

Extended Producer Responsibility (EPR) Law Toolkits for the Philippines

Toolkit 3: The EPR System and Waste Management Sector

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Prepared for:



Prepared with:



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Acronyms and Abbreviations

BIR	Bureau of Internal Revenue
BOI	Bureau of Investments
BSMED	Bureau of Small and Medium Enterprises Development
CDA	Cooperative Development Authority
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DepEd	Department of Education
DILG	Department of the Interior and Local Government
DOH	Department of Health
DOST	Department of Science and Technology
DTI	Department of Trade and Industry
EMB	Environmental Management Bureau
EPR	Extended Producer Responsibility
EPS	Expanded Polystyrene
FDA	Food and Drug Administration
FMCGs	Fast-Moving Consumer Goods
GDP	Gross Domestic Product
HDPE	High-Density Polyethylene
IEC	Information, Education, Communication
IWS	Informal Waste Sector
LDPE	Low-Density Polyethylene
LGU	Local Government Unit
MMDA	Metro Manila Development Authority
MRF	Materials Recovery Facility
MSMEs	Micro, Small and Medium Enterprises
NEC	National Ecology Center
NGA	National Government Agency
NGO	Non-Government Organization
NSWMC	National Solid Waste Management Commission
OEs	Obligated Enterprises
PET	Polyethylene Terephthalate
PIA	Philippine Information Agency
PP	Polypropylene
PRO	Producer Responsibility Organization
PS	Polystyrene
PVC	Polyvinyl Chloride
RA	Republic Act
SLF	Sanitary Landfill
SUP	Single Use Plastics
SWM	Solid Waste Management
SWMP	Solid Waste Management Plan
ULAP	Union of Local Authorities of the Philippines
WACS	Waste Analysis and Characterization Study
WWF	World Wide Fund for Nature

1.0 INTRODUCTION

1.1 State of Global and National Plastic Pollution

Plastic pollution has reached gigantic dimensions worldwide. The current projected growth in plastic pollution is said to cause significant ecological risks, with certain pollution hotspots like the Mediterranean, the East China and Yellow Seas, and the Arctic sea ice already exceeding an ecologically dangerous threshold of microplastic concentrations. The negative impacts of plastic pollution are already detectable in most species' groups while the productivity of several of the world's most important marine ecosystems, like coral reefs and mangroves, are under significant risk.¹

The estimated global plastic use in 2019 is 459.75 million tonnes (Mt). Considering population and economic growth, and structural and technology change, the projected global plastic use by 2060 is estimated to increase up to 1,230.63 Mt, and where countries in Africa and Asia are seen to have the largest contribution. More than 30% of the global plastics is used for packaging. This is estimated to increase by 2.5 times in 2060.²

Based on the same report, about 76.84% (353.29Mt) of the plastic used in 2019 is estimated to become waste. Among the plastic wastes, about 40.18% (141.96Mt) are plastic packaging. Only about 9.26% (32.83Mt) of the 2019 global plastic wastes are recycled while 22.44% (79.29Mt) are estimated to be mismanaged. Considering these amounts, it is estimated that about 22.06Mt of plastics will be leaked to the environment in 2019 and it is estimated to double by 44.15Mt in 2060.



Figure 1. Summary of Global Plastic Production, 2019²

In the Philippines, it was found that the amount of plastic items consumed by Filipinos was 2.15 million tonnes per annum. Thirty-five percent (35%) of the consumed plastics leak into the open environment while 33% are disposed of in sanitary landfills and open dumpsites, with only 9% recycled because of our lack of capacity to recycle both high and low-value plastics³ (Figure 1).

¹ Tekman, M. B. , Walther, B. A. , Peter, C. , Gutow, L. and Bergmann, M. (2022): Impacts of plastic pollution in the oceans on marine species, biodiversity and ecosystems, 1–221, WWF Germany, Berlin. Doi: 10.5281/zenodo.5898684

² Organisation for Economic Co-operation and Development (OECD) (2022).

https://www.oecd-ilibrary.org/sites/aa1edf33-en/1/3/2/index.html?itemId=/content/publication/aa1edf33-en&_csp_=ca738cf5d4f327be3b6fec4af9ce5d12&itemIGO=oeed&itemContentType=book

³ WWF Philippines, Inc., cyclos GmbH, & AMH Philippines, Inc., 2020

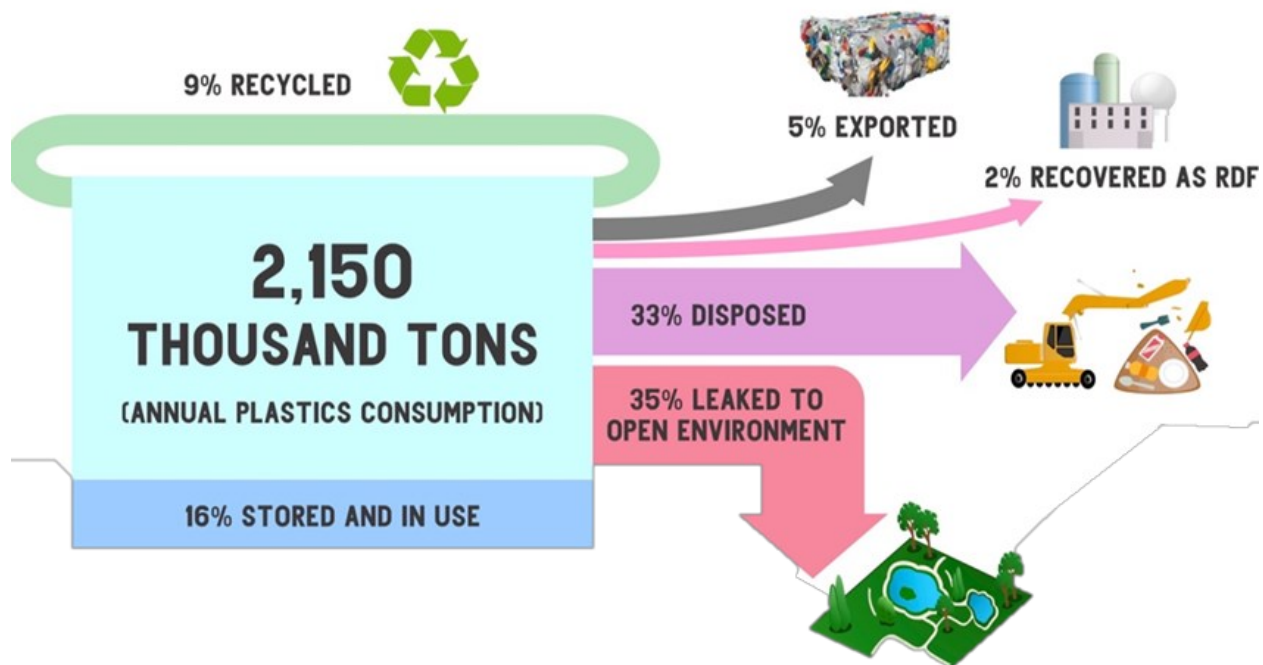


Figure 2. The flow of plastic materials in the Philippines in 2019 (WWF Philippines, Inc., cyclos GmbH, & AMH Philippines, Inc., 2020)

Further, for every dollar that producers pay for plastic, governments and society will pay at least 10 times as much to remedy its countless negative impacts, with the lifetime cost of ONLY THE plastic produced in 2019 estimated at US\$3.7 trillion (+/-US\$1 trillion), 10 times the Gross Domestic Product (GDP) of the Philippines.⁴

In 2020, the WWF-Philippines commissioned a comprehensive study to understand the plastic materials flows, legal framework, and current solid waste management system as inputs for assessing the applicability of the EPR scheme in the country. The study showed that there is a need to improve the implementation of RA 9003, or the Ecological Solid Waste Management Act of 2000. Challenges faced in its implementation include the following:

1. There are **limited separation and recycling activities at the source** (particularly household level). Recovery is mostly applied to high-value plastics but is still largely informal-led (e.g., waste pickers who go house to house to collect recyclable wastes) leaving a sizable volume of high-value recyclable packaging ending up in disposal sites or leaking to the environment.
2. Despite the large volume of high-value recyclable plastics, they often end up not being recycled due to the **limited number of recycling facilities** which are mostly concentrated in the central parts of the country. Coupled with the low recovery rate, some large recyclers and aggregators end up importing plastics to process.
3. There is a **high volume of low-value plastics and non-recyclables** (e.g., flexible films, sachets, composites) which are hard to collect as one needs to spend a long time to reach the minimum weight and bought at a cheap price. Recycling sachets also require new equipment for processing. These scenarios lead to these sachets to end up in disposal sites or leaking into the environment.

⁴ https://wwfint.awsassets.panda.org/downloads/wwf_pctsee_report_english.pdf

These factors lead to identifying EPR as a policy tool in aiding the RA 9003 implementation and improving the waste management system. Hence, in 2021, another study was commissioned to further study how EPR can be contextualized in the Philippine setting, in particular, forming the roadmap (see **Figure 2**) to incorporating/mainstreaming EPR with the existing solid waste management system and facilities in the country.

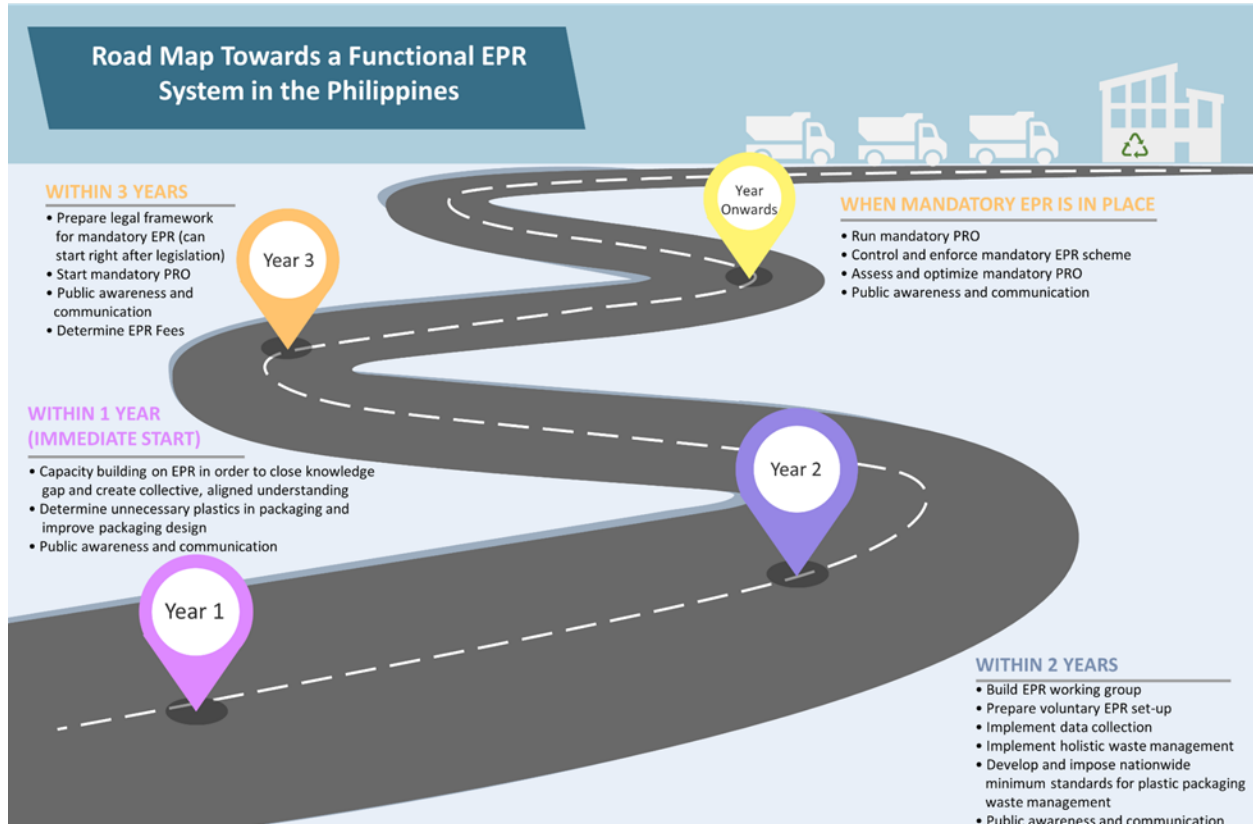


Figure 3. Roadmap Towards a Functional EPR System in the Philippines (WWF Philippines, Inc., cyclos GmbH, & AMH Philippines, Inc., 2020)

Results of the study were provided to policymakers and DENR to use as technical guidance for the approval of House Bill No. 10696 and Senate Bill 2425 or the EPR Bill of 2022 into law. Now that the said bill has lapsed into law (i.e., RA 11898 or the Extended Producer Responsibility Act of 2022 or EPR Law), WWF-Philippines has been active in complementing efforts by the DENR in crafting the IRR including this toolkit.

1.2 What is the Purpose of the Toolkit

This toolkit aims to communicate the EPR law and its Implementing Rules and Regulations (IRR). WWF conducted a series of dialogues with various stakeholders (i.e., corporations, NGOs, recyclers, Local Government Units, government agencies, and the informal waste sector) to gather inputs on the details the IRR should provide for them to carry out their roles in the EPR law implementation.

