

THE ROLE OF PACKAGING REGULATIONS AND STANDARDS IN DRIVING THE CIRCULAR ECONOMY



The development of packaging policies stems from the need to stem the rapid growth of packaging waste and ensure recovery of packaging material for circular applications. The growth in total waste generated and inadequacy / inability of existing waste infrastructure to properly tackle the increasing proportions of packaging waste present a massive environmental challenge. This report aims to review the packaging policy interventions to address this challenge with a particular focus on the Association of Southeast Asian Nations (ASEAN).

TABLE OF CONTENTS



EXECUTIVE SUMMARY	5
GLOBAL PACKAGING REGULATIONS AND STANDARDS: EUROPEAN UNION AND JAPAN	15
A REVIEW OF ASEAN PACKAGING REGULATIONS AND STANDARDS	29
PACKAGING REGULATIONS AND STANDARDS FOR ASEAN: A PLAYBOOK	45
ASEAN LEVEL INTERVENTIONS	69
BIBLIOGRAPHY	75
ACKNOWLEDGEMENTS	87



EXECUTIVE SUMMARY

The development of packaging policies stems from intersecting challenges being faced by economies across the world. On one hand, growth in population has led to an increase in consumption and consequently an increase in the amount of per capita waste generation. Household waste generated contains increasing amounts of packaging waste and, more specifically, plastic packaging waste. On the other hand, existing municipal waste management infrastructure is struggling to keep up with basic collection of waste and is far from equipped handle plastic packaging waste by means that would result in recovery of material by recycling. Most of the plastic packaging waste ends up in the landfill or worse still, leaks into the environment. To confront the growing crisis of plastics leaking into the environment (particularly the marine environment), packaging policies are required to address the intersecting challenges of increasing packaging waste (plastics packaging waste in particular) and the limitations of existing municipal waste management infrastructures. Plastic packaging discussed in this report is defined as plastic materials used to cover and package consumer products. Plastic packaging generally refers to primary, secondary, and in some instances tertiary packaging materials. Whilst there is a lack of definition and standards with respect to plastic packaging waste in ASEAN, this report defines plastic packaging waste as plastic packaging materials which are either disposed of in the landfill or leaked into the environment. Post-consumer packaging collected by the formal and informal sector for recycling is also covered within this report.

This report aims to review the development of packaging waste policies and standards as a response to the challenges discussed above. Also examined here is the role, that policy interventions can play in addressing the growing environmental challenges posed by packaging and packaging waste.

The European Union (EU) and Japan have led the efforts in both general and targeted policy interventions within their respective jurisdictions. A review of the

principles underlying the policy efforts in the EU and Japan reveals three consistent themes:

- Hierarchy of the various potential and existing interventions
- Setting of national targets
- Circular economy / life cycle approach to packaging

A review of the policy landscape in effect in the EU and Japan is conducted in this report, to explore the various regulations and standards which impact packaging and packaging waste. Within the EU and Japan, there are complex policy structures, regulations and standards in place, to effect a reduction and recovery of packaging material across its life cycle.

This report also explores the regulatory landscape in each of the ten Association of South-East Asian Nations (ASEAN) countries in light of the global policies and the efforts to address the issue of packaging waste. Whilst many countries in ASEAN are making attempts to address the issue of packaging waste, a comprehensive policy approach is lacking.

The table below (Table 1.) summarises the existing and anticipated regulations in the ASEAN nations, highlighting the gaps and the opportunities for intervention.

	EU	JP	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
General legislative framework												
Municipal Solid Waste (MSW) legislation	✓	✓	✓*	✓	✓	✓	✓	✓*	✓	✓	✓	✓
Marine litter legislation	✓	✓			✓		✓		✓	✓	✓	✓
Anti-litter legislation			✓			✓	✓	✓	✓	✓	✓	✓
Source reduction by design or material restriction	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
Source separation and collection	✓	✓		✓	✓	✓	✓		✓			✓
National targets for recycling / recovery	✓	✓	✓		✓		✓	✓		✓	✓	✓
Landfill regulations	✓	✓		✓	✓		✓	✓	✓			✓
Waste to energy laws					✓		✓				✓	✓
Extended producer responsibility												
• Legislative framework	✓	✓			✓		✓					
• Reporting	✓	✓									✓	
• Take back requirements	✓	✓			✓		✓					
• Taxes / fees for packaging (excluding plastic bags)	✓	✓										
• Packaging marks and labels	✓	✓									✓	✓
• Voluntary efforts by industry associations	✓	✓			✓							
Trade policy	✓	✓			✓		✓		✓		✓	✓
Green procurement plan	✓	✓			✓				✓		✓	
Recycled content policy	✓		✓		✓		✓	✓	✓	✓	✓	✓

Table 1. Summary of policy landscape in EU, Japan and ASEAN
*No specific legislation for waste management other than in policy documents

BRUNEI	(BN)	MYANMAR	(MM)
CAMBODIA	(KH)	PHILIPPINES	(PH)
INDONESIA	(ID)	SINGAPORE	(SG)
LAO PDR	(LA)	THAILAND	(TH)
MALAYSIA	(MY)	VIET NAM	(VN)

All of the policies identified and observed in the sections are reviewed against the backdrop of the packaging life cycle in order to illuminate how each of the policies influences the flow and recovery of packaging. The graphic below (Figure 1) highlights the preventive nature of some policies and the remedial nature of some others, depending on where in the packaging life cycle the intervention is made.

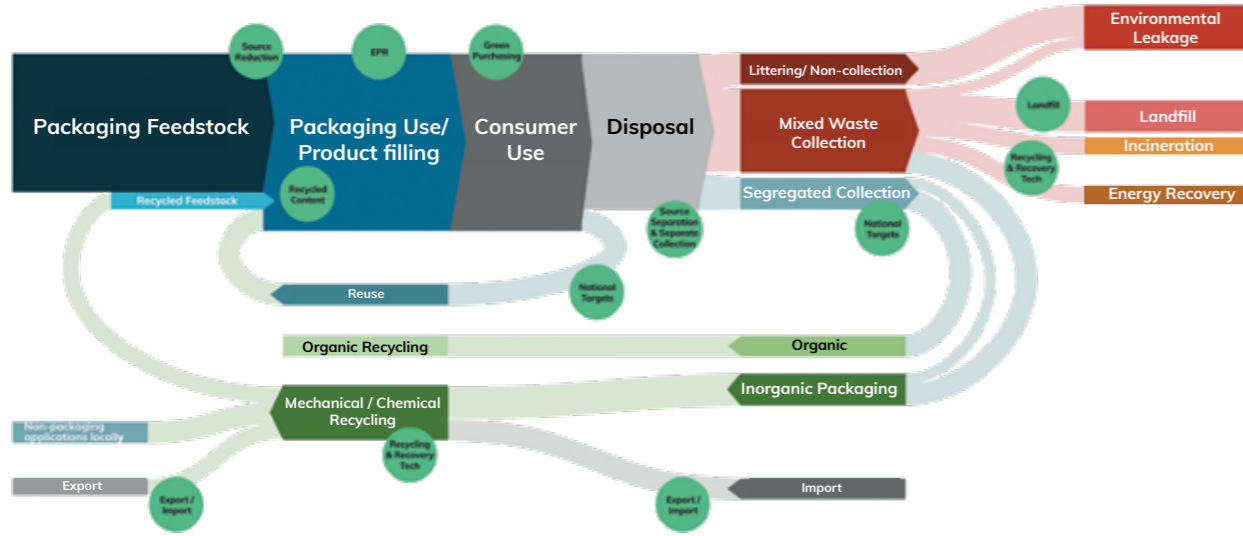


Figure 1. Packaging policies when viewed across the packaging life cycle

This report attempts to deliver a playbook for packaging policy - a review of all of the possible policy interventions and for each policy identifying:

- POLICY DEFINITION:** What the policy encompasses and why it is intended? Where available, examples of the policy are provided.
- POLICY ADMINISTRATORS:** Who the potential administrators are; often the national government but also the Local Government Units (LGUs). Even where the local governments must be the policy initiators, national governments play a key role in supporting and assisting such efforts.
- KEY INSTRUMENTS:** What are the various administrative, economic or informative instruments that could be used in the effective implementation, and enforcement of such policies.
- ENABLING POLICIES:** As was determined through the research for this study, no single policy is effective in isolation, the success of a policy effort relies on the existence of other complementary policies. The playbook identifies the critical enabling policies that each policy instrument is dependent upon.

The policies are also evaluated based on how essential they are to a comprehensive policy effort and how much impact they are likely to have in addressing packaging waste and how dependent they are on other policies. The policies considered can be defined as 'core', 'targeted' or 'extended':

CORE: Policies that are central to a comprehensive effort include, source reduction, source separation and separate collection, the setting of national targets for reduction, reuse, recycling and recovery and landfill restrictions and bans.

TARGETED: Building upon this core set of policies, a more directed set of policies address specific aspects or stakeholders with respect to packaging recovery. These policies include Extended Producer Responsibility (EPR), recycled content regulations and regulations governing recycling and recovery technology.

EXTENDED: Other policies such as those that address the export and import of scrap packaging, or green procurement are also relevant but they overlap with other policy goals extending beyond packaging waste in particular. The policies reviewed are also assessed based on the impact they are likely to have in directing the flow of packaging material away from leakage and landfills.

The policies that rank higher in terms of impact include those that address source reduction, source separation and separate collection, the setting of national targets, EPR and recycling and recovery technologies.

The diagram below (Figure 2) captures this hierarchy of policies their respective impact on packaging and packaging waste. The general policies form the core building blocks upon which the more targeted policies can be developed. The potential for influence of each of the policies is portrayed by the size of the bubbles they inhabit.

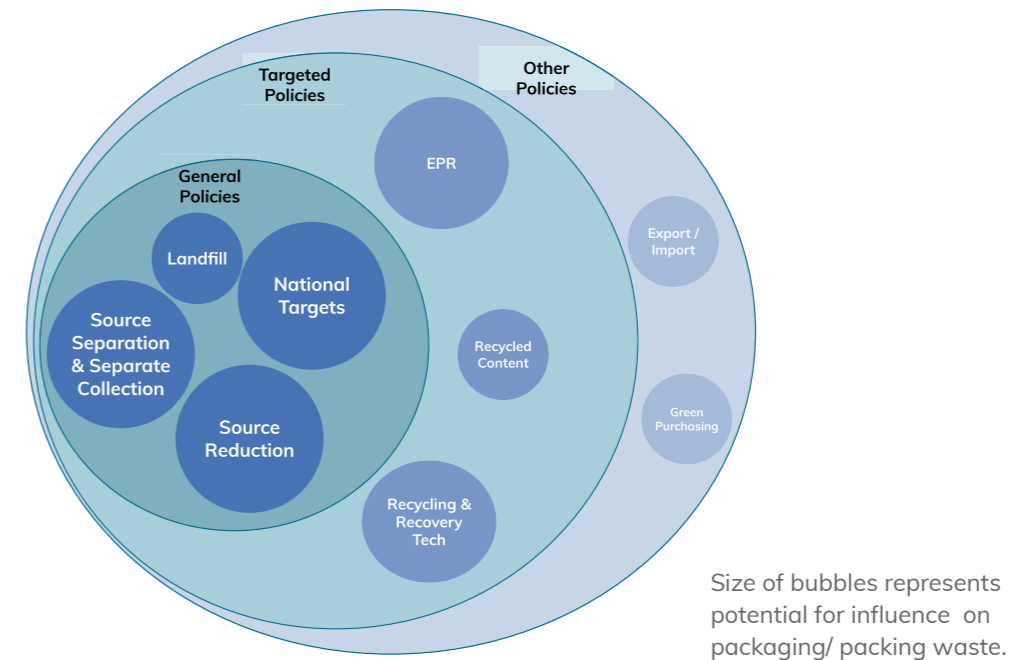


Figure 2. An evaluation of policies based on hierarchy and potential for influence

This report concludes with the interventions that can be initiated at the ASEAN level to ensure a concerted effort in combating packaging waste in the region. The challenges of implementing policy at the ASEAN level stem from the varying levels of infrastructure, as well as the variations in policy efforts and concerns around packaging waste.

An **embracing of key principles of packaging waste policy** at an ASEAN wide level will ensure that a concerted effort is made by all member nations to stem the leakage of packaging waste and loss of packaging material to less productive uses. By embracing and re-emphasising the waste hierarchy which looks at incineration without energy recovery as least preferred alternatives to environmental leakage, a collective prioritization can be established to combat packaging waste within the region.

Regulations and policy considerations are ideally the domain of national governments and must be developed with consideration of the regulatory mechanisms in place. However, some of the policy efforts are well served by **a harmonized pan-ASEAN approach**. Instances of such an ASEAN wide approach include:

- Alignment on targeted materials and packaging types: Single use plastics, recyclable plastics, non-recyclable plastics, other packaging etc.;
- Alignment on definitions for key metrics such as what constitutes reuse, recycling and recovery;
- Alignment on labelling of packaging, especially for products that are likely to have transboundary consumption / disposal;
- Commitment to a reporting framework so as to have comparable data across ASEAN and identify key areas of focus.

Another area for an ASEAN level intervention is **inter-ASEAN** trade in scrap packaging / packaging material. The inflow and outflow of packaging materials and packaging waste can be regulated through **import and export requirements** to ensure that:

- Domestic infrastructure is not unduly burdened by unwanted packaging materials;
- Imported materials comply with domestic regulations and restrictions; and,
- Quality and quantities of scrap traded are considered when exporting to ASEAN nations to be commensurate with receiving economy's infrastructure.

Another opportunity at the ASEAN level is the **creation of "hubs" for recycling or recovery**. Based on the availability and capacity, and geographical proximity of the ASEAN nations there is merit in exploring the potential for creation of hubs for different processes. Some of these hubs are already in place - for instance, the flow of recyclables from Myanmar and Cambodia into neighbouring Thailand for processing etc. building on existing and potential flows, an efficient scrap economy can be developed at the ASEAN level.

ASEAN CONSULTATION ON PACKAGING POLICIES AND STANDARDS

UN ENVIRONMENT PROGRAMME

UN Environment Programme and the Secretariat of Coordinating Body on the Seas of East Asia (COBSEA) convened an event entitled 'Regional solutions to combat plastic pollution: Consultation on packaging industry regulations and standards for design, labelling, recovery and recycling in ASEAN' on 11-12 December 2018, in Bangkok, Thailand.

The consultation was attended by forty-two stakeholders including representatives from ASEAN governments (Cambodia, China, Malaysia, Philippines, Thailand, Viet Nam, Republic of Korea), inter-governmental organizations, the private sector and civil society organizations, as well as subject-matter experts.

Opportunities were provided for stakeholders from ASEAN countries to engage with the existing initiatives, including relevant instruments, strategies and plans adopted in other regions to combat marine litter and packaging waste. There was consensus on the need for a comprehensive packaging policy and a recognition that challenges exist with the current efforts in each of the ASEAN nations.

The following key insights were identified:

Policy and standards impacting packaging waste in each of the ASEAN countries vary in scope, impact and priority. Whilst all nations have some form of a solid waste management regulation, the introduction, enactment and enforcement of source separation and separate collection of packaging waste has been limited and in some instances there is no progress. Some nations have been active in legislating or contemplating legislation to address packaging through some form of producer responsibility mechanism, but again these efforts have been limited or infrequently applied.

The recognition that policy regime must address **all aspects of the packaging value chain and must not be limited to any one aspect of packaging waste**. Participants were vocal in suggesting that a comprehensive approach which recognises and integrates different policies across the entire value chain will not only allow for efficiencies, but also grant a broader understanding of the marine debris issue. They also indicated that a packaging policy regime must work alongside a comprehensive solid waste management plan which addresses issues such as littering and dumping.

Acceptance of a multi-policy approach. Participants were all accepting of the fact that there is no regulation or policy that can singlehandedly address the related problems of packaging waste and marine debris. Participants agreed that a comprehensive policy scheme was required to ensure that each aspect of the value chain could be addressed to limit the flow of packaging waste into the environment.

Concerns regarding some of the policies that have been introduced. Nations which had introduced a ban on the import of plastics were concerned about the impact of this measure, especially with respect to the investments made in recycling infrastructure. Other concerns raised focused on the ban on the use of recycled content in food grade packaging. As a counterpoint, the issue of including a standard on traceability of recycled content was raised, particularly regarding recycled material which was previously used in non-halal applications.

ASEAN-wide approach. There was no suggestion to have a pan-ASEAN approach to policy as it was recognised that each nation is at varying stages and must engage with this issue at a national and subnational level. It was also recognised that the active stakeholder bodies varied tremendously with the government, consumer groups and industry leading different efforts.

Prioritization on the basis of relevance and impact.

Participants engaged in an exercise that asked them to rank the various policies discussed at the event in a matrix measuring relevance and impact. The policies that ranked highest on this matrix were those of source separation and separate collection as well as scrap packaging trade policies. Other policies that were deemed to high impact (but not as urgent) were those related to the (i) setting of targets and roadmaps (ii) end of life of packaging (landfill bans, recycling related regulations, final disposal regulations related to waste to energy and incineration) as well as (iii) bans on some harmful types of packaging. Policies that were deemed to be either not quite as relevant or having limited impact included those related to biodegradable packaging and biorecovery / composting regulations.

Harmonization of a limited subset of packaging policies. Participants were also asked to discuss the appropriateness of an ASEAN-wide approach to some of the policy measures. There was agreement that a unified approach to definitions of key terms and metrics relevant to packaging is essential. Also emphasized was the need for intercountry alignment on the environmental standards for recycling materials, trade policies, food safety and recycled content, especially as these impact the flow of recyclate, scrap and virgin materials within the region. Also discussed, but not prioritized, was the need for a unified approach to labelling.





**GLOBAL
PACKAGING
REGULATIONS
AND
STANDARDS:**

**EUROPEAN
UNION AND
JAPAN**

GLOBAL PACKAGING REGULATIONS AND STANDARDS: EUROPEAN UNION AND JAPAN

This section of the report reviews the legislative and policy framework available in the EU and in Japan, both considered to be leading examples of policy efforts to improve and implement sustainable packaging policies. The underlying principles for both of these frameworks are observed and highlighted in an effort to understand the logical starting point for various policy interventions. Subsequently, an overview of the waste regulations in the EU and Japan is undertaken to derive a summary of specific policies and interventions that impact the challenges of packaging and packaging waste.

KEY PRINCIPLES INFORMING THE GLOBAL PACKAGING REGULATIONS AND STANDARDS

The waste management and packaging related policies in the EU and Japan are premised on the same or similar underlying principles. Before examining the policies, it would be useful to touch upon these underlying principles:

A. CLEAR PRIORITIZATION OF WASTE MANAGEMENT INITIATIVES

Both policy efforts reflect a clear prioritization of waste management initiatives, identifying a **preference of initiatives in accordance with the environmental impact**. The EU, in its Waste Framework Directive¹ examines a five-step “waste hierarchy” in the order of (i) Prevention (ii) Preparation for re-use (iii) Recycling (iv) Other recovery (v) Disposal. (Figure 3.)

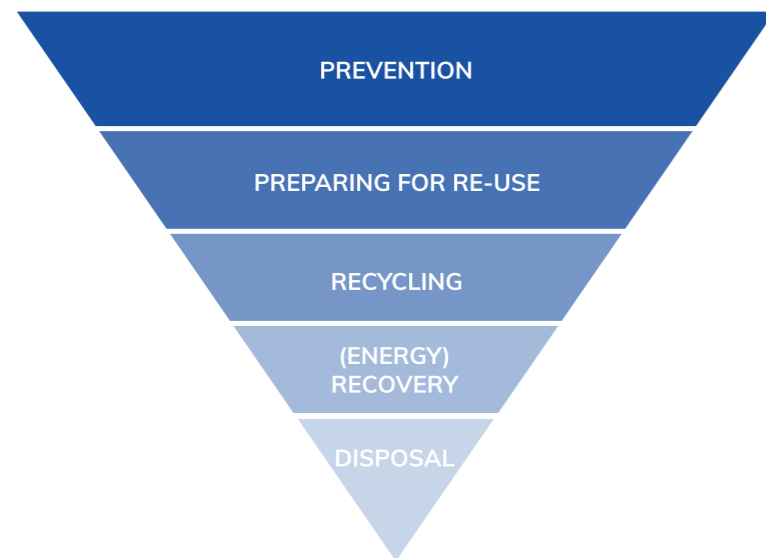


Figure 3. EU Waste Framework Directive

¹European Parliament and the Council, Directive 2008/98/EC on Waste Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01994L0062-20150526&from=EN>

The existence of a waste hierarchy extends to packaging waste and allows for the development of and policies in terms of addressing packaging waste. It is important to note that even though the move towards waste prevention and increased recycling and recovery is a common goal of the national waste management regimes in Europe, the objectives set by governments to meet these goals have differed in both timing and ambition.² This hierarchy is not only useful for the EU member states in creating alignment in the approach to address waste and packaging waste, but it also provides guidance in the enactment of new policies and standards as required.

In Japan too, the “reduce” and “reuse” principles are evoked to enhance the existing recycling, recovery and disposal treatment processes. Resource productivity is measured by a reduction in resource inputs and the reuse of materials and by ensuring an increasing cyclical use rate. This cyclical use rate indicates a strong prioritization of the reduction, reuse and recycling (3Rs) over incineration. Not expressed in the 3R but according to Japanese legislation, if material recycling is not feasible, then thermal recycling should be undertaken. Land restrictions in Japan enforce strict limitations on available landfill sites, thus incineration has been implemented widely and highlighted as a preference

B. SETTING OF MEASURABLE TARGETS

Another common aspect that is repeatedly observed within both, the EU and Japanese policies is the **inclusion of targets for various stakeholders in the packaging and packaging waste value chain**. The setting of targets has many benefits including:

- Providing a future vision / inspiration for action;
- Coordinating actions among various actors;
- Providing a mid-term constraint as a bridge or

means to encourage society to be prepared for a future expected reality (e.g. recycling rates in the EU which among other things encourage the establishment of recycling infrastructure);

- Providing a metric of success against which progress can be measured; and,
- As a means of indicating action on an issue with respect to waste (for e.g. a target to reuse a percentage of waste).

With respect to EU policies, specific targets have been identified for different aspects of packaging including, reuse, recycling and recovery. Other targets related to landfill restrictions and minimum recycled content etc. are other examples of targets that impact packaging and ensure its proper recovery.

In the case of Japan, the national targets take the form of Key Performance Indicators (KPIs) with respect to resource productivity, circular use and final disposal. Each of these KPIs is influential in improving the reduction, reuse (where possible), recycling or recovery of packaging material.

C. LIFE CYCLE APPROACH / CIRCULAR ECONOMY

Another principle that emerges strongly from the various approaches and legislative efforts to address the growth in packaging and packaging waste is the **development of an increasingly circular approach**. The broad measures for changing the full packaging life cycle go beyond a narrow focus on the end-of-life stage. Innovative and more efficient ways of producing and consuming are being promoted and the circular economy is expected to reduce environmental impacts of resource use and injecting new value into waste products.

²Lazarevic, D. et al, “The influence of the waste hierarchy in shaping European waste management: the case of plastic waste”.

Germany was the first to introduce the waste hierarchy into their waste legislation, through the Act on Avoidance and Disposal of Waste in 1986. This act established a hierarchy, with avoidance coming before recovery, and recovery coming before disposal. The waste hierarchy was introduced as a principle for French waste management only in 1992, and later in the UK by the 1995. Not only is there a difference in the timing of adoption of the waste hierarchy, there is also a difference in the application of the waste hierarchy. Germany introduced a prohibition of energy recovery whilst in France the targets were based on valorization (a generic term for recovery, including all forms of recycling, composting, incineration with energy recovery, and other forms of energy recovery). Given the investment in waste to energy technology, France doesn't indicate a preference of recycling over energy recovery.

The more recent policies introduced by the EU reinforce the emphasis on the circular economy, and the requirement to not only ensure proper recovery of packaging waste, but also to ensure the recapture of the material for reintroduction into the economy.

In Japan too, the initial policies governing waste management and resource utilization have given way to more detailed approaches to packaging waste. Undertaking specialized approaches to different types of materials and using the recycling fees and resources towards innovations for improved utilization of post-consumer packaging suggests the shift to a more comprehensive effort. This is evidenced by the introduction of additional laws such as the promotion of the Containers and Packaging Recycling Act (“CPRL”) (1995) and the “Act on Promoting Green Procurement” (2001).

EUROPEAN UNION

DIRECTIVES, POLICIES AND STANDARDS

The EU approach to sustainable packaging is embedded in primarily three major directives including the **Waste Framework Directive**³, the **Landfill Directive**⁴ and most targetedly, the **Packaging and Packaging Waste Directive**⁵ (first introduced in 1994 and amended over time). The targets and essential requirements of each of these Directives and their national applications have led to high recycling and recovery rates in the EU economies.

The **EU Waste Framework Directive** provides the concepts and definitions related to waste management, waste, recycling, recovery. Waste legislation policy is imposed as a priority in accordance with a five-tiered hierarchy of **(i) waste prevention, (ii) preparing for reuse, (iii) recycling, (iv) recovery, and (v) disposal (landfill / incineration without energy recovery)**. The waste management hierarchy is essentially an extension of the precautionary and prevention principles, establishing a priority order for waste treatment options in terms of the lowest possible environmental impact and minimization of final waste. This is done in order to provide a framework to support decision making for waste management systems at the local and/or national levels.

The **EU Landfill Directive** identifies landfilling as the least preferable option for waste disposal and requires that it should be limited to the necessary minimum. Where waste needs to be landfilled, it must be sent to landfills which comply with the requirements of the Landfill Directive. The objective of the Directive is to prevent or reduce as far as possible negative effects on the environment, in particular on surface water, groundwater, soil, air, and on human health from the landfilling of waste by introducing stringent technical requirements for waste and landfills. The Landfill

Directive defines the different categories of waste (municipal waste, hazardous waste, non-hazardous waste and inert waste) and applies to all landfills, defined as waste disposal sites for the deposit of waste onto or into landfill. In 2014, the European Commission adopted a legislative proposal to review waste-related targets in the Landfill Directive which aims at **phasing out landfilling by 2025 for recyclable waste** (including plastics, paper, metals, glass and bio-waste) in non-hazardous waste landfills, corresponding to a maximum landfilling rate of 25%. Also, this focus on packaging waste is reinforced by the more general target which requires that the amount of municipal waste landfilled must be reduced to 10% or less of the total amount of municipal waste generated by 2035.

The **Packaging and Packaging Waste Directive** specifically addresses the aspects of packaging waste, and the balancing of the sometimes conflicting policies of environmental protection and the smooth functioning of the packaged goods market. In 2004, the Directive was amended to provide criteria clarifying the definition of the term ‘packaging’ and increase the targets for recovery and recycling of packaging waste. In 2005, the Directive was revised again to grant new EU member states transitional periods for attaining the recovery and recycling targets.

The latest revision of the Packaging and Packaging Waste Directive occurred on 29 April 2015 with the adoption of Directive (EU) 2015/720 of the European Parliament and the Council Amending Directive 94/62/EC as regards the consumption of lightweight plastic carrier bags. This directive requires that the EU countries must take measures to reduce the consumption of plastic carrier bags with wall thickness between 15-50 microns. Consumption must be limited to a maximum annual 90 bags per person by 2019 and 40 bags per person by 2025. Furthermore, these plastic carrier bags are not to be provided free of charge at points of sale of goods so as to discourage consumption.

The European Packaging Directive is considered to be a world-leading benchmark for packaging sustainability.

³ European Parliament and the Council, Directive 2008/98/EC on Waste, Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01994L0062-20150526&from=EN>

⁴ Council of the European Union, “ Council Directive 2018/850” Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0850&from=EN>

⁵ European Parliament and the Council, “Directive 94/62/EC” Official Journal of the European Union Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01994L0062-20150526&from=EN>

This Directive covers all packaging placed on the EU market and all packaging waste, whether it is used or released at the industrial, commercial, office, shop, service, household or any other level, regardless of the material used.

The European Packaging Directive establishes 'essential requirements' for different aspects of packaging such as manufacturing, and composition of packaging as well as disposal and end of life treatment. The overarching packaging standard requires that:

- Packaging weight and volume be kept to the minimum amount needed for safety, hygiene and consumer acceptance of the packed product;
- Noxious or hazardous constituents be kept to a minimum; and,
- Packaging can be reused or recovered once it has been used.

Packaging must be designed, produced and commercialised in such a way as to permit its reuse or recovery, including recycling, and to minimise its impact on the environment when packaging waste or residues from packaging waste management operations are disposed off. Packaging must be so manufactured that the presence of noxious and other hazardous substances and materials as constituents of the packaging material or of any of the packaging components is minimised with regard to their presence in emissions, ash or leachate when packaging or residues from management operations or packaging waste are incinerated or landfilled. The standards specified include:

- **Source reduction (CEN EN 13428).** This standard requires that packaging weight and volume be kept to the minimum amount needed for safety, hygiene and consumer acceptance of the packed product;
- **Reuse (CEN EN 13429).** The standards covering reuse require that the packaging must enable a number of trips under "predictable" conditions of use. These

standards also require that the recovery standards (below) apply to such packaging when reuse is no longer possible.

- **Recovery (CEN EN 13430).** These standards cover the minimum requirements for packaging recycling and recovery, specifically in the context of:

- **Material Recycling (CEN EN 13431).** Establishment of a weight-based percentage of packaging material (depending on material type) that must be included in the packaging.
- **Energy Recovery (CEN EN 13432).** Establishment of a minimum calorific value to allow for the optimisation of energy recovery.
- **Organic Recovery (CEN EN 13433):** Establishment of requirement with respect to compostable packaging, such that it doesn't challenge existing composting processes or applications. With respect to biodegradable packaging, the resulting compost must breakdown into the components of carbon dioxide, biomass and water.

The **Circular Economy Package** released in 2015 presented an action plan for the circular economy and four legislative proposals amending directives on waste including three relevant to packaging waste: Waste Framework Directive, Landfilling Directive and Packaging Waste Directive⁶. The new recycling and landfilling targets are expected to boost the re-use of valuable material in waste and improve the way municipal and packaging waste is managed thus making the circular economy a reality.

- Recycling targets for municipal waste are set at 55% by 2025 and 65% by 2035 (previously 50% by 2020) with differentiated targets for each of the different waste streams.
- Packaging waste has higher target rates with 65% to be recycled by 2025 and as much as 70% by 2030.

⁶The fourth legislative proposal is the Directive on end-of-life vehicles

- In addition to the separate collection which already exists for paper and cardboard, glass, metals and plastic, new provisions for separate collection, the inclusion of bio-waste is expected to boost the quality of secondary raw materials and their uptake.

The Circular Economy Package anticipates the use of effective economic instruments and other measures in support of the waste hierarchy. Producers are given an important role in this transition through EPR schemes – meaning a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle.

The **Single Use Plastics Directive**, 2019⁷ is a recent initiative being considered by the EU which goes one step further in addressing plastics products and plastic packaging that are typically intended to be used just once or for a short period of time before they are thrown away. One of the main purposes of this proposed directive is to reduce the amount of plastic waste created. The language of this proposed directive requires that the design of plastic products should always take into account the reusability and recyclability of the product. Where possible, the measures laid down in this proposed directive and their implementation should give priority to waste prevention or to the transition to reusable products rather than to other single-use alternatives. The products banned include:

- Plastic cutlery (forks, knives, spoons and chopsticks), plates and plastic straws;
- Food containers made of expanded polystyrene, such as fast food boxes, with or without a cover, used to contain food that is intended for immediate consumption either on-the-spot or take-away, and that is ready to be consumed without any further preparation, like cooking, boiling or heating⁸;

- Beverage containers made of expanded polystyrene;
- Cups for beverages made of expanded polystyrene; and,

- Products made from oxo-degradable plastic (this term refers to plastic materials which contain additives that promote oxidation of that plastic into micro fragments under aerobic conditions). These oxo-degradable additives can include organic and inorganic additives such as plant starch material, and metal ions such as iron, cobalt, nickel and other stearates.

In addition, the member states will be required to take the necessary measures to achieve a measurable quantitative reduction in the consumption of the following products:

- Food containers made of plastic, such as fast food boxes, with or without a cover, used to contain food that is intended for immediate consumption either on-the-spot or take-away, and that is ready to be consumed without any further preparation, like cooking, boiling or heating;
- Plastic cups for beverages, including their covers and lids; and,
- There will be a binding target of at least 25% of recycled plastic for Polyethylene Terephthalate (PET) beverage bottles from 2025 onwards, and By 2030 all plastic bottles will be required to comprise of at least 30% of recycled content.

⁷ Single Use Plastics Directive

¹Year of enactment: 2019

Accessed (March 2019) https://europa.eu/rapid/press-release_STATEMENT-19-1873_en.htm

⁸An example of enactment of such a ban is in France. By January 1st, 2020, distribution of disposable "kitchen cups, glasses, and plates made out of plastic" as well as cotton swabs with plastic sticks is prohibited - Energy Transition for Green Growth Act 2015-992 of 18 July 2015, Title IV "Combating wastage and promoting circular economy: from design to recycling" https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf

OTHER POLICIES AND REGULATIONS

A communication on **Waste to Energy** recovery focuses on energy recovery from waste and its place in the circular economy.⁹ Waste-to-energy encompasses various waste treatment processes generating energy (e.g. in the form of electricity / or heat or produce a waste-derived fuel), each of which has different environmental impacts and recovery potential. The EU communication seeks to ensure that the recovery of energy from waste in the EU is firmly guided by the EU waste hierarchy and also examines how the role of waste-to-energy processes can be optimised.

In addition to the above policies, other regulations such as the **Waste Incineration Directive** (2000/76/EC) imposes strict operating conditions and technical requirements on waste incineration plants and waste co-incineration plants to prevent or reduce air, water and soil pollution caused by the incineration or co-incineration of waste. The conditions imposed on the incineration plants are to be taken into account when considering incineration as a means of disposal. (See Figure 4.)

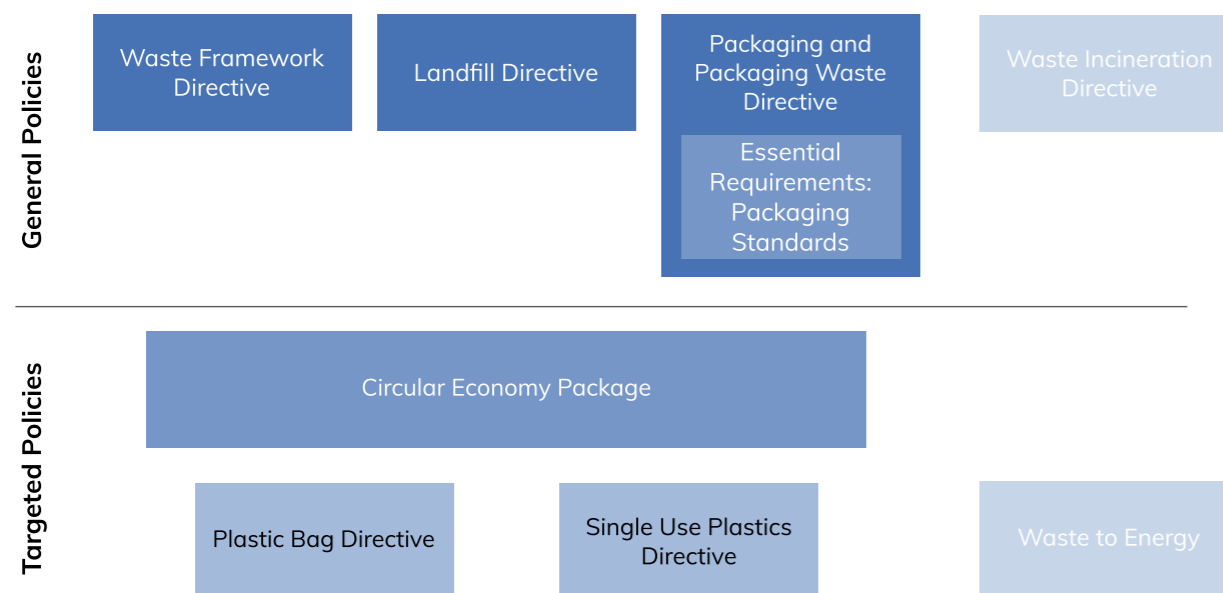


Figure 4. Packaging and packaging waste related policies in the EU

⁹European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions 'The role of waste-to-energy in the circular economy' (COM(2017) 34 final)

JAPAN

REGULATIONS, POLICIES AND STANDARDS

Japan, like the EU, has a range of regulations impacting packaging directly and indirectly. Japan's tiered legislative framework provides for a sound general environmental plan, which is then supported by a law focusing on a sound material-cycle society as well as specific detailed forays into material based or industry-based solutions with respect to particular streams of waste including packaging.

Fundamental Plan for Establishing a Sound Material-Cycle Society

1. This five-year plan is formulated by the national government to settle the strategies to further develop a sound material-cycle society according to the Basic Act for Establishing a Sound Material-Cycle Society (Law number 110 of the year 2000, hereinafter referred to as the "Basic Act")

It serves as a basis for other national programs. With the first five-year plan (2003), targets were introduced to measure material flow accounts. The second plan (2008) set out objectives for a low- carbon society and also mandated regional circulation networks to meet local resource needs. The third plan (2013) shifted from purely quantitative objectives to also focus on reinforcement of the 2Rs; reduce and reuse.

The Design for Environment concept is embraced in the Fundamental Plan for a Sound Material-Cycle Society: implementing concretely the 3R concept into the entire life cycle of products, from designing and manufacturing (e.g. by minimizing resource consumption for production) to recycling and disposal of end-of-life products (e.g. through easier to dismantle products or labelling for separate collection¹⁰).

The quantitative targets under the Fundamental Plan are based on the following metrics:

- Resource productivity (GDP / material inputs) expressed as JPY/ ton
- Cyclical use rate (total reused and recycled material input / material inputs) expressed as a percentage
- Final disposal amount (waste at final disposal) in tons

Within the context of this legislative framework, the following additional and more specific laws were established:

- Waste Management and Public Cleansing Act (targeting proper waste management)
- Act on the Promotion of Effective Utilization of Resources (promoting reuse and recycling)

Waste Management and Public Cleansing Act (1970):

This provides control of the generation of waste, appropriate treatment of waste (including recycling), regulations regarding waste treatment facilities and waste management operators and the establishment of waste treatment standards.¹¹

Act on the Promotion of Effective Utilization of Resources (2000):¹²

This fosters the recycling of reusable resources, encourages easy-to-recycle structures and materials, defines labelling for separate collection of waste at source and promotes the efficient use of by-products.

To further refine the principles of effective utilization of resources, specific regulations have been developed in accordance with the characteristics of the individual products.

This includes the **Containers and Packaging Recycling Act ("CPRL")** (1995) which places additional responsibility on certain businesses with respect to the materials used and produced as containers and wrapping and which "become unnecessary when the contents have been consumed or removed." Items excluded from the recycling obligations under the Act include steel cans, aluminium cans, drink cartons and cardboard as they have a market. The CPRL was developed to target packaging waste in particular. Under the Act, "specified business entities" are assigned the responsibility of recycling these containers and

¹⁰Ministry of the Environment Japan (2013), Fundamental Plan for Establishing a Sound Material-Cycle Society Accessed March 2019 at https://www.env.go.jp/en/recycle/smcs/3rd-f_plan.pdf / https://www.eu-japan.eu/sites/default/files/publications/docs/waste_management_recycling_japan.pdf

¹¹Waste Management and Public Cleansing Act Accessed Mar 2019 https://www.env.go.jp/en/recycle/basel_conv/files/Waste_Management_and_Public_Cleansing.pdf

¹²Accessed March 2019 at <https://www.env.go.jp/en/laws/recycle/06.pdf>

wrapping in accordance with the volume that they manufacture or sell. Given that it would be difficult for individual business entities to collect waste containers and wrapping from respective municipalities and recycle them on their own, the Japan Containers and Packaging Recycling Association (JCPRA) – a government-designated organization which works in collaboration with the government, municipalities, business entities and consumers – was established in 1995. The JCPRA regulates recycling activities on behalf of the specified business entities that pay “recycling fees” to the JCPRA. In this manner, the specified business entities fulfil their legal obligation.

The CPRL took effect in 1997 for PET bottles and glass waste and was then expanded to paper and plastic container and packaging waste in 2000. It is the first law in Japan to reflect an EPR concept. Under the law, municipal responsibility has been partially shifted to “producers” (“producer” means container and packaging users / manufacturers under this law). Municipalities must collect containers and packaging separately and carry them to storage points.

Another feature of this law is that the participation of municipalities to this scheme is voluntary. The participating number of municipalities varies by type of waste, for example from 331 for paper containers and packaging to 2600 for glass bottles. Producers need to recycle wastes collected by municipalities or waste corresponding to recyclers’ capacity to recycle, whichever is less. This means producers could pay for the cost of recycling less than amounts supplied to the market, if there is not adequate recycling capacity for that particular stream of waste. However, as voluntary participation of municipalities to this scheme is increasing steadily, the demand for recycling capacity is also increasing (See Figure 5).

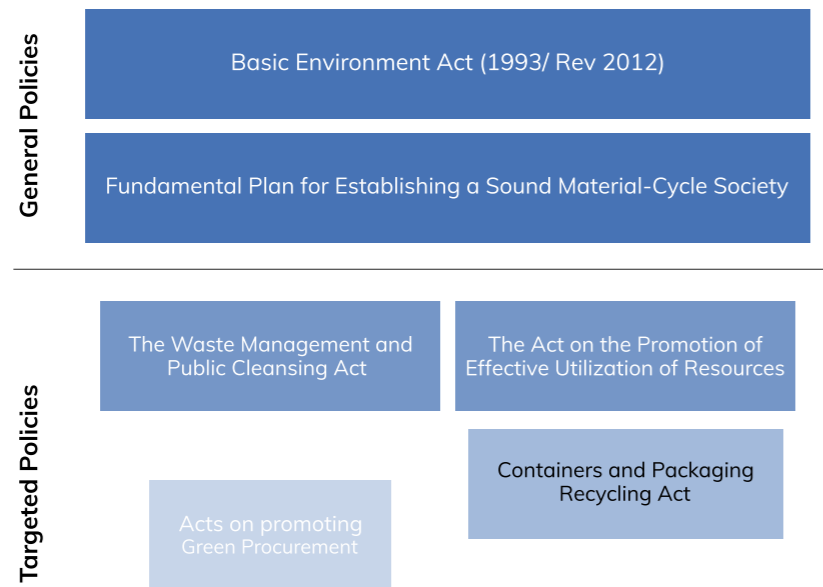


Figure 5. Packaging and packaging waste related policies in Japan

SUMMARY OF GLOBAL POLICIES IMPACTING PACKAGING AND PACKAGING WASTE

The above review of the various regulations, policies and standards in place in the EU and Japan suggest a comprehensive and interconnected web of policies, regulations and efforts aimed at addressing packaging and packaging waste. Table 2. below summarises all of the policy best practices in effect in the EU and in Japan.

	EU	JAPAN
General Legislative Framework		
MSW legislation	✓ (Waste Framework Directive)	✓ (Basic Environment Act, Basic Act for Establishing a Sound Material Society)
Marine litter legislation	✓ (Marine Strategy Framework Directive)	✓ (The Third Basic Plan on Ocean Policy)
Packaging regulation	✓ (Packaging and Packaging Waste Directive)	✓ (Containers and Packaging Recycling Act)
Anti-litter legislation		
Source Reduction		
Source reduction by design	✓ (Packaging and Packaging Waste Directive)	✓ (Fundamental Plan for a Sound Material Society)
Source reduction by material restriction		
• Plastic bag ban		
• Plastic bag restriction	✓ (Plastic Bag Directive)	
• Single use plastic limit ¹³	✓ (Single Use Plastic Directive)	
• Biodegradable requirement	✓ (Packaging and Packaging Waste Directive - Packaging Standards)	
• Oxo-biodegradable		
Source separation	✓ (Waste Framework Directive)	✓ (Basic Policy for Comprehensive and Systematic Promotion of Measures on Waste Reduction and Other Proper Waste Management)
Separate collection	✓ (Waste Framework Directive)	✓ (Basic Policy for Comprehensive and Systematic Promotion of Measures on Waste Reduction and Other Proper Waste Management)
National targets for recycling / recovery	✓ (Waste Framework Directive, Landfill Directive, Packaging Waste Directive, etc.)	✓ (Fundamental Plan for a Sound Material Society KPIs for Resource Productivity and Cyclical Use Rate)
Landfill Regulations		
Reduction of waste to landfill	✓ (Landfill Directive and Circular Economy Package)	✓ (KPI for Final Disposal Amount in Fundamental Plan for a Sound Material Society)
Diversion of recyclables	✓ (Landfill Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)

¹³Not formally adopted

Extended Producer Responsibility		
Legislative framework	✓ (Waste Framework Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)
Reporting requirements	✓ (Waste Framework Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)
Take back requirements	✓ (Waste Framework Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)
	EU	JAPAN
Taxes / Fees for packaging (excluding plastic bag)	✓ (Waste Framework Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)
Packaging marks and labels	✓ (Waste Framework Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)
Voluntary efforts by industry associations	✓ (Waste Framework Directive and Circular Economy Package)	✓ (Containers and Packaging Recycling Act)
Export Import Trade Policy		
Import restrictions of scrap plastics	N/A	N/A
Control of transboundary shipment of contaminated plastic	✓ (An amendment to the Basel Convention on the control of shipment of transboundary waste is being considered to include in the controlled materials contaminated scrap plastic.)	✓ (Waste Management and Public Cleansing Law)
Green Procurement Plan (GPP)		
Alternative materials	✓ (Voluntary Green Procurement Policy that discusses packaging but does not elaborate on criteria.)	✓ (GPP relies on principles included in the Basic Environment Act) ¹⁴
Materials with recycled content	N/A	✓ (GPP relies on principles included in the Basic Environment Act) ¹⁵
Green Procurement Plan (GPP)		
Minimum recycled content	✓ (European Food Safety Association evaluates the safety of recycling processes for recycled plastics used in food contact materials(FCM). There are no explicit restrictions stated.)	
Food application restrictions		

Table 2. Summary of global policies impacting packaging and packaging waste

¹⁴Article 24, "Promotion of Use of Products Contributing to Reduction of Environmental Load," of the Basic Environment Act (Law No.91, 1992)
¹⁵Article 19, "Promotion of Use of Recycled Articles," of The Basic Act for Establishing a Sound Material-Cycle Society (Law No. 110, 2000).





A REVIEW OF ASEAN PACKAGING REGULATIONS AND STANDARDS

A REVIEW OF ASEAN PACKAGING REGULATIONS AND STANDARDS

The policy landscape for each of the ASEAN nations is examined below, exploring both the general waste management laws as well as packaging specific laws. Some of the laws do not directly address packaging or packaging waste, but they could be invoked to have an impact on packaging regulations and standards. In addition to specific packaging related laws, the general waste management policies as well policies such as marine litter are also discussed in the sections below. Marine Litter Legislation is especially relevant in the ASEAN context given the high percentages of packaging in marine litter, and the number of ASEAN countries that feature amongst the top ten offenders for marine plastics.

BRUNEI (BN)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>Brunei does not have specific laws with regard to waste management. However, the National Development Plans and the National Environment Strategy both indicate broad policy statements on the topic.¹⁶</p> <p>The National Environment Strategy states that waste can either be collected by private waste collectors or disposed of in communal bin centres. However, littering and improper dumping are still major issues in Brunei.</p>	<p>Source reduction by material restriction</p> <p>The “No Plastic Bag Weekend” campaign encourages retailers to not provide plastic bags from Friday to Sunday. The initiative has had 44 retailers pledged and is expected to cut 274,000 plastic bags every weekend or 13 million bags a year.¹⁸</p> <p>National targets</p> <p>In the National Development Plan, there are references to building an “integrated waste management system” and an “engineered landfill disposal site”. The plan also mentions that the measures will “be focused towards waste reduction by increasing recycling rates relative to the production of waste from about 5% to 10% by 2015” and that the “Ministry of Development is committed to reduce waste generated per capita to 1kg per capita per year by 2023”.¹⁹</p>
<p>Other initiatives</p> <p>Marine litter legislation</p> <p>Constitution of Brunei Darussalam on Prevention of Pollution of the Sea Order, 2005 makes provision for the protection of the marine environment and prevent, reduce and control pollution of the sea.¹⁷</p>	<p>Recycled content: Food application</p> <p>Brunei’s Public Health (Food) Regulations S80/00 2001 Part Iv, Art. 43 outlines the regulations with respect to food packaging which prohibits use of materials containing heavy metals or other carcinogenic, mutagenic, teratogenic, poisonous or injurious substances. While not explicitly limiting the use of recycled content, there is no articulation of when such content is permissible.</p>

¹⁶UNEP, “IV Waste Management Policies and Strategies”
¹⁷Brunei Darussalam Authority, (2005) Constitution of Brunei Darussalam (Order under Article 83(3)) Prevention of Pollution of the Sea Order, 2005
¹⁸Department of Environment, Parks and Recreation, “Recycle 123 Handbook”
¹⁹Department of Economic Planning and Development (DEPD), “Tenth National Development Plan (2012 – 2017)”

CAMBODIA (KH)

General waste management laws

MSW legislation

Regulations on solid waste management in Cambodia are governed under the Sub-Decree No. 36 on Solid Waste Management²⁰ (1999). This Sub-Decree comes under the Law on Environmental Protection and Natural Resource Management. Urban solid waste management is covered under a later degree, Sub-Decree No. 113 on Urban Garbage and Solid Waste Management (2015).

thickness is measured from 0.03 millimeters with a base width from 25 centimeters or 10 inches. A permit from the Ministry of Environment is required for production and importation of plastic bags except for non-business importation of less than 100 kilograms. Also, customers at shopping centres and supermarkets started were charged for plastic bag usage from 10th April 2018.²¹

Landfill Regulation

According to Article 37 of Sub-decree No 113 on Management of Garbage and Solid Waste of Dountowns, landfills shall be operated in compliance with technical conditions and environmental protection measures determined by Ministry of Environment.²² Landfill Ordinance under Environmental Guidelines on Solid Waste Management in Kingdom of Cambodia 2006 covers necessary requirements of a basic standard landfill, non-acceptable waste for basic standard and/or sanitary landfill, landfill gas and leachate collection system and landfill operation.²³

Packaging related laws

Source Separation and Separate Collection

The goal of the Sub-Decree No. 113 on Urban Garbage and Solid Waste Management (2015) is to “enhance the management of garbage and solid waste of downtowns with effectiveness, transparency and accountability, referring to ensure aesthetics, public health and environmental protection”.

It covers the “separating, storing, cleaning, collecting, transporting, recycling and management of landfills of garbage and solid waste of downtown in the Kingdom of Cambodia”

Source reduction by material restriction – plastic bag restriction

Sub-Decree No. 168 on Plastic Bag Management (2017) regulates the usage and management of plastic bags which also included a charge on plastic bags.

According to Article 14, plastic bags for carrying shall be prohibited for importation, local production, distribution, and use unless its

²⁰IGES Centre Collaborating with UNEP on Environmental Technologies (CCET), “State of Waste Management in Phnom Penh, Cambodia 2018”
²¹Sub-Decree No. 168 GNKR.BK, “New Sub-Decree on Management of Plastic Bags”
²²Royal Government of Cambodia, (2013)Sub-decree No 113 on Management of Garbage and Solid Waste of Dountowns
²³Environmental Guidelines on Solid Waste Management in Kingdom of Cambodia

INDONESIA (ID)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>The general law with respect to solid waste management in Indonesia is the Solid Waste Management Act (No.18/2008) which governs household waste collection and management. The Act assigns the role of waste management to the government and local government and outlines the tasks with regards to waste management.</p> <p>Waste-to-energy laws</p> <p>There are also regulations on waste-to-energy in Indonesia under the Presidential Regulation 35/2018 on “The Acceleration Of Waste to Energy Facility Installation That Are Based From Environmentally Friendly Technology”. This regulation resolved contradictions in the previous waste-to-energy regulations and also provided a comprehensive legal framework for the development of waste-to-energy projects in twelve major cities in Java, Bali, Sumatra and Sulawesi, including DKI Jakarta in Indonesia.²⁴</p>	<p>National targets</p> <p>The Presidential Regulation No. 97/2017 Solid Waste Management National Policy and Strategy (2017- 2025) is a policy aimed at reducing overall waste by 30% and managing the remainder of 70%.</p> <p>Extended producer responsibility – legislative framework</p> <p>The framework for the EPR policy was built in 2008 and revisited 2012. Article 14 from the Government of Indonesia Regulation (No. 81 Year 2012) states that “Manufacturers are required to conduct business and/or activities in accordance with the policies and strategies of the waste management plan program. This includes reusing waste as raw materials.” While the framework has been developed, government is yet to enact specific policies and legislation that imposes obligations on industry players.</p> <p>Extended producer responsibility – take back requirements</p> <p>Indonesia is releasing an EPR policy which targets consumer goods packaging and food and beverage packaging. The EPR policy will oblige producers and retailers to increase the percentage of recyclables in their product packaging and draw up a “10-year plan identifying the proportion of waste from their products that they will take back and recycle”. To achieve this reduction, producers are expected to set up their own recycling facilities or partner with existing facilities.²⁵</p> <p>Recycled content – food application restrictions</p> <p>Packaging is regulated under the Food Act of 1996 which mandates the use of safe materials for food packaging. Under the Act, the government can identify forbidden packaging</p>
<p>Other initiatives</p> <p>Marine litter legislation</p> <p>Indonesia’s Plan of Action on Marine Debris 2017-2025 has five strategies, behavioural change, reduced land-based leakage, reduced sea-based leakage, enhanced law enforcement and financial commitments, and research and development²⁶.</p>	

²⁴Global Business Guide (GBG), “Expanded Coverage and New Feed-in Tariff for Indonesia’s Waste to Energy Projects”

²⁵Gokkon, “Indonesia leans on businesses to do more about plastic waste”

²⁶Coordinating Ministry for Maritime Affairs, “Indonesia’s Plan of Action on Marine Debris 2017-2025”

materials and methods for packaging certain foods. Also, packaging material where effects on human health are not known, cannot be used before being checked for safety. New types of material may be used for packing food only after receiving government agreement.²⁷

LAO PDR (LA)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>Waste management in Lao PDR is governed under the Environment Protection Law No 02/99/NA. Article 38 of the environmental protection law stipulated that the general and nontoxic solid wastes should be segregated properly into relevant types for reuse and recycling. Specifically, the article mentions that, “segregation of solid wastes is done for the purpose of collection of recyclables for sale only”.²⁸</p>	<p>Source Separation and Separate Collection</p> <p>Article 38 of Environmental Protection Law 2012 mandates waste separation for different purposes such as recycle, reuse and reprocess as new products. Disposal of toxic and hazardous wastes requires treatment, dumping, burn, cremation, bury or elimination, with methods and techniques within identified areas based on regulations.²⁹</p> <p>Government-led initiatives for packaging awareness</p> <p>There is not yet a specific regulation regarding plastic packaging. However, the “Laos Pilot Program for Narrowing the Development Gap towards ASEAN Integration, Environmental Management Component” (LPPE), a project conducted in Lao PDR by Ministry of Natural Resources and Environment (MoNRE) with the technical and financial assistance of the ASEAN Secretariat and the Japan International Cooperation Agency (JICA), conducted “a pilot initiative to instil behaviour change among households in order to reduce the consumption of plastic bags” as part of the project.³⁰</p>
<p>Other initiatives</p> <p>Anti-litter legislation</p> <p>Under Article 23 of the Environment Protection Law No 02/99/NA, “All forms of littering are forbidden”. Furthermore, Article 46 states that one of the offences that would be liable for fines is littering</p>	

²⁷Act of the Republic of Indonesia No.7 of 1996 On Food

²⁸Environment Protection Law No 02/99/NA Art 38

²⁹National Assembly, (2012) Environmental Protection Law, Revised version.

³⁰Global Green Growth Institute, Solid Waste Management in Vientiane, Lao PDR”

MALAYSIA (MY)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>In Malaysia, the Environmental Quality Act, 1974 is a basic act which covers waste management as part of the broader law. The Environment Quality (Schedule Wastes) Regulations 2005 and Solid Waste and Public Cleansing Management Act (SWMA) 2007 Act 672 are more specific regulations which define solid waste, household waste and hazardous waste.</p> <p>Act 672 aims to standardise solid waste management and public cleansing services in Malaysia and to ensure proper MSW management at the household level with the promotion of waste segregation at source and recycling.</p>	<p>Source separation and separate collection</p> <p>Whilst not specific to packaging, Act 672 mandates source separation of materials including packaging. As part of Act 672, mandatory source segregation was introduced as a policy intervention. The act made it compulsory for households to segregate their recyclables according to paper, plastics, and others and place it in their respective bags.³¹ It also mandates for a “2+1” recyclables stream where the “2” refers to the number of general waste collection per week and the “+1” refers to an additional round of collection for recyclables</p> <p>National targets / source reduction by material restriction</p> <p>Malaysia’s Roadmap Towards Zero Single-Use Plastics 2018-2030 outlines plans and policies to abolish single-use plastics by 2030.³² As part of the roadmap, Malaysia is targeting to have widespread uptake of biodegradable and compostable products by 2022 and a substantial increase of such products by 2030 as well as increasing the scope of biodegradable and compostable to medical products.</p> <p>Extended producer responsibility – legislative framework</p> <p>The framework for EPR currently exists within the Act 672 in sections 101 and 102. However, this EPR has not yet been implemented or enforced.</p> <p>Trade policy – import restriction</p> <p>Malaysia revoked the approved permits for plastic waste imports for three months effective 23 July 2018 after a sharp increase in plastic imports due to China’s ban on scrap plastic imports. Malaysia also announced that it would permanently ban plastic waste imports in three years.³³</p> <p>Recycled content – food application restrictions</p> <p>Food packaging materials in Malaysia are</p>

³¹Edward, “Waste segregation enforcement starts today”

³²Zein, “Malaysia to ban single-use plastic”

³³Lindberg, “After China, Southeast Asia is also detoxing from imported plastic trash”

regulated under the Food Act of 1983. Malaysia prohibits the use of recycled packaging for certain foods such as sugar, flour, and edible oil. In addition, packaging for a product / packaging of swine-origin shall not be used for food of non-swine origin and any bottle that has previously been used for alcoholic beverage or shandy shall not be used for any food, other than alcoholic beverage and shandy. Lastly, reuse of packaging material previously used for milk, soft drink, alcoholic beverage or shandy, vegetable, fish or fruit, and polished rice, is prohibited.

MYANMAR (MM)

General waste management laws	Packaging related laws
<p>Waste management legal framework</p> <p>Myanmar’s National Environmental Policy 1994 broadly covered environmental issues where waste management is one of them.²⁷ There are no laws which are specific to waste management. The National Environmental Conservation Law (2012) was enacted as an enforcement mechanism for the National Environmental Policy.²⁸ However, the consideration of waste management is not comprehensive.</p> <p>Waste management primarily falls under the purview of City Development Committees and Town Development Committees designated within Myanmar cities. Within each committee, there exists a Pollution Control and Cleansing Department which is responsible for solid waste management.</p>	<p>The priority of the municipalities is currently waste collection and disposal. Hence, waste treatment options such as recycling are not well-established at the federal level.</p> <p>Recycled content – food application restrictions</p> <p>Myanmar has adopted recommendations under the ASEAN Consultative Committee on Standard and Quality of Product, Prepared Foodstuff Product Working Group for harmonizing standards, including harmonized standards for the following products; lead, cadmium, chromium (6) bisphenol A, chloromethane, and formaldehyde.</p> <p>Source reduction by material restriction – plastic bag restriction</p> <p>At the municipal level, the Yangon City Development Committee banned businesses from manufacturing, importing, trading or distributing high-density polyethylene (HDPE) plastic bags for environmental reasons in 2009. In 2011, the Mandalay City Development Committee banned polyethylene bags.</p>

Landfill Regulation

The National Waste Management Strategy and Action Plan for Myanmar (2017-2030) outlines initiatives aiming to eliminate uncontrolled dumping and burning in the cities and mandate the operation of environmentally sound disposal facilities.³⁴

National targets / source reduction by material restriction

Myanmar outlined the National Environmental Policy which guides detailed strategic frameworks and action plans for environmental sector such as waste management strategies. One of the key policy principles creating clean environment and healthy, functioning ecosystem is to have a resource efficient and zero waste approach to environmental service provisioning.

Anti-littering Legislation

Under the Notification No. 50/2014, all forms of littering are prohibited. Furthermore, local governments such as Yangon City Development Committee (YCDC) enacted a law introducing a range of offences related to littering with some severe punishments.³⁵

Anti-littering Legislation

Under the Notification No. 50/2014, all forms of littering are prohibited.³⁶ Furthermore, local governments such as Yangon City Development Committee (YCDC) enacted a law introducing a range of offences related to littering with some severe punishments.³⁷

³⁴Environmental Conservation Department, Ministry of the Natural Resources and Environmental Conservation, The Republic of the Union of Myanmar, (2018) National Waste Management Strategy and Action Plan for Myanmar (2017-2030)

³⁵Ministry of Natural Resources and Environmental Conservation, (2016) National Environmental Policy of Myanmar

³⁶Ministry of Environmental Conservation and Forestry, (2004) Notification No. 50/2014

³⁷Mon, Su Myat (2018) Keeping Yangon's streets clean(er)

PHILIPPINES (PH)**General waste management laws****MSW legislation**

The Philippine law concerning waste management is the Ecological Solid Waste Management Act 2000 (RA 9003). Article 1 Section 2 of RA9003 states that, "It is hereby declared the policy of the State to adopt a systematic, comprehensive and ecological solid waste management program".

The RA 9003 helps to define the types of waste and the overall structure of waste management. For example, Article 4, Section 27 states that "the Department of Trade and Industry shall formulate and implement a coding system for packaging materials and products to facilitate waste recycling and reuse".

Other initiatives**Anti-litter legislation**

Whilst there are no national anti-litter legislation, there are a number of cities which have enacted clear anti-littering legislation. For example, the anti-littering law in Metro Manila is governed by MMDA Regulation No. 96-009 which prohibits offences such as illegal dumping and imposes fines or community service as penalties.

Packaging related laws**Source reduction**

The Philippines does not have any packaging specific regulations currently. However, there are several bills (listed below which are pending review by various committees).

Congress:

- HB3579, Plastic Bag Phase-Out Act – Section 6 calls for a complete ban for point-of-sales stores from providing consumers with plastic or biodegradable bags within one year. Section 7 calls for a levy of PHP5.00 per bag before the ban takes effect.
- HB07902, Act Mandating Plastic Waste Management Programs and Measures - Section 5 calls for a plastic bag deterrence fee of at least PHP20.00.

Senate:

- SB1851, Regulating the Use of Plastic Bags.
- SB1948, Single-Use Plastics Regulation and Management Act.
- SB650, Plastic Bag Phase Out Act.
- SB430, Plastic bag Regulation Act.

Source separation and separate collection

Article 2 Section 21 of RA 9003 covers mandatory segregation of solid wastes. Within this section, LGUs are required to "evaluate alternative roles for the public and private sectors in providing collection services, type of collection system, or combination of systems, that best meet their needs.

Food packaging regulations

Food packaging materials are generally regulated by the Food and Drug Administration (FDA) and the regulations fall under the Food Safety Act of 2013. Generally, the restriction on packaging is on setting mandatory food safety standards.

SINGAPORE (SG)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>Singapore's waste regulations fall under the "Environmental Public Health Act 2002". The act defines what waste is and the appropriate stakeholders involved in the management of waste. The Act also comprises of public cleansing regulations which include anti-litter measures.</p>	<p>National targets</p> <p>The National Environment Agency (NEA) aims to have a yearly reduction of 10,000 tonnes of packaging waste by 2020.³⁹</p> <p>Extended producer responsibility – reporting</p> <p>Companies will be required to gather data on the packaging that they use in 2020 and submit their first report to the NEA in 2021.⁴⁰</p> <p>Extended producer responsibility – packaging marks and labels</p> <p>The Logo for Products with Reduced Packaging (LPRP) is an eco-label issued by the Singapore Packaging Agreement (SPA) to awardees of the SPA Awards to recognise products that have undergone improvements to reduce the amount of packaging used. Also, the LPRP empowers consumers who wish to make a conscious choice to purchase products that generate less waste.⁴¹</p> <p>Food packaging regulations</p> <p>Singapore's G.N. No. S 59/2019 – Food (Amendment) Regulations 2019 Part III, Art. 37 outlines the regulations with respect to food packaging which prohibits usage of food packaging containing heavy metals or other carcinogenic, mutagenic, teratogenic, poisonous or injurious substance.</p>
Other initiatives	
<p>Anti-litter legislation</p> <p>The Environmental Public Health Act (Chapter 95, Section 113) covers anti-littering regulations. The NEA has taken a tough stance on littering. In 2017, it took 32,000 enforcement actions against littering offenders.</p> <p>Marine litter legislation</p> <p>Singapore imposes stringent regulations on pollution control to minimize waste source. The Prevention of Pollution of the Sea Act makes provisions for the protection of the marine environment as well as for the prevention, reduction and control of pollution of the sea. Under this Act, the maximum fine for a marine littering offence is \$20,000 or to imprisonment for a term not exceeding 6 months or to both.³⁸</p>	

³⁸Prevention of Pollution of the Sea Act, Revised edition 1999³⁹Tan, "Packaging of consumer products to be regulated"⁴⁰Zannia, "NEA to implement mandatory reporting of packaging data and waste reduction plans in 2020"⁴¹Lim, "Companies must give data on packaging used on products by 2021"

THAILAND (TH)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>Waste management in Thailand is governed by multiple acts which come under the general environment act, the "Enhancement and Conservation of National Environmental Quality Act B.E. 2535 AD 1992".</p> <p>The Public Health Act 1992 provides a legal basis for local administrations to manage MSW generated by developing and issuing ordinances and regulations for collection, transportation, and disposal of waste generated. The act also regulates the collection charges that LGUs can charge their constituencies based on costs.</p>	<p>Source reduction: Alternative materials</p> <p>The National Roadmap for the Development of the Bioplastic Industry (2008) aims to encourage the production of bioplastics to increase the amount of biodegradable plastic packaging used.</p> <p>Extended producer responsibility – packaging marks and labels</p> <p>Thailand also has a Green Label Policy where a label is awarded for products that have a minimum detrimental impact on the environment when compared with others serving the same function.</p> <p>Green procurement policy</p> <p>The 1st Green Public Procurement Plan (GPP Plan) was implemented from 2008 -2011 to promote the procurement of products which are more environmentally-friendly.</p> <p>The 1st GPP Promotional Plan developed the Green Cart Criteria for Office Consumables (e.g. printing paper, toilet roll), durable goods (e.g. fluorescent lamp, steel furniture), and services (e.g. photocopier rental service).⁴¹</p> <p>Trade Policy – import restriction</p> <p>Thailand has announced that they will halt plastic waste imports by 2021 after a sharp increase of plastic imports after China's ban on plastic waste imports.⁴²</p> <p>Food packaging regulations</p> <p>Thailand's Notification of the Ministry of Public Health (No. 295) B.E. 2548 (2005) prohibits the use of plastic containers made from reused plastic exempt using for packing fruits with peel.</p>
Other initiatives	
<p>Marine litter policy</p> <p>Thailand has drafted the Plastic Debris Management Plan (2017-2021) to target plastics leaking into the ocean. It comprises of several approaches, such as developing fiscal and financial tool for plastic debris management, promoting eco-design and eco-friendly substitutes for plastic materials, and developing a material flow of plastic containers and packaging inventory⁴³.</p>	

⁴¹Suksod, "Thailand Green Public Procurement (Thai GPP)" Pollution Control Department⁴²Lindberg, "After China, Southeast Asia is also detoxing from imported plastic trash"⁴³Ocean Conference, "Thailand makes an effort to protect marine environment from marine debris and land-based pollution"

VIET NAM (VN)

General waste management laws	Packaging related laws
<p>MSW legislation</p> <p>Viet Nam has a basic Act on Environment “Law on Environmental Protection 2014” as well as regulations on MSW, water and hazardous waste management.</p> <p>Viet Nam’s National Strategy for Integrated Solid Waste Management to 2025, contains policies whose objectives are to raise the effectiveness of integrated solid waste management, build a system of integrated solid waste management, and raise the awareness of the community about integrated solid waste management by 2025.⁴⁴</p>	<p>Source separation</p> <p>Article 82. Law on Environmental Protection No. 55/2014/QH13 requires household to minimise, classify waste at source, collect and take wastes to proper places.</p> <p>Source reduction by material restriction – plastic bag restriction</p> <p>On plastics, Art. 3 of the Environmental Protection Tax Law (Decree No. 67/2011/ND-CP) is currently under review as the current nylon bag (plastic bag) tax is proposed by the Ministry of Finance to increase from 40,000 VND/kg (USD\$1.72) to 200,000 VND/kg (USD\$9).</p> <p>National targets</p> <p>One of the targets of the National Strategy for Integrated Solid Waste Management to 2025 is to reduce 40% of the nylon bags used at supermarkets and commercial centres when compared to 2010.⁴⁵</p> <p>Trade policy – import restriction</p> <p>With China putting a restriction on the import of scrap plastics, waste import in Viet Nam has increased significantly (0.25 million tonnes of plastic was imported in 2016 and 0.27 million tonnes in just the first half of 2018). Thus, Viet Nam has imposed temporary restrictions on the import of plastic scraps and stopped issuing new licenses for scrap imports.</p> <p>Food packaging regulations</p> <p>Viet Nam’s food plastic packaging requirements don’t specifically limit the use of recycled content as long as the criteria covered in the food packaging regulations as stated in are covered under QCVN 12-1:2011/BYT.</p>
Other initiatives	
<p>Anti-litter legislation</p> <p>Anti-littering legislation in Viet Nam is covered by the government decree 155/2016/NĐ-CP which imposed fines ranging from VND500,000 (USD\$22) TO VND7 million (USD\$300) for littering offences</p> <p>Marine litter policy</p> <p>The Law on Environmental Protection 2014 is one of the mechanisms providing statutory provisions on protection activities, measures and resources used for the purpose of marine and island environmental protection. Waste carried to the sea or marine environment by one way or another is controlled, prevented, mitigated and disposed in accordance with laws.</p> <p>Waste-to-Energy policy</p> <p>Under the Chapter IV. Response to Climate Change, the Law on Environmental Protection No. 55/2014/QH13 emphasises the importance of being accountable for reducing, reusing and recycling wastes, and generating energy from wastes. It serves as a legal basis for government to develop policies on the mitigation, reuse and recycling of wastes, and generation of energy from wastes.</p>	

⁴⁴Prime Minister, “Decision on approving the National Strategy of Integrated Solid Waste Management up to 2025, vision towards 2050”

⁴⁵Prime Minister, “Decision on approving the National Strategy of Integrated Solid Waste Management up to 2025, vision towards 2050”

SUMMARY OF PACKAGING REGULATIONS AND STANDARDS IN ASEAN

Table 3. summarizes the various legislations, policy efforts and regulations discussed within this section. As can be observed the efforts undertaken in the ASEAN nations are fragmented and no single country has a comprehensive approach towards packaging and packaging waste. Even where policy inroads have been made, as in Indonesia and Malaysia, the implementation and enforcement of such policies has been incomplete or limited.

	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
General legislative framework										
MSW legislation	✓*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Marine litter legislation			✓		✓		✓	✓	✓	✓
Anti-litter legislation	✓			✓	✓	✓	✓	✓	✓	✓
Source reduction										
Source reduction by design									✓	
Source reduction by material restriction										
• Plastic bag ban	✓	✓	✓		✓	✓			✓**	✓
• Plastic bag restriction							✓^			
• Single use plastic limit			✓		✓	✓	✓^		✓	
• Biodegradable requirement					✓					
• Oxo-biodegradable requirement					✓					
Source separation		✓	✓	✓	✓		✓			✓
Separate collection										
• Informal sector					✓					
National targets for recycling / recovery	✓		✓	✓	✓		✓	✓	✓	✓
Landfill regulations										
Reduction of waste to landfill		✓	✓	✓	✓	✓	✓		✓	
Diversion of recyclables										
Waste-to-energy laws			✓	✓					✓	✓
Extended producer responsibility (packaging)										
• Legislative framework			✓	✓						
• Reporting							✓			
• Take back requirements			✓	✓						
• Taxes / fees for packaging (excluding plastic bag)										
• Packaging marks and labels							✓	✓		
• Voluntary efforts by industry associations			✓				✓		✓	

	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
Trade policy										
• Import restrictions of scrap plastics			✓		✓				✓**	✓**
• Control of transboundary shipment of contaminated plastic							✓			
Green procurement plan										
• Alternative materials			✓						✓^	
• Recycled content							✓			
Recycled content policy										
• Food application restrictions	✓		✓	✓	✓	✓	✓	✓	✓	✓
Other campaigns / awareness										
Government-led initiatives for packaging awareness	✓			✓						✓

Table 3. Summary of packaging regulations and standards in ASEAN
 *No specific legislation for waste management other than in policy documents
 **To be implemented in the future
 ^Legislation is currently under review

BRUNEI	(BN)	MYANMAR	(MM)
CAMBODIA	(KH)	PHILIPPINES	(PH)
INDONESIA	(ID)	SINGAPORE	(SG)
LAO PDR	(LA)	THAILAND	(TH)
MALAYSIA	(MY)	VIET NAM	(VN)



**PACKAGING
REGULATIONS
AND
STANDARDS
FOR ASEAN:
A PLAYBOOK**

SUMMARY OF POLICIES WHEN REVIEWED ACROSS THE PACKAGING LIFE CYCLE

Figure 6 below summarises all of the policies to be discussed in this section while identifying where within the packaging life cycle these policies apply. The packaging life cycle flows from the production of packaging material feedstock, and different packaging materials are put into packaging use by product manufacturers of packaging. While some of the packaging manufacturers are creating packaging for sale, others manufacture this packaging to convey a product to the consumers. The consumer uses the packaging and returns it to the manufacturer / distributor for reuse, or if it is not reusable sends it for disposal. The collection infrastructure determines the fate of packaging from this point forward. When disposed of as litter and not collected by the solid waste collection processes, the packaging could leak into the environment and remain. When recovered but as mixed waste, it is often contaminated which reduces the treatment options to landfilling and incineration. In

some instances, packaging waste can be recovered to qualify for energy recovery or in some instances even material recovery. Segregated collection allows for material recovery or bio-recovery (in the case of biodegradable packaging) and subsequently re-enters the packaging stream or is used for other non-packaging applications.

As can be observed in Figure 6, the various policies discussed in this report are relevant at different points in the packaging life cycle. Some of the policies are preventive; aimed at reducing the quantity of packaging entering into circulation. Others are remedial; intended to ensure that packaging in circulation (i) doesn't leak into the environment, (ii) is properly collected and (iii) all residual value is recovered through energy recovery or recycling. Some of the policies allow for the reintroduction of packaging material back into packaging use, or into a non-packaging application.

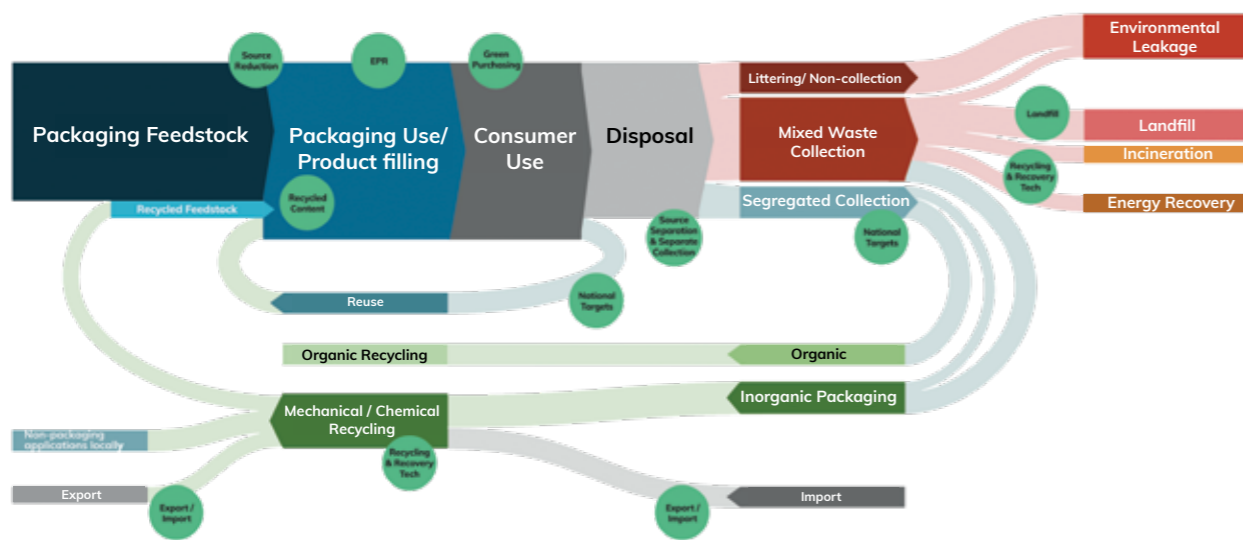


Figure 6. Packaging policies when reviewed across the life cycle

SOURCE REDUCTION

IMPROVED DESIGN

A packaging waste reduction policy aims at reducing the amount of packaging entering into the economy and consequently the amount of packaging entering the waste streams. One aspect of such a policy is source reduction – i.e. ensuring that only the minimal amount of packaging required to ensure its proper function is introduced by the manufacturer / producer of the packaged goods into the market.

The source reduction of packaging waste is a complex policy, which relies heavily on alignment with affected businesses. Businesses might be concerned with the effect such a policy might have on demand for the goods in alternative / more expensive packaging (if costs of new design are internalised). Thus, compliance and enforcement of such a policy must consider that any changes in packaging design should not impact the quality of the goods being packaged. In addition, the cost and nature of the design should not adversely impact the demand and market for such goods. This complexity is countered by the argument that an improvement of internal cost efficiencies through better design would provide an economic incentive to the manufacturer.

ADMINISTRATOR



Such a policy is best introduced at a national level to establish an even playing field for all businesses and industries that would be subject to such a policy.

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

Mandatory compliance requirement

Mandatory compliance requirement that all packaging weight and volume shall be minimised to the amount needed for safety and acceptance of the packed product.

Example:

- The Packaging and Packaging Waste Directive lays down Essential Requirements which all packaging placed on the market within the European Economic Area must comply with EN 13428 which specifies the procedure for assessment for such compliance.^{46 47 48} Non-compliance could result in products being banned from the markets. This compliance requirement could be accompanied by a reporting requirement showing that the producers are compliant with minimum packaging requirements.



Economical

Producer fees

By charging for the environmental and economic costs of production and disposal of waste up front, market forces can be employed to improve the efficiency of waste management. Producer fees can be employed as part of a broader EPR policy.

Example:

- Japan charges a fee to producers of certain types of packaging, based on their proportion of the cost of recycling the packaging. By internalizing the end of life / recycling costs of packaging, the producers in Japan would be incentivized to use less packaging and therefore pay a reduced fee for the recycling of such packaging.⁴⁹

⁴⁶European Commission, "Packaging and Packaging Waste"

⁴⁷CEN, "Packaging - Requirements specific to manufacturing and composition - Prevention by source reduction"

⁴⁸Official Journal of the European Communities, "2001/524/EC: Commission Decision of 28 June 2001"

⁴⁹Yamaguchi, "Extended Producer Responsibility in Japan"

Packaging tax / levy

Introduction of a levy or a tax on certain types of packaging could lead to the reduced production and subsequent disposal of such types of packaging thus reducing at source the quantity of such materials entering the environment. Packaging taxes and levies can also be used as part of a broader EPR policy.

Example:

- The UK Government's plan to tax plastic packaging which does not have at least 30% recycled content by 2022. This tax will work hand-in-hand with an EPR system, the Packaging Producer Responsibility System (PPRS), to ensure that producers are incentivised to increase their recycled content in the packaging that they produce.⁵⁰

Source reduction incentives

Source reduction incentives for improved design / eco-design that takes into account packaging end of life in the markets it is introduced.

Example:

- A bonus for reduced packaging is provided by Citeo, an EPR compliance organization operating in France, when producers can show reduction in packaging material used in accordance with the EU / ISO standards. This bonus is applied against the fee to be paid by such producers in compliance with their EPR obligations.⁵¹



Consumer awareness

Building consumer awareness to create demand and acceptance of reduced / alternative packaging through broad national information campaigns. Well-informed citizens will make purchasing choices that will stimulate companies to reduce packaging in the products they provide.

POLICY IN ASEAN

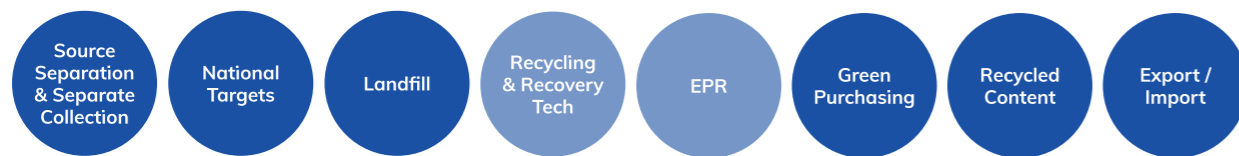
Source reduction incentives

In Singapore, legislation mandating a reduction in packaging use through redesign is not present. However, the Singapore Packaging Agreement (SPA) is a collaboration between the government and industries to reduce packaging waste in Singapore. Products which incorporate new design which reduces packaging waste are awarded the LPRP to incentivise brands to reduce their packaging and inform consumers who want to reduce their waste footprint.

Packaging tax / levy

A pilot program run by the Indonesian government in 23 cities to impose a 200 Rupiah levy (about USD 0.01) on plastic shopping bags. This three month trial in 2016 resulted in a 55% reduction in plastic waste and a 40% reduction in consumers using plastic bags.⁵²

ENABLING POLICIES



⁵⁰Plastics News Europe, "UK to introduce plastic packaging tax by 2022"
⁵¹Citeo, "Rates 2018 for packaging recycling"
⁵²Gokkon, "As planned excise flaps, Indonesia ponders how to give up plastic bags"

SOURCE REDUCTION

MATERIAL BANS AND RESTRICTIONS

Source Reduction Policy may also be effectuated by introducing bans and limits on the usage of certain types of materials. These include market entry, retail distribution and trade regulations which control and limit the manufacturing / production, consumption, and import or export of certain packaging types, (primarily single use plastics and plastic bags), whilst also mandating alternative packaging types.

ADMINISTRATOR



Most of the policies around material bans and bans on problematic and unnecessary packaging products have been introduced at the national level, with regional and local adoption and enforcement mechanisms. While the introduction of such policies at the national level allows for comprehensive coverage, limiting the unequal application within local markets, it requires adoption and enforcement at the local administration levels.



Some of the policies discussed below have been introduced at a regional or municipal level with varying degrees of success. Whilst the administration and enforcement of a policy introduced at this level is more efficient, the challenges of limited availability of alternatives, and the inflow of materials from unregulated markets, may impact on the success of the policy.

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

Total bans / restrictions on manufacturing, retail distribution and import

All packaging weight and volume shall be minimised to the amount needed for safety and acceptance of the packed product.

Many countries in Africa and Europe lead the world in the introduction of a complete ban on the use of lightweight plastic bags. Some countries have introduced bans on other forms of single use plastics which include; disposable cutlery, plates, cups, straws, packaging film and EPS packaging.

Example:

- The EU Packaging and Packaging Waste Directive explicitly identifies the types of single use packaging that should be the target of such bans and restrictions.

Partial bans

Some countries have adopted a more transitory approach wherein plastic bags that do not meet certain criteria (production volume / thickness of 30 microns / ministerial approval / non-commercial use etc.) are banned.



Economical

Levies on retail distribution / regulations limiting the material composition of certain packaging

Some countries have instituted a ban on non-biodegradable plastic bags or instituted that plastics bags must have some recyclable content. Levies such as a special environment tax, waste disposal fees or charges, or higher excise duties have also been introduced in many countries, particularly in the EU.

POLICY IN ASEAN

Partial ban

Malaysia introduced a roadmap towards zero single-use plastics in 2018, which aims to eliminate the usage of single-use plastics by 2030. The first policy move has been to put a ban on plastic bags and will eventually involve increasing the usage of biodegradable and compostable bags.

Packaging levy

Cambodia's Sub-Decree No. 168 on Plastic Bag Management (2017) is a sub-decree which oversees the usage and management of plastic bags. As part of these regulations, a plastic bag charge of 400 riel per

plastic bag was mandated. At the same time, the sub-decree also included rules on the import, production, and distribution of plastic bags.

Note: At the event 'Regional Solutions to Combat Plastic Pollution: Consultation on Packaging Industry Regulations & Standards for Design, Labelling, Recovery & Recycling in ASEAN' (see box included in the Executive Summary above) ASEAN participants conveyed an interest in exploring the policy considerations where they apply to biodegradable packaging in resolving the plastics challenge. However, other policy considerations such as source separation and separate collection outweighed the priority placed on biodegradable packaging policy.

ENABLING POLICIES



SOURCE REDUCTION

ALTERNATIVE PACKAGING POLICIES

Alternative packaging refers to materials that have been developed to replace harmful and/or non-recyclable packaging. Alternative packaging includes the use of plant-based or other materials that are biodegradable and/or recyclable. Examples include paper, cardboard, corn starch-based materials and new plastics that are biodegradable. Policies, regulations and standards that promote the use of alternatives to plastic packaging are necessary not only to promote the use of biodegradable / more recyclable / less harmful materials but also to ensure that environmental costs of such alternatives do not outweigh its benefits. Life cycle assessments taking into account local realities are also necessary to ensure that life cycle costs of alternative material (production, land use, transportation, recycling opportunities) are justified when these materials are introduced in the market. It is also necessary to bring widespread awareness to consumers with respect to the impact of their choices. A sound alternative packaging policy should examine the entire life cycle of the alternatives

considered including availability and substitutability as well as end of life and disposal potential in each of the markets so as to take into account the local/ domestic variations. Also to be considered is the issue of land competition when considering growing/ harvesting of raw materials for alternative packaging.

BIODEGRADABLE PLASTICS

Biodegradable plastics are a form of alternative packaging which is fast gaining popularity. Rising environmental concerns and the availability of technologies based on renewable resources have stimulated the replacement of persistent petroleum-derived plastics with biodegradable plastics from biopolymers. As a consequence, a variety of products are currently manufactured from bioplastic – including carrier bags.

Challenges

Dependency on separate collection: Whilst this advancement reduces reliance on non-renewable resources, the post-disposal journey of bioplastics requires particular scrutiny. Because of the differing chemical compositions, biodegradable plastics have to be separated from traditional plastics waste streams,

to ensure high-quality recyclates production and the durability of plastic products. Mixing the traditional and biodegradable plastics in the waste streams jeopardises current efforts to increase plastics recycling rates. With the increasing production of

biodegradable products, it is essential to implement separate collection schemes for bio-waste.

Requires special conditions to decompose: In most cases, the biodegradation of bioplastics occurs only under industrial conditions when the products are exposed to high temperatures for an extended period of time. Additionally, once the biodegradable plastics reach the landfills the process of degradation is limited due to the lack of oxygen. In marine environments, biodegradable products behave differently and very often their degradation is slowed down even further.⁵³ Recent studies question the ability of biodegradable carrier bags in reducing marine pollution given their limited rate of degradation.⁵⁴

Note on oxo-degradable plastics: Oxo-degradable plastic has been gaining attention and popularity as an

alternative packaging type, primarily as a solution to the littering aspect of plastic packaging (mostly carrier bags). Oxo-degradable plastic is made by blending a prodegradant additive into the plastic during the extrusion process, and this additive causes the plastic to decompose when exposed to heat or sunlight. It is then assumed that microorganisms which can ingest this decomposed plastic can speed up the degradation by digesting it. This degradation process, however, presupposes the availability of heat and oxygen and also raises concerns with respect to the breaking down into microplastics which are still harmful to the environment even if they address the littering issue. The European Commission has recommended EU-wide measures be taken against so-called 'oxo-degradable'⁵⁵ plastics. Oxo-fragmentable materials have been recognised as not biodegradable even under the EU / ISO standards requiring industrial conditions.⁵⁶ While many nations are recognising the challenges posed by the oxo-degradable products – Malaysia has included in its guidelines criteria excluding photo oxo-degradable products.⁵⁷ However, many countries in Africa and globally are not only promoting, but also mandating the use of oxo-degradable bags.⁵⁸

ADMINISTRATOR



As with most policies which influence manufacturing and production, the regulations and incentives that impact alternative packaging are best introduced by a policy maker at the national level. However, industry bodies and producers more familiar with the materials would be instrumental in developing the design standards and functional assessments for such packaging.

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

Green purchasing

A national government can adopt a green procurement policy that requires all governmental bodies including local governments to practice green purchasing, thereby enhancing the market for alternative materials. Doing so will ensure that these alternatives are preferentially procured when compared to more harmful packaging types.

Eco-labelling

Creating standards for clear and proper labelling would reduce consumer confusion about the various packaging alternatives, to allow for informed choices as well as proper disposal actions. Monitoring and enforcing the proper use of labelling and identification of packaging as biodegradable is critical to preventing false claims and continued environmental harm. This includes providing guidance and information on the existence and relevance of standardised logos,

⁵³Zero Waste Europe, "Bioplastics in a Circular economy : The need to focus on waste reduction and prevention to avoid false solutions"

⁵⁴Accinelli et al., "Deterioration of bioplastic carrier bags in the environment and assessment of a new recycling alternative."

⁵⁵European Commission, "Report From the Commission to the European Parliament and the Council

⁵⁶EU 13432:2000 Packaging

⁵⁷MESTECC, "Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030"

⁵⁸European Bioplastics, "Over 150 organisations back call to ban oxo-degradable plastic packaging"

assessing labelling for substantiation that the claims made are in fact accurate and in adherence to the applicable standards, and generating consumer awareness regarding the various types of packaging. Measures which would support this include:

- Ensuring conformity to the ISO standards with respect to labelling is a relevant instrument in applying this policy;
- Establishing criteria and identifier for packaging that meets the criteria to inform the consumer about the recyclability of the packaging type at the national level, would prevent conflicting information provided by various brands / manufacturers of similar packaging type.



Financial incentives

Introducing incentives and subsidies to producers and manufacturers of alternatives to single-use plastics and or packaging that is less recyclable and more harmful to the marine environment.

Economical These incentives could be in the form of tax breaks as well as through reduced EPR fees.

POLICY IN ASEAN

Green procurement

Thailand had a Green Public Procurement Plan (GPP Plan) from 2008 -2011 to promote the procurement of products which are more environmentally friendly. It developed the Green Cart Criteria for Office Consumables (e.g. printing paper, toilet roll), durable goods (e.g. fluorescent lamp, steel furniture), and services (e.g. photocopier rental service).⁵⁹

Financial incentives

Malaysia's "Roadmap Towards Zero Single-Use Plastics 2018-2030" outlines a path towards phasing out single-use plastics and replacing it with biodegradable and compostable alternatives by 2030. The phase out includes funding for research and development of alternative materials for plastic bags, pollution levies on plastic manufacturers, and other legislative tools to promote biodegradable products.

ENABLING POLICIES



SOURCE SEPARATION

Source separation is the separation of the waste into its recyclable and non-recyclable components, as opposed to a mixed stream comprising of all municipal waste. A source separation policy calls for the separation of waste at the point of disposal or collection so as to allow for improved recovery of material and reduced contamination. This is especially favourable in the case of packaging waste, where clean and sorted packaging could be recovered for reuse, recycling or energy recovery in a more efficient manner. A source separation policy must go hand in hand with a form of separate collection policy.

SEPARATE COLLECTION

Separate collection is the collection of separated waste, as separate streams, without commingling them, for further segregation and allocation to different recovery solutions. Separate collection of packaging waste not only channels such waste into the appropriate recovery streams, it also allows for the collector (formal or informal) to recover the value retained in the discarded packaging material.

Convenience and incentive to consumers / waste separators along with awareness play a big role in ensuring that the above two policies are effective. The level of convenience is determined by existing infrastructure such as:

- Door-to-door collection;
- Curbside collection; and,
- Collection Centres.

Incentives provided to the consumers/ waste separators include:

- Reduced cost of collection for separated waste;
- Deposit refund;
- Compensation for recyclable materials.

Awareness campaigns include providing information regarding the available infrastructure, how to best use it as well as the building appreciation for the intrinsic value retained in packaging materials.

ADMINISTRATOR



Source separation and separate collection is often included within broader national waste management policies, however, such a policy falls within the domain of the municipality or local administrative body responsible for the collection and disposal of waste. National governments can institute within the national solid waste management plans a mandate for separation at source and separate collection. Funding and incentives to support local governments that comply with the national mandate is another means of effecting source separation and separate collection from the national level. Monitoring and evaluating the compliance and effectiveness of local government efforts also falls within the national government's domain.

⁵⁹Suksod, "Thailand Green Public Procurement (Thai GPP)" Pollution Control Department

Some examples of implementation of source separation and separate collection are listed below:

- In the Philippines, Article 2 of the R.A. 9003 at the national level specifies the responsibilities of the LGU with regards to “Segregation of Wastes”. In particular, the article mentions that LGUs “shall evaluate alternative roles for the public and private sectors”.⁶⁰
- Belgium implements source separation as mandated by the European Waste Framework Directive which mandates that 50% of municipal waste must be recycled by 2020. Belgium has already accomplished a 57% rate of recycling for municipal waste in 2012.⁵⁵



Local government: Source separation and separate collection are best implemented at the local government level given the decentralised nature of these activities. These policies can be effected through a series of administrative and economic instruments discussed below.

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

Mandating separate disposal and collection

Regulations and guidelines that require the separate disposal and collect at each sub administrative unit responsible for such activities would be necessary.

Information campaigns

Information campaigns to instruct on how to separate and dispose of packaging waste correctly, Awareness campaigns to educate on the types and nature of plastic packaging, including end of life potential.



Economical

Differentiated tariffs

Different tariffs for mixed waste and separated waste so that mixed waste is more expensive to discard than separated waste.

- In South Korea, recycling of food waste is mandated and is charged according to the volume of food waste (through the purchase of food waste bags or an Radio Frequency Identification (RFID) system. The pay-as-you-throw system allows households to keep track of their food waste which has led to the reduction of food waste from 3,300 tonnes a day in 2012 to 3,181 tonnes a day by 2014.

Penalizing of non-compliance of source separation through fines and other means

Using fiscal measures to measure, monitor and enforce compliance with source separation and separate collection.

Informal sector regulation

Policies and regulations addressing the role of the informal sector in the waste value chain will be important and necessary in ensuring that the existing recyclables collection systems comprising of waste collectors, recycling pickers, junk shops and scrap traders are enabled for growth and scalability in the absence of municipal infrastructure.

⁶⁰Chang, “South Korea cuts food waste with ‘pay as you trash’”

Examples:

- In India, the National Environment Policy (2006) and the National Action Plan for Climate Change (2000) both recognize waste pickers’ contribution to the environment and carbon reduction and extend to them the right to collect and recycle waste. At a local level in cities like Pune and Bengaluru, efforts have been made to provide waste pickers and informal workers access identity cards that not only allow access for door-to-door collection, but also help them access bank loans, health and education opportunities.⁶¹

POLICY IN ASEAN

Mandating separate disposal and collection

In Depok, Indonesia, the city administration created a “bucket party” which included regulations which enforced source segregation. Households were mandated to segregate their waste into organic (to be sent to compost), inorganic (to be sent for recycling), and residue (sent to landfill). This has led to 148 tons of material in a year diverted from the landfill.

Information campaigns

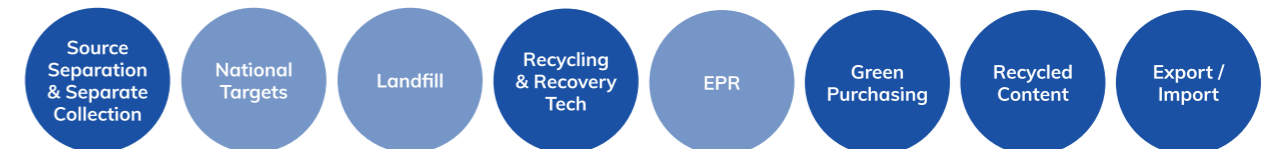
In Penang, Malaysia, the state government organised the Waste Segregation at Source Campaign in 2016 before the enforcement of the Waste Segregation

at Source Policy in 2017 to educate and prepare the public to ensure a gradual transition to the mandatory source separation policy.⁶²

Penalizing of non-compliance

In Depok, waste that was not separated would not be transported and people who dumped illegally would be prosecuted.⁶³ The Department of Environment and Natural Resources in the Philippines (DENR,) through an administrative order enacted the national regulation RA 9003, introduced fiscal incentives to be extended to the LGUs upon the satisfaction of certain criteria.⁶⁴

ENABLING POLICIES



⁶¹UN Environment, “Empowering waste workers for a cleaner, safer city”

⁶²Penang Green Council, “Waste Segregation At Source Policy in Penang”

⁶³Subramaniam & Miquelis, “Depok: The front line in Indonesia’s fight against waste.”

⁶⁴Department of Environment and Natural Resources (DENR), “Implementing Rules and Regulations of Republic Act 9003”

NATIONAL TARGETS FOR REUSE / RECYCLING / RECOVERY

Another critical aspect of a sound packaging waste policy is the introduction of national targets for the reuse / recycling and recovery of packaging waste. As discussed in the initial sections of this report, the inclusion of targets is an integral part of successful waste management plans globally. The EU Packaging and Packaging Waste Directive (along with the Circular Economy Package) sets out recovery and recycling targets and deadlines for each of the EU member states and obliges them to address the recovery and recycling of used packaging. Standards for recovery and recycling of packaging are established in the Essential Requirements of Annex II of the Packaging and Packaging Waste Directive as well.⁶⁵ Japan too has incorporated targets into its national waste


management plan as a means to drive recycling and recovery of packaging waste.

The setting of targets for each of the different solutions also establishes a hierarchy of priorities – for instance, in Germany, high recycling targets and the limits of incineration with energy recovery were responsible for recycling technology innovation.⁶⁶ In France, there was no distinction made between material recycling and energy recovery until Ordonnance no. 2010-1579 of 17 December 2010 introduced a waste hierarchy: (i) Preparation to reuse; (ii) recycling; (iii) valorization such as energy recovery; (iv) disposal. The factors that influence the hierarchy could include a) prior investment in particular technologies, b) reliability of the waste streams as feedstock, and c) available collection and disposal infrastructure. Accordingly, targets for recycling can vary in accordance with the type of material given the current and potential end of life solutions for particular packaging types.

ADMINISTRATOR

N National
The setting of targets is typically accomplished at the national level while keeping in mind the available infrastructure and technology to realistically accomplish the prescribed targets.

KEY INSTRUMENTS FOR IMPLEMENTATION

Administrative  **Establishment of key metrics, definitions, reporting processes and verification measures**
The establishing of targets presupposes the measurement of the key metrics that will impact and help achieve the targets. The development of the key metrics must include proper identification, reporting and measuring protocols and means of verifying the accuracy of metrics reported.

POLICY IN ASEAN

Part of Viet Nam's National Strategy for Integrated Solid Waste Management to 2025 is to aim for a reduction in nylon bags usage by 40% in supermarkets

and commercial centres when compared to 2010.⁶⁷ In Singapore, the NEA aims to have a yearly reduction of 10,000 tonnes of packaging waste by 2020.⁶⁸ Malaysia aims to phase out single-use plastics completely by 2030.

ENABLING POLICIES



⁶⁵European Parliament and the Council, "Directive 94/62/EC"
⁶⁶Lazarevic, D et al., "The influence of the waste hierarchy in shaping European waste management: the case of plastic waste"
⁶⁷Prime Minister, "Decision on approving the National Strategy of Integrated Solid Waste Management up to 2025, vision towards 2050"
⁶⁸Tan, "Packaging of consumer products to be regulated"

LANDFILL DIVERSION TARGETS AND LANDFILL BANS

Diversion and banning of certain materials, and specific types of packaging is another policy measure that impacts packaging and creates an obligation to find alternative end of life strategies for such materials. This is particularly relevant because of the limited potential to recover these materials once they have


been landfilled and the contribution of landfills in hastening climate change, exacerbated by the impact of packaging. Moreover, many countries around the world are facing the prospect of running out of land for landfills or challenged by the location and cost of operating landfills. A national policy that considers landfill diversion / material bans must go hand-in-hand with policies that support recycling and recovering technologies as well as source separation/ separate collection policies to be effective.

ADMINISTRATOR

N National
National governments are best suited to establish the bans and targets for diversion of packaging waste from landfills. This allows for greater alignment with the complementary policies of developing recycling and recovery alternatives as well as EPR measures imposed on the producers of packaging.

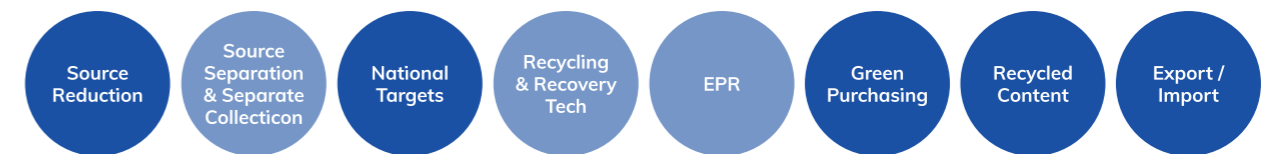
L Local
However, given that landfill constraints are more burdensome on city governments, as such municipalities could also initiate measures to limit and restrain the flow of packaging waste to landfills. Municipalities are better suited in aligning the cost efficiencies of reduced tipping and trucking costs as reinforcing the separation of waste policies.

KEY INSTRUMENTS FOR IMPLEMENTATION

Administrative  **Landfill reduction targets**
A general reduction in the percentage of materials going to landfill would promote increased diversion of packaging – packaging waste and organic waste are the principal forms of waste for which recycling and recovery solutions exist. In Asia, packaging waste recycling, in particular, would be the 'low hanging fruit' when it comes to the diversion of waste away from landfills. The EU Circular Economy package has declared a binding target to limit landfilling to a maximum of 10% of municipal waste by 2035.

Landfill bans
The banning of recyclables or particular material types (such as PET, HDPE, paper or glass etc. from landfills), where the availability of recycling and recovery processes exist is another means of implementing such a policy. Such an approach would require assessing the capacity of such processes to absorb the diverted waste from landfills as well as any additional costs (transportation / environmental) that might offset the benefits of diversion.

ENABLING POLICIES



EXTENDED PRODUCER RESPONSIBILITY (EPR)

EPR is a policy tool that can extend the packaging producer’s full or partial financial and/or operational responsibility with respect to the packaging materials end of life. Such obligations may be imposed by the government requiring producers to establish, contribute or participate in the financial and/or operational responsibility associated with the collection, recycling, recovery or disposal of packaging material. Producers and importers may be required to meet these obligations through the following instruments:

ADMINISTRATOR

N National A national level policy allows for a more equal application of responsibility across different stakeholders. Considerations must be made to include importers of packaging and a clear identification of the types and categories of packaging to be included within the scope of the policy.

KEY INSTRUMENTS FOR IMPLEMENTATION

Administrative **Take-back requirements**
A requirement imposed on producers to take responsibility for their packaging by taking back such packaging post consumer use. Such a requirement can be effected through the following instruments:

Deposit / refund
This requires the producers to charge an additional amount at the point of sale which the consumer can recover by returning the packaging to a designated packaging deposit centre.

EPR schemes
Producers can address their take-back obligations by paying material-specific fees to EPR schemes. These fees determined and monitored by packaging recovery organizations are charged based on the tonnage (weight) of packaging the producer puts on the market and consequently incentivise material optimisation. The fees paid by producers to EPR schemes typically cover all or a significant share of the costs of separate collection / sorting of used packaging, the operation of the EPR scheme and consumer awareness activities.

Monitoring and evaluating packaging reporting
The mandatory reporting on the amount and nature of packaging introduced by a producer or manufacturer into the market.

Establishment of definitions and standards for reporting, labelling and design: Source reduction
Requiring manufacturers to ensure that the design of packaging is limited to the minimum required amount.

Example:
• The EU Packaging and Packaging Waste Directive Essential Requirements provides a source reduction standard (CEN EN 13428) which requires the producer to examine each of the ten listed

performance criteria and identify the “critical area” which governs the achievable limit for source reduction. Packaging will have certain specific performance criteria so that it is fit for purpose. These performance criteria could be product protection; the requirements of the packaging manufacturing process; the packing / filling process; the distribution chain; product presentation and marketing; consumer acceptance; provision of statutory or other information. There will be a critical point at which any further reduction in packaging would cause the packaging to fail at one or more of these functions. In determining what is an acceptable failure rate if packaging is reduced will be different depending on the product. Expensive or dangerous products would require a much lower failure rate than safe low-value products. Economic considerations are also valid if packaging can be reduced but only by replacement of packaging equipment, then this would not be considered a sound environmental decision.

Design for recycling and recovery
Ensuring that there are no harmful materials added to the packaging that could impede or limit the recycling or recovery of the packaging material. The EU standard also requires that all packaging must be designed in a manner that is suitable for material recycling or energy recovery or composting or for reuse if reuse is intended, thereby limiting the option for packaging that could only be landfilled.

Labelling
A requirement imposed on the producer to provide for clear and proper labelling to inform the consumer about the recyclability of the packaging and required disposal action. This requirement should also take into account the available recycling technologies in the region where the packaged product is sold.

Economical **Packaging tax / fees**
An imposition of a packaging tax on the production and import of plastic packaging. Such a fee is imposed in order to offset the municipal costs of recovery and disposal of the packaging material and is especially significant in instances where a particular material does not have any recycling / recovery potential. Such a fee would work to disincentivize the use of such materials and drive producers to more environmentally viable options.

Incentives and subsidies
Incentives to producers and manufacturers who have either their obligations or have adopted other measures to reduce the environmental impact of their packaging. This could include offsets for source reduction through better design or contribution to recovery efforts.

POLICY IN ASEAN

Labelling
In Singapore, companies will be required to gather data on the packaging that they use in 2020 and

submit their first report to the NEA in 2021. In Thailand, the Green Label is awarded to products that have a minimum detrimental impact on the environment when compared with others serving the same function.

ENABLING POLICIES



POLICIES RELATED TO RECYCLING AND RECOVERY TECHNOLOGY

Policies related to recycling and recovery technology include all of the policies that impact the processes which divert packaging waste away from leakage, landfills and incineration without energy recovery. The regulations and standards governing these processes determine the ease and effectiveness of the diversion.

The development of a detailed plan that attempts to support the recycling / recovery industry for some or all of the packaging materials is critical and must be done giving consideration to the investments already existing and policy concerns at play. For instance, in an economy where investments in waste-to-energy technology has been considerable, the recycling industry must be boosted for materials that are less optimal for energy recovery. For instance, in the Philippines, where the Clean Air Act requirements don't accommodate incinerating technologies, opportunities for material recycling must be examined. The market for the outputs of these processes, be it recycled feedstock, compost, or power generated from a waste-to-energy incinerator must also be considered in order to ensure that the plan is comprehensive.

A comprehensive policy approach would include:

1. A review of existing and potential technologies
2. Current and potential gaps in recycling and recovery. For instance, the existing technologies may not be sufficient to handle current or potential volumes of packaging, or capable of processing certain types of packaging. Even where recycling technology may be

sufficient, waste-to-energy might be necessary for products that have completed their reuse and recovery cycles.

3. Minimum quality standards for recycling / recovery processes – so as to ensure any negative environmental impact is minimised and to stimulate the demand for and acceptability of recycled materials.

• The Essential Requirements in the Packaging and Packaging Waste Directive emphasise the required standards for each of:

- Material Recycling (CEN EN 13431). Establishment of a weight based percentage of packaging material (depending on material type) that must be included in packaging.
- Energy Recovery (CEN EN 13432). Establishment of a minimum calorific value to allow for the optimisation of energy recovery.
- Organic Recovery (CEN EN 13433). Establishment of requirement with respect to compostable packaging, such that it doesn't challenge existing composting processes or applications. With respect to biodegradable packaging, the resulting compost must breakdown into the components of carbon dioxide, biomass and water.

Other policy efforts impacting the recycling and recovery technology are those that guarantee application and use of recycled and/or recovered output. For instance, policies that allow and promote co-incineration of refuse-derived fuel (including packaging materials) at cement kilns, steel plants etc. Examples of such efforts exist in Germany, Belgium, Switzerland, Poland and Japan amongst other nations.⁶⁹ In India, the Solid Waste Management Policy frameworks call for a minimum use requirement of refuse-derived fuels cement processing and other industries.⁷⁰

ADMINISTRATOR



A national level policy allows for a more equal application of responsibility across different stakeholders. Considerations must be made to include importers of packaging and a clear identification of the types and categories of packaging to be included within the scope of the policy.



The local governments also have a role in developing and proposing more localised policy efforts based on the municipal requirements and the nature of waste generated, proximity and availability of technologies etc.

⁶⁹International Finance Corporation, "Increasing the Use of Alternative Fuels at Cement Plants: International Best Practice"
⁷⁰MoHUA, "Guidelines on Usage of Refuse Derived Fuel in Various Industries"

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

National regulations requiring mandatory establishment of recycling / recovery facilities by LGUs

A national mandate requiring that all or relevant municipal bodies promote or facilitate the establishment of a recycling or recovery facility or ensure that they have access to such a facility.



Economical

Economic incentives and subsidies to promote current and new recycling / recovery technologies

National and local governments can incentivize the recycling and recovery industries to develop better technologies and to increase their capacity and quality through financial incentives, such as tax breaks, and subsidies.

Direct investment into recycling /recovery infrastructure

By directly investing through into the recycling and recovery technology and the development of public private partnerships, governments can kickstart or boost the recycling industry sufficiently to start meeting targets and improve outputs.

Examples:

- An example of this initiative is the investments made in Belgium in the early 90s to divert waste away from landfill into waste to energy alternatives.⁷¹

POLICY IN ASEAN

Economic Incentive and Subsidies

Indonesia's Industry Ministry has proposed a fiscal incentive to promote the recycling industry by reducing the value-added tax by five percent.⁷²

ENABLING POLICIES



⁷¹Gentil, "Municipal waste management in Belgium",
⁷²Novastra, "A green fiscal policy for recycling industry"

POLICIES RELATED TO RECYCLED CONTENT

Policies and standards governing the use and application of recycled content would impact the end of life market for packaging. By supporting a market for recycled content, such policies could help drive demand for recycled material and consequently provide a boost to the relevant recycling technologies.

The challenges raised with the use of recycled content is the quality of the recycled content and whether the recycling technologies used are adequately sound for food contact materials. These conditions are further complicated when other certifications such as “halal” standards must be met.

Example:

- In the EU, the European Food Safety Association evaluates the safety of recycling processes for recycled plastics used in food contact materials (FCM). Restrictions and limitations imposed include consideration of the fact that the packaging waste may contain residues from previous use, contaminants from misuse and contaminants from non-authorized substances and hence reinforces the need for special requirements to ensure that recycled plastics respect that requirements of food contact materials.^{73 74}

ADMINISTRATOR



As with the setting of targets for recycling and recovery, the national government is best suited to introduce targets requiring minimum recycled content in packaging, based on the availability of recycling processes and the quality of recycled materials. With respect to food contact materials tools, the national government can determine and enforce the applicable standards that would ensure that the recycled content does not challenge the quality of product or consumer acceptance.

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

Establishment of targets for minimum recycled content

National governments can establish and enforce targets for minimum recycled content by introducing regulations and ensuring compliance.

Establishment of standards for food content applications

National governments can also mandate the minimum standards required for recycled materials to ensure that applications, especially with respect to food contact packaging, are not challenged.

The two most prominent policies impacting recycled content policies are:

- The setting of a minimum recycled content target – By requiring a minimum amount of recycled content to be included in packaging, a regulation can require producers to rely more heavily on the recycled materials and promote the development of the recycling market.
- Food Contact Material Policy – Given the dominance of packaging in the food industry, incorporation of recycled content back into food packaging would require that there are no regulations that limit this application of recycled material. While food safety standards must apply, any blanket bans on recycled content will limit and constrain the market for recycled materials.

Examples:

- Thailand's Notification of the Ministry of Public Health (No. 295) B.E. 2548 (2005) prohibits the use of plastic containers made from reused plastic except for packing fruits with a peel.
- In Malaysia, the use of recycled packaging for certain foods such as sugar, flour and edible oil is prohibited. In addition, packaging for a product of swine origin shall not be used for food of non-swine origin and any bottle that has previously been used for alcoholic beverage or shandy shall not be used for any food, other than alcoholic beverage and shandy.

Regulations that limit the use of in food contact materials should be revisited to accommodate recycled materials that meet the requisite food safety standards.



Economical

Taxes / incentives for the non-use / use of recycled content in packaging

National and local governments can introduce tax incentives / subsidies for businesses that introduce recycled content in their packaging, and penalize businesses that do use only virgin materials in packaging.

Examples:

- The UK Government is considering a plan to tax plastic packaging which does not have at least 30% recycled content by 2022.



Informative

Education of consumers to build acceptance and demand for recycled content in packaging

Given the challenges faced by businesses with respect to consumer concerns about the quality, appearance and safety of packaging containing recycled content, the national government could lead behaviour change and awareness campaigns to increase consumer acceptance of such packaging.

POLICY IN ASEAN

Establishment of standards for food content applications

Thailand's Notification of the Ministry of Public Health (No. 295) B.E. 2548 (2005) prohibits the use of plastic containers made from reused plastic except for packing fruits with a peel. In Malaysia, the use of recycled packaging for certain foods such as sugar, flour and edible oil is prohibited. In addition, packaging for a product of swine origin shall not be used for food of non-swine origin and any bottle that has previously been used for alcoholic beverage or shandy shall not be used for any food, other than alcoholic beverage and shandy.

At the UN Environment / COPSEA event 'Regional solutions to combat plastic pollution: Consultation on packaging industry regulations and standards for design, labelling, recovery and recycling in ASEAN' (see box 1) ASEAN level participants suggested the inclusion of standards that required traceability of recycled content, especially with respect to use of recycled content in halal food applications,

ENABLING POLICIES



⁷³European Parliament and the Council, "Regulation (EC) No 282/2008"
⁷⁴European Parliament and the Council, "Regulation (EC) No 1935/2004"

GREEN PURCHASING POLICY

Green purchasing refers to the procurement of products and services that have a reduced effect on the environment when compared with competing products and services that serve the same purpose. In the context of packaging, a green purchasing policy can create an impact in two ways:

- By only choosing packaging that is recyclable in the market where it will be used;
- By procuring products manufactured from recycled materials so as to promote a market for packaging with recycled content.

ADMINISTRATOR

N National governments can mandate green purchasing policies based on the recyclability and use of recycled content in packaging, for all government offices, thereby creating an immediate market. Such a mandate can also be imposed on local governments and businesses through EPR.

L Local governments too can introduce green purchasing policies at the LGU level and promote the use of recycled packaging, especially from local businesses.

KEY INSTRUMENTS FOR IMPLEMENTATION



Implementing and enforcing a green purchasing policy

Introduction of legislation to implement and ensure compliance with a green purchasing policy, for all levels of the government as well as businesses.

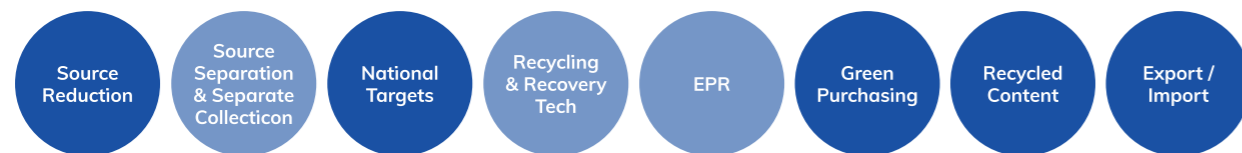
Administrative

POLICY IN ASEAN

Thailand had a Green Public Procurement Plan (GPP Plan) from 2008 -2011 to promote the procurement of products which are more environmentally friendly.

It developed the Green Cart Criteria for Office Consumables (e.g. printing paper, toilet roll), durable goods (e.g. fluorescent lamp, steel furniture), and services (e.g. photocopier rental service).⁷⁵

ENABLING POLICIES



⁷⁵Suksod, "Thailand Green Public Procurement (Thai GPP)" Pollution Control Department

EXPORT / IMPORT POLICIES RELATED TO PACKAGING WASTE

Foreign trade policies also have an impact on packaging, particularly on packaging waste. These policies have been in the spotlight with the recent National Sword Campaign and subsequent bans by other ASEAN countries. The trade in packaging waste has historically seen a flow towards nations with a recycling / recovery technology with sufficient capacity and/or nations with low environmental, labour and other constraints on recycling processes. These receiving nations have assisted the exporting nations to meet their national targets for recovery and recycling. The policies impacting foreign trade include:

Import / export bans / restrictions of scrap

The introduction of import bans / restrictions on businesses that import scrap for recycling is intended to ensure the prioritised treatment of domestically generated packaging waste. Also, such restrictions are often imposed to ensure that quality of materials

entering meet standards, thereby, not challenging the recycling or recovery technology in use, nor harming the environment due to contamination.

However, these bans and restrictions can raise some challenges. At the event 'Regional solutions to combat plastic pollution: Consultation on packaging industry regulations and standards for design, labelling, recovery and recycling in ASEAN' (see box 1) a challenge presented by the banning of imports was raised. It was highlighted that the such bans in an economy where the domestic supply of scrap is limited in terms of quantity or quality could impede investment into and growth of the recycling industry.

Export conventions

Export restrictions are placed in order to ensure that domestic scrap does not get exported and instead goes to promote local industry. Such restrictions may also be introduced to ensure that the scrap being exported meets international standards and doesn't burden the receiving country.

ADMINISTRATOR

N National Trade policies and export and import restrictions fall within the jurisdiction of the national government and are best introduced within the larger context of foreign trade.

KEY INSTRUMENTS FOR IMPLEMENTATION



Administrative

Introducing laws and regulations to control the flow of scrap packaging.

By introducing such regulations, a government can ensure that the domestic recycling businesses are adequately incentivised to continue to grow and build capacity.

Granting / withdrawal of licenses to local recycling businesses is one way to ensure compliance with the regulatory mandate.



Economical

Introduction of levies and taxes for non-compliant businesses.

Imposing penalties and fees on recycling businesses that don't comply with import and export restrictions and quality standards.

POLICY IN ASEAN

Import bans

Due to China's ban on plastic waste in 2018, plastic waste that would otherwise have been transported to China for recycling ended up in Southeast Asia. As a result, this led to a sharp increase in plastic waste imported in some ASEAN countries, with the highest increases in plastic waste imports being in Malaysia, Thailand and Viet Nam. This has then caused these countries to start curtailing the import of plastic waste through the halting of import licenses of plastic waste and outright bans of plastic waste imports.⁷⁶

ENABLING POLICIES



⁷⁶Lindberg, "After China, Southeast Asia is also detoxing from imported plastic trash"

KEY POLICIES: CENTRALITY AND IMPACT

Whilst each of the policies discussed in this section has a role to play in addressing the challenges with respect to packaging and packaging waste, the policies vary with respect to centrality and impact.

CENTRALITY

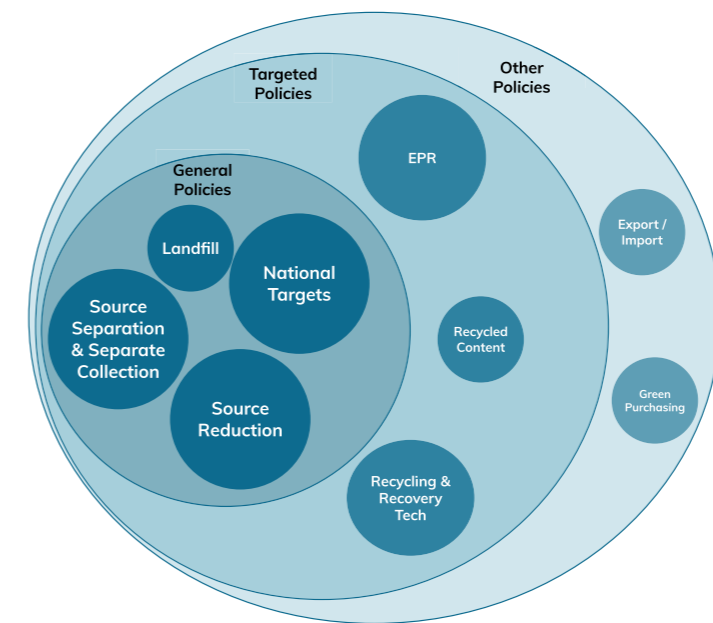
Some of the regulations form the basic foundation, whilst others are essential only one or two aspects of the packaging waste value chain. Policies that are core to a comprehensive effort include; source reduction, source separation and separate collection, the setting of national targets for reduction, reuse, recycling and recovery and landfill restrictions and bans. Building upon this core set of policies, a more targeted approach towards packaging and packaging waste can be introduced using policies around EPR, recycled content related policies and regulations governing recycling and recovery technology. Other policies such as those that address the export and import of scrap packaging, or green procurement are also relevant but perhaps not as central to the development of a comprehensive packaging policy.

IMPACT

To review impact the policies were evaluated based on a matrix of attributes including:

- (i) Effectiveness – in reducing marine debris and environmental leakage and promoting circularity. Highly relevant and effective policies received a high rating.
- (ii) Engagement of stakeholders – Policies that required engagement of stakeholders across the value chain ranked higher than those that targeted a limited stakeholder subset. The counter to this attribute is the degree of complexity in rolling out such a policy initiative as measured by (iv) below.
- (iii) Impact of the policy across all packaging material types.
- (iv) Ease of implementation – Time, effort and complexity involved in the execution of the policy.

Figure 7 below captures this hierarchy of policies based on their potential for influence on packaging and packaging waste. The general policies form the core building blocks upon which the more targeted policies can be developed.



Size of bubbles represents potential for influence on packaging/ packing waste.

Figure 7. An evaluation of policies based on centrality and impact.

ASEAN LEVEL INTERVENTIONS



This section aims to explore the efforts that can be introduced at the ASEAN level, which will benefit and support all ten ASEAN nations in their efforts to address their growing concerns around packaging and packaging waste. These efforts are captured under the broader categories listed below:

EMBRACING THE KEY PRINCIPLES

The key principles that are inherent in the packaging policy landscape of the EU and Japan are relevant regardless of the national context. A drive to ensure that each of these key principles is acknowledged and embraced within the entire ASEAN region will ensure a concerted effort to address packaging in the region. The key principles are reiterated as follows:

- Prioritization of source separation
 - Source separation ensures that the materials being reintroduced into the system are of the highest quality and hence hold the most value.
 - The preservation of value creates and stabilizes financial incentives for key stakeholders in the recycling industry
- Identification of national targets
 - National targets help to streamline and coalesce government, industry, and consumer initiatives into a concerted effort to reduce plastic packaging waste.
- Committing to a circular economy approach
 - A circular economy approach takes into account the life cycle of a product from production until post-consumption.
 - Using this approach, special care needs to be taken when implementing policies which affect the post-consumption phase of materials to ensure that the most value is preserved throughout the value chain.

OPPORTUNITIES FOR HARMONIZATION

A key intervention at the ASEAN level is identification and promotion of policies and policy instruments that would benefit from a harmonized pan-ASEAN adoption. Participants at the event 'Regional solutions to combat plastic pollution: Consultation on packaging

industry regulations and standards for design, labelling, recovery and recycling in ASEAN' discussed and affirmed some of the findings below. Please see the box 1 included in the Executive Summary of this report.

REPORTING OF PACKAGING METRICS

The setting of National Targets and the achievement of those targets presupposes the identification of key metrics to measure and evaluate reuse if prevalent, recycling and recovery. Measuring, recording and reporting of national metrics which include waste generated, waste sent to landfill or incinerated, waste recovered through energy recovery and waste recovered through recycling are necessary to create targets and measure performance against these targets. Given that performance measurement is also more relevant in a comparative context, it is common for such metrics to be reviewed across nations / a group of nations. Therefore, all ASEAN countries must ideally jointly agree upon key packaging metrics and reporting requirements of these metrics in conformity with requisite standards for accuracy.

CONFORMITY OF DEFINITIONS

Even though the broader concepts of recycling and recovery are agreed upon and understood within the region, there aren't any standardised definitions which result in varying interpretations of a single term. Recycling for instance, could include both material recycling and energy recovery, while in other instances is limited to material recycling. Also defining the processes – for example – when does collection begin and end, at what point is a material considered recycled (upon separate collection for recycling, preprocessing, recycling or when put into a packaging or application). ASEAN wide alignment on definitions would allow for greater clarity both within and across nations. Examining and developing definitions at this level would also ensure that aspects of terms that maybe

currently applicable in one country but not in others is taken into consideration, for when it becomes relevant to others as well.

LABELLING PRACTICES

Given the flow of products within amongst the ASEAN economies, both through commerce and consumer dispersal implies that the labelling introduced in one economy may well be consumed / disposed in another economy. Conforming labelling practices across ASEAN will result in reduced consumer confusion and improved disposal of packaging.

ADOPTION OF PROCESS AND QUALITY STANDARDS

Another area ripe for ASEAN intervention is the adoption of process and quality standards. Not only are these standards a great opportunity to ensure that the policy requirements are required to be met. The quality conformity could be applied to a wide range of processes including:

1. Incineration standards
2. Waste-to-energy standards
3. Material recycling standards
4. Organic recovery standards
5. Energy recovery standards
6. Green labelling standards.
7. Export trade quality standards

The standards identified in the EU and by the ISO could be adopted by each of the countries allowing for global alignment. The adoption of the above standards by ASEAN will help expedite the progress towards global alignment on policy with respect to packaging and packaging waste.

INTER-ASEAN TRADE

Another important intervention at the ASEAN level is based on the current and potential inter-ASEAN trade practices and conventions which is a result of the geographical proximity of the ASEAN countries. The long standing trade relationships that have existed within the region extends to packaging and packaging waste. In many instances, the packaging is manufactured in one of the ASEAN nations to be then

shipped into other nations. Similarly, packaging waste too is traded amongst ASEAN countries building economic reliance. This economic interdependence can be further fostered to drive packaging policy improvements as follows:

THE CREATION OF 'TECHNOLOGY HUBS'

Given the limited state of recycling and recovery infrastructure in many of the ASEAN countries, there is a strong case for the delineation of activities in accordance with the capability and capacity of the member nations. Based on the availability and capacity, and geographical proximity of the ASEAN nations there is merit in exploring the potential for creation of hubs for different processes. Some of these hubs are already in place – for instance, the flow of recyclables from Myanmar and Cambodia into neighbouring Thailand for processing etc. building on existing and potential flows, an efficient scrap economy can be developed at the ASEAN level.

Policies that support the flow of materials into recycling hubs must however also take into consideration, the impact on the domestic recycling industry as well as the adherence to proper environmental and labour standards in the destination country.

EXPORT AND IMPORT CONVENTION

Another area for an ASEAN level intervention is **inter-ASEAN trade** in scrap packaging / packaging material. The inflow and outflow of packaging materials and packaging waste can be regulated through import and **export requirements** to ensure that:

- Domestic infrastructure is not unduly burdened by unwanted packaging materials
- Imported materials comply with domestic regulations and restrictions.

The development of and adherence to export and import conventions, similar to the Basel convention, where the ASEAN nations pledge to ensure the quality and standards of the materials, equipment and know how traded amongst nations.

OTHER ASEAN SPECIFIC CONSIDERATIONS

Informal Sector and Small Businesses

Most of the ASEAN countries rely heavily on the informal sector for collection and recovery of post-consumer packaging. Small businesses also are heavily reliant on plastics and single use packaging specifically. The various packaging policy interventions contemplated must take into account the impact on the informal sector and small businesses. Given the high rate of participation by women in these sectors, gender considerations must also be taken into account while evaluating the policy interventions.

Changes to waste collection and source segregation laws have direct impact on the informal sector that relies on recovering recyclables either directly from households or from sources of mixed waste. Any legislation or policy that alters the flow of materials or could limit access to materials for the informal sector must consider countervailing measures such as employment of the informal sector or other forms of rehabilitation. Given the high reliance on the informal sector in the ASEAN countries, limits in access provided to the informal sector to waste collection/ disposal areas could result in reduced rates of collection. Container Deposit Schemes are similar policies could result in the diversion of high value recyclables away from the informal sector and cause a drop in potential revenue and reduce the likelihood of collection of other plastics as well.

Packaging policies could also affect the small and informal business sector outside of waste management. Many small food and retail businesses are heavily reliant on cheap and readily available single use plastics. A plastics ban or levy on these plastics in the absence of affordable alternatives could result in harm to these small business players. Thus any such policy measures must include within its scope of implementation an opportunity ensure that small businesses are equipped to find suitable alternatives at an economical price.

The inequities of plastics bans and access to disposal sites have a greater impact on women-owned businesses. Additionally, attempts to regulate the collection for recovery of recyclables would impact the informal sector consequently the women in the informal sector who are already challenged by differences such reduced access to equipment etc.⁷⁷ Ensuring that the consequences of each of the policy measures is well-considered is very important.

Developing the Recycling Industry

Improving circularity for plastics packaging can only occur when there is a strong and growing end market and continued demand for post-consumer packaging. The recycling industry in much of ASEAN is heavily reliant on imported feedstock, challenged by the quality and inconsistencies in domestic feedstock and limited investments in new and improved technology. Also, specific to the ASEAN region is the volatility in the end markets due a shaky export market and limited offtake domestically. In addition to supporting the collection and sorting mechanisms to improve the quality of post-consumer feedstock, national and local governments can support the growth of the recycling industry through monetary and infrastructure based incentives and policies. The policy mix here can include:

- (i) Fiscal and monetary incentives that support and promote the activities of the plastics recycling industry are a critical starting point.
- (ii) Subsidies, land grants and improved access to businesses that are engaged in collecting and recycling targets could be another area of policy intervention.
- (iii) Policies that encourage capacity building and providing technical assistance to businesses along the recycling chain including waste pickers, junkshops, aggregators and processing factories is another example.

⁷⁷Lynn, Helen et al., Life Cycle of Plastics and Its Impacts on Women and Men from Production to (Marine) Litter.



BIBLIOGRAPHY

Accinelli et al., "Deterioration of bioplastic carrier bags in the environment and assessment of a new recycling alternative." Pubmed Accessed (Feb 2019) Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/22717162>

Chandrashekar V., "In India's Largest City, A Ban on Plastics Faces Big Obstacles" Yale Environment 360 Accessed (Feb 2019) Retrieved from <https://e360.yale.edu/features/as-indias-largest-city-shows-banning-plastics-is-easier-said-than-done>

Chang, "South Korea cuts food waste with 'pay as you trash'", The Straits Times, Accessed (Feb 2019) Retrieved from <https://www.straitstimes.com/asia/east-asia/south-korea-cuts-food-waste-with-pay-as-you-trash>

Chen, D. & Sineat, Y., "Directive to require fees for plastic bags" The Phnom Penh Post Accessed (Feb 2019) Retrieved from <https://www.phnompenhpost.com/national/directive-require-fees-plastic-bags>

Citeo, "Rates 2018 for Packaging Recycling" Citeo, Accessed (Feb 2019) Retrieved from https://www.citeo.com/sites/default/files/inside_wysiwyg_files/Rate%20table%202018%20packaging%20english%20february%202018.PDF

Coordinating Ministry for Maritime Affairs, "Indonesia's Plan of Action on Marine Debris 2017-2025" Marine Litter Network, Accessed (Feb 2019) