policies • Supervise, direct, and control the collection of government revenues • Act as custodian and manage all financial resources of the national government • Undertake and supervise activities related to the negotiation, servicing, and restructuring of domestic and foreign debt incurred or guaranteed by the government and its instrumentalities. This includes taking part in activities that affect the country's capacity to service foreign debt, with the end view of ensuring that all borrowed funds are effectively utilized, and all such obligations are promptly serviced by the government • Review and coordinate the policies, plans and programs of government financial institutions and, thereafter, recommend to them courses of action consistent with national government fiscal policies, plans, and programs • Ensure the implementation of necessary policies and measures on local revenue administration • Coordinate with other government agencies on matters concerning fiscal and monetary policies, credit, economic development, international finance, trade, and investment • Perform such other powers and functions as may be provided by law

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
Department of Budget and Management (DBM)	**Fiscal Planning and Reforms Bureau (FPRB)** Yolanda R. Reyes, OIC Director **Budget and Management Bureau (BMB) – E** Cristina B. Clasara, Director	**Mandate of DBM under** EO No. 292, series of 1987**:** • Assist the President in the following: • Preparation, execution and control of the National Budget, preparation • Maintenance of accounting systems essential to the budgetary process • Administration of compensation and position classification systems • Review and evaluation of proposed legislation that have budgetary or organizational implications • Assessment of organizational effectiveness • Achievement of more efficient government operations **Overall functions of the FPRB (as stated in the DBM website; specific source/administrative issuance is unknown or is not available):** • Conduct fiscal policy research and planning • Develop fiscal and budgeting frameworks, indicative annual and multiyear budget ceilings and forward estimates, and sectoral composition of expenditures in coordination with other oversight agencies • Formulate, monitor, and evaluate budget programs in the context of macroeconomic and fiscal targets, including the formulation and monitoring of the annual and quarterly whole-of-government allotment and cash release programs • Conduct studies and analyses of expenditure trends and policies in the different government sectors for effective intersectoral resource allocation decisions, as reflected in the Budget Priorities Framework submitted to the President • Monitor macroeconomic developments and their impact on the budget • Develop, administer, and maintain the FE system, in coordination with the BMBs and other DBM offices and units concerned • Prepare position papers and recommendations on legislative proposals, bills, and planned executive issuances with fiscal policy implications; • Provide technical and secretariat services to the Development Budget Coordination Committee (DBCC) and its Executive Technical Board, Participatory Governance Cluster, and the Open Government Partnership (OGP) • Conceptualize and manage the implementation of budgeting innovations, including assisting DBM implementing bureaus in mainstreaming these reforms and innovations which will include strategic thinking, mobilizing technical support from development partners, and conducting change management programs with agencies • Monitor the execution and implementation of said reforms and innovative projects and evaluate their impact on expenditure allocation and resource allocation and submit required reports to DBM's management • Coordinate the formulation and implementation of policies, standards and strategies that promote greater fiscal transparency, as well as monitor the performance of the DBM and the government as a whole in implementing international fiscal transparency standards and upholding citizen's right to access information

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
		BMB–E handles environment-related agencies (as stated in the DBM website; specific source/administrative issuance is unknown or not available): • Department of Agrarian Reform (DAR) • Department of Agriculture (DA) • Department of Energy (DOE) • DENR, which in in charge of developing the budget proposal for SWM related functions. It also prepares the funding for NSWMC and operationalization of RA 9003 for endorsement by the Office of the President to the Congress for deliberation and approval of the annual General Appropriations Act • Department of Information and Communications Technology (DICT) • Climate Change Commission (CCC) • Energy Regulatory Commission (ERC) • National Disaster Risk Reduction and Management Fund (NDRRMF)
Senate	**Committee on Environment, Natural Resources and Climate Change** Cynthia A. Villar, Chairperson, to be routed through the Committee Secretary (Maria Clarinda Mendoza, Chief-of-Staff (in case it is easier to reach the Chairperson that way): Atty. Armi Dayot-Corpuz	**Mandate of the Senate under the** 1987 Constitution**:** The legislative power shall be vested in the Congress of the Philippines which shall consist of a Senate and a House of Representatives, except to the extent reserved to the people by the provision on initiative and referendum.
House of Representatives (HOR)	**Committee on Ecology** Glona G. Labadlabad, Chairperson Emails to be routed through the Committee Secretary: Atty. Dilbert N. Quetulio, Committee Secretary	**Mandate of the HOR under the** 1987 Constitution**:** The legislative power shall be vested in the Congress of the Philippines which shall consist of a Senate and a House of Representatives, except to the extent reserved to the people by the provision on initiative and referendum.
Department of Interior and Local Government (DILG)	**Bureau of Local Government Development (BLGD)** Anna Liza F. Bonagua, Director Local Administrative Development Division Jennifer G. Galorport, Chief	**Mandate of DILG under** RA 9003 **and its** IRR**:** • Within six months from the effectivity of the Act, publish an inventory of all solid waste disposal facilities or sites in the country • Within six months from the effectivity of the Act, help publish a study of existing markets for processing and purchasing recyclable materials and the potential steps necessary to expand these markets (such study shall include but not be limited to an inventory of existing markets for recyclable materials, product standards for recyclable and recycled materials, and a proposal to stimulate the demand for the production of products containing postconsumer and recovered materials) • Help LGUs in setting up their respective Local SWM Boards • Help develop a coordinative mechanism that will ensure that LGUs are significantly guided in the preparation of LGSWMP • Assist the DENR in formulating a staged compliance program for LGUs to convert their open dumpsites into controlled dumps • Help enforce compliance to the penal provisions of the Act through the PNP and PCG

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
		SWM-related mandate of the BLGD under EO 262, series of 1987**:** • Establish and prescribe plans, policies, programs, and standards to strengthen the administrative, fiscal, and technical capabilities of local government offices and personnel • Provide technical assistance to enhance the administrative, fiscal, and technical capabilities of local government officers and personnel • Formulate, prescribe, monitor, and periodically evaluate local development policies, plans, programs, and projects designed to enhance the participation of local governments in planning and implementation • Establish a system of incentives and grants to local governments and prescribe policies, procedures, and guidelines in the implementation of self-help assistance projects • Formulate and develop models, standards, and technical materials on local government development • Provide consultation services and advice on local government involved in development programs • Establish viable systems of strategies and approaches for local governments anchored on citizens participation
Climate Change Commission (CCC)	Rachel Anne S. Herrera, Commissioner To be routed through Lyka Ranelle L. Dela Cruz, Executive Assistant IV	**Overall mandate of the CCC under** RA 9729**:** The Commission shall be an independent and autonomous body and shall have the same status as that of a national government agency. It shall be the sole policy-making body of the government that shall be tasked to coordinate, monitor, and evaluate the programs and action plans of the government relating to climate change pursuant to the provisions of this Act. Powers and functions are as follows: • Ensure the mainstreaming of climate change, in synergy with disaster risk reduction, into the national, sectoral, and local development plans and programs • Coordinate and synchronize climate change programs of national government agencies • Formulate a Framework Strategy on Climate Change to serve as the basis for a program for climate change planning, research and development, extension, and monitoring of activities on climate change • Exercise policy coordination to ensure the attainment of goals set in the framework strategy and program on climate change • Recommend legislation, policies, strategies, programs on and appropriations for climate change adaptation and mitigation and other related activities • Recommend key development investments in climate-sensitive sectors such as water resources, agriculture, forestry, coastal and marine resources, health, and infrastructure to ensure the achievement of national sustainable development goals • Create an enabling environment for the design of relevant and appropriate risk-sharing and risk-transfer instruments • Create an enabling environment that shall promote broader multistakeholder participation and integrate climate change mitigation and adaptation • Formulate strategies on mitigating GHG and other anthropogenic causes of climate change • Coordinate and establish a close partnership with the National Disaster Coordinating Council in order to increase efficiency and effectiveness in reducing the people's vulnerability to climate-related disasters • In coordination with the Department of Foreign Affairs, represent the Philippines in the climate change negotiations

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
		• Formulate and update guidelines for determining vulnerability to climate change impacts and adaptation assessments and facilitate the provision of technical assistance for their implementation and monitoring • Coordinate with local government units (LGUs) and private entities to address vulnerability to climate change impacts of regions, provinces, cities, and municipalities • Facilitate capacity building for local adaptation planning, implementation and monitoring of climate change initiatives in vulnerable communities and areas • Promote and provide technical and financial support to local research and development programs and projects in vulnerable communities and areas • Oversee the dissemination of information on climate change, local vulnerabilities and risks, relevant laws and protocols and adaptation and mitigation measures
Department of Labor and Employment (DOLE)	Alex V. Avila, Assistant Secretary, Labor Relations, Social Protection and Policy Support Cluster Part of the development process for the Green Jobs HRD Plan **Ahmma Charisma Lobrin–Satumba (lead in Green Jobs Act)**, Executive Director Institute for Labor Studies (ILS) under DOLE	**Mandate of DOLE under** EO 126, series of 1987**:** The Ministry shall be the primary policy, programming, coordinating and administrative entity of the Executive Branch of the government in the field of labor and employment and shall: • Formulate and recommend policies, plans and programs for manpower development, training, allocation, and utilization • Protect and promote the interest of every citizen desiring to work locally or overseas by securing for him the most equitable terms and conditions of employment, and by providing social and welfare services • Regulate the employment of aliens, including the establishment of a registration and/or work permit system for such aliens • Formulate general guidelines concerning wage and income policy • Recommend necessary adjustments in wage structures with a view to developing a wage system that is consistent with national economic and social development plans • Provide for safe, decent, humane, and improved working conditions and environment for all workers, particularly women and young workers • Maintain harmonious, equitable and stable labor relations system that is supportive of the national economic policies and programs • Uphold the right of workers and employers to organize and to promote free collective bargaining as the foundation of the labor relations system • Provide and ensure the fair and expeditious settlement and disposition of labor and industrial disputes through collective bargaining, grievance machinery, conciliation, mediation, voluntary arbitration, compulsory arbitration as may be provided by law, and other modes that may be voluntarily agreed upon by the parties concerned

Agency/Unit	Specific Unit, Personnel, Contact Information[1]	Relevant Mandates
Food and Drug Administration (FDA)	**Center for Food Regulation and Research** Pilar Marilyn P. Pagayunan, Director **Policy and Planning Service** Oscar G. Gutierrez Jr., Chief	**Relevant mandates of the FDA under** RA 9711**:** • Administer and supervise the implementation of this Act and of the rules and regulations issued pursuant to the same • Issue certificates of compliance with technical requirements to serve as basis for the issuance of appropriate authorization and spot-check for compliance with regulations regarding operation of manufacturers, importers, exporters, distributors, wholesalers, drug outlets, and other establishments and facilities of health products, as determined by the FDA • Levy, assess, and collect fees for inspection, analysis and testing of products and materials submitted in compliance with the provisions of this Act • Require all manufacturers, traders, distributors, importers, exporters, wholesalers, retailers, consumers, and non-consumer users of health products to report to the FDA any incident that reasonably indicates that said product has caused or contributed to the death, serious illness or serious injury to a consumer, a patient, or any person • Maintain bonded warehouses and/or establish the same, whenever necessary or appropriate, as determined by the director-general for confiscated goods in strategic areas of the country especially at major ports of entry • Exercise such other powers and perform such other functions as may be necessary to carry out its duties and responsibilities under this Act
National Anti-Poverty Commission	SR Rosalina Funtanares, NAPC–Workers in the Informal Sector Rosario San Juan, Focal Person WIS	The National Anti-Poverty Commission is a government agency of the Republic of the Philippines. It coordinates poverty reduction programs by national and local governments and ensures that marginalized sectors participate in government decision-making processes. One of the sectors it works on is the urban poor.
Presidential Commission on Urban Poor	Alvin San Juan Feliciano, Chairperson/CEO	The Presidential Commission for the Urban Poor (PCUP) serves as a direct link of the urban poor to the government in policy formulation and program implementation addressing their needs. It coordinates and monitors the implementation of government policies and programs for the urban poor. It also accredits legitimate Urban Poor Organizations (UPO) for UPO representation in the formulation of recommendations relative to the sector.
Philippine Alliance for Recycling and Materials Sustainability	Crispian Lao, Founding President	PARMS is a nonprofit multistakeholder organization that aims to develop and implement a comprehensive waste management program to increase resource recovery, such as plastics and other packaging materials, and reduce landfill dependence leading toward a zero-waste Philippines.

Source: World Bank.

ANNEX C:

SUMMARY TABLES USED DURING CONSULTATIONS ON FACTORS AFFECTING COLLECTED-FOR-RECYCLING RATES IN RELATION TO PHILIPPINE LAWS AND POLICIES

Table C.1 below highlights the legislation and policies that affect collected-for-recycling (CFR) rates. These factors were identified in the World Bank market study (World Bank 2021c). The policies are not part of any systematic framework, and there is no unifying legislation that pulls these considerations together in a holistic and strategic manner.

Table C1.

NATIONAL POLICIES AND REGULATORY ENVIRONMENT AFFECTING CFR RATES

Analysis of relevant national laws/policies	SWM Act (RA 9003)	SUP bills on regulation, taxation, labelling & EPR	Labor Code of the Philippines	Occupational Safety & Health Standards Act (RA 11058)	Omnibus Investments Code 1987	Customs Modernization and Tariff Act (CMTA)	Philippine Development Plan	Manila Bay Sustainable Development Master Plan	Philippine Action Plan on Sustainable Consumption & Production	National budget call FY 2022	National Plan of Action on Marine Litter
Factors Affecting CFR Rates											
1. SUP plastics production/ management	↻	↻			↻	↻			↻	↻	
2. Segregation/ collection of household waste and post-consumer by-products	↻	↻	↻	↻			↻	↻	↻	↻	↻
3. Separation and diversion of recyclables (e.g., MRFs, junk shops)	↻	↻	↻	↻			↻	↻	↻	↻	↻
4. Plastics recycling industry's capacity to process all resins		↻			↻		↻				
5. r-Plastics market (use of r-plastics in manufacturing)		↻			↻				↻		
6. Residual processing/ disposal (e.g., low cost disposal alternatives)	↻				↻		↻	↻		↻	↻

Source: World Bank.

Table C2.
FACTORS, POLICIES, BARRIERS, AND OPTIONS RELATING TO CFR RATES

Source: World Bank.

Factors Affecting CFR Rates	Relevant Existing Policies	Factors/Barriers to Effective Management of Plastics	Potential Policy and Regulatory Options to Unlock Actions and Investments
1. SUP production and management (for example, waste collection, separation, sorting, and disposal)	RA 9003 RULE XII. IMPLEMENTING A RECYCLING PROGRAM Section 5 (p). Non-Environmentally Acceptable Products 'Formulate and update a list of non-environmentally acceptable materials in accordance with the provisions of this Act. For this purpose, it shall be necessary that proper consultation be conducted by the Commission with all concerned industries to ensure a list that is based on technological and economic viability' Section 29: non-environmentally acceptable products shall not be prohibited unless the [NSWMC] first finds that there are alternatives which are available to consumers at no more than 10 percent greater cost than the disposable product. RULE XVIII PENAL PROVISIONS Section 1. Prohibited Acts Section 3. Fines and Penalties **Section 57 – NSWMC encourages commercial and industrial establishments to manufacture environmentally friendly products through creating incentives** NPOA–ML Mainstream circular economy (CE) and sustainable consumption and production (SCP) initiatives PDP 2017–2022 Chapter 20: Promote Sustainable Consumption and Production	Plastics waste is comingled with postconsumer solid waste and is leaking to environment due to ineffective solid waste collection and management systems. SUP, by definition, covers all nonrecycled postconsumer plastics being leaked to the environment, as evidenced by the initial survey microplastics and plastics surveys conducted on the Pasig River. **Inadequacy of RA 9003** RA 9003 mandates the updating of non -environmentally acceptable products, which in 2020–21 have included problematic SUPs (See discussion on SUPs in Section G). However, it fails to adequately handle disposable or throwaway sachet packaging and other plastic wastes that can neither be recycled or composted and often ends up in incinerators, pyrolysis, cement kilns, or leaked into the ocean. **Weak and inconsistent implementation** The implementation of SUP ban has been carried out in various cities without providing a clear analysis of its social, economic, and environmental benefits and impacts. While there has been reported successes in the reduction of plastic wastes after vigorous enforcement, the lack of cheaper alternative to plastics have forced some LGUs to withdraw from implementing the said ordinances banning SUPs. The Covid 19 pandemic has also seen some LGUs issuing a moratorium of the ban in light of receiving health and safety measures made of plastics (plastic sheets, face shields, face masks, protective gears, and so forth). (See discussion on the reduction of problematic SUPS in sections G and H.2)	Production of single-use products and packaging materials need to shift towards sustainable, biodegradable raw materials or recyclable, reusable materials, and products and away from SUPs/plastics. This entails mainstreaming circular economy (CE) approaches and improved business models to reduce dependence on SUPs/plastics in the packaging industry. (Long term) The challenges of SUP reduction and management require a comprehensive solution to avoid plastics leakage. Even with bans and economic instruments in place, changes to packaging practices and materials will take time. In the interim, SUPs will continue to be part of the solid waste management systems of local governments. (Medium to long term). Information, education, and communications (IEC) campaigns can be part of the solution/enabling action to promote reduction of problematic SUPs. (Short term) Economic (for example, tax, incentives and disincentives) can be put in place to accelerate the increasing flexible packaging value chain design and production solutions and encourage a circular economy. In addition to economic instruments that promote voluntary compliance by manufacturers and the packaging industry, mandatory schedules can be set to ensure that all plastics packaging placed on the Philippines market are reusable or recyclable within a designated timeframe and in a cost-effective manner for industry and the consumer. (Medium to long term).

Factors Affecting CFR Rates	Relevant Existing Policies	Factors/Barriers to Effective Management of Plastics	Potential Policy and Regulatory Options to Unlock Actions and Investments
	SCPFP Intermediate Outcome 1.2: Ecological limits and negative externalities determined Intermediate Outcome 2.1: Innovation and investment in green technologies and systems increased	Indifferent attitudes due to lack of awareness, convenience of using and affordability of plastics and social behavior are part of the problem.	Policy window for reform: The implementing guidelines of NPOA–ML strategies and pending legislative bills on SUP are policy windows of opportunity to influence to help regulate SUPs. (See section E)
2. Segregation/ collection of household waste and postconsumer by-products	RA 9003 RULE IX. WASTE SEGREGATION AT SOURCE Section 1. Waste Segregation and Volume Reduction at Source RULE X. COLLECTION, TRANSPORT, AND HANDLING OF SOLID WASTES Section 1. Minimum standards for the collection, transport, and handling of Solid Wastes Section 2. Minimum Requirements for Establishing and Operating Transfer Stations NPOA–ML Prevent leakage from collected or disposed waste Enhance recovery and recycling coverage and markets MBSDMP ISWM01: Improve Waste Reduction and Segregation ISWM02: Improve Collection, Recycle and Recovery PDP 2017–2022 Chapter 19 Intensify the promotion of segrega-tion-at-source Chapters 19 and 20 Promote the practice of 3Rs and proper waste management	**Inefficient segregation and collection systems** Many LGUs still practice mixed waste collection, although a few have adopted 'no segregation, no collection' policy. Downstream handling of segregated wastes remains a challenge. At-source segregation (household-level) as currently practiced is ineffective in terms of segregated waste quantity, quality, and coverage, resulting in excessive litter and increasing volumes of mixed waste. Collection systems/vehicles are not equipped for separate collection of recyclables, resulting in back-mixing of segregated recyclables with mixed waste. Existing rules and policies require/promote minimum standards for collection, transport, and transfer of solid wastes. Yet these minimum standards are not being applied for due to limited capacity or funding allocated by LGUs to enforce or ensure compliance. The issue of lack of funds could be due to other competing priorities (peace and order, health, infrastructure), or SWM is not being seen as a priority and/or possibly inefficient management of public funds.	Household awareness and behavior is the starting point for change. There is a need to have a nationwide mandate to separating wet waste (for example, kitchen waste) from dry waste (for example, packaging) as a simple yet effective step forward. Hazardous household wastes (for example, dry cell batteries) is an essential third category of waste segregation in the household to avoid contamination of biodegradable organics and hampering downstream recycling processes. (Short term) However practical experience is lacking in the Philippines. Pilot demonstrations of integrated, logistically efficient collection, transfer, and transport systems under different social, economic, and physical conditions with appropriately designed collection and transport vehicles would provide on-the-ground experience and learning projects for national and local governments. (Short to medium term) Based on these learning experiences, a practical, nationwide household segregation administrative order can be developed and put in place to upscale best practices and ensure uniform and consistent segregation at source policy. (Medium to long term) Policy window: NEDA propose a review of RA 9003 to enhance financial and technical support for LGUs to provide appropriate SW equipment, facilities, and services. A stepwise approach, including pilot demonstrations, can be promoted. (Short term)

Factors Affecting CFR Rates	Relevant Existing Policies	Factors/Barriers to Effective Management of Plastics	Potential Policy and Regulatory Options to Unlock Actions and Investments
	SCPFP Intermediate Outcome 2.1: Innovation and investment in green technologies and systems increased		
3. Separation and diversion of recyclables (for example, MRFs and junk shops)	RA 9003 RULE VII. PLANNING AND PROGRAMMING POLICY FOR SOLID WASTE MANAGEMENT Section 7. Establishing Mandatory Solid Waste Diversion RULE XI. MATERIALS RECOVERY FACILITIES AND COMPOSTING Section 1. Operations of a Materials Recovery Facility RULE XII. IMPLEMENTING A RECYCLYING PROGRAM Section 6. Reclamation Programs and Buy-Back Centers NPOA–ML Enhance recovery and recycling coverage and markets MBSDMP ISWM01: Improve Waste Reduction and Segregation ISWM02: Improve Collection, Recycling, and Recovery **2020 Investment Priorities Plan includes establishment of privately own materials recycling facility as one of the preferred areas of investment based on EO 226 (DTI–BOI)** PDP 2017–2022 Chapter 19 Provide an incentive mechanism to local recycling industries	**Barriers encountered despite the law** Existing rules and policies require/promote solid waste management diversion, MRFs, recycling and buy-back programs. However, implementation has been limited on a national scale, Lack of funding, space, infrastructure, technology, and skilled labor are key contributors to the failure of widespread use and effectiveness of MRFs (34.4 percent of all barangays in the Philippines are served by MRFs). Junk shops and the informal sector lack financial resources, skills, and technologies to increase and improve their capacities and productivity, although they are recognized as the backbone of the existing collection and separation system for recyclables. This results in substantial leakage of nonrecyclable plastics and other materials, which contributes to the lack of efficiency and cost effectiveness of current recycling processes as well as marine litter. Informal waste workers have no social and economic security, work under substandard and unhealthy work conditions and have limited access to basic services. They are not formally recognized as part of the public waste sector but may be a de facto part of the formal waste sector. At best, many LGUs register junkyard operators and engage informal waste pickers as "volunteers" to collect household waste and allow them to keep the money they earn from sorting and segregating recyclables (including plastics) as incentives.	Policies are needed to fully engage and professionalize these services, and these policies need to encompass both the formal and informal sectors and provide options for integrating both sectors into socially and economically sustainable solutions. At the municipal/city/provincial levels, policies to incentivize centralized/clustered integrated solid waste management/recycling facilities will establish economies of scale to operate efficiently and cost-effectively, employing personnel from existing MRF operations. Buy-in is essential at this level, and policies must clearly demonstrate social, economic, and environmental benefits to the concerned barangays and other stakeholders. (Medium to long term) There are benefits to formalizing informal waste recyclers. These include the fact that they are the key sector in recovery of recyclables in both urban and rural areas. They have the expertise in making waste diversion a self-sustaining economic activity and operates the forward and backward linkages that enable wastes to be recovered for recycling purposes. There is a need to develop policies to consciously create opportunities and incentives for junk shops and the informal sector to participate in formalized waste management systems. Such policies need to have the following characteristics, among others: • Improved environmental, health, and safe working conditions; occupational recognition, respect, and dignity; • Appropriate and fair business models; and • Communication, education, health, and inclusion initiatives for waste workers and their families.

Factors Affecting CFR Rates	Relevant Existing Policies	Factors/Barriers to Effective Management of Plastics	Potential Policy and Regulatory Options to Unlock Actions and Investments
	Chapter 20 Target: 80 percent Solid Waste Diversion Rate Promote sustainable consumption and production • Establish a sustainable market for recyclables and recycled products PAP4SCP Intermediate Outcome 2.1: Innovation and investment in green technologies and systems increased	Given that they generally operate in dire conditions facing threats of environmental hazards, fragile peace and order, compete with community-level materials recovery facilities, junk shops are considered eyesores. They lack work security as manifested by facing harassment by police while transporting recyclables, job loss due to sale of illegally obtained recyclables and lack of secure access to buyers of recyclables. They also face work related issues such as lack of capital/ transport in the case of itinerant waste buyers, proliferation of itinerant waste buyers and junkshops, price fluctuations (stop buying), high cost of transporting goods to recyclers or consolidators and difficulty in getting high quality recyclables due to non-segregation by waste generators. Often, they face environmental health issues such as unsanitary work conditions, absence of sanitation facilities, exposure to hazardous, allergenic, and infectious components of waste and potentially shorter life expectancy. There are no specific policies or guidelines for safety and health in the recycling industry (especially in the informal recycling sector). Control for worker safety and health in the informal recycling sector is not implemented; provision or use of PPEs is not practiced. No or limited reclamation and buy-back facilities and services	As with collection and segregation of plastics, practical experience in developing and operating sustainable, commercial-scale recycling facilities that can adequately manage even highly recyclable plastics is lacking in the Philippines. Pilot demonstrations of integrated solid waste and plastic waste recycling and management facilities under different social, economic, and physical conditions, with appropriate technology, recycling processes and business models would provide on-the-ground experience and learning projects for national and local governments. (Short to medium term) For practical measures and best practices, please see discussion on competition from informal sector in annex D No. 7 Mainstreaming informal sector

Factors Affecting CFR Rates	Relevant Existing Policies	Factors/Barriers to Effective Management of Plastics	Potential Policy and Regulatory Options to Unlock Actions and Investments
4. Plastics industry capacity to process all resins **5. Recycling plastics market / r-manufacturing**		**Barrier despite RA 9003** **Zero to negligible incentives** Barrier despite RA 9003 Zero to negligible incentives The recycling sector in the Philippines is fragmented, small-scale, and inefficient. This is related to several factors including, inefficient collection, and separation of recyclable products (organics and non-organics), reliance on informal waste collectors, and low technology processing systems which cannot produce recycled resins of sufficient quality or quantity to meet the requirements of the manufacturing industry. Other factors that are affecting the development of the plastics recycling industry are lack of recycled content standards in plastic products and price competition with virgin resins due to fluctuating oil prices.	As identified under item 3 immediately above, explore the feasibility of developing pilot full recycling facilities/models for locally relevant recycling and r-manufacturing. (Short to medium term) Based on these learning experiences, a practical, nationwide plastics recycling and r-manufacturing policy and program can be developed and put in place to upscale best practices and ensure sustainable plastics recycling capacity nationwide. (Medium to long term) Propose a review of recycled content standards for plastic products and packaging materials (short term), as well as tariffs on the import of virgin resins, which are designed to maintain the price competitiveness of recycled resins in a volatile oil price market. (Medium to long term)
6. Residual processing and disposal (for example, low-cost disposal alternatives)	RA 9003 RULE XIII OPERATIONS OF CONTROLLED DUMPSITES RULE XIV OPERATIONS OF SANITARY LANDFILLS NPOA–ML Prevent leakage from collected or disposed waste MBSDMP ISWM03: Improved Residual Management RA 9003 RULE IX. WASTE SEGREGATION AT SOURCE Section 1. Waste Segregation and Volume Reduction at Source	**Weak and inefficient enforcement of RA 9003** RA 9003 and related ordinances require/promote the closure of open and controlled dump sites and the provision of improved residual management. Enforcement of existing rules has been ineffective at a national scale. Lack of enforcement of existing low-cost disposal alternatives, including open dumps, controlled dumps, and sanitary landfills, is a disincentive to plastics recycling, integrated waste management, and reductions in marine litter.	New policies are needed to target and support a transition to integrated management systems that advance the diversion of recyclable, reusable, and recoverable materials from residual disposal processes. Policies could include low or no interest loans, technical assistance for planning, development, business model preparation, and financing and partnership arrangements, among others. (Short to medium term) Policies can also be employed to accelerate the use of technologies that drive a circular economy approach, including plastics recovery and recycling, as well as the recovery and recycling of other residuals. Such policies (for example, as those regarding solar energy technologies) can include duty free import of relevant technologies/equipment, accelerated capital write-offs, and grants and low-interest loans, among others. (Medium term)

Factors Affecting CFR Rates	Relevant Existing Policies	Factors/Barriers to Effective Management of Plastics	Potential Policy and Regulatory Options to Unlock Actions and Investments
	RULE X. COLLECTION, TRANSPORT, AND HANDLING OF SOLID WASTSES Section 1. Minimum standards for the collection, transport, and handling of Solid Wastes Section 2. Minimum Requirements for Establishing and Operating Transfer Stations NPOA–ML Prevent leakage from collected or disposed waste Enhance recovery and recycling coverage and markets MBSDMP ISWM01: Improve Waste Reduction and Segregation ISWM02: Improve Collection, Recycle and Recovery PDP 2017–2022 Chapter 19 Intensify the promotion of segregation-at-source Chapter 19 and 20 Promote the practice of 3Rs and proper waste management SCPFP Intermediate Outcome 2.1: Innovation and investment in green technologies and systems increased PDP 2017–2022 Chapter 19: Target 2022: 12,299 barangays with SLF Promote clustering of LGUs for common SWM facilities and services to take advantage of economies of scale Chapter 20: Enforce the compliance of LGUs to RA 9003 in relation to the establishment of material recovery facilities and treatment facilities and in relation to the closure and rehabilitation of remaining dumpsites Promote strategic clustering of sanitary landfills and SWM technologies	If these existing low-cost alternatives continue to be used, the necessity for national and local governments to move upwards in the waste management hierarchy is dampened as these cheap disposal alternatives take up only a small amount of the government budget for solid waste management.	Policies can include updated and consistent national targets for and schedules for diversion of materials to residual disposal. The current target in the Philippines Development Plan (PDP) is 80 percent diversion by 2022. RA 9003 is set at 25 percent since 2000. Policies that provide both incentives and penalties to facilitate transition to fully integrated waste management and recycling systems within a given timeline will have a positive impact on circular economy, reductions in marine litter, and enhanced plastics recycling. (Short term)

Source: World Bank.

APPENDIX D:

SUMMARY TABLES USED DURING CONSULTATIONS ON FACTORS AFFECTING VALUE YIELD OF PLASTIC RECYCLING IN RELATION TO PHILIPPINE LAWS AND POLICIES

Table D.1 below lists the factors that affect the value yield of plastics recycling. These factors were identified in the World Bank market study (World Bank 2021c). Several policy instruments have the potential to promote and facilitate improved value yield for recycled plastics. For example, product standards can potentially be used to create consistent standards for plastic use, which can both encourage the use of recyclable materials and ease the entrance of different products into the same recycling streams.

Table D1.

NATIONAL POLICIES AND REGULATORY ENVIRONMENT AFFECTING THE VALUE YIELD OF PLASTIC RECYCLING

Analysis of relevant national laws/ policies	SWM Act (RA 9003)	Legislative bills on SUP regulation, taxation, ecolabelling and EPR	Labor Code of the Philippines	Occupational Safety & Health Standards Act (RA11058)	Omnibus Investments Code 1987	Customs Modernization and Tariff Act (CMTA)	Product standards for packaging) (RA 3720)	Philippine Development Plan (2017-2022)	Philippine Action Plan for Sustainable Consumption & Production	National budget call FY 2022	National Plan of Action on Marine Litter
Factors Affecting Value Yield											
1. Implementation of waste management system	↻	↻	↻	↻	↻			↻		↻	↻
2. 'Design for recycling' standards		↻			↻		↻		↻		
3. Prices of virgin resin/oil prices						↻	↻				
4. r-Plastic content requirement in manufactured products		↻			↻		↻	↻	↻		
5. Flexible packaging of low value waste		↻			↻		↻		↻		
6. Capacity to handle food quality recycled products					↻		↻				↻
7. Informal sector collection economy	↻		↻	↻						↻	↻
8. Logistics and operating systems	↻	↻			↻	↻		↻		↻	↻

Source: World Bank.

Table D2.
FACTORS, POLICIES, BARRIERS, AND OPTIONS RELATING TO VALUE YIELD OF PLASTIC RECYCLING

Factors Affecting Value Yield of Plastic Recycling	Relevant Policies	Factors/Barriers to Effective implementation of Plastics Policies	Potential Policy and Regulatory Options to Unlock Actions and Investments
1. Implementation of waste management system	RA 9003 RULE 45 RULE IX. WASTE SEGREGATION AT SOURCE Section 1. Waste Segregation and Volume Reduction at Source RULE X. COLLECTION, TRANSPORT AND HANDLING OF SOLID WASTES Section 1. Minimum standards for the collection, transport, and handling of Solid Wastes Section 2. Minimum Requirements for Establishing and Operating Transfer Stations • NPOA–ML • Mainstream circular economy and sustainable consumption and production initiatives • Enhance recovery and recycling coverage and markets • Prevent leakage from collected or disposed waste • Develop and implement strategic and targeted social marketing and communications campaigns using various media • Enable sufficient and cost-effective financing • Strengthen LGU capacities and local-level implementation MBSDMP ISWM01: Improve Waste Reduction and Segregation ISWM02: Improve Collection, Recycle and Recovery ISWM03: Improved Residual Management PDP 2017–2022 Chapter 19 Intensify the promotion of segregation-at-source Chapter 20 Promote the practice of 3Rs and proper waste management	**Fragmented implementation of separation and diversion** facilities and processes reduces the efficiency and effectiveness of the system and leads to loss of materials and value at the same time. SWM contracts which practically consists of collection and transport of wastes are co-terminus with the three-year term of the local government administration. This limits the incentive to invest in actual improvements in waste management collection, transport, infrastructure, and processing of wastes and recyclables.	Household awareness and behavior is the starting point for change. Separating wet waste (for example, kitchen waste) from dry waste (for example, packaging) would be a simple yet effective step forward. Hazardous household wastes (for example, dry cell batteries) would be a beneficial third category of waste segregation in the household. The issuance of SWM contracts merits a closer examination to examine how provision of public goods and services such as SWM can attract long-term investments via private-public partnerships or other cost-efficient options.

Factors Affecting Value Yield of Plastic Recycling	Relevant Policies	Factors/Barriers to Effective implementation of Plastics Policies	Potential Policy and Regulatory Options to Unlock Actions and Investments
2. Design for Recycling Standards	RA 9003 RULE XII. IMPLEMENTING A RECYCLING PROGRAM Section 3: Specifications, Product Description and Standards Section 4: Eco-labeling Philippine National Standards (PNS) on Sustainable Production and Consumption National Ecolabelling Program with a voluntary Green Choice seal	Currently, there is a lack of mandatory standards, regulation, and enforcement of design for recycling. There is a general lack of awareness on what is recyclable and nonrecyclable plastics. There are voluntary ecolabels availed by some products, including plastic products, but given that they are business to business programs, the public is not aware of these "green" initiatives and programs	Recycling can be made more effective and at the same time attractive as an investment option if the government develops and adopts mandatory design for recycling standards and improve product labeling, and recycled plastic content requirements. (Medium to long term). A range of policy options to incentive recycling industry can be reviewed and considered: • Voluntarily by industry with or without a transition timeframe; • Defined time frame and structure set by the government: • Include subsidy with or without a penalty structure; • Exclude subsidy with or without a penalty structure; and • Penalties not bound to a fixed amount but based on multiple factors to the externality damage cost Eco-labelling standards are being considered in current legislative bills, but this will take time to develop in collaboration with industry and time to implement. (Medium to long term).
3. Virgin oil/resin prices	See discussion on CFR rate There are no policies directly relevant to these factor		
4. Recycled plastic content requirement in manufactured products			

Factors Affecting Value Yield of Plastic Recycling	Relevant Policies	Factors/Barriers to Effective implementation of Plastics Policies	Potential Policy and Regulatory Options to Unlock Actions and Investments
5. Value of flexible packaging		Currently, the packaging mix in the Philippines has a high share of low-value flexible packaging (61 percent of units consumed are multilayer flexibles (including sachets). As a result, the average material value of the collected waste is often not large enough to support the collection and transportation costs, especially in remote areas that do not have publicly funded waste collection. This leads to poor recovery rate for recyclable materials (GAIA 2019; Ocean Conservancy 2017). The high presence of low value flexible packaging can be attributed to the current business mindset of innovation and cost optimization. While dematerialization results in a significant reduction of plastic used, the positive effect is countered by the resulting poor recovery and recyclability rates of the collected waste, further exacerbated by the continuous growth of the plastics industry in the ASEAN region (Mordor Intelligence 2020).	
6. Capacity needs for food quality recycled products	RA 3720 Product standards for packaging	Contamination due to poor design for recycling, lack of high capacity and advanced technologies (such as those producing food-grade recycled resins) to produce high quality outputs. Recyclers in the Philippines are typically SMEs and are rarely equipped with advanced recycling technologies or the ability to make CAPEX investments to install such technologies. Use of contaminated feedstock sourced from mixed waste, due to lack of source segregation.	FDA certification can provide a "band-aid" solution but will not be sufficient to tackle the deeper issue of the lack of incentives and policies to improve the recycling market in the Philippines. Before any specific policy on product standards or adoption of mandatory recycling content is drafted, a dialogue is needed between government and industry. This dialogue should address how to develop the industry, based on the recent World Bank market study (World Bank 2021c) indicating that the Philippines is losing up to $890 million a year due to plastics recycling "failure".

Factors Affecting Value Yield of Plastic Recycling	Relevant Policies	Factors/Barriers to Effective implementation of Plastics Policies	Potential Policy and Regulatory Options to Unlock Actions and Investments
		Environmental, Health and Safety requirements that require costly technology, documentation, and procedures related to standards compliance. For example, in the Philippines, there is currently no production of food-grade rPET for local consumption of exports (Indorama Ventures plant is expected to begin operations in 2022). This lack of local demand for food-grade recycled products means that local the CFR rate remains low, and recyclers are unable to capitalize on the higher margins and are also more exposed to global price volatility, thus reducing value yield.	Only 22 percent of the total material value of plastics ($246 million per year) is currently unlocked. The full recycling value of plastics in the Philippines could reach $1.1 billion, if four of the country's key plastics resins had 100 percent collected-for-recycling (CFR) rates and were sold for maximum value in the market.
7. Mainstreaming informal sector	Magna Carta for the Poor Sectoral consultations to develop an action plan for the workers in the informal sector ongoing Labor Code has no direct provisions to informal workers	Absence of policy to integrate the informal sec into the formal waste work stream Serious environmental health issues, occupational hazards and lack of job insecurity faced by the informal sector, which has been exacerbated during the COVID-19 pandemic. Lack of financing, appropriate technology, and necessary skills reduces the value of services and products of the informal sector. Inappropriate collection and sorting practices result in increased leakage. Need for capacity building on plastics circularity using practical examples to explain concepts like 'circular economy' Need to investigate the issues of fair access and distribution particularly the "group controlling the garbage"	Accreditation of informal sector as waste management service providers. (Short term) Organization of the informal sector into associations or cooperatives and provided with representation on SWM committees or local SWM boards. Many informal waste pickers are registered and organized at the LGU/barangay level and sit in local SWM boards. (Short term) Development of formal agreements for employment and the provision of collection services, MRF management, street cleaning and support services. (Medium to long term) There is a need to incorporate practical social inclusion in the policies and plans like NPOA-ML, P4P SCP, and so forth. (Medium term based on pilot demonstrations)

Factors Affecting Value Yield of Plastic Recycling	Relevant Policies	Factors/Barriers to Effective implementation of Plastics Policies	Potential Policy and Regulatory Options to Unlock Actions and Investments
		Need for support for technologies in addressing plastic wastes—for example, some brickmaking with plastics as part of the materials in making bricks and marketing their products out of recycled materials (downcycling) Ideally, there is a need to provide technical, financial, and social assistance in the form of loans, training, housing, medical coverage, day care and education for children, and opportunity for capital share in SWM/recycling system. At present, the practice of providing assistance is "ad hoc" and on a "needs basis"	Good practices of integrating informal waste pickers I in local SWM board, including them in capacity building seminars, providing technical training and livelihood programs through downcycling need to be documented, shared, and disseminated to LGUs to make them the norm, rather than the exception. (Short term)
8. Logistics and operating efficiencies	RA 9003 RULE X. COLLECTION, TRANSPORT, AND HANDLING OF SOLID WASTES Section 1: Minimum Standards for the Collection, Transport and Handling of Solid Wastes Section 2: Minimum Requirements for Establishing and Operating Transfer Stations	Covered under CFR rate	Covered under CFR rate

Source: World Bank.

ANNEX E:

FACTORS FOR CONSIDERATION IN LEGISLATING SINGLE-USE PLASTIC MANAGEMENT

The Philippines ranked third among the top 20 countries with mismanaged plastic waste, generating an estimated 1.88 million metric tons of mismanaged plastics per year that has the potential to reach the oceans as marine debris (Jambeck et al. 2015). The marine debris primarily comprises of single-use plastics that are oftentimes immediately discarded and is cited as one of the main contributors to marine plastic pollution. Due to their ubiquitous nature and negative impacts to the coastal and marine environment and human health, livelihoods, and the economy, single-use plastic products (SUPPs) are increasingly regulated by governments around the world in the form of bans and levies.

Bills have been filed at the Senate and House of Representatives of the 18th Congress to curb single-use plastic wastes. Amid the growing concern of the impacts of single-use plastics to the environment and human health, its contribution to climate change and greenhouse gas emissions is also widely recognized. The Department of Finance and Climate Change Commission are championing the passage of the single-use plastic bill and the bill on the imposition of levies in a bid to realize the Philippines' commitment to reduce its carbon footprint and alleviate the impacts of climate change.

A desk review of available local and international literature on SUPP regulations was conducted to determine the alignment of the proposed steps in reducing problematic SUPP pathways to the forthcoming policies and legislations on SUPPs in the Philippines. This desk review included the provisions of three SUPP-related house bills (HBN 9147 on SUP Products Regulation, HBN 33 on Plastic Labelling, and HBN 9171 on Plastic Bags Tax) and the position papers submitted by the various national agencies, the industry and business sector, and other stakeholders to the House Committee on Ecology and House Committee on Ways and Means on HBN 9147 and 9171.

HBN 9147 entitled, AN ACT REGULATING THE PRODUCTION, IMPORTATION, SALE, DISTRIBUTION, PROVISION, USE, RECOVERY, COLLECTION, RECYCLING, AND DISPOSAL OF SINGLE-USE PLASTIC PRODUCTS, was approved on March 25, 2021, by the House Committee on Ecology and Ways and Means in substitution of 37 House Bills and 4 House Resolutions with the same subject matter and was submitted to the Committee on Rules on the same date.

HBN 9171 entitled, AN ACT IMPOSING EXCISE TAX ON PLASTIC BAGS, THEREBY ADDING A NEW SECTION, DESIGNATED AS SECTION 150-C, IN THE NATIONAL INTERNAL REVENUE CODE OF 1997, AS AMENDED, was approved on April 5, 2021, by the House Committee on Ways and Means in substitution of House Bill 178 and was submitted to the Committee on Rules on May 17, 2021.

HBN 33 entitled, AN ACT MANDATING THE LABELLING OF PLASTIC PRODUCTS ACCORDING TO THE TYPE OF PLASTIC RESIN USED IN SUCH PRODUCTS, PROVIDING PENALTIES FOR VIOLATIONS THEREOF AND FOR OTHER PURPOSES, is pending with the Committee on Ecology since July 23, 2019.

HBN 9147 and 9171 are currently under consideration for Second Reading where amendments may still be made prior to submission for Third Reading. After the Third Reading, the approved Bill is transmitted to the Senate where it will undergo the same legislative process.

The desk review was able to initially confirm that the 3 house bills have considered several key actions that were taken by other countries in implementing SUPP regulations to reduce the problematic SUPPs as well as the recommended actions in developing SUPP regulations from internationally commissioned studies and reviews, particularly those from UNEP. These included the following:

- Looking at specific categories of unnecessary or problematic plastics for phasing out like plastic straws, stirrers, and cutleries where there are readily available alternatives;
- Looking at a broader range of SUPP, including plastic packaging and plastic bags of certain thickness for phase out within a prescribed period; and
- Considering a combination of regulatory approaches to limit or manage the use of SUPP, such as bans and restrictions, use of economic instruments, application of standards, certification, and labeling, including options for postconsumer use such as recycling and reuse and soft measures, such as improving capacity and public awareness.

Key factors that may be further considered in the process of refining the provisions of the bills or during the preparation of the Implementing Rules and Regulations once the bills are enacted into law. These factors were primarily drawn from the recommendations of the various agencies' position papers and practical experiences and lessons learned from other countries in implementing SUPP regulations.

1. **Conduct baseline assessment** to obtain a better understanding which SUPP are the most prevalent and problematic in the Philippines and to also identify the sources and extent and impacts of mismanagement. In the absence of a national legislation on SUPP, a significant number of local governments in the Philippines has passed ordinances regulating the use and imposing levies on SUPP. A 2021 online article of the Philippine News Agency cited that there are currently 489 cities, municipalities and provinces in the country that have issued SUPP-related ordinances in the past 10 years (https://www.pna.gov.ph/articles/1133624). Despite these efforts, there seemed to be very limited information that shows the effectiveness of the bans on reducing plastics and litter, or even diversion from landfills in the country.

   The National Tax Research Center of DOF has published a report in 2019 summarizing the regulations on SUPP bans and levy on plastic bags in the Philippines and in other countries (https://ntrc.gov.ph/images/journal/2019/j20190910b1.pdf). The report included a summary of plastic bag ordinances from 19 LGUs in the Philippines but no details were provided on the progress of implementation. San Fernando City in Pampanga is oftentimes cited as a model city for Zero Waste where 85 percent compliance on the total ban on plastic bags was recorded among its residents as of June 2019 through the gradual phase out of plastic bags since the ordinance was passed in 2014 (https://manilastandard.net/lgu/luzon/308094/san-fernando-hailed-for-work-on-zero-waste.html). For the majority of LGUs in the country, however, there seemed to be no clear documentation and reporting of progress and updated waste data possibly due to the difficulty and complexity of data generation and assessment. Another possible constraint is the scope of the LGU ordinances vary and covered different kinds of SUPP, including the exemptions, which makes integration of the various reports, if available, a challenge.

   This concern is corroborated by UNEP (https://www.reloopplatform.org/wp-content/uploads/2018/06/UNEP-report-on-single-use-plastic.pdf) where a review of over 140 regulations on bans and imposing levies on SUPs in more than 60 countries showed that in more than 50 percent of the cases, there is insufficient information to draw robust conclusions on the environmental impacts, which is partially attributed to lack of monitoring and reporting systems.

   Despite the limited information on the effectiveness of the local ordinances, the baseline assessment can focus on gathering and consolidating available information from completed and ongoing studies and hotspot assessments to help determine the most problematic SUP products, the likely environmental and economic impacts of the ban, the existence of adequate infrastructure and enforcement capabilities and the availability of sustainable alternatives.

   Available information on the environmental and economic impacts of SUP ban in San Diego, California, showed that implementation of an ordinance on plastic bag ban has the potential to eliminate close to 350 million bagsper year that can be translated to reductions in GHG emission, energy consumption and solid waste generated during the life cycle of a plastic bag. On the other hand, use of paper bags and reusable alternatives is projected to significantly increase water usage. While determining the economic impacts is challenging due several variables affecting consumer behavior, the study

indicated that retailers may be affected over the short term due to increase in baggage costs resulting from increased paper bag usage, this is, however, projected to decrease over time as consumers begin transitioning to using reusable bags. For the plastics industry, which is anticipated to be negatively impacted, limited data rendered it difficult to estimate the impact. (https://energycenter.org/sites/default/files/Plastic-Bag-Ban-Web-Version-10-22-13-CK.pdf). In Wales, UK, the preliminary results of desk-based research to determine the potential economic, social, and environmental impacts of an SUP ban or a restriction in sales in line with the EU Directive on SUPs including nine categories of SUPPs[2] also highlighted data limitations, which must be taken into consideration when interpreting the results (https://gov.wales/impacts-ban-or-restrictions-sale-items-eus-single-use-plastics-directive).

Relevant information is provided in the results of policy research on ban of SUP bags conducted in Lawrence City, Kansas, in 2019. That research included a forecast analysis, a predicted outcome and sensitivity analysis that allowed the identification of a fee-based policy to be implemented as the most viable method of reducing the use of plastic bags. The ordinance that resulted from the policy research recommended to impose a $0.16 per bag fee upon checkout and will apply to both single-use plastic and paper bags (https://lawrenceks.org/wp-content/uploads/2016/09/Lawrence-SAB-Single-Use-Plastics-Policy-Research-and-Recommendations-2019-06-12-1.pdf

The baseline assessment is necessary in light of the above concerns and more importantly to provide the basis for target setting to support monitoring, evaluation, and reporting. The baseline assessment is also in line with Strategic Actions 1.1–1.4 of the National Plan of Action on Marine Litter and thus would contribute to the establishment of a monitoring, evaluation, reporting, and information dissemination system for the NPOA–ML. One of the strategic targets is to standardize the methodology and appropriate data collection system for marine litter information in the country—this would hopefully address the gaps in data sources, comparability, transparency, and ease of data gathering for marine litter and SUPs.

Locally, through the study done by the Global Alliance for Incinerator Alternatives, information is available on the perception of consumers regarding SUPs and their willingness to accept regulatory interventions. Recommended policies included the following:

- Advocating for a national law prohibiting the production, sale, distribution, and use of SUPs;
- Phaseout of sachets to be replaced by alternative delivery systems; and
- Ensuring that corporations take responsibility for their products even after they are sold, used, and disposed of.
- The above recommendations are covered in the HBN 9147. The report also covered several initiatives from the private sector and social enterprises.

Another important aspect of baselining is it will facilitate the monitoring of results over time which is essential in measuring the effectiveness of policy and management interventions in SUP management.

2. **Science-based or evidence-based studies in the identification of the most problematic SUPs for phaseout.** This factor was highlighted by a number of national agencies including NEDA, DOST, and the business/industry sector (for example, Philippine Alliance for Recycling and Materials Sustainability, Philippine Chamber of Commerce and Industry, European Chamber of Commerce for the Philippines, Association of Petrochemical Manufacturers of the Philippines, Business for Sustainable Development, First in Colours Incorporated, and Coca Cola Philippines), as well as studies conducted in other countries.

   Some relatively recent examples of research on SUPP in the Philippines included the University of Santo Tomas Research Center for Social Sciences and Education study of Filipinos' sachet-consumption habits. GAIA built upon that research in preparing its 2020 review document on moving towards a sachet-free economy in 2020. The review identified the top SUPPs and low-value SUPPs that can be

2 Cotton bud sticks; cutlery (forks, knives, spoons, chopsticks); plates; straws; beverage stirrers; sticks to be attached to and to support balloons; food containers made of expanded polystyrene; beverage containers made of expanded polystyrene, including their caps and lids; cups for beverages made of expanded polystyrene, including their covers and lids.

phased out, which include plastic sando bags, polystyrene food containers, plastic labo bags, plastic straws and stirrers, sachets, plastic drinking cups, cutlery such as plastic spoons and forks, packs for juice and other beverage packaging like milk cartons, plastic bottles for juice, and plastic bottles for water.

A World Bank–supported plastic field survey being conducted by the University of the Philippines looks at the different plastic waste types leaking into the Pasig River and Manila Bay. That survey, estimating the quantities and key locations of plastic waste leakage into waterways, is another example of research on SUPs and SUPPs in the Philippines. As of December 2020, the study identified the top 10 most common waste types by count, which included polystyrene pieces, sando bags, plastic labo bags, snack wrappers, non-plastic wastes, drink wrappers, PET bottles, candy wrappers, PCP plastics, and noodle wrappers. In the context of monitoring and enforcement, standards and metrics would be useful to be specified, along with guidelines on the process for identifying SUPs for phaseout. The NPOA–ML identified developing standards and pilot testing of innovative technologies and approaches to support the development and implementation of a plan for a phase-wise shift to circularity including standards for products and procurement. Details on these standards and metrics will be threshed out when the discussions on the implementation of the NPOA–ML will be undertaken.

Moreover, Resolution 1363 (s. 2020) of the National Solid Waste Management Commission directing the DENR to prepare an implement the banning of the use of unnecessary SUPs by NGAs, LGUs, offices all other government-controlled offices listed 7 SUPs[3] that considered unnecessary as part of the solid waste avoidance and minimization strategy of the government. The NSWMC has also approved the inclusion of plastic soft drink straw and plastic coffee stirrer in the list of non-environmentally acceptable products (NEAP) as part of the implementation of RA 9003. Once the resolution is approved, the use of these SUPs will be prohibited.

3. **Research and development and technology transfer of affordable, accessible, and sustainable alternative materials/products.** DOST has been particularly identified to lead this process. The Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD) of DOST included in its call for proposals for 2021–2022 innovative solutions to plastic waste management. Under Strategic Priority 2, PCIEERD is supporting interdisciplinary research that aims to accomplish the following:
   - Facilitate baseline data gathering for sources and areas of plastic pollution;
   - Assess the impact on emission of pollution from plastic wastes;
   - Facilitate new product development from plastic wastes;
   - Promote the development of appropriate technologies for the detection, measurement, and treatment of microplastics; and
   - Establish a facility for biodegradability testing of plastics (https://pcieerd.dost.gov.ph/images/callforproposal/2020/cfp2020/PCIEERD-Call-for-Proposal-2020.pdf).

   DOST's Industrial Technology and Development Institute (ITDI) has funded projects on green packaging particularly the development of alternative packaging and alternative materials using indigenous materials such as wild grass, coconut coir and pineapple fibers. ITDI has also developed cutleries made of biodegradable polymer (for example, corn and cassava starch combined with nano clay) that have been tested for biodegradability (soil test) and toxicity. While the transfer of technology has been promoted by ITDI, the application of the technology has not yet reached commercial scale since the source of nano clay from indigenous materials is still being explored. Also, ITDI only covers the technical feasibility of options for alternative packaging while prospects for investments are coordinated with the Bureau of Investments. Moreover, the production costs of biodegradable packaging are 100 percent more expensive compared to existing packaging materials.

3 Plastic cups (less than 0.2 mm in thickness), plastic drinking straws, plastic coffee stirrers, plastic spoons, plastic forks, plastic knives, and plastic labo and thin-filmed sando bags (less than 15 microns).

In their position paper submitted to the House Committee on Ecology, the European Chamber of Commerce for the Philippines suggested that the alternatives must meet (a) the desired level of quality, (b) minimum specifications, (c) circumstances for their use, (d) supply of materials, (e) policy considerations, and (f) competitive cost.

4. **Conduct life-cycle analysis (LCA) for SUPP and their alternatives.** As widely known, LCA aims to provide information through an objective, science-based approach that assesses the environmental impact across the entire life cycle of the product or service, covering resource extraction and material processing to manufacture, transport and distribution, use, reuse, and recycling, and eventual disposal. LCA is also a useful tool to identify and help address the potential trade-offs and burden-shifting that can arise when developing and implementing policy on specific products.

   A UNEP report published in 2018 indicated that one of the reasons why plastic bag regulations are not yet effective in addressing plastic pollution is that few countries regulate the entire life cycle of plastic bags (https://wedocs.unep.org/handle/20.500.11822/34570). HBN 9147 purposely covers the life cycle of SUPPs (for example, from production, importation, sale, distribution, provision, use, recovery, collection, recycling, and disposal).

   A 2021 report also by UNEP provided recommendations for possible government actions to address SUPP pollution using a life cycle approach. The study assessed the full life cycle environmental impacts of shopping bags, beverage bottles and cups, takeaway packaging, tableware, nappies, and feminine products and facemasks compared to their alternatives. The report emphasized that products intended for single use are the problem, regardless of their material and thus multiple uses of reusable products need to be promoted. The report also highlighted that policies should be designed based on geographical and social context; promote resource efficient product design and circularity; decrease the environmental footprint of production, among others, where to some extent has been captured in the SUPP bill (https://www.lifecycleinitiative.org/new-publication-addressing-single-use-plastic-products-pollution-using-a-life-cycle-approach/).

   For specific SUPPs like single-use plastic bags (SUPB), policies can further consider the environmental impacts as concluded from the study. The impacts considered should include country-specific data, particularly on the waste management system, the SUPB's material type and weight; the number of times the SUPB is used; and the technology, materials, and energy used in production, because these factors vary between countries and have an important impact on the LCA results.

5. **Monitoring, evaluation, and reporting of progress in the implementation of policy interventions and management programs over time.** This factor appeared to be one of the major gaps in the current SWM or plastic waste reduction practices of the national and local governments in the Philippines. As previously mentioned, this concern is also true in more than 60 countries covered in UNEP's 2018 assessment and thus is not unique to the Philippines.

   There seemed to be no systematic and coordinated process of documenting and consolidating the data on SWM or plastics at both local and national levels. HBN 9147 requires DENR and DTI to conduct regular monitoring and routine inspections of the point-of-sale stores and the facilities of plastic manufacturers and importers to determine compliance with the SUP Act. The NGA's position papers revolved on the process by which this provision will be implemented, which includes the following:

   - Entry or access to the premises of operation and business, including storage rooms and stockrooms;
   - Inspection of off-site storage facilities, distribution centers, and trans-shipment points; and
   - Inspection of the recovery, recycling, treatment, and disposal facilities, to determine if residual plastic products are being properly diverted and disposed of.

   In 2019, GESAMP published a comprehensive guideline for monitoring and assessment of plastic litter and microplastics in the ocean. While the guidelines cover plastic litter or marine litter in general and is not directly targeting SUPs, it provides practical guidance for governments and organizations

responsible for managing land-based sources of pollution in designing monitoring programs to assess the distribution and abundance of plastic litter based on internationally agreed methodologies and protocols, which include indicators and targets, data requirements and survey design, dealing with uncertainties and reporting (http://www.gesamp.org/publications/guidelines-for-the-monitoring-and-assessment-of-plastic-litter-in-the-ocean). The guidelines can help inform the process of developing an M&E and reporting and verification mechanism for the NPOA–ML (Strategic Actions 1.1–1.4).

With the establishment of the M&E and reporting mechanism with measurable and timebound targets based on the priorities identified in the baseline assessment, the M&E and reporting allows the refinement of strategic actions and adjustments particularly if targets cannot be achieved within a specified timeframe.

6. **Phaseout period and effective dates of SUPP ban.** Experiences can be learned from other countries and tailor fit the applicable measures to the Philippine situation. Bans on SUPP are usually preceded by a grace period before compliance is required and when enforcement begins. HBN 9147 identified the following non-compostable SUPPs for phaseout within one year of the SUP Act's effective date: drinking straws; stirrers; sticks for candy, balloon, and cotton buds; buntings; confetti; and packaging or bags less than 10 microns thick. On the other hand, plates and saucers; cups, bowls, and lids; cutlery like spoons, forks, knives, and chopsticks; food and beverage containers made of expanded polystyrene; oxo-degradable plastics; film wrap, packaging, or bags less than 50 microns thick; and sachets and pouches that are multilayered with other materials are identified for phaseout within a period of four years of the SUP Act's effective date. Production, importation, sale, distribution, provision, or use of such plastic products will be prohibited after the indicated grace period. Phaseout of other SUPs like plastic bottles, packaging, or products that are multilayered with other materials, multilayered tetra packs, election or advertising paraphernalia, streamers, and other non-compostable SUPs are identified for phaseout two years after the effectivity of the SUP Act and every two years thereafter if confirmed to be high in replaceability, low in recyclability, or low in retrievability.

   A phase-in approach has been recommended by several national agencies including DTI, NEDA, and DOST, as well as by the business sector. This recommendation has been captured in the current bills, but consideration is being sought on the suggested period for the phaseout.

   DTI proposed that industries should be given ample time to comply (no specific time frame was cited) in consideration of the adjustments that local manufacturers must undertake to include labeling in their production process as well as for importers to be able to source from compliant suppliers.

   NEDA supported DTI's position that the phasing out of SUPs must have a clear timeline (not specific time frame was also cited) considering determination and availability of alternative products or materials, and the ability of the manufacturers or retailers to establish the necessary technologies or mechanisms.

   The business and industry sector includes, among other businesses, the Philippine Plastics Industry Association Inc., Philippine Alliance for Recycling and Materials Sustainability, Business for Sustainable Development, Association of Flexible Packaging Manufacturers of the Philippines, and Nestle. They recommended amendments to the list by delisting selected SUPs to be subjected to reduction or recovery programs or be part of the Extended Producer's Responsibility. Request for consideration on the phaseout period was also made (for example, two or five years after the effectivity of the Act instead of 6 months) to allow the local manufacturers and consumers to adjust to the transition.

   HB 9147 abides by the other country's regulations on the thickness of SUP bags that are allowed or banned. There are considerable variations in the thickness threshold requirements of the various countries, which range from 15 to 100 microns. Several countries ban or impose a levy on plastic bags with a thickness of 30 or 50 microns or less which are classified as lightweight or thin plastic bags.

   In Moldova, a progressive phase out of plastic bags was adopted where SUPBs with thickness of 50 microns, followed by lightweight plastics and very lightweight plastics are to be phased out sequentially over a period of 3 years. In Chile, the plastic bag ban included a period of transition where the ban

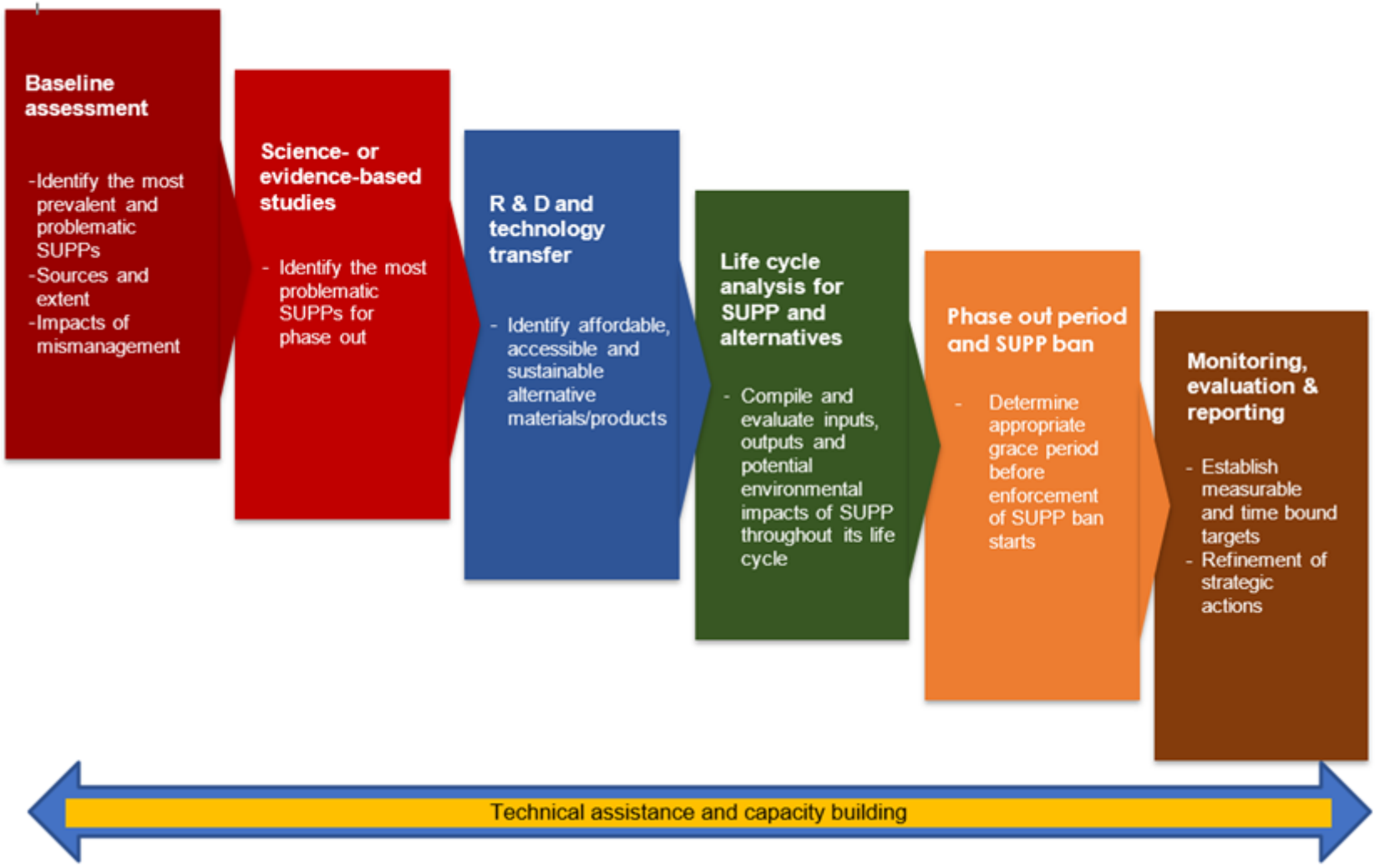
came into force for major retailers one year after its enactment and two years after enactment for smaller businesses. In Pakistan, the ban is initially limited to one or more geographical areas, typically the capital city or major urban areas, and gradually expanded to cover other areas. Cambodia does not impose a ban but requires a permit from the Ministry of Environment for the manufacture or import of plastic bags with thickness of 30 microns, with exemption given for the noncommercial importation of less than 100 kilograms. Phased implementation and grace periods give businesses and consumers time to adjust. Technical assistance can be provided to businesses and information and awareness campaigns for consumers during the transition period such as providing mini-grants to vendors of prepared food to assist them during the transition period (https://www.unep.org/resources/report/legal-limits-single-use-plastics-and-microplastics).

7. **Technical assistance and capacity building needs of local governments** to strengthen their capacities in the local implementation of SWM programs, in general and plastic waste reduction measures. This factor is also highlighted in the NPOA–ML in view of the devolution of important governmental functions and services to local governments.

   The government is currently in the process of conducting consultations and briefings among relevant NGAs and LGUs for the implementation of the Supreme Court Decision in the Mandanas-Garcia case where the Internal Revenue Allotment of local governments is expected to increase by 27.61 percent starting in 2022. The expected increase in resources for LGUs will require the devolution of selected NGA services to LGUs to mitigate the fiscal impact of the ruling and will require greater demand for capacity and supervision of LGUs. This development is important since limited budget is cited as one of the major gaps in RA 9003 implementation and in consideration of the capacity building needs of LGUs.

   It is anticipated that the roadmap that will be developed for localizing the NPOA-ML can clearly delineate the capacity building support on proper waste management/diversion and marine litter management to be provided to LGUs to allow them to fully execute their mandates in the implementation of the NPOA–ML until 2040 as well as the forthcoming legislations on SUPP. HBN 9147 requires LGUs to be responsible for the implementation and/or monitoring of compliance with wastes segregation, collection, recovery, transport, recycling, and disposal of plastic products. The LGUs may enjoin the participation of other concerned government agencies, private entities, and industries for this purpose. The DENR, in coordination with the NSWMC and the DOST, provide the LGUs with technical assistance, trainings, and continuing capacity-building programs to attain the Act's objectives.Figure E.1 shows the linkages among the various factors for reducing problematic SUPPs.

Figure E1.
LINKAGES AMONG THE VARIOUS FACTORS FOR REDUCING PROBLEMATIC SUPPS



Source: World Bank.

REDUCE PROBLEMATIC SINGLE-USE PLASTICS

The table below presents (a) approaches to be taken; (b) relevant legislation; (c) legal requirements and policies; (d) identified shortcomings; (e) short-term options to address the gaps, including recommendations from NGAs and business and industry; and (f) responsible agencies.

Table E1.
REDUCING PROBLEMATIC SINGLE-USE PLASTICS

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
Reduce problematic SUPs	**House Bill 9147: SUP Products Regulation Act4** Regulating the production, Importation, Sale, Distribution, Provision, Use, Recovery, Collection, Recycling, and Disposal of Single-use Plastic Products Substitute Bill for 37 House Bills and 4 House Resolutions	Section 3: Phaseout of SUP products • Within four years, phase out tableware, film wrap, packaging, or bags less than 50 microns thick, sachets and pouches, oxo-degradable plastics, and stropper food and beverage containers. • Within one year, phase out the use of single-use plastic drinking straws (except for medical use), stirrers, candy sticks, balloon sticks, cotton bud sticks, buntings, confetti, and packaging/ bags less than 10 microns thick.	• Since RA 9003 was passed, 316 LGUs have issued local ordinances banning or regulating plastic bags use (EMB-DENR 2018; see DENR (2018)). • In 2020, NSWMC issued a resolution that directed DENR to implement the banning of "unnecessary" SUPs in all government offices. • Despite the bans, there is no or very limited verified information on the effectiveness of bans on reductions in plastics and litter, or diversion from landfills in the Philippines. • No knowledge regarding percentage of plastics production and consumption affected by the phaseout and the 50-micron and 10-micron specifications. • Lack of extensive data on the production, consumption, and disposal of plastics and plastic packaging. • No accurate and updated waste data covering all cities and municipalities due to the difficulty and complexity of data generation and assessment.	• Build on the existing baseline and hotspot assessments to help determine the most problematic SUP products, the likely environmental and economic impacts of the ban, the existence of adequate infrastructure and enforcement capabilities and the availability of affordable, accessible, and sustainable alternatives. • DTI recommended a phased-in approach, initially limiting to some types of SUP products; encourage supply and demand side solutions through consumers' use and businesses' production of alternatives to single-use plastic products; private sector's replication of NSWMC resolution 1363; organizing dialogues with the business sector; lend support to NGOs initiatives on plastic waste management. • BSD recommended using evidence-based criteria (that is, impact on customers, secondary utility, and benefit to LCA cost) in identifying the SUP products for phaseout.	• DENR • NSWMC • DILG • DOS • DTI

4 An Act Regulating the Production, Importation, Sale, Provision, Use, Recovery, Collection, Recycling and Disposal of UNNECESSARY SUP products or UNNECESSARY SUP Products Regulation Act (recommended by the DOST-NAST, PBEST, PARMS, PCEPSDI, and WWF).

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
			• As of 2021, 14 of 17 Metro Manila LGUs have an approved local ordinance banning the use of single-use plastics in dry and wet markets, hotels, restaurants, commercial, and business establishments. • Assessment of the Implementation of the Plastic Bag Reduction Ordinance in Quezon City (2012–2016) showed a decline in the volume of plastic collected from households, as shown in the WACS of 2003 and 2013, which may partially reflect the effectiveness of the ordinance in addressing plastic pollution. • In Batangas City, an assessment of the effectiveness of anti-plastic ordinance in 2016 showed that cooperation among the community members is a major problem and profile variables including age, civil status and respondent's category affected the effective implementation of the ordinance.	• The use of plastic products or packaging not included in the list immediately above shall be subject to the NSWMC's approved plan to implement producers' responsibility. • DOST–PCAARRD recommended that consultations be made not only with the producers and commercial establishments but also the various sectors of the community where the policy might have social equity impact. • DOST–PCAARRD recommended that an assessment of the effectivity and efficiency of phasing out the initial list of SUPs in terms of economic and environmental impacts be included and allow for the deletion of the SUP in the list covered by the bill.	
		Section 4: Phaseout of other SUP products • Every two years, identify additional SUPs for phaseout, applying the criteria of high in replaceability, low in recyclability, or low in retrievability.	Criteria are subjective and open-ended. Standards and metrics required for monitoring and enforcement need to be specified, along with guidelines on process for identifying and phaseout. No options identified; how can industry respond/react? No indication of monitoring, measurement, and assessment of impacts, costs, and benefits derived from bans, including reductions in plastics usage, litter, and diversion.		

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
		Section 5: Phaseout Plan for SUP products • Within six months and in consultation with identified agencies, DENR to formulate a phaseout plan for SUP wastes, with components on reducing consumption, increasing recovery, keeping producers accountable, developing alternatives, and raising awareness.	• Seems to be government focused; this is an opportunity for engaging industry, manufacturers, and retailers in planning and scheduling process. • Local government has a significant role in increasing recovery as well. • Did not elaborate on the timeline of implementation of the phaseout plan.	• Scientific approach is needed, including sound baseline information on SUP consumption, presence in waste stream, management/recycling potential, options, and their impacts. • Review available case studies on phase out periods and effective dates of SUP ban in other countries. • DTI indicated that government fiscal and nonfiscal support may facilitate the necessary shift to alternative products; the provisions under the Corporate Recovery and Tax Incentives for Enterprises Act may sufficiently incentivize manufacturers. • The European Chamber of Commerce in the Philippines recommended the adoption of a tailor-fit approach based on thorough scientific studies and/or constructive dialogue with the industry instead of the unitary sweeping ban of plastics especially without the presence of affordable, viable alternatives. • NEDA recommended to provide a clear timeline for phasing out SUPs considering the availability of alternative products or materials, and the ability of the manufacturers or retailers to establish necessary technologies or mechanisms.	• DENR • NSWM • DTI • DOST, • FD • DOH • DEPED • DILG

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
		Section 6: Compostable plastic • Within six months and in consultation with identified agencies, DTI to promulgate the Philippine National Standard for compostable plastic products, including exploring the recoverability, recycling, or reprocessing value of the products into other useful materials.	• Compostable plastics are not the same as biodegradable or oxo-biodegradable or bio-based conventional plastics. • Compostable plastics are an environmentally preferred alternative but have limitations (for example, sustainable source, cost of production, and material marketing). • According to Philippine National Standards (PNS 2102:2013, ICS 83.080.01), the recovery of compostable plastics through composting can be carried out under the conditions found in well-managed composting plants, where the temperature, water content, aerobic conditions, carbon/nitrogen ratio and processing conditions are optimized. Such conditions are generally obtained in an industrial composting facility. At the barangay level, the requirement of composting facility is not being properly implemented as required under RA 9003.	• Review the gaps and challenges in the implementation of the National Ecolabelling Programme – Green Choice Philippines or NELP–GCP, a voluntary, criteria-based, and third-party environmental performance label that aims to encourage clean manufacturing practices and to guide consumer product selection that DTI–BPS oversees. • FIC recommended that to minimize confusion and misuse of available technologies, it must be verified, certified and standardized building on DOST–ITDI's Environmental Technology Verification to allow innovators to pilot their products. • PARMS proposed that other biodegradable alternatives that conform to standards be allowed, as technology continues to improve in the search of innovation in the packaging globally so as not to limit the potential options.	• DTI • DENR • DOST • NSWM • LMP • Other government and private agencies and organizations

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
		Section 7: Responsibility of producers and importers • In two years, producers and importers are required to incorporate themselves and start phasing-in EPR activities to prevent plastic wastes from polluting the environment. • Within five years, every producer and importer are required to recover or off-set 100 percent of their plastic product footprint and label their packaging to facilitate the proper recovery and diversion of their plastic wastes after use. • Importers and producers are allowed to deduct expenses that are necessary for the recovery and diversion of their plastic product footprint from their taxable income.	• No boundaries are identified. • Needs further definition regarding process, EPR activities, incentives, and disincentives. • There is a need to identify ways to reduce footprint and what is eligible. • There is a need to determine baseline footprint and guidance is required on the process. • Standardization required for imported and domestic products—that is, labelling and packaging. • Proper recovery and diversion are open-ended. • National government needs to demonstrate leadership, as a major consumer of plastics; determine if similar commitment/ target for the national government to eliminate its plastics footprint within five years. • Needs further input from responsible government departments on criteria for eligibility and a timeframe for phased EPR approach.	• NEDA recommended to identify an appropriate agency to monitor compliance and evaluate the effectiveness of EPR programs to optimize the social and environmental benefits. • WWF's proposed EPR scheme for the Philippines includes (a) Mandatory EPR scheme within a clear timeframe with a voluntary compliance phase (years 1–3), (b) Cover all packaging materials from households and equivalent places of origin, (c) establish a nonprofit Producer Responsibility Organization, (d) Strict monitoring and control systems, and (e) Build high-quality recycling capacity. • PCCI reiterated their position that the phaseout or ban any SUP products and packaging must be supported by scientific, technical, life-cycle assessment of alternative products and packaging and economic analysis. • PCFMI and PARMS recommended a review of the target where the current proposal of 50 percent in three years, and 100 percent in five years stated in the substitute bill may be difficult to achieve. This is particularly the case for the majority of small and medium enterprises that may not have the same capabilities, technology, and resources compared to the MNCs to fully meet the target.	• DENR • NSWMC

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
				• Developed countries that have the infrastructure in place for recycling and treatment are currently at 55 percent to 65 percent recycling rates for packaging. • PARMS indicated that setting up a producers' responsibility scheme which aims to manage end-of-life packaging waste, should be for the long term and suggested to separate the items to be banned or phased out from items that need to undergo responsibility schemes so that the necessary infrastructure to recover, collect and recycle or treat the identified materials shall adequately and sustainably be set up. • Coca Cola PH supports the EPR by undertaking programs to redesign its packaging, close the loop on its recyclable plastic bottles, and increase investment in the recycling sector towards reduced plastic pollution. Recommended the application of an economic model that fully supports the collection and recycling industry while building the capacities of communities to handle recyclable packaging wastes. • Unilever recommended the conduct of a formal study of various collection and repro-cessing schemes led by various multistakeholder partnerships to see the most viable model for the EPR system in the Phil-ippines.	

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
				• Ecowaste recommended that the responsibility of the producer should not only be emphasized in the post-consumer stage but also on the production stage where producers are encouraged to rethink their designs and do away with disposable materials and packaging at the production level.	
		Section 8: Responsibility of commercial establishments • Commercial establishments are required to promote reusable, recyclable, and retrievable products in their stores, charge P5.00 from customers for every plastic bag or SUP used for takeout food or delivery service and facilitate customer return of used plastic products to the store.	• 60 days to comply may not be realistic. • Further guidance is required on alternatives, costs, and benefits. • How to implement? What risk does this represent to small operators/ family businesses? • DOST raised concern on the responsibility of commercial establishments after the 60-day period.	• DTI suggested to allow commercial establishments the flexibility in instituting their respective initiatives to reduce the use of plastic products that would be tailored fit to their specific enterprise and capability. • PARMS sought reconsideration on the charge system given that the P5.00 fee on every single-use plastic bag will be added on top of the P20.00 excise tax per kilogram of plastic bag recently passed by the House Ways and Means Committee and the EPR requirement. The accumulated cost is much higher than policies imposed even by developed countries with more affluent consumers, which is equivalent to around P2.00 to P2.50 per piece. • FIC recommended for a gradual implementation of the P5.00 per SUP tax for retailers. • DOST-PCAARRD recommended the conduct of valuation study that would serve as basis for charging a P5.00 fee.	• DOF

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
		Section 10: Monitoring and market inspections • DENR and DTI to conduct regular and routine inspection and monitoring of the point-of-sale stores and facilities of commercial establishments, producers, and importers.	• Enforcement of plastic bag monitoring and inspection regulation at the local level varies in terms of stringency, hence affecting the result.	• DENR and DTI will ensure that they are equipped with the updated technical skills to ascertain the compliance of manufacturers.	• DENR • DTI
		Section 14: Shift to alternatives • DOST to help local manufacturers shift to alternative materials, and DTI to ensure maximized purpose, minimized waste footprint, and increased recoverability and recyclability of imported or produced SUPs.	• Lack of information on options and their footprint. • No timeframe. • What incentive does industry have to shift to sustainable alternatives? • Is this a realistic expectation in the Philippines economy, or should these targets be first identified regionally (for example, ASEAN). • Research showed that many of the post-use and waste management challenges that exist in relation to conventional plastics are the same for biodegradable and compostable plastics.	• UNEP has a compilation of a meta-study of existing studies of life-cycle assessments of several single-use materials that can replace plastic products which was submitted as an information document to the fifth session of the United Nations Environment Assembly in February 2021. • Strengthen DOST–ITDI's R&D programs for plastic alternatives and facilitate technology transfer and adoption of available technologies by the business sector. • DOST, in coordination with the DENR and DTI, to undertake life cycle analysis and marginal cost assessment to ensure that the alternatives: (a) meet the functional requirement, (b) minimize environmental impacts, and (c) are cost-effective. • • PARMS and FIC recommended that DOST develop and implement a program that will assist local manufacturers in developing or acquiring the appropriate technology to produce highly reusable, recyclable, compostable materials, or alternative products.	• DOST • DA • DTI • DENR • NSWMC

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
		Section 15: Production and importation control • DTI in coordination with other agencies to establish the dimensions, thickness, labeling, structures, capacity, color-coding, materials, and other relevant parameters of an SUP.	• There is considerable variation in the thickness threshold requirements of various countries. Manufacturing and import restrictions include the thickness and material content of allowable plastic bags. Twelve countries ban or impose a levy on plastic bags with a thickness of 50 microns or less while ten countries ban or impose a levy on plastic bags with a thickness of 30 microns or less.	• There exist a Philippine National Standard for plastics, plastic and plastic products, specifications for compostable plastics, monobloc chairs, stools, and plastic tables, and PVC resin. • FIC recommended the addition of labels and markings that will make it easier for consumers, manufacturers, auditors, collectors, and recyclers to identify a particular product and their intended purpose, how to segregate and recycle and how to dispose of it afterwards.	• DTI • DA • DOST • DENR • NSWMC
		Section 17: Role of LGUs • LGUs are primarily responsible for the implementation and/or monitoring of compliance with wastes segregation, collection, transport, recycling, and disposal of plastics products. The LGUs may enjoin the participation of other concerned government agencies, private entities, and industries for this purpose.	• How can LGUs benefit directly (or at least share the burden) of SUP reduction and improved plastics waste management? They cannot do so individually—there needs to be a collective effort. • Can national government provide incentives/direction that will help LGUs shift from the BAU scenario of SWM and plastics recycling to a CE paradigm? • Are there existing approaches/ innovations to learn from that demonstrate CE at the local government level, inclusive of SW and plastics recycling?	• DENR and NSWMC to lead the provision of assistance and capacity building programs with DOST as supporting agency. • PLLENRO recommended to consider the mandatory creation of city or municipal environment and natural resources offices (ENROs) as the solely dedicated entity in every LGU tasked with the waste segregation, collation, recovery, transport, recycling and disposal of all waste products and other environment-related concerns.	• DENR • NSWMC • DOST

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
		Section 18: Fines and penalties • Fines for violations range from P50,000 to P500,000 for microenterprises, and P250,000 up to P1,000,000 for larger businesses.	• Who will monitor and enforce? This is a huge task given the number of enterprises involved. • Where will the monitoring be undertaken for retail, production, and manufacturing?	• DOST–PCCAARD recommended that a socialized system to adopted in determining fines and penalties for individuals and corporate violators. • Provision of incentives for recovery, collection, recycling, and disposal of plastic products and for use and patronage of eco-friendly alternatives, mechanisms, and schemes (for example, tax breaks, government subsidies, and so forth).	• DENR • DTI
	House Bill 33: Plastic Labelling Act of 2019 An Act Mandating the Labelling of Plastic Products According to the Type of Plastic Resin Used in such Products, Providing Penalties for Violations Thereof and for Other Purposes Pending with the Committee on Ecology since July 23, 2019 Section 3 (definition of terms) includes 18 types of thermoplastics including the four plastic resins covered by the World Bank market study (World Bank 2021c)	Section 3: Labelling of Plastic Products by Manufacturers • Manufacturers of plastic products are mandated to label their products using arrows that cycle clockwise to form a triangle that encloses a numeral from 1 to 7 that identifies the plastic resin used in those products. Section 4: Ban on Unlabeled Plastic Products • Prohibits the sale, distribution and importation of plastic products that are not labeled as prescribed in Section 3. Section 5: Penalties • A penalty of One million pesos will be imposed for any violation of the provisions of the Act.	• Research showed that information provided to consumers to make more sustainable choices is not always clear or actionable, leading to reported confusion. • DTI cited that while the proposed labeling is in accordance with the American Society for Testing and Materials (ASTM) International Resin Identification Coding System (RIC), this may still create confusion among consumers given that the RIC symbols do not immediately denote recyclability. The recyclability of the materials still depends on local recycling programs and their capacity to process the different types of plastic resin.	• DTI recommended to explore other labeling methods such as How2Recycle labeling program of the Sustainable Packaging Coalition, which aims to improve the reliability, completeness, and transparency of recyclability claims. • DTI also recommended that industries should be given ample time to comply. The transition period should take into consideration the adjustment in local manufacturers to include labeling in their production process as well as for importers to be able to source from compliant suppliers. • Consumer Movement and UNEP created five global recommendations for action to engage business, policy makers, standard setters in creating better plastics labelling that make sustainability the easy choice for consumers. The guidelines are applicable to all regions and companies of all sizes.	• DTI–BPS • DOST–ITDI

Approach	Relevant Policy / Legislation	Existing Legal Requirements /Policy Aspects	Identified Gaps / Shortcomings	Short-Term Options to Address Gaps / Shortcomings	Responsible Agencies
	House Bill 9171: Plastic Bags Tax Act An Act Imposing Excise Tax on Plastic Bags, Thereby Adding a New Section, Designated as Section 150-C in the National Internal Revenue Code of 1977, as Amended	Section 3: A new section designated as Section 150-C of the National Internal Revenue Code of 1997 • Under the new section, an excise tax shall be levied, assessed, and collected in the amount of PHP20 for every kilogram of plastic bag removed from the place of production or released from the custody of the Bureau of Customs. • The bill defines the plastic bag as secondary level plastics made of synthetic or semisynthetic organic polymer, commonly known as "labo" or "sando" bags, with or without handle, used as packaging for goods or products. • One hundred percent (100 percent) of the revenues from the excise tax on plastic bags shall be allocated and used exclusively for the implementation of SWMPs of LGUs which may include the acquisition of land for sanitary landfills pursuant to RA 9003.	• Evidence showed that the application of regulatory policies has not been effective or have less impact in reducing plastic consumption due poor enforcement of the law, strong public resistance, problems in solid waste management, and lack of infrastructure. Reducing plastic consumption through taxes is seen as a trigger to effect a change in behavior and to shift the burden to the polluters. • On tax type and coverage, plastic labo and sando bags vary in sizes and thickness. Since the proposed excise tax on plastic bag does not differentiate in terms of size and thickness, this could result in unequal tax treatment. • Imposition of excise tax on plastic bags will encourage the exploration and utilization of environment-friendly alternatives to plastic bags. However, environmentalists are concerned that the imposition of a tax on plastics bags may push consumers towards using an increased number of paper bags.	• DOF recommended that all collections of the excise tax should be remitted to the National Treasury as with all other taxes. • DOF to determine the appropriate level of excise taxes in accordance with its Comprehensive Tax Reform Program. • DTI recommended that in addition to the definition of single-use plastic bags, specification of standards and characteristics of plastic bags (for example, thickness, material, and so forth) should be provided. This is to ensure that the excise taxes would be applied only on the intended single-use plastic items. • Research showed that a suite of taxes may be needed. It is not likely that an SUP bag tax could by itself trigger the responses needed from producers and consumers, nor encourage both reductions in overall plastic and greater recycling. • The NTRC recommended that the bill in case that the proposed bill on the excise tax on plastic bags is passed by Congress, it should contain provisions on its effects on existing LGU ordinances before or after the effectivity of the Act, programs for stakeholders that will be affected by the proposal, and an earmarking provision just like those contained in recently passed laws on excise taxes that will benefit both the private and public stakeholders.	• DOF

ANNEX F:

SUMMARY OF POLICY ISSUES AND RECOMMENDATIONS ON THE PROPOSED PATHWAY TO ZERO PLASTICS BY 2032

This annex discusses the issues and recommendations on SWM/plastics reduction by clustering the factors for CFR rate, yield, and SUPs according to the four pathways of (1) capture and contain all wastes, (2) reduce problematic SUPs, (3) develop recycling/recycled plastics manufacturing, and (4) design for plastics circularity. These four pathways offer a stepwise interrelated approach with a defined time frame of short (1–2 years), medium (3–5 years), and long term (6–10 years).

PATHWAY I. CAPTURE AND CONTAIN

The first pathway proposes full capture and containment of the plastic waste stream to prevent further leachate into the rivers and ocean.

1.1 Increase public and private financing for solid waste collection and management (1–2 years)

Issues:

- The lack of comprehensive assessment and analysis of existing SWM system, inclusive of database, covering key SWM/recycling operating parameters, costs, and efficiencies.
- Limited funding at both the national and local levels have always been identified as one of the causes of the fragmented implementation of the SWM. For example, the NSWMC administers a solid waste management fund sourced from imposed fines and permits, donations and grants and lodged in the National Treasury. The funds were intended to pay for the implementation of RA 9003 and provision of technical assistance to LGUs. However, the fund was never operationalized since RA 9003 was enacted. According to Solid waste Division Director, the fund will not be able to be sustained through fines and penalties because their mandate is to encourage compliance and not encourage more violations. Grants and donations from international development partners hardly ever pay for the NSWMC operations, at best, some donors provide technical assistance and capacity building, others donate equipment, while some paid for organizing multistakeholder consultations like the development of NPOA–ML. The most reliable source of funding comes from the annual government budget. DENR–EMB prepares the NSW Division budget. This includes staff and operational costs, including the budget to fulfill the division's role and function as the lead agency and secretariat to the NSWMC. DENR–EMB then sends the budget to the Office of the President for approval given the interagency nature of the NSWMC. The President's Office then forwards that budget to DBM for inclusion in the proposed annual General Appropriations Act for Congress to review and approve. NSWMC relies on EMB budget for SWM to fulfil its role and functions as lead agency of the National Solid Waste Management Commission.

Recommendations:

- Implementation of RA 9003, starting with comprehensive assessment of existing SWM system, with the objective of improving operational efficiencies and related cost savings.
- Allocation of optimized government budget (as identified in comprehensive assessment). This could include identifying more reliable and diverse source of funding must be secured to build up the fund and finance the implementation of RA 9003; ensuring that LGUs avail of increased funding and allocate some funds for SWM/plastics waste management starting in FY2022 and reviewing the use, effectiveness and limitations of solid waste management fund as mandated by RA 9003. The increased budget allocation

for devolved LGU functions as mandated by the Mandanas ruling with guidelines from the Department of Budget and Management could provide fiscal opportunity to augment SWM budget at the local level. DENR–EMB with DILG are mandated to provide technical assistance to LGUs to effectively implement their devolved functions.

- Engagement of plastics production and packaging industry (for example, CSR, grants, EPR voluntary, and so forth) and other sources of voluntary financing (for example, multilateral, philanthropic, and so forth) in a voluntary financing arrangement to improve 'capture and contain' coverage and capacity (applies to all pathways).
- Integration of barangay and LGU collection and segregation services into a clustered LGU approach to achieve the economies of scale needed for financial and economic sustainability.
- Enhance the policy and technical capacity in the National Solid Waste Management Commission (NSWMC).
- Approve and roll-out NPOA–ML to expedite actions especially in plugging the gaps on plastic waste recycling and LGU capacity development.

1.2 Refine/apply standardized approach to household waste segregation (1–2 years)

Issues:

- Many LGUs still practice mixed waste collection, although a few have adopted 'no segregation, no collection' policy. Downstream handling of segregated wastes remains a challenge.
- At source segregation at the household level as currently practiced is ineffective in terms of segregated waste quantity, quality, and coverage, resulting in excessive litter and increasing volumes of mixed waste. Although a few have adopted a 'no segregation, no collection policy, many LGUs also practice mixed waste collection. Downstream handling of segregated wastes remains a challenge.
- Collection systems and vehicles are also not equipped for separate collection of recyclables, resulting in back-mixing of segregated recyclables with mixed waste.
- Existing rules and policies, notably RA 9003 require/promote minimum standards for collection, transport, and transfer of solid wastes. Yet these minimum standards are not being applied for financial/economic reasons.

Recyclers in the Philippines consistently reported having challenges sourcing high quality plastics due to high contamination rates. At a bare minimum, segregating MSW between wet (organic) and dry (inorganic) waste and hazardous waste will significantly reduce contamination, as organic waste is the main contaminant of recyclables recovered from the MSW system. Effective and efficient collection ensures higher operational efficiencies and cost-savings for waste collectors.

Recommendations:

- To prevent leakage, collection must be done in an integrated manner and not at intermediate points, which encourages unsystematic collection and uncontrolled hauling. Promote an integrated cost-efficient approach to handling collection, segregation, and disposal of solid wastes, taking into account socioeconomic impacts on informal waste workers.
- Household awareness and behavior is the starting point for change. Separating biodegradable waste (for example, kitchen waste) from non-biodegradable waste (for example, packaging) would be a simple yet effective step forward. Hazardous household wastes (for example, dry cell batteries) is an essential third category of waste segregation in the household to avoid contamination of biodegradable organics and hampering downstream recycling processes.

1.3 Improve and scale up sanitary landfills and other residual disposal alternatives (1–3 years)

Issues:

- Lack of enforcement of existing low-cost disposal alternatives, including open dumps, controlled dumps, and sanitary landfills.
- Difficulties in securing land to build material recovery facilities (MRFs) and sanitary landfills
- Lack of technical expertise at the local level in the design, construction, and operation of the SLF.
- Coordination challenges for small local government units to make joint decisions and to share facilities.

Recommendations:

- Updated and consistent national targets for and schedules for diversion of materials to residual disposal. The current target in the Philippines Medium Term Development Plan is 80 percent diversion by 2022. RA 9003 is set at 25 percent since 2000. Policies that provide both incentives and penalties to facilitate transition to fully integrated waste management and recycling systems within a given timeline will have a positive impact on circular economy, reductions in marine litter, and enhanced plastics recycling.
- Target and support a transition process with technical and financial assistance (for example, low or no interest loans, technical assistance for planning, development, business model preparation, and financing and partnership arrangements, among others.
- Incentivize centralized/clustered integrated solid waste management/recycling facilities will establish economies of scale to operate effectively and cost-efficiently, employing personnel from existing MRF operations. Buy-in is essential at this level, and policies must clearly demonstrate social, economic, and environmental benefits to the concerned barangays and other stakeholders (this study).

1.4 Rigorously enforce segregation, collection, diversion, and residual disposal standards (1–3 years)

Issues:

- RA 9003 and other laws and plans require and/or promote solid waste management diversion, MRFs, recycling and buy-back programs. However, implementation has been limited on a national scale. Insufficient funding, space, infrastructure, technology, and skilled labor are key contributors to the failure of widespread use and effectiveness of MRFs (34.4 percent of all barangays in the Philippines are served by MRFs). There is at present a lack of limited reclamation and buy-back facilities and services.
- Low compliance of RA 9003—for example, in closing open dumpsites and in operating MRFs.
- Collection systems/vehicles are not equipped for separate collection of recyclables, resulting in back-mixing of segregated recyclables with mixed waste.
- Political challenges related to charging waste-collection fees from residents and penalizing offenders.

Recommendations:

- Enforce appropriate monitoring measures and regulations (for example, tracking or manifest system) on waste collection practices and equipment and against illegal dumping of waste that is collected by any entity—for example, LGU, private waste haulers, informal collectors, establishments, and communities along waterways.
- An integrated, logistically efficient collection, transfer and transport system with appropriately designed collection and transport vehicles will improve collection coverage and rates, avoid litter, and lower collection and transport costs. However, practical experience is lacking in the Philippines. This can be overcome through policies that support improved access to sources of financing, sustainable financing mechanisms and arrangements (local governments and private sector), and economically scaled pilot demonstrations of integrated and logistically optimized collection, transfer, and transport systems.

- Technical capacity building is needed to fully engage and professionalize SWM services that encompass both the formal and informal sectors.
- Enact a policy mandating producers of plastic packaging and packaged products to collect information on the types of packaging they place in the market as a first step to more sustainable packing waste management and responsible packaging.

1.5 Integrate the informal sector into the collection and recycling system (1–3 years)

Issues:

- Absence of policy to integrate the informal sector.
- Junk shops and the informal sector lack financial resources, skills, and technologies to increase and improve their capacities and productivity, although they are recognized as the backbone of the existing collection and separation system for recyclables. This results in substantial leakage of nonrecyclable plastics and other materials, which contributes to the lack of efficiency and cost effectiveness of current recycling processes as well as marine litter.
- Serious environmental health issues, occupational hazards and lack of job insecurity faced by the informal sector, which has been exacerbated during the COVID-19 pandemic.
- Inappropriate collection and sorting practices result in increased leakage.

Recommendations:

- Monitor the development of the action plan for workers in the informal sector by the National Anti-Poverty Commission under the Magna Carta for the Poor to ensure that it implements policies that incorporate health and safety measures for informal waste workers.
- Under the proposed development of an LGU roadmap in the NPOA–ML, develop an action plan to formally integrate the informal waste sector in the formal waste management system. For example, identify adjustment issues and transition options to integrate informal sector with practical social and economically sustainable solutions (for example, access to basic medical services, formal employment, access to alternative livelihood training, ease of access to information about other social services).
- Collate more best practices on integrating informal waste workers in the country to help inform the creation of policies to formally integrate informal-sector waste workers. Quezon City, for example, acknowledged how big the contribution of their 91,983 waste pickers was, with the City making efforts to institutionalize them in their SWM system. In Quezon City and many other highly urbanized cities, informal waste workers are often accredited or registered as waste management service providers and have taken on responsibilities in waste-material recovery, but without job security or health benefits. In other LGUs, NGOs have developed training and alternative livelihood capacity development programs, including creating products from recycled plastics (downcycling) and formed cooperatives among urban poor and the informal sector.
- Guidance documents developed for the Philippine situation have been provided for possible consideration by LGUs. Recommendations from the Solid Waste Management Association of the Philippines include the following:
    - At the institutional level, the informal sector could be organized into associations or cooperatives duly recognized by the national and/or local governments and are invited to join SWM committees or local SWM boards.
    - At the operational level, partnership arrangement could be developed and or contract agreements for collection services, MRF management, street cleaning and support services and system in the form of loan assistance, environmental health information dissemination and education; alternative livelihood training; price monitoring, and so forth.

- NSWMC proposed five interventions that would help improve the conditions of the informal waste sector in a framework plan for informal waste workers in 2009. These include the following:
    - Supporting waste collectors to enter new service roles and niches in separate collection and recycling.
    - Assuring waste collectors access to sorting space at transfer stations and controlled and sanitary landfills.
    - Supporting better market leverage and/or diversification of activities through cooperatives and association.
    - Opening channels of communications with formal stakeholders and decision-makers into the planning process.
    - Improving the work conditions through the implementation of environmental and occupational safety practices and systems.

1.6 Pilot models of locally relevant parallel EPR schemes (for example, alternative delivery) and adopt a national EPR scheme that incorporates good practices and lessons from pilots and a voluntary approach (4–6 years)

Issues:

- Waste management in the Philippines is highly decentralized, with no uniformity in implementation of national regulations, with responsibilities dispersed among various levels of government.
- Data management and monitoring is lacking. Solid waste management plans often lack consideration of monitoring and evaluation (personal communication with independent consultant Mr. Reynar Rollan of the GA Circular research and strategy firm, 2021). Without such information it is difficult to measure the success of various initiatives or compare between highly divergent local regions.
- Recycling infrastructure remains fragmented and limited, facing particular challenges due to the difficulty of transportation logistics in the country. Only a small amount of overall waste is actually recycled, with a national plastic recycling rate at approximately 28 percent for 2019 (World Bank 2021c).
- Recycling has high costs compared to other countries in the region, not only due to logistic costs but to the particular mix of plastic waste in the Philippines, which is high in low-value and difficult to recycle waste such as plastic packaging films or mixed materials. Packaging by itself constitutes 53 percent of all plastic consumed in the country.

Recommendations:

- A national legal framework is needed to structure EPR, so that the validity is anchored nationwide and recycling efforts between varying jurisdictions are more compatible. This framework must clearly define various responsibilities, which should be assigned while keeping in mind the need for cooperation between authorities and stakeholders. The national framework should adequately incorporate local requirements, ensuring that the national framework is not so rigid as to be impractical in some areas of the country.
- Strengthen existing data monitoring implementation and create new data collection practices that are viable for implementation by barangay officials while being comparable on regional or national levels.
- Where necessary adjust the division of responsibilities among different levels of government and provide mechanisms for cooperation at different levels of the waste management process. Such an action will better enable small and isolated jurisdictions such as islands which would be unable to sustain their own recycling efforts to benefit from a system of scale. An EPR scheme will need to consider geographical circularity, with the responsibility of goods served to these communities including the need for related waste products to properly exit these communities.
- Way Forward in Implementing an EPR Scheme (mandatory with a voluntary transition phase)
    - With the above issues in mind, create design standard for plastic products, in which such packaging is designed with later recycling in mind. Key sectors include plastic packaging and other single-use

plastics. Such a scheme should consider waste originating from different sources, such as household and industry, and be cognizant of avoiding incentivizing deleterious changes and substitution effects.

- Implement such a scheme initially on a voluntary basis, engaging key companies and stakeholders. Such a phase is useful for data monitoring and process iteration.
- Support the development of pilot projects to gather know-how on waste management measures (in collection, sorting, and recycling); data collection; and system-relevant mechanisms (for example, through a register of covered companies) so that product design and logistics changes resulting from an EPR scheme can be monitored.
- Support the piloting of EPR for one type of single-use plastics, reflecting past experiences of applying different EPR models (such as financial versus physical responsibility, individual versus joint responsibility) for various products and settings.
- Facilitate the creation of a national nonprofit Producer Responsibility Organization (PRO). This industry-led systems operator should ensure a holistic, reliable, and fair waste management. The PRO includes a wide range of stakeholders representing obliged members (local and MNC producers and importers), other members (plastic value chain including waste management operators), government representatives from all levels, academia, and representatives of consumers, which shall constitute an Advisory Board.
- Strict monitoring and control systems: To avoid fraud, strict and enforced monitoring, controls and penalties are indispensable and shall be carried out by the government (that is, the Department of Environment and Natural Resources – DENR) to ensure compliance of all actors, including the PRO. Monitoring and control systems are also essentially needed to keep the level playing field among obliged private industry and guarantee transparency of the system.
- Institutionalize extended producer responsibility (EPR) incorporating "polluters pay" principle and linking sustainability reports of companies.
- Develop and implement an Extended Stakeholder Responsibility (ESR) system, including producers' responsibility, that applies in the Philippine context, along the manufacturing–retail value chain and ensuring the integration of the informal and semiformal waste sector (waste pickers, paleros, junk shops, dealers and haulers, waste consolidators, recyclers, and so forth), as well as communities (National Plan of Action for Marine Litter).

PATHWAY II: REMOVE PROBLEMATIC SUPS

This section presents the identified issues (gaps and shortcomings) and the recommendations in terms of corresponding provisions of the SUP bill and factors for reducing problematic SUPPs against the five steps of Pathway II and the proposed timeline to 2032.

RA 9003 is the main law that addresses solid waste management as a whole. However, it is unable to address the specific challenges of plastic wastes, especially in dealing with nonrecyclable plastics and those low value plastic waste which makes up about 10 percent of total municipal solid waste (EMB 2018; see DENR 2018) and often ends as litter. In response to this policy gap and to address the inextricable links between plastics pollution and climate change, several bills on SUPs have been filed at the 18th Congress to regulate the production, use, recycling, and disposal of SUPs. Banning SUPs is a straight-forward approach however, the implementation of a ban and the resulting social, economic, and environmental benefits and impacts is not. If enacted into a law, and especially if it incorporates measures to address the socioeconomic and environmental impacts of the phase out and provide sustainable alternatives to SUPs, it could potentially contribute to plastics management on a nationwide scale.

2. 1 Build public-private consensus on unnecessary and problematic SUPs (1–2 years)

Issues:

- 489 cities, municipalities, and provinces in the Philippines have issued SUPP-related ordinances in the past 10 years; despite the bans, there is very limited verified information on the effectiveness of bans on reductions in plastics and litter, or diversion from landfills in the Philippines.
- No accurate and updated waste data covering all cities and municipalities due to the difficulty and complexity of data generation and assessment.
- Lack of extensive data on the production, consumption, and disposal of plastics and plastic packaging.
- No knowledge regarding the percentage of plastics production and consumption affected by the phaseout and the 50-micron and 10-micron specifications.

Recommendations:

- Baseline assessment to determine the most prevalent and problematic SUPP.
- Formulate a phase out plan for SUPP with the engagement of relevant government agencies and stakeholders with components on reducing consumption, increasing recovery, keeping producers accountable, developing alternatives, and raising awareness.

2.2 Ban unnecessary and problematic SUPs where acceptable alternatives exist

Issues:

- Criteria are subjective and open-ended.
- Standards and metrics required for monitoring and enforcement need to be specified, along with guidelines on process for identifying and phaseout.
- No options identified for industry.
- No indication of monitoring, measurement and assessment of impacts, costs, and benefits derived from bans, including reductions in plastics usage, litter, and diversion.
- Engagement with industry, manufacturers, and retailers in planning and scheduling process lacking.

Recommendations:

1–2 years

- Conduct science-based or evidence-based studies on the identification of the most problematic SUPs for phaseout.
- Delineate the phase out period and effective dates of SUPP ban.
- Establish the M&E and reporting mechanism with measurable and timebound targets.
- Phase out SUPP that are considered unnecessary and has available alternatives (drinking straws; stirrers; sticks for candy, balloon, and cotton buds; buntings; confetti; and packaging or bags of less than 10 microns thick).
- Phase out non-compostable SUPP where alternatives are available (that is, plates and saucers; cups, bowls, and lids; cutlery like spoons, forks, knives, and chopsticks; food and beverage containers made of expanded polystyrene; oxo-degradable plastics; film wrap, packaging, or bags less than 50 microns thick; sachets and pouches that are multilayered with other materials).

3–5 years

- Phase out non-compostable SUPP where alternatives are available (that is, plates and saucers; cups, bowls, and lids; cutlery like spoons, forks, knives, and chopsticks; food and beverage containers made of

expanded polystyrene; oxo-degradable plastics; film wrap, packaging, or bags less than 50 microns thick; sachets and pouches that are multilayered with other materials).

- Implement the M&E and reporting, including assessment of the effectivity and efficiency of phasing out the initial list of SUPs in terms of economic and environmental impacts and allow for the deletion of the SUPP in the list.

6–10 years

- Phase out other SUPP that are not covered in the first five years and are considered high in replaceability, low in recyclability, or low in retrievability (that is, plastic bottles, packaging, or products that are multilayered with other materials, multilayered tetra packs, election or advertising paraphernalia, streamers, and other non-compostable SUPP).
- Implement the M&E and reporting including assessment of the effectivity and efficiency of phasing out the initial list of SUPs in terms of economic and environmental impacts and allow for the deletion of the SUPP in the list.

2.3 Apply taxes and levies on unnecessary and problematic SUPs where acceptable alternatives do not exist

Issues:

- Plastic bags vary in sizes and thickness; proposed excise tax does not differentiate in terms of size and thickness, which could result in unequal tax treatment.
- Enforcement responsibility not assigned.
- Clarification needed on where the monitoring should be undertaken (for example, retail, production, and manufacturing).
- Further guidance is required on alternatives, costs, and benefits on charging P5.00 from customers for every plastic bag or SUP used; the mechanism for implementation and the risk it represents to small operators and family businesses.

Recommendations:

1–2 years

- Conduct valuation study on alternatives, costs, and benefits on charging P5.00 from customers for every plastic bag or SUP used for takeout food or delivery service.
- Establish standard specifications and characteristics of plastic bags (for example, thickness, material, and so forth) to ensure that the excise tax would be applied only on the intended SUPP Include provisions on the effects of excise tax on existing LGU ordinances before or after the effectivity of the Act and programs for stakeholders that will be affected by the proposal.

1–10 years

- Commercial establishments to promote reusable, recyclable, and retrievable products in their stores, charge P5.00 from customers for every plastic bag or SUP used for takeout food or delivery service and facilitate customer return of used plastic products to the store.
- Penalize violators with fines ranging from P50,000 up to P500,000 for micro enterprises, and P250,000 up to P1,000,000 for larger businesses.
- Impose excise tax of P20 per kilogram of plastic bag removed from place of production or released from Bureau of Customs.
- Earmark proceeds from excise tax to finance projects of LGUs in support of RA 9003 implementation.

- Provide incentives for recovery, collection, recycling, and disposal of plastic products and for use and patronage of ecofriendly alternatives, mechanisms, and schemes (for example, tax breaks, government subsidies, and so forth).

2.4 Develop and scale alternatives for unnecessary and problematic SUPs

Issues:

- Local government has a significant role in increasing recovery.
- Enforcement of plastic bag regulation at the local level varies in terms of stringency, hence affecting the result.
- LGUs need to benefit directly or share the burden of SUP reduction and improved plastic waste management which require a collective effort.
- National government to consider providing incentives/direction that will help LGUs shift from the BAU scenario of SWM and plastics recycling to promote circularity.
- Are there existing approaches/ innovations to learn from that demonstrate CE at the local government level, inclusive of SW and plastics recycling?
- Standardization required for imported and domestic products—that is, labelling and packaging.
- No timeframe on shifting to alternatives; lack of information on options and their footprint and incentives for the industry.

Recommendations:

1–2 years

- R&D and technology transfer of affordable, accessible, and sustainable alternative materials and products.
- Conduct life cycle analysis for SUPP and their alternatives to ensure that the alternatives: (a) meet the functional requirement, (b) minimize environmental impacts, and (c) are cost-effective.
- Implement the phaseout plan with the following components:
    - Develop a program that will assist local manufacturers in developing or acquiring sustainable sources of raw materials, appropriate technology to produce highly reusable, recoverable, recyclable, or compostable materials, as an alternative to plastic products.
    - Promulgate appropriate Philippine National Standard (PNS) for compostable plastic products.
- Explore the recoverability, recycling, or reprocessing value of the compostable plastic products into other useful materials or commodities.
- Formulate guidelines for proper labelling of packaging and plastic products.
- Establish standards for the dimensions, thickness, labelling, structures, capacity, color-coding, materials, and other relevant parameters of a particular SUPP.
- Producers, importers, and commercial establishments to provide compostable plastic products to their consumers with visible logo, the manufacturing date and name of manufacturer, importer, and distributor.
- Producers and importers to provide appropriate labelling for the packaging and products, providing information on specific plastic types and packaging structure, and other information important in the proper recovery and diversion of the wastes after use.
- Develop appropriate standards for alternatives.
- Commercial establishments to promote the use of highly reusable, recyclable, and retrievable products in their establishments, or make available for sale locally made reusable or recyclable containers and bags.

- Establish an effective in-store recovery program that will facilitate and encourage customer return of their used plastic products to the commercial establishment.
- Facilitate the necessary shift to alternative products with government fiscal and nonfiscal support.
- Provide technical assistance, trainings, and continuing capacity-building programs to LGUs.
- Explore the mandatory creation of city or municipal environment and natural resources offices (ENROs) as the solely dedicated entity in every LGU tasked with the waste segregation, collation, recovery, transport, recycling and disposal of all waste products and other environment-related concerns.

3–10 years

- Implement the phaseout plan.
- Continue to provide technical assistance, trainings, and continuing capability-building programs to LGUs.

2.5 Remove all unnecessary and problematic SUPs from the plastics value chain

Issues:

- No boundaries are identified on phasing in of EPR programs.
- Needs definition on process, EPR activities, incentives, disincentives.
- Possible ways and means of reducing footprint—what is eligible and the baseline footprint? Guidance is required on the process.
- Proper recovery and diversion text are open-ended.
- Information needed on best practices or what has worked elsewhere and success rates.
- Information needed on how can the national government demonstrate leadership, as a major consumer of plastics? Could there be a similar commitment or target for the national government to eliminate its plastics footprint within five years? Needs further input from responsible government departments.
- Questions remain regarding what constitutes unnecessary and problematic SUPs. What is the volume of these SUPs? Over what period?

Recommendations:

1–2 years

- Producers and importers of SUPP to incorporate themselves and start phasing-in extended producer's responsibility programs.
- Formulate an information dissemination plan to inform consumers of the impact of use and improper disposal of SUPP; waste reduction, reuse, recycling, and recovery systems; and other best practices in waste management.
- Formulate a Consumption, Reduction, and Recovery Program, to achieve a significant reduction in consumption and increased recovery for recycling and treatment.
- Designate an appropriate government agency to monitor compliance and evaluate the effectiveness of EPR programs to optimize the social and environmental benefits.

3–5 years

- Producers and importers to recover or offset 100 percent of their SUPP footprint within five years and label their packaging to facilitate the proper recovery and diversion of their plastic wastes after use.

PATHWAY III. DEVELOP RECYCLING AND R-MANUFACTURE MARKETS

The recycling sector of the Philippines is hardly developed because of insufficient and inconsistent feedstock and lack of required quality for recycled resin application, which is related to several factors including inefficient collection and processing systems combined with fluctuating oil prices and lack of recycled-content standards in plastic products.

As of 2019, as much as 1.1 million tons per year (TPY) of the four key resins were consumed in the Philippines. Of this, only 28 percent (292,000 TPY) is recycled. In terms of material value, the total amount that can be unlocked from plastic recycling in the Philippines is USS1.1 billion per year, assuming all key resins had 100 percent collected-for-recycling (CFR) rates and obtained the maximum value in the market. However, only 22 percent (US$246 million per year) of this figure is currently unlocked. This state of CFR and value yield of plastic recycling is attributed to a host of factors related to the following:

- The country's recycling capacity has a gap of 85 percent.
- The market situation, both local and beyond such as the price of oil, which is the principal input for plastic production.
- Other institutional challenges, such as fragmented implementation of the Ecological Solid Waste Management Act (RA 9003) across the plastic value chain, leading to insufficient, inconsistent, and low-quality feedstock for recycling.
- The functional properties and end-use applications of resin (World Bank 2021b).

3.1 Pilot models of locally relevant plastics recycling and r-manufacturing (1–2 years)

Issues:

- RA 9003 states that the LGUs are mandated to divert 25 percent of their generated waste within 5 years of the effectivity of the Act and further states that the reduction should be increased every three years (Section 20). The Act also mandates a segregation of solid waste at source (Section 21) and the creation of the MRFs in every barangay or cluster of barangays (Section 32).
- For China, Indonesia, the Philippines, Thailand, and Viet Nam, the bulk of plastic extraction for recycling takes place at points of aggregation, rather than individual households. This results in almost 60 percent of the plastic waste not being collected. Further, since the average material value of the collected meager waste is often not large enough to support the collection and transportation costs, especially in remote areas, places that do not have publicly funded waste collection are more likely to have contaminated waste streams and poor recovery rate for recyclable materials (GAIA 2019).
- For the Philippines, the state of underdevelopment of the recycling sector can also be attributed to the large influence of the international market and dominance of the informal waste workers and SMEs in the sector.
- There is no requirement to develop public infrastructure on recycling. As such, only MRFs and SLFs dominate the public infrastructure scene on SWM and no proposals have been submitted to public recycling facilities, based on recent submissions to the Public Investment Program and Three-Year Rolling Infrastructure Program of the government (NEDA 2021). The few existing and upcoming recycling facilities and projects are privately led.
- The flux of innovation and cost optimization means that companies that manufacture and use plastic resin are constantly on the path of dematerialization, which has an unintended consequence: there is simply not enough financial value to make collection of the product viable for conventional recycling. While dematerialization results in a significant reduction of plastic used, the positive effect is countered by the resulting poor recovery rate of the product for recycling, further exacerbated by the continuous growth of the plastics industry in the ASEAN region.

- Also note that in the Philippines, packaging accounts for the largest application segment in the plastics market. The growing demand for food is a major driving force behind the increasing demand for plastics in the country. In fact, the revenue generated by the food industry in the country has almost doubled from US$11,980 million in 2010 to around US$20,245 million in 2019. The requirements for personal protective equipment in the healthcare sector, stretch films, and garbage bags, as well as medical devices, are also anticipated to further increase the demand for plastics.

Recommendations:

- In relation to the comprehensive assessment and feasibility studies conducted under the Capture and Contain Pathway:
- Develop and compare options for advancing the recycling and r-manufacturing industry as an integral component of SWM in the selected LGUs covering, for example:
  - Sanitary landfilling with minimum recycling (BAU).
  - Mixed waste incineration and energy from waste facility.
  - Fully integrated waste management and plastics recycling system.
  - Develop and secure r-resin markets and take-off volumes: Forge buy-in conditions and commitments of major manufacturers to take up produced r-resins, which is a key factor to immediately kick off a financially viable recycling operation.
- Identify options for financing and managing the integrated facility, including government, industry, private sector, financial institutions, investors, and donors.
- Implement pilot integrated waste management and plastics recycling project in collaboration with concerned LGUs, partners, and investors.
- Monitor progress and evaluate the impact and benefits of the integrated facilities, using them as learning sites for upscaling and replicating such facilities elsewhere.
- Revisit current laws and mandate the creation of recycling facilities at the local level to drive investments in recycling facilities.

3.2 Adopt recycled content and labeling standards for plastic products (1–2 years)

Issue:

- At present, there are no minimum recycled content standards/ requirements in the Philippines. There are however product standards related to plastics set by the Department of Trade and Industry's Bureau of Product Standards.

Recommendation:

- Develop and adapt recycled content and labelling standards for plastic products in collaboration with industry.

3.3 Align national incentives and disincentives to accelerate recycling and r-manufacturing growth (3–6 years)

Issues:

- Lack of understanding of available government support for investments into recycling technology and capacity.
- Absence of data related to waste, plastics and recycling which challenges the ability to build business for recycling. the lack of data across the plastic value chain. Most information such as those related to plastic production and waste management, lacks regular updating, detailed disaggregation, and verification, and

is simply distributed through informal communication channels. Moreover, the private sector is generally unwilling to disclose information out of fear of competition. The lack of data prevents policy makers and consumers from making informed choices on SWM and poses an obstacle for new players looking to enter the recycling market or for existing recyclers to grow their capacities by making it harder to understand and predict the areas for growth or improvement in the plastic value chain and the volatility of the trading market (World Bank 2021c). For instance, on the consumer side, under RA 9003, the formulation and implementation of a national ecolabeling program, a coding system for packaging materials and products to facilitate waste recycling and reuse is required with DTI as the lead agency. Although the National Ecolabelling Programme – Green Choice Philippines (NELP–GCP) has been established, the implementation of this initiative remains weak. In fact, as of 2016, there were only 52 eco-labeled products, which increased to 53 in 2017 and remained that way until 2019 (NEDA 2020).

- Absence of a roadmap or action plan to advance in terms of plastic recycling capacity and new technologies.
- The government lacks independent and authoritative up-to-date sources of price and market information.

Recommendations:

- Conduct spatial and market analyses as basis for creating a clustered network of solid waste infrastructure to ensure infrastructure connectivity.
- Encourage recyclers, coprocessors, and service providers of business models, EPR schemes, or innovative technology to pursue fiscal and nonfiscal incentives under the Omnibus Investments Code or RA 7916, and where necessary, formalize and develop their business potential, market linkages, and economies of scale to qualify for or maximize the above incentives through the creation of business incubation hubs or smart cities (IWB 2018).
- Mandate and scale up the reporting, collection, and dissemination of critical data related to plastic production and waste management.

3.4 Increase public and private financing to upscale existing and new recycling and r-manufacturing infrastructure (6–10 years)

Issue:

- There are no investment incentives targeting recycling specifically and consequently there is a lack of understanding of available government support for investments into recycling technology amongst recyclers. The World Bank market study (World Bank 2021c) reported that

> [M]any recyclers interviewed either stated that there is no government support available to them or that the support is not given although the recyclers claim to be eligible. In addition, the recycler stakeholders mention that the incentive is better suited for large MNCs implying that the administrative burden and ability to fulfil eligibility criteria is impossible for the typical SME recycler. (World Bank 2021c)

Studies show that cost savings and optimization can reduce SWM spending by 10 to 20 percent through increased transparency in the tender process or, as with the case of transporters, performance-based payments. The remaining financial support needed for SWM can come from private, public, and multilateral funding. Private investment capital is typically available once solid project finance structure and risk management mechanisms are in place such as long-term supply agreements and properly structured bond financing. Mechanisms that further reduce capital costs and investment risk will also be necessary. This is where international corporations may play a helpful role. There are many well-tested de-risking project finance mechanisms such as first-loss insurance pools, equity partnerships with multilateral lenders and equity providers, and market-entry supports such as the case for US and European waste-technology providers. Multilateral banks and other development financing institutions can also provide additional leverage through grants or concessional loans (Ocean Conservancy 2017). Technical assistance especially

for low-income cities and municipalities will also be needed (for example, borrower-lender matching, business-model preparation, and pilot demonstration).

Recommendations:

- Fiscal and nonfiscal incentives will also play a key role in improving the SWM system, especially recycling in the Philippines. For example, under the 2020 Investment Priorities Plan (IPP) for the Omnibus Investments Code, which is valid until 2023 subject to annual review identifies privately owned materials recovery facilities as eligible for incentives. The government should encourage these businesses and innovators to pursue the said incentives, and where necessary, formalize and develop their business potential, market linkages, and economies of scale to qualify for or maximize the above incentives through the creation of business incubation hubs or smart cities.
- Operational expenditures for SWM typically require a solid cost-recovery system for long-term sustainability of the system. These expenditures are almost always substantially higher than capital costs and are often the most challenging to sustain. Even when capital costs are accounted for (often funded separately), operating expenses can easily account for Facilitate and incentivize, wherever possible, a centralized/clustered approach among LGUs to bring about economies of scale and consequently a large feedstock to ensure the viability of recycling. Recycling can also be made more attractive as a business venture when LGUs are mandated to form recycling plants and facilities.
- Create enabling actions through international development agencies to facilitate targeted investment in recycling technology, especially the types that have not yet reached commercial viability, including improved technology to reduce sorting and recycling losses, to address capacity restraints, and to create higher quality output able to meet food-grade standards.

3.5 Scale up targeted recycling technologies for difficult to recycle materials (6–10 years)

Issues:

- A major challenge for producing recycled products from plastic waste is that a high portion of this waste is composed of multilayer flexible packaging such as sachets (World Bank 2021b). The high presence of flexible packaging can be attributed to the current business mindset of innovation and cost optimization. While dematerialization results in a significant reduction of plastic used, the positive effect is countered by the resulting poor recovery and recyclability rates of the collected waste, further exacerbated by the continuous growth of the plastics industry in the ASEAN region (Mordor Intelligence 2020). These kinds of packaging materials are difficult to recycle as they have different plastic components that have their own processing requirements.
- While chemical recycling can resolve this concern, it is more costly than conventional (mechanical) recycling as the inputs must be depolymerized and then re-polymerized (Hopewell et al. 2009) and may not be suitable to the Philippine context. In addition, this method is still largely at the precommercial stage and the scalability, financial viability, environmental impacts, and other risks of chemical recycling have not yet been fully evaluated or demonstrated (World Bank 2021b). Moreover, the production of recycled products in general, regardless of the method used, requires significant legal and policy reforms, including subsidies and other economic incentives if needed, to level off the playing field against the use of virgin resin in plastic production. Currently, the use of these virgin materials has more market advantage due to the low price of oil, which is the major input for plastic production. As the quality of recovered plastic is typically lower than that of virgin plastics, the price of virgin plastic sets the ceiling for prices of recovered plastic (Hopewell et al. 2009).
- The production of recycled products in general, regardless of the method used, requires significant legal and policy reforms, including subsidies and other economic incentives if needed, to level off the playing field against the use of virgin resin in plastic production. Currently, the use of these virgin materials has more market advantage due to the low price of oil, which is the major input for plastic production. As the

quality of recovered plastic is typically lower than that of virgin plastics, the price of virgin plastic sets the ceiling for prices of recovered plastic (Hopewell et al. 2009).

Recommendation:

- Adopt recycled-content requirements and design for recycling standards in the plastic production process to help boost public and private investments in recycling facilities; ensure sufficient, consistent, and high-quality feedstock for recycled product production; and level the playing field with virgin resin.

PATHWAY IV. DESIGN FOR PLASTIC CIRCULARITY

This is probably one of the most ambitious pathways and requires creative and innovative solutions. It addresses the decoupling of economic growth from plastic growth, so that plastic consumption per person is reduced, rather than face a 52 percent increase calculated under the BAU scenario. Potential reductions include eliminating unnecessary items and over-packaging; expanding reuse options that can replace the utility currently provided by plastic (glassware and tableware), including products intended for consumers to reuse (shopping bags, refillable containers); and new delivery models such as refill systems. Private-sector voluntary initiatives are more likely to drive progress around eco-design in the short-term by driving momentum in the market. For instance, several multinational companies including Danone, Nestlé, and PepsiCo have committed to making 100 percent of their packaging recyclable, reusable, biodegradable by 2025 (Ocean Conservancy 2017). The Philippines government can support this commitment by working with the private sector to enable policies that encourage noncommitted companies to follow. Plastic reductions implemented to date in the Philippines have focused on bans, regulating plastic bags, straws, and other small-mass items. The WB field study (and other assessments of household wastes and coastal clean-up events) suggest that greater reductions could be achieved by focusing on the absolute mass of plastic avoided. For example, sachet packaging is an iconic single-use, multilayer, multi-material waste item in the Philippines. It makes up approximately 10 per cent of plastic waste in the Philippines (GAIA 2019), and after consumption, these low-value plastic materials are often not collected and are a major source of ocean pollution. In some countries, such as India, market observations suggest that full-size bottles are currently more expensive per use for consumers than buying sachets, but regulations such as extended producer responsibility with full end-of-life cost recovery could make recyclable rigid plastic packaging less expensive than sachets in the future. New delivery models could also offer a better alternative for delivering products to consumers.

Several enabling conditions can help accelerate the design of the plastics circular economy pathway. These include, among others

- Policy interventions that promote the use and increase the value of recycled polymers and incentivize producers to develop products with end-of-use considerations (Pathway III). Examples include design for recycling standards; recycling targets; minimum recycled content targets; taxes on the use of virgin plastic feedstock; regulatory mandates on certain pigments, polymers, and additives; disclosure mandates; and the regulation of recycling-labelling practices.
- Greater industry collaboration and engagement, including
- Development of new polymer production and packaging designs in coordination with recycling and sorting technology companies; and
- Harmonization of materials and packaging formats across companies.
- Increased public-sector and private-sector R&D investment into design for recycling and associated technology, including investments in products that meet recycling specifications without sacrificing product safety, stability, or purity.
- Shifting consumer preferences, driving higher demand for recycled content and higher recyclability of plastic products.

- Voluntary commitments by producers and retailers to increase recyclability and integrate recycled content in plastic products.

The experiences of other countries will help guide the development of this pathway. However, a starting point will be to conduct multistakeholder consultations and roundtable meetings of experts to establish a consensus on this integrated approach to plastics waste reduction, building upon the NPOA–ML multistakeholder consultations or the Cabinet Cluster on Climate Change and Disaster Risk Mitigation.

ANNEX G:

SUMMARY TABLE OF COUNTRY EXPERIENCES WITH EXTENDED PRODUCER RESPONSIBILITY[5]

Table G1.
SUMMARY OF COUNTRY EXPERIENCES WITH EPR

Location	Legislation	Key Points	Challenges	Responsibility
Canada	• Canada-wide action plan for EPR	• Outcome driven • Funded by producers • Some costs are included in the overall product price, some are visibly added at point of sale	• Reliance on provinces means there is no consistent national implementation	• Predominately managed through collective responsibility • Implemented by the provinces
China	• Implementation Plan for the Extended Producer Responsibility (EPR) System • Solid Waste Law	• Electronic waste fees on producers are used to subsidize recycling companies • Includes encouragement for ecological design innovation	• Participation of the informal sector makes managing recycling schemes more complex • Laws are still being developed	
EU	• Packaging and packaging-wastes directive • Waste-framework directive • Landfill directive • EU legislation for end-of-life vehicles • EU legislation for waste electrical and electronic equipment • Various member state specific legislation	• EPR costs are passed onto producers • Design of EPR schemes is intended to promote fair competition • Aim for transparency on both performance and cost • Implementation actions differ between take-back requirements, advance disposal fees, and deposit-refund schemes • Some advance disposal schemes are simple (flat cost per item), and some are more complex (reimbursement to relevant authorities or sorting plants) • Schemes differ in whether they target household waste, commercial/industrial waste, or both	• Definition of EPR is unclear • Multiple schemes with varying aims and objectives. Operations also differ, for example cost coverage is distributed differently among different schemes. • Some countries have multiple EPR schemes causing competition, some have only one • Some schemes lack appropriate controls and monitoring (appropriate indicators need to be established)	• Distributed across multiple actors • Mixture of collective and individual producer responsibility (producers favor collective schemes) • Take-back lies with businesses, may be done on a business-to-business basis

5 https://ieep.eu/uploads/articles/attachments/95369718-a733-473b-aa6b-153c1341f581/EPR%20and%20plastics%20report%20IEEP%209%20Nov%202017%20final.pdf?v=63677462324
https://www.oecd.org/environment/waste/Global%20Forum%20Tokyo%20Issues%20Paper%2030-5-2014.pdf
https://www.packaginginsights.com/news/nine-us-states-coordinate-on-epr-legislation-holding-manufactures-accountable-for-plastic-waste.html
http://m-yamaguchi.jp/english_page/EPR_in_Japan_2002_ECP_No19.pdf
https://www.oecd.org/environment/waste/EPR_Japan_packagingFinal%20corrected0502.pdf
https://www.pnas.org/content/pnas/117/33/19844.full.pdf
http://www.preventcancernow.ca/wp-content/uploads/McRobert_et_al_Achieving_Consistent_EPR_Policies_for_Plastics_12Dec19.pdf
https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/overview-extended-producer-responsibility.html
https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/overview-extended-producer-responsibility/introduction.html
https://www.keco.or.kr/en/core/operation_extended/contentsid/1980/index.do
https://www.unep.org/resources/report/korea-environmental-policy-bulletin-extended-producer-responsibility-epr
https://f.hubspotusercontent10.net/hubfs/6055518/Toolkits/Sample%20Toolkits/Topical_Report_EPR_for_Packaging_1604386878.pdf

Location	Legislation	Key Points	Challenges	Responsibility
		• Fee modulation used to differentiate between packaging materials. This includes between different variations of plastic, and between biodegradable and nonbiodegradable plastics, as well as mixed/composite materials • Reduces public expenses overall, pushes market development • Takes place within a broader waste reduction framework, including measures to charge households per unit waste, landfill taxes, packaging taxes, and voluntary arrangements • Rates are ambitious, based on pilot projects		
Japan	• Container and Packaging Recycling Law • Electric Household Appliance Recycling Law • End of Life Vehicle Law • The Basic Law for Establishing the Recycling-based Society	• Laws reflect strong public awareness of the issue • Regulations led to shifts in manufacturer behaviour, for example a shift to clear plastic bottles • Laws are designed to be implementable throughout Japan, broadly encouraging existing capacity • Producers can either recycle in house or outsource • Producer responsibilities are defined by material • Sorting must avoid certain impurities • Noncompliance is first addressed with a warning, followed by public naming, followed by direct orders, followed by a fine	• Japan has a specific definition of recycling that requires value to be maintained • The differentiated responsibilities means that incentives do not align (recyclers benefit from sorting, but are not responsible for sorting) • While successful for household waste, Japan's recycling rates for industrial waste is not as high	• Laws shift some waste responsibility from municipalities to producers • Collection plans are the responsibility of municipalities
Korea, Rep.	• Extended Producer Responsibility System	• Covers imports as well as domestic production • Some materials and products require mandatory recycling • Recycling can be direct or outsourced, most companies use the Korea Waste Recycling Mutual Aid Association (KWRMAA) • Recycling obligation rates are public • Companies that overcompensate can use this overflow in the next two years	• A lack of natural resources and thus a reliance on imports plays a strong role in defining how responsibility is allocated	• Different responsibilities for consumers, producers, local governments, and national governments • Packaging is usually the responsibility of the packaged item producer, but in cases where the packaging is generically used for many similar items it lies with the packaging producer
United States		• Laws tend to focus on manufacturers	• No federal legislation • Most EPR schemes lack targets	• Carried out on a state level

ANNEX H:

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