WWF developed four toolkits, each catering to a specific stakeholder - i.e. policymakers, businesses, civil society organizations, and waste management operators. Among the toolkits that were developed, this **EPR Toolkit 3 aims to guide the waste management sector on how they can go about their operations with the implementation of the EPR Law and ensure that the EPR system is aligned with the current solid waste management system on the ground.**

RA 11898, or the Extended Producer Responsibility (EPR) Act of 2022, amends RA 9003 to incorporate the implementation of EPR programs to ensure plastic products do not end up in the waste stream.

As the EPR is a policy tool that is relatively new to the country, this toolkit will tackle the following items which are deemed important for the law:

- Salient points of the EPR law;
- EPR implementation framework;
- Roles and responsibilities of the stakeholders;
- EPR programs, compliance, monitoring, reporting, and audit;
- Target plastics and labeling;
- Target reduction and recovery rate; and
- Partnership

While Toolkit 3 is prepared for the waste management sector, this document is designed in a way a wider audience can still use it such as researchers, students, government officials, private sectors, and the general public, among others.

1.2.1 Presentation and structure of this toolkit

The EPR Toolkit for the Philippines is designed into four categories targeting different sectors to make the adoption of EPR schemes faster and easier in the country.

- **Toolkit 1: The EPR Landscape.** Designed for the policymakers to support them in crafting the IRR of RA 11898;
- **Toolkit 2: All About Business.** Designed for the business sector of all sizes to assist them in shifting to a circular economy model of operations;
- **Toolkit 3: Waste Management Sector.** Designed for the Local Government Units (LGUs) facilitating the management of their wastes and the informal and formal waste sectors to ensure that the EPR system is aligned with the current solid waste management system on the ground; and
- **Toolkit 4: Civil Society and General Public.** Designed to increase public awareness and support for EPR.

The structure of Toolkit 3 is presented in **Figure 4.**

Section 1.0: INTRODUCTION

Brief introduction on the state of the plastic pollution
Introduction on the purpose of Toolkit 3

Section 2.0: KEY EPR TERMS

Key concepts of EPR and their definitions

Section 3.0: THE EPR SYSTEM AND WASTE MANAGEMENT SECTOR

Salient points of the EPR Law
Salient points of the EPR National Framework

Section 4.0: CALL TO ACTION

Statement for next actions to take

Section 5.0: WORLD WIDE FUND FOR NATURE'S WORK ON PLASTICS

Summary of WWF-Philippines' No Plastic in Nature Initiative
UNEP's SEA Circular Project

Figure 4. Structure of Toolkit 3

2.0 KEY EPR TERMS

The EPR is an environmental policy approach that emerged in the 1990s and is now increasingly recognized globally as a useful tool for accelerating the transition to sustainable waste management and a circular economy.

The EPR aims to reduce the economic and environmental burdens of waste management by extending the responsibility of producers to the end-of-life of their products. Producers and importers pay a fee upfront when their packed goods are placed on the market. The fee is used for collecting, recycling and disposing of the packaging waste and other costs arising from maintaining the system. It is not used as a contribution to the general public budget of a state.

WWF has thus identified the EPR scheme as a critical policy tool that holds producers accountable for the full life cycle of their products and packaging. This has been widely implemented in European countries and Asian countries such as Taiwan and Japan and draws positive results. In the Philippines, the EPR Bill lapsed into law on 23 July 2022.

Simply put, WWF defines EPR as *“companies, which are selling products and using packaging, shall be fully responsible for the end-of-life of products and packaging. This responsibility includes the organizational and/or financial responsibility for the collection, sorting, and recycling of products in a similar quantity to those sold or used. These systems should further be designed to incentivize the prevention or minimization of plastic used for packaging and products at the design stage. These systems, including the mode of organization of the responsibility for end-of-life of products and packaging, should be adapted to the existing regional or national environment.”*⁵

The EPR scheme encourages waste reduction through the elimination of unnecessary packaging of products and the development of a more environmentally friendly packaging design. EPR objectives are fulfilled through the development of downstream and upstream measures. Downstream measures focus on the development of end-of-life waste management systems, while upstream measures eliminate unnecessary packaging of products and development of an environment-friendly design.

Implementation of EPR varies per country but in essence, it consists of the following, among others, and will be discussed in the succeeding sections:

- Scope of EPR (including the category of plastic packaging wastes to be addressed);
- The PRO;
- OEs;
- EPR fees and Eco-modulation of EPR fees; and
- Stakeholders

Before getting into more details on the EPR, it is important to understand various terms and concepts which will be used from time to time.

The EPR Law defines EPR as *an environmental policy approach and practice that requires producers to be environmentally responsible throughout the life cycle of a product, especially its post-consumer or end-of-life stage.*

Table 1 provides the key terms and definitions under the EPR Law.

⁵ WWF (2019). WWF Network Position Paper on EPR for Plastic Packaging

Table 1. Key Terms and Definition of EPR as provided in RA 11898

Terms	Definition
Circular economy	Refers to an economic model of creating value by extending product lifespan through improved design and servicing and relocating ways from the end of the supply chain to the beginning. This intends to efficiently utilize resources by its continual use and aims to retain the highest utility and value of products, components and materials at all times, through sharing, leasing, reuse, repair, refurbishment, and recycling in an almost closed loop
High recyclability	Refers to a condition wherein the value for recovery and reprocessing of a product is high, due to its design, composition, content, and density, among other things
High retrievability	Refer to a condition wherein after use of a product, a significant volume of its waste can be recovered, properly recycled, processed or disposed of, on account of its high value for recovery, recycling, or reprocessing
Importer	Refers to a natural or juridical person engaged in bringing consumer goods into the Philippines, intended to be sold, whether in original packaging or to be repackaged for distribution to the general public
Large enterprises	Refer to any business entity whose total assets, inclusive of those arising from loans but exclusive of the land on which the particular business entity's office, plant and equipment are situated, are exceeding that of medium enterprises stated under Republic Act No. 9501, otherwise known as the "Magna Carta for Micro, Small, and Medium Enterprises"
Obligated enterprises	Refer to product producers that are required to implement an EPR program under this Act. They also refer to large enterprises that generate plastic packaging waste. In case an enterprise exceeds that of medium enterprises stated under RA 9501 (PhP100 million in assets), these enterprises shall be deemed OEs.
Plastic	Refer to a synthetic material made from a wide range of organic polymers such as polyethylene terephthalate, high density polyethylene, low density polyethylene, polypropylene, polystyrene, PVC and nylon that can be processed to form solid objects of various shapes
Plastic neutrality	Refer to a system or its desired outcome where, for every amount of plastic product footprint created, an equivalent amount thereof is recovered or removed from the environment by the product producers through an efficient waste management system
Plastic packaging	Refer to the polymer material designed to protect a product from environmental factors, or carry goods for transportation, distribution, and sale, including service necessities
Product footprint	Refer to a measure of the amount of goods produced, imported, distributed or supplied by a product producer, and deemed to cause damage to the environment
Product producer	Refer to any of the following persons: <ul style="list-style-type: none"> • brand owner who sells or supplies any commodity under a brand, label or identity using a product it produced, or a material supplied to it by another manufacturer, or supplier; and • product manufacturer or importer that supplies its commodities for the use of the general consumer, or distributes the same as a material product of a brand owner: Provided, That for purposes of Article 2 of Chapter III-A, in case the

Terms	Definition
	<p>commodities are manufactured, assembled or processed by a product manufacturer for another obliged enterprise which affixes its own brand name, the latter shall be deemed as the manufacturer</p>
<p>Sustainable consumption and production</p>	<p>Refer to the use of services and related products that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources and toxic materials, as well as the emission of wastes and pollutants over the life cycle of the service or product, so as not to jeopardize the needs of future generations</p>

Meanwhile, other concepts related to EPR are shown in **Table 2** that summarizes the commonly used terms and their respective definitions for EPR.

Table 2. Other Key EPR Terms, Concepts, and Definitions

Terms and Concept	Definition
Upstream vs Downstream solutions (waste management)	<p>Upstream solutions are also known as the pre-consumer, such as material redesign, plastic reduction, and substitution. Eco-design is done upstream where environmental aspects are incorporated into the product development and design while balancing economic requirements. Eco-design, as an upstream solution, addresses environmental attributes in the early phase of the product development thereby reducing negative impact throughout the plastic products' life cycle.</p> <p>Downstream solutions are post-consumer, such as recycling and disposal.</p>
Necessary vs Unnecessary plastics	<p>Unnecessary plastics are those that are considered not necessary for product integrity which, once eliminated, will not affect the use of the product. According to the South African Plastics Pact (2021), these are items that can be avoided (or replaced by a reuse model) while maintaining utility. They have limited social utility, for which no alternative is required and which can be phased out without significant behavioral or infrastructural change.</p> <p>Necessary plastics are otherwise considered to require alternatives before being removed as they may cause significant behavioral or infrastructural change.</p>
Human rights-based approach (HRBA)	<p>This approach focuses on those who are most marginalized, excluded, or discriminated against. The EPR, ensures that the informal waste sector (IWS) and waste diverters are properly included and involved in the implementation process, and guards against gender discrimination, child labor, and other discriminations.</p>
High-value vs low-value plastics	<p>Low-value plastics are those with little to no value for consumers and little to no recycling potential while high-value plastics give consumers high value and high recycling potential</p>
Eco-modulation	<p>As part of the EPR scheme, one means of encouraging producers to transition into more sustainable and environmentally friendly product development is incentivizing (like reduction of EPR tax/fees) the use of recyclable packaging and penalizing those that do not (an increase of EPR tax or fees).</p>
EPR Fees	<p>EPR Fees shall be collected by the PRO from the OEs. The fees are paid to the PRO in return for carrying out the producers' responsibilities. The rate of fees shall be determined with the PRO and will be eco-modulated (considering the basic fee, bonus, and malus).</p>
Producer Responsibility Organization (PRO)	<p>Same as the Collective of OEs, PRO is also identified as System Operator, voluntarily, this is a collective entity set up by the OEs or through legislation, which becomes responsible for meeting the waste collection and disposal obligations of the individual member OEs. The PRO is the most important stakeholder (organization) in an EPR system and is responsible for setting up, developing, and maintaining the system, as well as for the take-back obligations of the OEs.</p>

South African Plastics Pact. 2021. https://www.saplasticspact.org.za/wp-content/uploads/2021/07/SAPlasticsPact_Publication_UnnecessaryItems.pdf
 Yu, Jieqiong, Peter Hills, and Richard Welford. 2008. "Eco-Design Changes: Perspectives from China" 124 (October 2007): 111-24
 PREVENT Waste Alliance. 2020. "Factsheet 04: How Can a Register of Obligated enterprises be Established?" In: "EPR Toolbox."
 Sustainable Brands. 2022. <https://sustainablebrands.com/read/defining-the-next-economy/what-are-plastic-credits-a-4-minute-explainer>
 UNFPA (2014). The Human Rights-Based Approach. <https://www.unfpa.org/human-rights-based-approach>

3.0 THE EPR SYSTEM AND WASTE MANAGEMENT SECTOR

3.1 Salient Points of RA 11898 vis-à-vis RA 9003

3.1.1 Obligated Enterprises and Micro, Small, Medium Enterprises

Obligated Enterprises, according to the Law (Section 6 - Section 44-B), are product producers that are considered large enterprises that generate plastic packaging waste. Provided, however, that micro, small and medium enterprises defined under Republic Act No. 9501 shall not be covered. Provided, further, That in case the total value of assets of all enterprises carrying the same brand, label or trademark exceeds that of medium enterprises stated under Republic Act No. 9501, these enterprises shall be deemed obligated enterprises.

Notwithstanding the provisions of the immediately preceding paragraph, micro, small, and medium enterprises are encouraged to practice EPR voluntarily or be a part of the network of obligated enterprises or producer responsibility organizations practicing EPR.

Prior to the EPR Law, the management of the end-of-life of packaging wastes and other types of waste was left to the LGUs. With technical, institutional, and financial challenges, management of these wastes, as mandated by RA 9003, makes it hard for them, hence the increase of plastic leakage to the environment. Nevertheless, with the EPR Law, the management of plastic packaging will now be shared with the manufacturers and producers.

The basic approach of EPR is based on obliging enterprises (i.e., manufacturers, importers, and sellers) to assume full responsibility for the products they offer to the public not just during consumption but also during product conceptualization and the end-of-life phase or once their products have become waste. The law already defined the parameters that will qualify a certain enterprise as obliged or not. Once identified as an OE, they are required to develop and implement an EPR Program, as mandated by the EPR Law.

The same goes for MSMEs. Although they fall under voluntary EPR participation (EXCEPT when they carry the same brands, labels, or trademarks, and their cumulative assets are P100M and more, in which case they ALL are obliged enterprise), most of the plastic packaging management and disposal of non-participating MSMEs will fall under the jurisdiction of the LGUs.

The MSME accounts for 99.58% of the business establishments in the country⁶ which, if they can participate in the program, could also be a factor in lessening and eventually eliminating the use of plastic packaging that could lead to pollution, according to the DTI- Bureau of Small and Medium Enterprise Development (BSMED).

According to the Asia-Pacific Economic Cooperation (APEC), the following strategies/actions may be considered to encourage the participation of MSMEs in the EPR:

- Raising green awareness for enhancing competitiveness among stakeholders;
- Providing training and skills development for MSMEs;
- Promoting compliance with related international standards and the development of an integrated policy framework, at the regional and domestic levels;
- Providing incentives and promoting science, technology, and innovation (STI) and internet and digital economy to expand MSME market reach; and
- Promoting green supply chain development and establishing networks for green, sustainable, and innovative MSMEs

⁶ Philippine Statistics Authority (2021), as mentioned by DTI-BSMED during their interview meeting with WWF on 11 October 2022

3.1.2 Target Plastic Recovery Rate

In addressing plastic packaging wastes and pollution, it is vital that we level off with the understanding of the types of plastics, whether they are recyclable, how they affect the environment, what makes them pollutive, and which among them is the target for management.

A detailed discussion on the Categories of Plastics and Target Plastic Packaging are provided in **Annex B**.

*The EPR Law has provided a target recovery rate and compliance period for the reduction of plastic product footprint (**Section 6 – Section 44-F**). This gives the obliged enterprises and PROs a sufficient period to adjust to their EPR duties and responsibilities and improve their performance over time. Obligated enterprises shall likewise establish phase-in recovery programs that will achieve plastic neutrality. The programs may include the activities stated in the National Framework for the EPR.*

For this purpose, obliged enterprises that generate either rigid or flexible plastic packaging shall recover or offset their respective plastic packaging footprint.

The following targets for the recovery of plastic product footprint generated during the immediately preceding year are hereby set:

- 20% by 31 December 2023;
- 40% by 31 December 2024;
- 50% by 31 December 2025;
- 60% by 31 December 2026;
- 70% by 31 December 2027; and
- 80% by 31 December 2028, and every year thereafter.

For this purpose, obliged enterprises shall submit the report of their compliance including appropriate documentation to DENR.

With RA 9003, the responsibility of recovering plastic waste (together with other types of waste) is given to the LGUs. The means of how recovery will be done is provided in their 10-year Solid Waste Management Plan (SWMP, sample template, see **Annex C**). Now, with the EPR Law, this responsibility can now be shared with the OEs (through their respective EPR Programs). Such changes should also be reflected in the 10-year SWMP of the LGUs and the OEs (or through their collective or PRO) should coordinate with their LGUs.

The EPR Law only mentions plastic product footprint “recovery” and does not distinguish the difference between reuse, recycling, and reduction. Waste recovery means the diversion of plastic waste from the downstream waste streams. The reduction of the plastic product footprint is a good plan but it might be better if there is a mechanism to mandate the reduction or diversion of plastic packaging wastes not only on the downstream portion but also the upstream. In one of our consultations with the business sectors, it was raised that it is unclear if ‘plastic footprint’ covers plastic sales volume or if it includes all manufactured and imported products. The recovery of plastic product footprint needs to balance upstream measures with downstream measures. With this, recovery of plastic packaging wastes shall be categorized into three to meet the targets further:

- **Reduction of unrecyclable, unnecessary, and single-use plastic packaging.** As mentioned previously, the law only mentioned ‘recovery’ which seems to cover downstream wastes. On the other hand, a reduction in the use of unrecyclable and unnecessary plastic packaging could be better as it means the diversion of plastic wastes (categories I to IV) from the upstream portion of the waste stream which may also require the change in the use of these categories of plastics from the supply chain of the OEs.

- **Increasing the recyclability of plastic packaging.** The EPR encourages making plastics recyclable more than those that are not. It is in the best interest to advocate for the use of recyclable materials in the supply chain of OEs so that the generation of unrecyclable and unnecessary plastics (usually found in the category I to IV plastics) are permanently reduced or phased out.
- **Increase the reuse of recyclable plastic packaging.** The reuse of recyclable plastic packaging materials should be increased in the upstream portion of the waste stream. In this way, the use of virgin plastic materials will be reduced while increasing the reuse of recyclable plastic materials thereby supporting a circular economy.

Plastic waste recovery is one of the challenges that has been raised in one of the MSDs conducted by the WWF. This is conveyed by the stakeholders despite all types of plastics being 100% recyclable (including the SUPs). The EPR Law can aid in addressing this by creating a partnership with the OEs, collective, and PRO with the LGU and IWS to further increase the recovery rate of plastic packaging. It is also expected that the EPR Programs, through the OEs, collective, PRO, and other entities that join the EPR voluntarily, can address this by providing a market for low-value plastic wastes.

On the other hand, to avoid using the EPR scheme as means for corporations to keep producing plastics, eco-design, and identification of plastic alternatives should be given focus while ensuring benefits for the informal sector (another issue raised by the stakeholders). With the EPR, emphasis should be placed on eco-designs, support for alternatives to plastics, and the marketing of recycled products from community organizations. OEs should consider reducing the amount of plastic packaging in the market, and introducing refillable and reusable systems

Nevertheless, in addressing plastic packaging pollution, OEs should remember that regardless of downstream reduction target, their EPR Program should still **consider the waste hierarchy** i.e., reduction, reuse, recycling, and disposal, as last resort.

3.1.3 Plastic Labelling

Putting labels on plastic packaging is important to help consumers educate and identify how plastic packaging should be disposed of or managed. Labeling is an important aspect to facilitate re-use, recycling, return to the manufacturer, and other means to circulate the material in the system. This shall be improved as mandated by the law. With this, we suggest that certain standards for plastic labeling be enforced and implemented, with the help of DTI and the FDA. Labels, logos, and/or symbols shall be displayed in the packaging in a manner visible to the consumer showing the following:

- **Resin Identification Code.** It is suggested that all plastic packaging be mandated to put the 2013 updated RIC symbol in their products (i.e., triangle and not the three arrows). This RIC symbol, however, is more useful for the producers, recyclers, and aggregators (among others) to assist them in the recovery and recycling process, but not intended to be useful for the consumers.
- **Recyclability code.** Not all plastics are recyclable, some could be reused while some need to be disposed of. This information should also be put into the plastic packaging and each component to aid the consumers in how to manage the plastic packaging wastes after their use thereby increasing participation in the EPR. Compared to the RIC symbols, the recyclability code will be useful for consumers. With this, in addition to the RIC symbols, we advocate the inclusion of additional code for the EPR implementation that is not complicated and easily understood.

3.1.4 EPR Programs

EPR Programs are needed to be submitted by the OEs, their collective, or through their PRO to the NSWMC as part of their EPR registration. The EPR Registration process will be completed once the EPR program has been approved.

The law (Section 6 - Section 44-D) explained that obliged enterprises shall, within six months following the effectivity of the EPR Law, establish or phase in the EPR program for plastic packaging to achieve efficient management of plastic packaging waste, reduced production, importation, supply or use of plastic packaging deemed low in reusability, recyclability of retrievability, and plastic neutrality through efficient recovery and diversion schemes.

The programs under this section may include the activities and strategies stated for the framework under Section 3.1 provided that their mechanisms and strategies are submitted to the NSWMC, through the DENR. Obligated enterprises shall institute an EPR program either individually or collectively, whether with or without a PRO.

Further, an obliged enterprise or the PRO shall register EPR programs with the NSWMC, through the DENR and kept by the NEC (Section 6 - Section 44-E). The NSWMC shall ensure that the EPR programs submitted by an obliged enterprise or PRO, as the case may be, include the following information:

- *Obligated enterprise or PRO information, and contact information of the person responsible for its EPR;*
- *Specific type of packaging materials as covered by Section 44-C, and product brands;*
- *Whether the EPR program is to be implemented individually, collectively, or through a PRO;*
- *Verifiable volume or weight of the plastic packaging brought into the market within a specified period;*
- *Target volume or weight of plastic packaging waste for recovery, reuse, and recycling;*
- *Other EPR programs, such as the redesign of plastic packaging to improve reuse or recyclability;*
- *Labeling of packaging materials to facilitate recovery, reuse, recycling or proper disposal of packaging materials;*
- *Status of implementation of the EPR mechanisms; and*
- *Status of compliance*

As an initial compliance with the provisions of this section, obliged enterprises or PRO shall submit and register their EPR program to the NSWMC, through the DENR, within six months upon the effectiveness of the EPR Law.

The DENR, through the Environmental Management Bureau, and in coordination with the NSWMC, shall monitor and evaluate the compliance of obliged enterprises or their PROs with their respective EPR programs. For this purpose, obliged enterprises or their PROs shall be required to submit annual compliance reports.

Meanwhile, the functions of the National Ecology Center have been expanded to include maintaining an EPR Registry, establishing a national recycling network, and monitoring and evaluating compliance with registered EPR programs.

The formulation of the EPR Programs should consider the proposed EPR implementation scheme. It should be inclusive and be built on the existing solid waste management system. In addition to this, the following are some of the suggested EPR Programs which may be considered in the IRR and/or the OEs:

- Programs involving collaboration with the LGUs, communities, and these informal waste sectors;
- Activities involving recovery schemes for plastic wastes;

- Transportation of recovered plastic wastes to the appropriate recycling, composting, and other diversion or disposal sites;
- Clean up of plastic wastes leaked into coastal areas, public roads and other sites;
- establishment of recycling, composting, thermal treatment and other waste diversions or disposal facilities.;
- Promote the use of highly reusable, recyclable, and retrievable products in their establishments or make available for sale locally made products that are made of organic or compostable materials;
- Charge customers a minimum fee of five pesos for every single-use plastic bag regardless of whether it is compostable or for disposal;
- Establish an in-store recovery program to facilitate the return of used plastic products; and
- Take-back programs, deposit-refund schemes, plastics in exchange for currency or commodity and biodegradable waste converted to either biomass energy or compost

The EPR Program should also include adoption of strategies and investing in technologies that can reduce and eliminate harmful impacts of their products on the environment even as early as the design stage, hence an upstream solution. In addition to these, the OEs are also expected to find means to improve the reuse and recyclability of their products to avoid placing a burden on consumers and recyclers at the product's end of life. The EPR Program could also provide a marketing bridge between the business sectors and the waste sectors (i.e., cooperatives and waste diverters, especially those that have already the means to recycle and repurpose plastic waste but simply cannot sell it due to lack of networks). This is a lost opportunity in the existing solid waste management system that could be addressed by assured contract mechanisms with the plastic packaging producers or by introducing targets for recycled content. In this way, it would still encourage the activities of the existing social enterprises and cooperatives.

In addition to this, the OEs should also include Information, Education, and Communication (IEC) campaigns in their EPR Program to increase the success rate and sustainability of their projects. According to one of the stakeholders of the MSD, IEC campaigns are sometimes ineffective because social and behavioral changes are not incorporated. With this, there is a need to build collaborative opportunities among stakeholders. The national and local governments are vital in supporting their stakeholders to meet the EPR goals and targets. Further, the social and behavioral changes, in addition to the IEC should be considered by the OEs, collectively, or through their PRO, the LGU, academe, civil societies, and other citizen groups.

To assist the OEs, collective, PROs, and MSME (falling under the obliged enterprise definition and those that would like to voluntarily join the EPR), a template for the EPR Program that will be submitted to the NSWMC should be prepared to have a unified form of plan preparation.

In the case of MSMEs that want to participate voluntarily, they can reach out to the DTI-BSMED to be eligible to receive assistance (e.g., through Negosyo Centers, DTI Regional and Provincial Offices). They must first register the business name with DTI/SEC and secure the necessary permits from the barangay, city/municipality, and BIR.⁷

The LGUs, through the Department of Interior and Local Government (DILG) and the Union of Local Authorities of the Philippines (ULAP), can spearhead the spread of the EPR to reach every barangay, all throughout the Philippines. EPR law implementation should not just be concentrated in urban areas or cities but also reach all the islands in the archipelago. They can perhaps start with prototypes and replicate them nationwide, covering plastic waste collection, segregation, recovery, transport, recycling, and proper disposal. They can continuously improve their waste management to encourage their constituents to participate as well.

⁷ All discussions pertaining to MSME are from the WWF-Philippines (2022), Interview meeting with DTI-BSMED OIC Director Emma C. Asusano on 11 October 2022.

3.1.5 The Stakeholders from the Waste Management Sector

Waste collectors, whether formal or informal, play a vital role in the success of an EPR scheme. They serve as the link between waste generators to waste disposal sites, recyclers and consolidators.

Waste collectors are responsible for ensuring that each component of the waste stream reaches its intended recipient and does not leak into the environment and cause pollution. This can be achieved by proper waste segregation. With the help and participation of waste generators, the segregation of waste can be easier for the waste collectors.

The waste management sector comprises waste collectors and recyclers and consolidators. They work directly and indirectly to manage waste. In the EPR scheme, they also play vital roles hence, the following show their respective roles:

- Waste Collectors
 - Formal AND informal waste sectors are included;
 - Formalization of the informal sector through different business models;
 - Serve as the link and are responsible for ensuring that each component of the waste stream reaches its intended recipient and does not leak into the environment;
 - MRF operators to buy material from the informal sector but sell only to formal recycling companies; and
 - Essential because segregation at source is an important feature for EPR to work
- Recyclers and Consolidators
 - Collecting recyclables and recovered materials to be transformed into new products;
 - Partners with the PRO;
 - Monitor and report data to the central platform; and
 - Must comply with Government standards to ensure high-quality recycling

A registry or directory of the waste recyclers, aggregators, and collectors should be generated by the DENR as well. This registry would be vital for other sectors, particularly the business sectors, to tap them for their EPR programs.

HOW SHARED RESPONSIBILITY IN WASTE MANAGEMENT IS DONE IN BELGIUM (AN EXAMPLE)⁸

Belgium's PRO has contracts with all municipalities, in which the PRO specifies the collection of recyclables and organizes where waste is sorted. However, the actual collection of the waste is still a municipal task and is organized by the public authority

Inclusion of the Informal Waste Sector

The informal waste sector (IWS) is small-scale, labor-intensive, unregulated, and unregistered⁹. This includes, but is not limited to waste pickers and junk shops (usually small). The inclusion of IWS in an EPR scheme is important as their contribution to recovery efforts is significant as long as there is an economic motivation for them to do so. The IWS is skilled in plastic waste collection, sorting, and recycling but is also the most vulnerable sector along the waste recovery chain.

The MRF operation is proposed to engage the informal sector through the contracting of waste pickers' cooperatives instead of employing waste pickers individually. The IWS for their part may opt to join established cooperatives or to carry on with their waste-picking efforts and selling of recovered items to junk shops. The waste pickers can also form cooperatives with the assistance of social enterprises or LGUs to build on their capacities. Waste pickers need to receive equitable income and with their health

⁸ WWF-Philippines (2020). EPR Scheme Assessment for Plastic Packaging Waste in the Philippines

⁹ Wilson, D., Whiteman, A., Tormin, A. (2001). Strategic Planning Guide for Municipal Solid Waste Management. Washington, DC: World Bank.

and safety also safeguarded. In addition to forming a cooperative, an entrepreneur program and aggregator formalization can also be considered as a means to integrate the IWS.

Thus, the proposed EPR scheme gives the informal sector choices in which they can retrieve waste materials suitably and comfortably, either through continuing their waste-picking activities or by being integrated by social enterprises or cooperatives. They shall be given the opportunity to earn additional income by earning revenue not just from high-value plastics but also from low-value plastics. They may further be supported by providing them with the necessary equipment, such as karitons and trucks for hauling, as well as by providing financial assistance that junk shop operators can use as capital. The government should also provide training to waste collectors for them to better understand the different types of plastic and how to segregate them and assist them in reportorial requirements as part of the EPR. Consideration of the IWS in the EPR is an important measure for the human rights-based approach.

If economic incentives can also be made available to recycling companies and converters for them to invest in technology that can recycle or recover value from these low-value plastics, not only will this provide motivation to increase the collection of low-value plastics but the informal waste pickers and small junk shops who often come from low-income groups will have additional revenue.

FORMALISATION OF INFORMAL WASTE PICKERS IN CHILE (AN EXAMPLE)¹⁰

Chile is currently creating a mandatory EPR scheme and passed the draft EPR legislation for packaging in June 2019. To formalize informal waste pickers, Article 40 states:

“The waste pickers who are registered in the national register (RETC or PRTR) will be able to participate in the waste management for the fulfillment of the goals established in the decree. For these purposes, they must be certified within the framework of the National System of Certification of Labour Competences established in law No. 20 267 The Producer Responsibility Organization must make the bidding rules under which they will contract the collection and recovery services available to the waste pickers free of charge. In addition, the Inclusion Plan of the PRO (article 13) must indicate the mechanisms and tools for training, financing, and formalization, aimed at enabling the full integration of waste pickers.”

3.1.6 Partnerships with waste management operators

Rule XV Section 2.2 (6) of the IRR mentioned “Partnership with LGUs, communities, and informal waste sectors” where “Obliged Enterprises, or the Collectives or PROs to which they belong, may establish collaborative partnerships with LGUs, communities and informal waste sector for, among others”.

The proposed EPR scheme advocates supporting the already existing solid waste management (SWM) infrastructure (i.e., materials recovery facility or MRF, junk shops, and recycling facilities) in place and sees to it that the principle of producer responsibility is applied to address the gaps in the current system rather than to propose measures that may cause major disruptions to already established value chains and end up being impractical to implement. As an important contributor to the recycling industry, a collaborative partnership is needed.

Establishing a collaborative partnerships with LGUs, Cooperatives, and IWS is one of the means to further implement the EPR in the country but there is a need to ensure that benefits and/or incentives will reach all parties of the partnership. One of the means to do this is by incentivizing those “working with the LGUs” rather than “incentivizing the LGUs” to ensure that the benefits trickle down to the community thereby meeting a human rights-based approach. The collaborative partnership with all the parties should provide clear roles and be approved by all sides.

¹⁰ WWF-Philippines (2020). EPR Scheme Assessment for Plastic Packaging Waste in the Philippines

Education campaigns could be another subject of partnership with the LGUs and civil societies. Meanwhile, it would also be beneficial to include the academe (research and development), professionals (e.g., engineers, planners, scientists, etc.), and other civic organizations (e.g., Rotary Club, churches, etc.).

A partnership shall be used for collecting and management of wastes, supporting the MRF operation, supporting the waste management cooperatives (if applicable), and training, among others. Rates should be established for the operation (such as waste collection) of the partnership and should not be confidential. Should there be a waste collection in a certain community, the entity/partnership should make an agreement with the existing cooperative in that community first in order to avoid competition. If there is none, the partnership can go directly with the LGU.

IEC should also be done in collaborative partnership with other entities within the waste management sector. As observed by one of the stakeholders in the MSD, there is a lack of implementation of RA 9003 that leads to improper waste segregation (even at the household level) and should be penalized. There were also some concerns about the collection of wastes where segregated household wastes are simply collected together thereby disregarding 'segregation-at-source' efforts. Enabling factors to the success of EPR would be the better implementation of RA 9003, awareness raising on plastics, marketing of recycled products of cooperatives and social enterprises, coordination between the LGU and private sector, and financial resources to support the implementation of ideas and initiatives of the cooperatives.

Other issues and concerns identified by the stakeholders in RA 9003 are

- The need of LGU for guidance in updating their 10-year SWMP and incorporating EPR into their local ordinances. While there is still a need for the LGUs to meet the requirement of formulating their 10-Year SWMP, the EPR Law should also consider means to assist the LGUs on how to mainstream it into the existing processes;
- Cooperative and waste diverters have ideas on managing and recycling waste but lack the financial and technical resources to implement them. Partnership with the private sector and LGUs to address this concern is one thing that they look forward to. With this, the national government or private sectors/investors should consider the provision of financial support for the stakeholders of the EPR to ensure participation and meeting of its goals. Further, established social enterprises, NGOs, and OEs (including the collective and PRO) could include in their activities the technical capacity training for cooperatives and other civil societies to improve their plastic recovery programs activities;
- The cooperatives with already established MRF find it hard to compete with the barangays that are planning to establish their own MRF to comply with RA 9003 and DILG. They suggest that if there are cooperatives with MRFs already in barangays that are yet to have their own MRF, these barangays should partner with the cooperatives instead of developing a new MRF. For this part, cooperation of the LGUs, private sectors, and community groups is considered an important factor in the EPR to ensure its implementation and maximize existing infrastructures (ensuring there is no overlap). In addition to this, there are private sectors (mostly potential OEs) that have already developed their MRFs to partner communities to increase recovery rate such as Coca-Cola, Alaska, and Nestle, among others; and
- While there are many solutions available for the problems (e.g., forming partnerships with the private sector), there is a need to ensure the sustainability of the projects and communities' capacity to ensure that initiatives will continue even after the organizations helping them from the project leaves. To do this, enabling factors to the success of EPR would be the better implementation of RA 9003, awareness raising on plastics, marketing of recycled products of cooperatives and social enterprises, coordination between the LGU and private sector, and financial resources to support the implementation of ideas and initiatives of the cooperatives;

3.1.7 Audit and Monitoring

Based on the law (Section 6 - Section 44-G), obliged enterprises or their PROs shall establish and implement an auditing system to monitor and assess their compliance performance with RA 11898 and their EPR programs. For this purpose, the obliged enterprises or their PRO shall engage an independent third-party auditor to certify the veracity of the reported plastic product footprint generation, recovery, and EPR program compliance, using uniform standards established by the DENR. The audited report shall be submitted by the obliged enterprises or their PROs to the DENR.

The certified reports on plastic product footprint generated and recovered by the obliged enterprises shall be made available to the public through the website of the DENR: Provided, That a record, report, or information, or particular portion thereof deemed by the DENR as confidential, shall not be made public when such would divulge trade secrets, production or sales figures, or methods and processes unique to the enterprise that would otherwise tend to adversely affect its competitive position.

For the audit, it is suggested that the following be considered:

- provide parameters for audit criteria so that the assessment and evaluation of EPR Programs will be based on objective standards; and
- the audit will be undertaken by independent auditors

In terms of ensuring that implementation of the EPR is enforced, a good database and monitoring system should be in place. Monitoring of the compliance of the OEs, collective, and their PROs to the requirement set by the law is linked to the fines and penalties; however, one of the concerns right now is how monitoring can be done.

Since OEs are generally large enterprises (falling in the definition of the law), a master list of all large enterprises could be generated with the assistance of the DTI, SEC, and/or BIR. They can also gather the master list of the MSME to check which among this group will be included in the OEs. Once finalized, the master list can also form part of the registry of EPR, in addition to the registry of the EPR Programs, and be a basis for the monitoring of their compliance. New enterprises that are registered and considered OEs shall be notified to DENR to be included in the said master list.

A public registry and information data bank should be readily available for monitoring and guidance.

Taking from the experience in the implementation of RA 9003, monitoring is a phase that needs improvement, according to one of our stakeholders in the MSD. Monitoring activities of the barangays to solid waste management should be improved so the compliance of people is strengthened. Further, institutions could partner with junk shops to create plastic drop-off points in the communities. The EPR Law should consider strengthening the capacity of the LGUs in the SWM implementation and further improving monitoring and partnership with the waste sector.

3.2 Salient Points of the National Framework on EPR

The law mandates that a national framework on EPR for all types of product wastes shall be formulated within three months after the effectiveness of the EPR Law in consultation with the DENR and NSWMC (Section 6 - Section 44-A). In summary, the following shall be the components of the said framework:

- *Reduction of non-environment friendly products which may include the following activities and strategies:*
 - *adoption of reusable products, or redesign of the products to improve its reusability, recyclability, or retrievability;*
 - *inclusion of recycled content or recycled materials in a product;*
 - *adoption of appropriate product refilling systems for retailers;*
 - *viable reduction rates plan;*
 - *information and education campaign schemes; and*
 - *appropriate labeling of products, including the information thereon for the proper disposal of the waste product.*

- *Product waste recovery programs aimed at effectively preventing waste from leaking to the environment, which may include the following activities:*
 - *waste recovery schemes through redemption, buy-back, offsetting, or any method or strategy that will efficiently result in high retrievability, high recyclability, and resource recovery of waste products;*
 - *diversion of recovered waste into value chains and value-adding useful products through recycling and other sustainable methods;*
 - *transportation of recovered waste to the appropriate composting, recycling, or other diversion or disposal site in the country;*
 - *clean-up of waste leaked to coastal areas, public roads, and other sites;*
 - *establishment of commercial or industrial scale recycling, composting, thermal treatment, and other waste diversion or disposal facilities for waste products, when investment therein is viable; and*
 - *partnership with LGUs, communities, and the informal waste sectors.*

Following the elements of the EPR's National Framework (as provided by the law and its IRR, particularly in Rule XV), this toolkit would like to highlight the following factors that should be considered in the implementation of the EPR and be considered in the development of EPR Programs by the OEs, collective, or PRO.

3.2.1 Investment and Infrastructure

Investment should also include research and development, technology sharing, and reduction of plastic waste. As mentioned in Rule XV Section 2.2 (5), "*Establishment of commercial or industrial scale recycling, composting, thermal treatment, and other waste diversion or disposal facilities for waste products, when investment therein is viable.*"

The National Government should invest in the waste management facilities needed to implement the EPR Law. They can also pool resources with the private sector to invest in order to create financial mechanisms for those who want to improve the solid waste infrastructure but do not have the capacity to invest and/or explore other related investments. Investment should also be channeled to recyclers/processing (machinery) to encourage circularity.

The investment in facilities should be included in the implementation framework of EPR and provide incentives to obliged entities that will invest in these facilities. This is because recycling alone is not sufficient as reprocessing recovered wastes needs enough facilities located in the Philippines. In this way, participation and meeting the target recovery of plastic will increase and processing will be more accessible for the OEs and the MSMEs.

3.2.2 Reduction Measures, Research and Development, and Technology Sharing

Rule XV Section 2.2 (1) discussed “Waste recovery schemes through redemption, buy-back, offsetting, or any method or strategy that will efficiently result in the high retrievability, high recyclability and resource recovery of waste products.”

This target to reduce plastic packaging waste shall be included in the EPR programs of the OEs, collective, and PRO. To further improve the reduction measures, there is a need for continuous research and development of better packaging products and means to process them thereby making packaging design more environmentally sustainable or eco-design.

Eco-design shall be considered by the manufacturers and OEs as one of the main factors of the EPR to

- conserve raw materials;
- use of recyclates (critical to close the loop in a circular economy); and
- design of packaging (will determine the reusability and recyclability of post-consumer packaging waste)

Manufacturers can start introducing a minimum portion of recycled material in their products and aim to use less virgin material and more recyclates as much as possible. By making their designs more sustainable, they can also meet the required reduction on the use of virgin materials and increase the rate of recyclable materials. The OEs may investigate through research and development (R&D) to eventually replace low-value plastic packaging with high-value plastic packaging, which has potentially lower EPR fees than the former.

As mentioned previously, the academy can support R&D. Currently, there are existing fabrication laboratories at the University of the Philippines Diliman, DOST, and other State Universities that can be tapped to innovate and experiment with alternatives to plastic packaging. Through R&D, the use of natural material as provided in the IRR could be clarified if this is viable and could promote circularity or not.

Finally, OEs investing in R&D should qualify for incentives or benefits in order to encourage more R&D.

3.2.3 Expansion to other types of wastes

The EPR Framework is trying to set a standard that can be applied to all products, not only plastics.

A representative of waste collectors/cooperatives shared that they see value in plastics and even tires hence the processing of these types of wastes. The textiles are usually donated to other organizations where they are turned into other materials or products (e.g., rugs). However, some textiles are considered for disposal already due to their materials or there being no other use yet (e.g., polyester, jersey). Meanwhile, for used batteries, they do not usually recycle or manage them but due to a partnership with a university near their cooperative, they are now collecting them.

The EPR Framework covers various types of waste products that can be included in the EPR in the future. There are no further suggestions on the type of waste products to be included in the EPR framework.

4.0 CALL TO ACTION

We commend the authors of the law and DENR for leading the drafting of the IRR in close consultation with relevant stakeholders in the plastic value chain. The work on implementing this law now begins.

The EPR scheme is a balance of upstream and downstream solutions. Implementing this should not only focus on reaching the recovery rates but also identify ways to reduce unnecessary plastics in the packaging and provide alternative product delivery. We call and challenge the OEs to integrate upstream solutions in the EPR programs that they will be submitting to the NEC for approval. This way, we not only stop plastic waste leakage but also close the tap and loop them back into the value chain.

We also urge the LGU, the waste management sectors, and waste diverters (including the formal and informal waste sectors) to participate in the EPR while pushing and ensuring integrative, inclusivity, and human-rights-based approaches in creating and implementing EPR programs in the Philippines. The EPR Programs should support LGUs that have been at the forefront of solid waste management under RA 9003.

MRFs and recycling facilities have always been a challenge that we hope this EPR law can help address. Further, EPR programs should include the informal waste sector who has been critical in the recycling rate. This law can be an opportunity to provide our waste workers with decent working conditions and insurance which are part of their human rights. Again, we urge that OEs take on a human-rights-based approach in implementing this EPR law.

We need to work together to address plastic pollution and it begins now.

5.0 WORLD-WIDE FUND FOR NATURE'S WORK ON PLASTIC POLLUTION

Plastic pollution is a systems problem that requires a holistic approach that addresses gaps in the entire plastics lifecycle (from production, usage, collection, and treatment, to secondary markets).

As part of the World Wide Fund for Nature's (WWF) No Plastic in Nature Initiative, a global initiative to stop the flow of plastics entering nature by 2030 through the elimination of unnecessary plastics, doubling reuse, recycling, and recovery, and ensuring that the remaining plastic is sourced responsibly, the organization has been working with various sectors such as:

- Cities, municipalities, and communities in implementing their 10-year Solid Waste Management Plans through identifying, piloting, and showcasing waste reduction and management solutions that can be adopted nationally and globally;
- Policy makers in pushing the Philippines' support to the global treaty on plastic pollution, and the Extended Producer Responsibility (EPR) scheme in the country;
- Ports and businesses in making public commitments, setting waste reduction and management goals, and implementing waste reduction and management solutions that can be adopted nationally and globally; and
- The general public to raise awareness and action to address plastic pollution.

WWF-Philippines' work in EPR is part of the initiative of the UN Environment Programme's (UNEP) SEA circular project, funded by the Government of Sweden. The SEA circular project aims to:

- promote circularity of plastics through extended producer responsibility;
- form producer responsibility organizations (PRO) in the Philippines;
- address challenges and opportunities in the informal sector, recyclers, collection, and recycling of valuable and non-valuable plastics; and
- enable policies that can support the recycling industry with locally-sourced materials

This project is part of the EPR initiative by the SEA circular project which is implemented together by the UN Environment Programme and The Coordinating Body on the Seas of East Asia (COBSEA). The project is funded by the government of Sweden.¹¹ Further information on how WWF helps in addressing plastics pollution can be seen in this link <https://wwf.org.ph/what-we-do/plastics/>.

¹¹<https://wwf.org.ph/what-we-do/plastics/wwf-continues-its-work-on-extended-producer-responsibility-with-unep-sea-circular/>

ANNEXES

Annex A. RA 11898 or the Extended Producer Responsibility Act of 2022

[Republic Act No. 11898]

AN ACT INSTITUTIONALIZING THE EXTENDED PRODUCER RESPONSIBILITY ON PLASTIC PACKAGING WASTE, AMENDING FOR THIS PURPOSE REPUBLIC ACT NO. 9003, OTHERWISE KNOWN AS THE "ECOLOGICAL SOLID WASTE MANAGEMENT ACT OF 2000"

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

SECTION 1. *Short Title.* - This Act shall be known as the "Extended Producer Responsibility Act of 2022".

SEC. 2. Section 2 of Republic Act No. 9003 is hereby amended to read as follows:

"SEC. 2. *Declaration of Policies.* - It is hereby declared the policy of the State to adopt a systematic, comprehensive and ecological solid waste management program which shall:

"x x x

i) Integrate public participation in the development and implementation of national and local comprehensive and ecological waste management programs;

(j) Strengthen the integration of ecological solid waste management and resource conservation and recovery topics into the academic curricula of formal and non-formal education in order to promote environmental awareness and action among the citizenry; and

k) Institutionalize the extended producer responsibility mechanism as a practical approach to efficient waste management, focusing on waste reduction, recovery and recycling, and the development of environment-friendly products that advocate the internationally accepted principles on sustainable consumption and production, circular economy, and producers' full responsibility throughout the life cycle of their product."

SEC. 3. Section 3 of Republic Act No. 3003 is hereby amended to read as follows:

"SEC. 3. *Definition of Terms.* - For the purposes of this Act:

"x x x

"(d-1) Circular economy shall refer to an economic model of creating value by extending product lifespan through improved design and servicing, and relocating ways from the end of the supply chain to the beginning. This intends to efficiently utilize resources by its continual use, and aims to retain the highest utility and value of products, components and materials at all times, through sharing, leasing, reuse, repair, refurbishment, and recycling in an almost closed loop;

"x x x

"(m-1) Extended producer responsibility (EPR) shall refer to the environmental policy approach in practice that requires producers to be environmentally responsible throughout the lifecycle of product, especially its post-consumer or end-of-life stage;

"x x x

"(p-1) High recyclability shall refer to a condition wherein the value for recovery and reprocessing of a product is high, due to its design, composition, content, and density, among other things;

"(p-2) High retrievability shall refer to a condition wherein after use of a product, a significant volume of its waste can be recovered, properly recycled, processed or disposed of, on account of its high value for recovery, recycling, or reprocessing;

"(p-3) Importer shall refer to a natural or juridical person engaged in bringing consumer goods into the Philippines, intended to be sold, whether in original packaging or to be repackaged for distribution to the general public;

"(p-4) Large enterprises shall refer to any business entity whose total assets, inclusive of those arising from loans but exclusive of the land on which the particular business entity's office, plant and equipment are situated, are exceeding that of medium enterprises stated under Republic Act No. 9501, otherwise known as the "Magna Carta for Micro, Small, and Medium Enterprises";

"x x x

"(s-1) Obligated enterprises shall refer to product producers that are required to implement an EPR program under this Act;

"x x x

"(v-1) Plastic shall refer to a synthetic material made from a wide range of organic polymers such as polyethylene terephthalate, high density polyethylene, low density polyethylene, polypropylene, polystyrene, PVC and nylon that can be processed to form solid objects of various shapes;

"(v-2) Plastic neutrality shall refer to a system or its desired outcome where, for every amount of plastic product footprint created, an equivalent amount thereof is recovered or removed from the environment by the product producers through an efficient waste management system;

"(v-3) Plastic packaging shall refer to the polymer material designed to protect a product from environmental factors, or carry goods for transportation, distribution, and sale, including service necessities and more particularly described under Section 44-C;

"(w-1) Product footprint shall refer to a measure of the amount of goods produced, imported, distributed or supplied by a product producer, and deemed to cause damage to the environment;

"(w-2) Product producer shall refer to any of the following persons:

(1) brand owner who sells or supplies any commodity under a brand, label or identity using a product it produced, or a material supplied to it by another manufacturer, or supplier; and

(2) product manufacturer or importer that supplies its commodities for the use of the general consumer, or distributes the same as a material product of a brand owner." *Provided*, That for purposes of Article 2 of Chapter III-A, in case the commodities are manufactured, assembled or processed by a product manufacturer for another obliged enterprise which affixes its own brand name, the latter shall be deemed as the manufacturer;

"x x x

"(qq-1) Sustainable consumption and production shall refer to the use of services and related products that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources and toxic materials, as well as the emission of wastes and pollutants over the life cycle of the service or product, so as not to jeopardize the needs of future generations;

"x x x

SEC. 4. Section 4 of Republic Act No. 9003 is hereby amended to read as follows:

"SEC. 4. *National Solid Waste Management Commission*. - There is hereby established a National Solid Waste Management Commission, hereinafter referred to as the Commission, under the Office of the President. The Commission shall be composed of eight (8) members from the government sector and five (5) members from the private sector. The government sector shall be represented by the heads of the following agencies in their *ex officio* capacity:

"(1) Department of Environment and Natural Resources (DENR);

"(2) Department of the Interior and Local Government (DILG);

"(3) Department of Science and Technology (DOST);

"(4) Department of Health (DOH);

"(5) Department of Trade and Industry (DTI);

"(6) Department of Agriculture (DA);

"(7) Metro Manila Development Authority (MMDA); and

"(8) Union of Local Authorities of the Philippines.

"The private sector shall be represented by the following:

"(a) Three (3) representatives from non-government organizations (NGOs) with a track record on solid waste management or waste reduction, recycling and resource recovery;

"(b) A representative from the recycling, composting, or resource recovery and processing industry;
and

"(c) A representative from the manufacturing industry, packaging industry, or obliged enterprises;

"x x x

"*Provided*, That representatives from the private sector shall be appointed by the President for a term of three (3) years.

"x x x

SEC. 5. Section 7 of Republic Act No. 9003 is hereby amended to read as follows:

"SEC. 7. *The National Ecology Center.* - There shall be established a National Ecology Center (NEC) under the Commission shall provide technical expertise, information, training, and networking services for the implementation of the provisions of this Act. As part of its oversight function, the NSWMC shall have direct supervision over the NEC.

"In this regard, the NEC shall perform the following functions:

"(a) Facilitate training and education in integrated ecological solid waste management;

"(b) Establish and manage a solid waste management information database, in coordination with the DTI and other concerned agencies:

"(1) on solid waste generation and management techniques as well as the management, technical and operational approaches to resource recovery;

"(2) of processors/recyclers, the list of materials being recycled or bought by them and their respective prices; and

"(3) on the rate of recovery of each type of plastic waste, updated semi-annually;

"(c) Promote the development of a recycling market through the establishment of a national network that will enhance the opportunity to recycle;

"(d) Maintain an EPR Registry that contains the registered EPR programs submitted by obliged enterprises or Producer Responsibility Organizations (PROs);

"(e) Monitor and evaluate the compliance of obliged enterprises and PROs, with the registration of their EPR programs;

"(f) Develop and maintain a database, which includes digital formats, subject to the provisions of Section 44-G, and ensure that it is reliable, effective, secure, transparent, and accessible to the public;

"(g) Receive sampling and assessment reports submitted pursuant to second paragraph of Section 44-H and undertake the necessary action on such reports, or complaints from any

citizen against a waste generator, an obliged enterprises, PRO, or waste management entity, for the purpose of improving compliance with the law;

"(h) Provide or facilitate expert assistance in pilot modeling of solid waste management facilities;

"(i) Develop, test, and disseminate model on waste minimization and reduction auditing procedures for evaluating options; and

"(j) Within one (1) year after the effectiveness of the Extended Producer Responsibility Act of 2022, provide an assessment on the volume or footprint of other generated wastes, for priority inclusion in the EPR scheme.

"The National Ecology Center shall be headed by the Assistant Director of the Bureau in his/her *ex officio* capacity. The Assistant Director shall regularly submit reports as may be required by the NSWMC in its monthly meetings. The reports of the NEC shall be consolidated by the NSWMC Secretariat for submission to the NSWMC. The NEC shall maintain a multi-sectoral, multi-disciplinary pool of experts including those from the academe, inventors, practicing professionals, business and industry, youth, women, and other concerned sectors, who shall be screened according to qualifications set by the Commission."

SEC. 6. Republic Act No. 9003 is hereby further amended by inserting a new chapter after Chapter III to read as follows:

"CHAPTER III-A

"EXTENDED PRODUCER RESPONSIBILITY

"ARTICLE 1

"National Framework for All Types of Product Wastes

"SEC. 44-A. *National Framework for Extended Producer Responsibility.* - Unless otherwise provided under Article 2 of this Chapter, within three (3) months following the effectiveness of the Extended Producer Responsibility Act of 2022, the Department, in consultation with the NSWMC, shall formulate a national framework on EPR for all types of product wastes. The framework shall include the following components:

"(a) Reduction of non-environment friendly products which may include the following activities and strategies:

"(1) adoption of reusable products, or redesign of the products to improve its reusability, recyclability, or retrievability;

"(2) inclusion of recycled content or recycled materials in a product;

"(3) adoption of appropriate product refilling systems for retailers;

"(4) viable reduction rates plan;

"(5) information and education campaign schemes; and

"(6) appropriate labeling of products, including the information thereon for the proper disposal of the waste product.

"(b) Product waste recovery programs aimed at effectively preventing waste from leaking to the environment, which may include the following activities:

"(1) waste recovery schemes through redemption, buy-back, offsetting, or any method or strategy that will efficiently result in the high retrievability, high recyclability, and resource recovery of waste products;

"(2) diversion of recovered waste into value chains and value-adding useful products through recycling and other sustainable methods;

"(3) transportation of recovered waste to the appropriate composting, recycling, or other diversion or disposal site in the country;

"(4) clean-up of waste leaked to coastal areas, public roads, and other sites;

"(5) establishment of commercial or industrial scale recycling, composting, thermal treatment, and other waste diversion or disposal facilities for waste products, when investment therein is viable; and

"(6) partnership with H^oGUs, communities, and the informal waste sectors.

"ARTICLE 2

"Extended Producer Responsibility for Plastic Packaging

"SEC. 44-B. *Obligated Enterprises Under This Article.* - Product producers obliged to implement EPR under this Article shall refer to large enterprises that generate plastic packaging waste: *Provided, however,* That micro, small and medium enterprises defined under Republic Act No. 9501 shall not be covered: *Provided, further,* That in case the total value of assets of all enterprises carrying the same brand, label or trademark exceeds that of medium enterprises stated under Republic Act No. 9501, these enterprises shall be deemed obliged enterprises.

"Notwithstanding the provisions of the immediately preceding paragraph, micro, small, and medium enterprises are encouraged to practice EPR voluntarily, or be a part of the network of obliged enterprises or producer responsibility organizations practicing EPR.

"SEC. 44-C. *Plastic Packaging Covered by EPR.* - For the purpose of Article 2 of Chapter III-A of this Act, plastic packaging shall refer to products utilized to carry, protect, or pack goods for transportation, distribution, and sale.

"Plastic packaging shall include the following:

"(a) Sachets, labels, laminates, and other flexible plastic packaging products, whether single layer or multi-layered with plastics or other materials;

"(b) Rigid plastic packaging products, whether layered with any other materials, which include containers for beverages, food, home, personal care, and cosmetic products, including their coverings, caps, or lids and other necessities or promotional items, such as cutlery, plates, drinking straws, or sticks, tarps, signage, or labels;

"(c) Plastic bags, which include single-use plastic bags, for carrying or transporting of goods, and provided or utilized at the point of sale; and

"(d) Polystyrene.

"SEC. 44-D. *EPR Mandates.* - Notwithstanding the provisions of Section 44-A, obliged enterprises shall, within six (6) months following the effectivity of the Extended Producer Responsibility Act of 2022, establish or phase-in EPR programs for plastic packaging to achieve efficient management of plastic packaging waste, reduced production, importation, supply or use of plastic packaging deemed low in reusability, recyclability of retrievability, and plastic neutrality through efficient recovery and diversion schemes.

"The programs under this section may include the activities and strategies stated under paragraphs (a) and (b) of Section 44-A: *Provided,* That their mechanisms and strategies are submitted to the NSWMC, through the Department. Obligated enterprises shall institute an EPR program either individually or collectively, whether with or without a PRO.

"SEC. 44-E. *EPR Registration.* - An obliged enterprise or the PRO shall register EPR programs with the NSWMC, through the Department.

"The NSWMC shall ensure that the EPR programs submitted by an obliged enterprise or PRO, as the case may be, include the following information:

"(a) Obligated enterprise or PRO information, and contact information of the person responsible for its EPR;

"(b) Specific type of packaging materials as covered by Section 44-C, and product brands;

"(c) Whether the EPR program is to be implemented individually, collectively, or through a PRO;

"(d) Verifiable volume or weight of the plastic packaging brought into the market within a specified period;

"(e) Target volume or weight of plastic packaging waste for recovery, reuse, and recycling;

"(f) Other EPR programs, such as the redesign of plastic packaging to improve reuse or recyclability;

"(g) Labeling of packaging materials to facilitate recovery, reuse, recycling or proper disposal of packaging materials;

"(h) Status of implementation of the EPR mechanisms; and

"(i) Status of compliance.

"As an initial compliance with the provisions of this section, obligated enterprises or PRO shall submit and register their EPR program to the NSWMC, through the Department, within six (6) months upon the effectiveness of the Extended Producer Responsibility Act of 2022.

"The Department, through the Environmental Management Bureau, and in coordination with the NSWMC, shall monitor and evaluate the compliance of obliged enterprises or their PROs with their respective EPR programs. For this purpose, obliged enterprises or their PROs shall be required to submit annual compliance reports.

"SEC. 44-F. *Compliance Period for Plastic Packaging Recovery Programs.* - Notwithstanding the provisions of the immediately preceding Article, and to give the obliged enterprises and PROs sufficient period to adjust to their EPR duties and responsibilities and improve their performance over time, obliged enterprises under this Article shall likewise establish phase-in recovery programs that will achieve plastic neutrality. The programs may include the activities stated under paragraph (b) of Section 44-A.

"For this purpose, obliged enterprises that generate either rigid or flexible plastic packaging shall recover or offset their respective plastic packaging footprint.

"The following targets for the recovery of plastic product footprint generated during the immediately preceding year are hereby set:

"December 31, 2023 - twenty percent (20%);

"December 31, 2024 - forty percent (40%);

"December 31, 2025 - fifty percent (50%);

"December 31, 2026 - sixty percent (60%);

"December 31, 2027 - seventy percent (70%);

and

"December 31, 2028, and every year thereafter - eighty percent (80%).

"For this purpose, obliged enterprises shall submit the report of their compliance including appropriate documentation to the Department.

"SEC. 44-G. *Audits.* - Obligated enterprises or their PROs shall establish and implement an auditing system to monitor and assess their compliance performance with this Act and their EPR programs. For this purpose, the obliged enterprises or their PRO shall engage an independent third-party auditor to certify the veracity of the reported plastic product footprint generation, recovery, and EPR program compliance, using uniform standards established by the Department. The audited report shall be submitted by the obliged enterprises or their PROs to the Department.

"The certified reports on plastic product footprint generated and recovered by the obliged enterprises shall be made available to the public through the website of the Department: *Provided*, That a record, report, or information, or particular portion thereof deemed by the Department as confidential, shall not be made public when such would divulge trade secrets, production or sales figures, or methods and processes unique to the enterprise that would otherwise tend to adversely affect its competitive position.

"SEC. 44-H. *Producer Responsibility Organization (PRO)*. - Obligated enterprises may voluntarily organize themselves to form or authorize a PRO for the purpose of establishing a viable platform to implement their EPR program under this Article.

"For this purpose, the Department, in consultation with the NSWMC and obliged enterprises or their PRO, shall establish a system or parameters necessary to make the PRO sustainable and compliant with the purposes of this Act. These shall include standards, rules or guidelines for the following:

"(a) Organizational structure and leadership;

"(b) Membership requirements;

"(c) Duties and responsibilities, to include:

"(1) implementation parameters of the EPR program;

"(2) financing mechanisms;

"(3) cooperation mechanism with other stakeholders, waste management entities, distributors, retailers, grocery and store owners, junkshop operators, and individuals or entities in the informal sector involved in waste management; and

"(4) implementation strategies;

"(d) Setting standards towards plastic neutrality;

"(e) Reporting, verification, and auditing of waste footprint generation, recovery, and diversion; and

"(f) Data collection and database maintenance."

SEC. 7. Section 45 of Republic Act No. 9003 is hereby amended to read as follows:

"SEC. 45. *Incentives*. -

"(a) Rewards and recognitions, monetary or otherwise, shall be provided to individuals, private organizations and entities, obliged enterprises, and PROs, including non-government organizations, that have undertaken outstanding and innovative projects, technologies, processes and techniques or activities in reuse, recycling, and reduction. Said rewards shall be sourced from the Fund herein created.

"(b) An incentive scheme is hereby provided for the purpose of encouraging LGUs, enterprises, or private entities, including obliged enterprises, PROs, and NGOs, to develop or undertake effective solid waste management, including recovery and diversion of plastic product footprint, or actively participate in any program geared towards the promotion thereof as provided for in this Act, as amended.

"(1) Fiscal Incentives

"(a) Tax incentives - Any provision of law to the contrary notwithstanding, obliged enterprises or PROs acting on their behalf, and other registered business enterprises may apply for incentives following the approval process provided under Title XIII (Tax Incentives) of the National Internal Revenue Code of 1997, as amended, for eligible activities: *Provided*, That such activities shall undergo the standard processes in the identification of qualified activities under the Strategic Investment Priority Plan (SIPP).

"(b) The EPR expenses of obliged enterprises, PROs, and private enterprises shall be considered as necessary expenses deductible from gross income subject to the substantiation requirements for necessary business expenses deductible from gross annual income in accordance with Section 34(A)(1) of the National Internal Revenue Code of 1997, as amended.

"(c) Tax and Duty Exemption of Donations, Legacies, and Gift - x x x."

SEC. 8. Section 49 of Republic Act No. 9003 is hereby amended to read as follows:

"SEC. 49. *Fines and Penalties.* - (a) x x x

"(g) Any obliged enterprise that fails to register under Section 44-E or fails to comply with Section 44-F shall be imposed with the following fines:

"(1) a fine of not less than Five million pesos (P5,000,000.00) but not exceeding Ten million pesos (P10,000,000.00) for the first offense;

"(2) a fine of not less than Ten million pesos (P10,000,000.00) but not exceeding Fifteen million pesos (P15,000,000.00) for the second offense; and

"(3) a fine of not less than Fifteen million pesos (P15,000,000.00) but not exceeding Twenty million pesos (P20,000,000.00) for the third offense and automatic suspension of the business permit until the requirement of the law is complied with.

"In case of failure to meet the targets set under Section 44-F, the obliged enterprise shall pay the same fines set above, or a fine twice the cost of recovery and diversion of the footprint or its shortfall, whichever is higher.

"The penalty shall be imposed whether or not the noncompliance is the result of the failure to register under Section 44-E, falsification of documents, misdeclaration of generated or recovered footprint, employment of any scheme to maliciously evade the responsibility of an enterprise under the Extended Producer Responsibility Act of 2022, or tamper its compliance with the provisions of Section 44-F.

"The Pollution Adjudication Board of the Department shall hear and adjudicate cases of violations or offenses under this section, and impose appropriate fines therefor."

SEC. 9. *Mandatory Review.* - Within five (5) years after the effectivity of this Act, or as the need arises, Congress shall review the accomplishments, and impact of this Act, as well as the performance of its implementing agencies, and the compliance of obliged enterprises to achieve the objectives of this Act, for the purpose of determining the necessity of a remedial legislation mandating for more stringent footprint recovery targets, higher incentives, or phase-out of certain types of single-use plastic packaging.

Within one (1) year after the effectiveness of this Act. The NEC shall further identify, review, and update the list of non-environmentally acceptable products and plastic packaging material that shall be phased out, especially those that are highly unnecessary or replaceable, or cannot be efficiently reused, recovered, or recycled, consistent with the provisions of this Act.

SEC. 10. *Appropriations.* - The sum necessary for the effective implementation of this Act shall be charged against the appropriations for the DENR under the General Appropriations Act: *Provided*, That obliged enterprises and the respective PROs shall be responsible for the funds necessary to operationalize and maintain the EPR programs, in compliance with this Act and its implementing rules and regulations.

SEC. 11. *Implementing Rules and Regulations.* - The DENR, in consultation with relevant government agencies, representatives from obligated enterprises, and other stakeholders shall formulate the rules and regulations necessary to implement the provisions of this Act within ninety (90) days from its effectiveness.

SEC. 12. Section 60 of Republic Act No. 9003 is hereby amended to read as follows:

"SEC. 60. *Joint Congressional Oversight Committee.* - There is hereby created a Joint Congressional Oversight Committee to monitor the implementation of the Act and oversee the functions of the implementing agencies. The Committee shall be composed of five (5) Senators and five (5) Representatives to be appointed by the Senate President and Speaker of the House of Representatives, respectively. The Oversight Committee shall be co-chaired by the Chairpersons of the Committee on Environment, Natural Resources and Climate Change of the Senate and the Committee on Ecology of the House of Representatives."

SEC. 13. *Separability Clause.* - If any portion or provision of this Act is declared unconstitutional, the remainder of this Act or any provision not affected thereby shall remain in force and effect.

SEC. 14. *Repealing Clause.* - Any law, presidential decree or issuance, executive order, letter of instruction, rule, or regulation inconsistent or contrary to the provisions of this Act is hereby repealed or modified accordingly.

SEC. 15. *Effectivity.* - This Act shall take effect fifteen (15) days following its complete publication in the *Official Gazette* or in a newspaper of general circulation.

Approved,

sgd.

LORD ALLAN JAY Q. VELASCO
Speaker of the House of Representatives

sgd.

VICENTE C. SOTTO III
President of the Senate

Annex B. Plastic Packaging Waste Management

In addressing plastic packaging wastes and pollution, it is vital that we level off with the understanding of the types of plastics, whether they are recyclable, how they affect the environment, what makes them pollutive, and which among them is the target for management.





Categories of Plastics





Plastics are categorized using the Standard Classification of Plastics (using the resin identification code or RIC) developed by the Society of Plastic Industries in 1998. Depending on its material and how it is produced, plastics are categorized into seven types. It should be noted as well that each type of plastic corresponds to a unique code which is usually mandated to be put in the plastic product in other countries. Further, the RIC is never meant to be confused as the “recyclability” code for plastics but rather, the type of its plastic hence, in 2013, ASTM International updated the RIC symbol¹² from the three arrows into a triangle.





Table B-1 shows the information on the different types of plastics. Plastics also have the potential for reuse and recycling and are not entirely disposable (or single-use) thereby, the table also provides the details on the recyclability of each plastic type.



¹² <https://www.plasticsnews.com/article/20130611/NEWS/130619978/say-so-long-to-recycling-code-arrows>

Table B-1. Summary of Plastic Types, Characteristics, Sample, and Recyclability

Resin Identification Code	Polymer Type and Characteristics	Products	Recyclability	Illustration
	<p>Polyethylene Terephthalate (PET) Used with petroleum-based polymer and is commonly used for beverage packaging due to its properties such as transparency, light weight, a barrier to gas and water, impact strength, and unbreakability, among others.</p>	<p>Bottles and jars for water, detergent, juice, and food</p>	<p>Can be recycled and reused as food storage (unless previously used for non-food) caution must be observed to avoid potential hazardous content contamination due to repeated use.</p>	
	<p>High-Density Polyethylene (HDPE) Considered versatile (especially for packaging) and has a low risk of leaching. Has a higher density and is stronger than the LDPE and has strong chemical resistance hence its use for storing a variety of chemicals.</p>	<p>Crates and boxes, bottles for milk, food products, detergents, cosmetics, food storage containers, chemicals, and pesticides</p>	<p>Can be easily recycled into new items and is not recommended to be reused as food storage.</p>	

Resin Identification Code	Polymer Type and Characteristics	Products	Recyclability	Illustration
	<p>Polyvinyl Chloride (PVC) PVC is a tough material that is usually used for pipes and other equipment. Due to its affordability, this is also used as packaging for many types of products. PVCs are formed into either rigid, soft flexible, or liquid.</p>	<p>Clear jars and bottles for toiletries, food, and medication cling film. PVC pipes and other industrial use</p>	<p>Recycling is challenging due to the high chlorine content and other additives like plasticizers.</p>	
	<p>Low-Density Polyethylene (LDPE) Lighter and more flexible than HDPE. Usually used for packaging or bags/containers (e.g., plastic labo) because of its thin nature/film and even liner of other types of materials.</p>	<p>Single-use lightweight bags, bags for frozen vegetables, bread, garbage and toilet paper, milk sachets, and shrink and stretch wrap</p>	<p>Challenges in the collection and its lightweight nature make it less competitive in terms of recycling price.</p>	

Resin Identification Code	Polymer Type and Characteristics	Products	Recyclability	Illustration
	<p>Polypropylene (PP) A versatile material that is easier to mold and has a high melting point making it suitable for holding hot liquid.</p>	<p>Yoghurt and margarine tubs, ice cream containers, bottle tops, and closures and clear, microwave dishes, single-use face masks, and metallized films for confectionery and sweets</p>	<p>Recycling is difficult and expensive. In many cases, it's hard to get rid of the smell of the product this plastic contained in its first life. Usually ends up being black or grey, making it unsuitable for packaging, and sometimes be recycled</p>	
	<p>Polystyrene (PS) Commonly used for food packaging and protective and display packaging. It can be formed into rigid or foam products. PS is characterized as lightweight, good as an insulator, and resistant to heat.</p>	<p>Yoghurt cups, clamshells, food trays for meat, fruit, and and vegetables, vending cups</p>	<p>Can sometimes be recycled, and is challenging to do so. This depends on the locality and the presence of infrastructure that does recycling, but only in small amounts because it is difficult to do. Most flexible PS materials like plastic boxes, cutlery, and coffee cups are usually disposed of but some are recycled and used as thermal insulation in buildings. Most of the rigid PS like CDs or other clear cases are also rarely recycled while high-impact PS like plastic cabinets are not recycled.</p>	

Resin Identification Code	Polymer Type and Characteristics	Products	Recyclability	Illustration
	<p>Others A plastic type that does not fall into the six types is considered 'others'. There are multilayered plastics or those that have more than one type of plastic in one product or packaging.</p>	<p>In packaging, it could be multilayer materials for long-life products like sachets for sauces, juices, processed meats, and other food and non-food products</p>	<p>Due to its nature, 'other' types of plastics have low market value for recycling since their type of plastic is usually unknown and cannot easily be recycled. The same applies to multilayered plastics, where recycling is challenging since the plastic composition does not have the same melting point</p>	




Sources: Plastics Federation of South Africa (2018). <https://www.plasticsinfo.co.za/wp-content/uploads/2019/10/All-About-Plastics-May2018.pdf>
 WWF Philippines (2020). https://wwf.org.ph/wp-content/uploads/2020/10/Panda-Talks_Plastics.pdf
 Benyathiar, P.; Kumar, P.; Carpenter, G.; Brace, J.; Mishra, D.K. Polyethylene Terephthalate (PET) Bottle-to-Bottle Recycling for the Beverage Industry: A Review. *Polymers* 2022, 14, 2366. <https://doi.org/10.3390/polym14122366>
 London Recycles (n.d.). <https://londonrecycles.co.uk/recycling-101/seven-types-of-plastic/>
<https://www.plasticsforchange.org/blog/which-plastic-can-be-recycled>
<https://www.plasticexpert.co.uk/how-is-polystyrene-recycled/>
https://wwf.org.ph/wp-content/uploads/2020/10/Panda-Talks_Plastics.pdf
https://wwf.org.ph/wp-content/uploads/2020/12/WWF_REPORT_EPR_Philippines_2020.pdf
https://s3-prod.plasticsnews.com/s3fs-public/NEWS_130619978_AR_-1_0.jpg

Target Plastic Packaging under the law

The EPR scheme encourages waste reduction through the elimination of unnecessary packaging of products and the development of more environmentally friendly packaging designs. As recommended in the previous EPR study, the EPR scheme should be applied to **all household packaging of any material and as much as possible, service packaging and specific single-use plastic items**. On the other hand, this does not mean that other sources of waste should not be addressed but rather, giving more focus on the household level may improve and increase the rate of recovery of plastic packaging wastes.

In addition to this, it is suggested that the types of plastic packaging to be covered in the EPR will be formed into categories. In this way, the monitoring and reporting on the recovery, reuse, recycling, and reduction of the type of plastic packaging will be more structured/standardized. For reference, **Table B-2** shows the suggested categorization and the illustration of plastic packaging types.

Table B-2. Suggested Plastic Packaging Categorization

Category	Coverage	Sample Plastic Illustration
I	Sachets, labels, laminates, and other flexible packaging products, whether single-layer or multi-layered with plastics or other materials	 <p>https://www.industrialpackaging.com/hs-fs/hubs/Blogging/Images/flexible-packaging-materials-bofu.jpg?width=600&name=flexible-packaging-materials-bofu.jpg</p>  <p>https://5.imimg.com/data5/SELLER/Default/2021/2/BA/WP/RQ/57468957/sun-plus-packaging-plastic-pouch-500x500.jpg</p>
II	Rigid plastic packaging (including containers for food, beverages, home, and personal care products, cosmetics, and their coverings, necessities and labels)	 <p>https://www.asdreports.com/media/PR_29631.jpg</p>

Category	Coverage	Sample Plastic Illustration
		 <p>https://marketresearch.biz/wp-content/uploads/2019/02/rigid-plastic-packaging-market.jpg</p>
<p>III</p>	<p>Plastic bags/sheets (including SUP bags)</p>	 <p>https://recyclecoach.com/wp-content/uploads/2021/04/how-to-recycle-plastic-bags-600x600.png</p>
<p>IV</p>	<p>Polystyrene (such as flexible PS materials boxes, cutlery, and coffee cups)</p>	 <p>https://www.echotape.com/wp-content/uploads/2017/06/tapa-challenge-polystyrene-foam.jpg</p>

Annex C. 10-Year Solid Waste Management Plan Outline (existing outline)

Source: NSWMC (2016) <https://nswmc.emb.gov.ph/wp-content/uploads/2016/09/ANNOTATED-OUTLINE-2007.pdf>

Outline	Description
EXECUTIVE SUMMARY	Overview of the plan including current situation, vision, and objectives
1. Introduction	Introduction to the plan to the reader including purpose and approach
1.1 Purpose	City/municipality's vision related to solid waste management**
	Key issues facing the community*
	Goals for the plan, and how the plan will help to alleviate the issues facing the community**
	Intent of RA 9003 and its effect on solid waste management*
1.2 Approach Detailed WACS for HUC, 1 ST Class City and 2 nd Class City Simpler WACS for Municipalities 3 rd Class and below Secure list of income and population	Approaches used in preparing a plan, e.g., a compilation of existing information, the conduct of WACS, using results of previous studies, involvement of stakeholders, etc.
	Data sources, e.g., National Solid Waste Management Commission, Solid Waste Management Board, City Planning and Development Office, and City Engineering Office provide data for analyses and development of forecasts.
1.3 Acknowledgements	
2. City Profile	Key information about the city/municipality
2.1 Location	Location of the city/municipality including a map indicating locations of barangays, as well as residential, commercial, and industrial centers, and agricultural areas.**
	Land area**
2.1 History	Historical background.**
2.2 Population	Current population for each barangay, indicating rural and urban areas.**
	10-yr projection**
2.3 Economic Profile/Land Use	List of industries within the city/municipality.**
	Land use map, in particular showing the urban and rural land use classification**
	Major transportation routes and traffic conditions.**
2.4 Physical Characteristics	Geography, geology, hydrology, soil and climate of the area or region.**
3. Current Solid Waste Management Conditions	Description of solid waste management practices in existence**

Outline	Description
3.1 Institutional Arrangements	List of existing agencies of the city administration that handle SWM and its services, and the roles and responsibilities of the agencies. Should include all aspects of SWM such as collection, recycling, disposal, IEC, accounting, implementation, and enforcement of regulations. **
3.2 Inventory of Equipment and Staff	List of existing equipment, its capacity, and present conditions, make, model, location for repairs, and others.**
	Number of personnel **(with classification- working in SWM by department or type of service*).
	Type of staff training available.*
3.3 Source Reduction	Discussion of existing waste reduction practices.**
3.4 Collection	Description of the existing system for each service area, including those serviced by private haulers.**
	Type of collection (segregated vs. non-segregated).**
	Frequency of collection to the same area for each type of collection.**
	Description of areas not currently receiving collection service.**
	If the collection service is by a private hauler, provide a list of the haulers, service areas, types of waste collected, and location where waste is deposited**
3.5 Transfer (applicable if there's any)	Description of facilities used to transfer solid waste.
	List of facilities including location, capacity, types of materials accepted, and source of materials.
3.6 Processing Facilities (applicable if there are any)	Description of facilities used for processing waste, such as material recovery facilities (MRFs) and composting facilities.
	List of facilities including location, capacity, types of materials accepted, source of materials, and a brief description of operations.
3.7 Final Disposal (applicable if there's any)	Description of facilities used for the final disposal of solid waste or residues from processing.
	List of facilities including location, ownership, capacity, types of materials accepted, source of materials, a brief description of operations, and a number of scavengers.
	Evaluation of the situation of scavengers working at the existing dumpsite.
3.8 Special Wastes	Report of available information on the quantities of these wastes disposed of. **

Outline	Description
3.8.1 Health Care Wastes	<p>Existing treatment and disposal practices of infectious and other health care wastes.*</p> <p>Report of available information on the quantities of these wastes disposed of.*</p>
3.9 Markets for Recyclables	<p>List of junk shops in the city/municipality. Include types and quantities of materials accepted if possible.**</p> <p>List of industries in the city/municipality that uses or could use recycled materials**</p>
3.10 IEC	<p>Description of IEC program.**</p> <p>List of IEC activities. Include a message, targeted audience, and effectiveness**</p>
3.11 Costs and Revenues	<p>Annual budget for SWM.*</p> <p>Expenditures for the previous year. Including capital investment, operation and maintenance, and contracted services.*</p> <p>Revenues for the previous year. Include revenues from allocations, fees charged for the service, and fines.*</p>
3.11 Key Issues	<p>Brief description of key solid waste management issues facing the community.*</p>
4. Waste Characteristics	<p>Uses results of WACS and recycling information to determine quantity and composition of waste generated**</p>
<p>4.1 Disposed Waste (from WACS)</p> <p>Ask the percentage for the composition</p> <p>Use simpler WACS for low-class municipalities</p>	<p>Quantity of waste disposed of, by sector (e.g., low-income residential, middle-income residential, high-income residential, commercial, institutional, industrial, markets) (in kg/day and tonnes/year).</p> <p>Summary tables and figures showing the quantity and composition of disposing of waste, by sector. (residential/commercial/markets/institution)</p>
4.2 Diverted Waste	<p>Estimate of the quantity of waste currently recycled and composted based on existing information, and from results of 3.4 and 3.6.**</p>
4.3 Generated Waste	<p>Estimate of a quantity of waste generated (disposed of + diverted).**</p> <p>Projection of quantity of waste generated based on population projections.**</p>
5. Legal/Institutional Framework	<p>Overview of existing institutional arrangements in order to identify parties responsible for undertaking the relevant aspects of the plan* (Acceptable with several ordinances)</p>
5.1 Local laws and Regulations	<p>Related laws and regulations and their relevant provisions. (Authority and description)</p>

Outline	Description
	Permitting procedures for solid waste facilities as well as inspection and compliance procedures.
5.2 Roles	Roles of the City SWM Board, the city, barangay, private entities, and institutions as generators, citizens, NGOs, and recycling companies.**
5.3 City/Municipal Solid Waste Management Board	Sangguniang Bayan Ordinance No. for creating the CSWM Board.**
	List of members of the CSWM Board.**
	Description of activities to date and planned activities.**
5.4 Barangay Solid Waste Management Committees	List of BSWM Committees formed to date and schedule for Boards in other barangays**
5.5 Stakeholders Participation	Activities conducted and future plans to involve stakeholders in the development and implementation of the plan.*
6. Plan Strategy	Delineation of the desired outcome of the solid waste management plan**
6.1 Vision	Discussion of vision and goals*
6.2 Targets	Diversion targets for each year, 10-year planning period.**
	Disposal targets for each year, 10-year planning period.**
6.3 Strategies	Brief description of strategies to reach diversion targets (detail will be provided in Section 7).**
	General description of coordination with barangays to implement segregated collection, MRFs, and composting facilities.**
	General description of the collection.**
	Overview of plans for disposal.**
	Discussion of other key elements of strategy.**
7. SWM System	Detailed description of each program that will be implemented to reach the objectives and targets defined in Section 6
7.1 Source Reduction	Source reduction programs to be implemented and implementation schedule.**
	Sectors to target**
	Materials to be addressed and methods to determine the categories of solid waste to be diverted.**
	Capability and economic viability of the city/municipality in implementing the program for this component.*

Outline	Description
	<p>Technical requirements for the ordinances and other formal actions to be taken by the city/municipality.*</p> <p>Social impacts on stakeholders involved or affected.*</p> <p>Estimated diversion resulting from source reduction.**</p>
7.2 Collection	<p>Collection of segregated recyclable and compostable materials is the responsibility of the barangay. The collection of mixed solid waste and residuals is the responsibility of the city/municipality. The SWM plan should describe how the city/municipality will coordinate collection activities with the barangay.*</p>
7.2.1 Overview	<p>Description of the strategy for collection, based on the projected quantities of segregated biodegradables and recyclables, and of residual waste.**</p> <p>Description of the collection process for each type of waste.*</p> <p>Types of collection vehicles, collection frequency, collection points, and types of containers.*</p> <p>Entity responsible for providing collection for each type of waste, and for each sector. *</p>
7.2.2 Collection equipment and routes	<p>Description of each generator type and service area, and the particular requirements for collection equipment.*</p> <p>Table listing the current number of vehicles (compaction vehicles and/or dump trucks) and projection of additional vehicles or equipment to be purchased by year. *</p> <p>Rationale for selection of the equipment.*</p> <p>Listing of collection routes or service areas.*</p>
7.2.3 Private collection service	<p>If collection service will be conducted by private haulers, provide a rationale for contracting out the service.*</p> <p>Listing of service areas, types of waste to be collected, and location where the waste will be taken. *</p> <p>Discussion of basic terms of the contract.*</p>
7.2.4 Storage and set out	<p>Types of containers to be used for each generator type and service area, and rationale for selection of types of containers.*</p> <p>Set out requirements (i.e., placement, time of day, etc.).*</p>
7.2.5 Segregated recyclables	<p>Strategy for implementing the segregated collection of recyclables in each of the barangays.*</p> <p>Types of materials to include types of vehicles, collection frequency, and types of containers.*</p>

Outline	Description
	Assistance the city/municipality will provide to the barangay.*
7.2.6 Segregated compostables	Strategy for implementing the segregated collection of recyclables in each of the barangays.**
	Types of materials to include types of vehicles, collection frequency, and types of containers.*
	Assistance the city/municipality will provide to the barangay.*
7.2.7 Mixed solid waste/residuals	Plan for collecting residuals.**
	Table listing type of collection vehicle, capacity, and collection frequency by year for 5 years. In preparing tables, consideration should be given to the quantities of waste requiring collection and disposal as diversion programs are implemented.*
	Types of containers that may be used for setout.*
	Plan for increasing coverage area to provide collection service to all parts of the city/municipality (if applicable).*
7.3 Segregation, Recycling, and Composting	Segregation and recycling and composting of segregated materials are the responsibility of the barangay. The SWM plan should describe how the city/municipality will work with the barangay to implement the programs.*
7.3.1 Segregation	Strategy for promoting segregation in each of the barangays.**
	Strategies for start-up, implementation, monitoring, and enforcement.**
	Assistance the city/municipality will provide to the barangay.*
7.3.2 Recycling	Strategy for implementing MRFs in each of the barangays or in clusters of barangays.**
	Strategies for start-up, implementation, monitoring, and enforcement.**
	Materials to be recycled, methods of determining categories of recyclable waste for diversion *
	Existing capacity, future demand, and how the capacity will be met (e.g., new facilities and expansion of existing facilities)*
	Assistance the city/municipality will provide to the barangay.*
	Implementation schedule.**
	Acceptable technologies and layout of facilities.*

Outline	Description
7.3.3 Composting/ Management of Biodegradable Waste	Overall strategy for managing biodegradable waste.**
	Quantity of waste, by barangay, to be composted. *
	Existing capacity, future demand, and how the capacity will be met (e.g., new facilities and expansion of existing facilities).*
	Strategies for start-up, implementation, monitoring, and enforcement.**
	Materials to be composted, methods of determining categories of biodegradable waste for diversion *
	Acceptable technologies and layouts of composting facilities.*
	Assistance the city/municipality will provide to the barangay.*
	Implementation schedule.**
7.3.4 Marketing and Market Development	Estimated prices for recovered materials and average selling price/average price.*
	Evaluation of the feasibility of procurement preferences for compost, recyclable and recycled materials by city/municipality. *
	Strategies for developing and expanding markets for composts, recyclables, recycled, and other processed materials.**
	Evaluation of the feasibility of procurement preferences to encourage the purchase of products made from recycled material and compost.*
7.4 Transfer (if applicable)	Strategy for use of transfer facilities.*
	Existing capacity, future demand, and how the capacity will be met (e.g., new facilities and expansion of existing facilities).*
	Locations for new facilities, types, and quantities of waste that will be accepted, source of waste, and destination of waste.*
	Description of transfer station design and operations.*
	Strategies for start-up, implementation, monitoring, and enforcement.*
	Implementation schedule.*
7.5 Alternative Technologies for Residual Wastes	Description of technology, capacity, etc.**
	Options for the Cities/Municipalities to utilize alternative technologies for the residual wastes.*
	Proof of Environmental Technology Verification from DOST (if any).*

Outline	Description
7.6 Disposal	Disposal plan for 10-years including identification of prospective sites for future use. Include plans for upgrading or closing existing facilities to meet requirements for sanitary landfills.
7.6.1 SW Disposal Capacity	Projection of the amount of disposal capacity needed to accommodate residual wastes, by year for a 10-year period.**
	Comparison of existing disposal capacity with capacity requirements.*
	Description of the overall plan for disposal, by year.*
7.6.2 Existing Facilities	For open and controlled dumps, provide closure and rehabilitation plan based on DAO 9 Series of 2006 or Authority to Close (ATC) issued by the EMB regional office.**
	For SLF, strategies to extend the life span and capacity of the existing disposal site.**
7.6.3 New Facilities	Description of the Categorized Disposal Facility (if applicable).
	Explanation of how the design will meet the requirements of RA 9003.
7.6.4 Categorized Disposal Facilities (Sanitary Landfill) Design	Demonstration that the capacity will be adequate for a minimum of 5 years based on the IRR and the features will be based on DAO 10 Series of 2006.**
7.7 Special Wastes	Plan for storage, collection, treatment, disposal and other appropriate technologies for any special wastes as referred to 3.8**
	Estimated quantities of special wastes to be generated in the future.**
7.7.1 Health Care Wastes	Plan for treatment and disposal as referred to 3.8.1**
	Estimated quantities of special wastes to be generated in the future.**
7.8 Information, Education and Communication (IEC)	Purpose and content of information dissemination, education, and communication program
7.8.1 Introduction	Discussion of strategy including the need for public education and involvement.**
	Problems/issues that will be addressed.**
	Purpose of IEC activities (i.e., information dissemination, education, motivation, advocacy).**
	Audiences that will be targeted e.g. Brgy. Officials, Schools, etc.**
7.8.2 Core Messages	Discussion of the core message(s) for each target audience. *
	Explanation of how messages will be coordinated with other agencies.**

Outline	Description
	Description of how IEC activities will support solid waste management program activities, e.g., source reduction, litter prevention, segregation, recycling, and composting.**
7.8.3 Approach	Discussion of approach (es) for each target audience. **
	Matrix of planned activities. Include: purpose, target audience, subject of the message, method, responsible party, and monitoring plan.**
	Implementation schedule. IEC activities should be integrated with infrastructure and should be on-going.**
	Cost of activities (to be incorporated into a financial plan (see Section 11)).**
8. Implementation Strategy	Discussion of the logistics of how the solid waste management system will be implemented.
8.1 Framework	Overview of each program to be implemented, generator segment, by year. Include source reduction, recycling, management of biodegradables, disposal, and alternative technologies.**
8.2 Diversion Projections	Table of types and percentages of materials to be diverted to meet the mandated diversion requirement.**
8.3 Monitoring Program	Description of a monitoring program to provide accurate information and to show whether or not policies are succeeding and to monitor the performance of the SWM plan.**
8.4 Incentive Programs	Description of a program providing for incentives (rewards, grants, fiscal incentives and non-fiscal Incentives) that will be provided to concerned sectors in order to encourage wide participation in the implementation of the plan.*
9. Institutional Aspects	Planned structure for the implementation of plan
9.1 Roles	Future roles of the city SWM Board, the city, barangay, private entities and institutions as generators, citizens, NGOs, and recycling companies.*
	Strategy for cooperation with the city/municipal SWM Board.*
	Coordination with other entities (e.g., barangays, NGOs, business leaders).*
9.2 Legal	Recommended changes to city structure.*
	Zoning and building code changes.*
	Plans to impose penal provisions *
	Other legal requirements.*

Outline	Description
10. Social and Environmental Aspects	Discussion of social and environmental issues related to the development of full-scale infrastructure (if there are any).
10.1 Social Aspects	Significant social impacts (both positive and negative) from community-based SWM.*
	Social acceptability of proposed solid waste system (including collection system and processing and disposal sites.*
	Discussion of requirements of stakeholders.*
	Discussion of conditions concerning scavengers at the disposal site and what the city/municipality can do to improve their conditions.*
10.2 Environmental Aspects	Discussion of environmental aspects of the proposed solid waste system.*
	Environmental review requirements.*
11. Cost Estimates /Financial Aspects	Financial plan for implementation of solid waste management system
11.1 Investment cost	Breakdown of estimated investment cost by year for 5 years, by private and public sectors. Investment costs should address each component of the solid waste system, i.e., collection, transfer stations, MRFs, composting facilities, and disposal facilities.**
	Facility costs to include engineering and infrastructure. (if any)
	Equipment costs to include stationary equipment (e.g., shredder) and rolling equipment (e.g., collection vehicles) (if any)
	Estimated cost to be amortized based on the life expectancy of facility/equipment. (if any)
11.2 Annual Costs	Breakdown of annual costs by year for 5 years, by the private and public sector.**
	Labor cost, including fringes, by labor category.*
	Administrative costs including insurance, office expenses, etc.*
	Operating and maintenance costs including fuel, repair, supplies, etc.*
	Amortized investment cost (if any).
	Loan repayment schedule (if any).
11.3 Funding Options	Discussion of options to finance capital investments, e.g., loans from financial institutions, central government grants, and municipal funds. (if any)
	Discussion of options to finance recurring costs, e.g., local taxes, intergovernmental transfers, and user charges. (if any)

Outline	Description
	<p>Presentation of existing and projected sources of revenues. Include consideration of revenues from collection of fees; outside sources of funds, collection and use of fines, and sources for the local SWM fund and their uses.*</p> <p>Specific projects, activities, equipment, and technological requirements for which outside sourcing of funds or materials may be necessary. (if any)</p> <p>Breakdown of revenues by year for 5 years, and by source.*</p>
11.4 Cost Evaluation and Comparison	<p>Cost for waste management per service capita.*</p> <p>Cost for waste management by unit weight for each type of service, e.g., collection, processing, and disposal.*</p> <p>Comparison of costs for each component of the solid waste management system.*</p> <p>Discussion of ways to optimize costs.*</p>
11.5 Summary	Tabular summary of investment costs, annual costs, and annual revenues by year.**
12. Plan Implementation	Implementation phases, milestones, and schedule
12.1 Phases and Responsibilities	Discussion of phases from the development of a plan to guide the operation and the implementing agency or persons/groups responsible.**
12.2 Milestones	<p>Milestones in implementation of the institutional/legal aspects of the plan include public hearings, final approval of the plan, and establishment of the SW Division.**</p> <p>Milestones in the implementation of the solid waste system described in the plan include source reduction activities, segregated collection in each barangay, the establishment of MRFs and composting facilities, upgrade of dumpsites, the establishment of sanitary landfills, IEC activities, etc.**</p>
12.3 Implementation Schedule	<p>Tables or diagrams showing the schedule of implementation.**</p> <p>Schedule should include all of the programs discussed in Section 7.**</p> <p>Table summarizing diversion goals and quantities.**</p>
References	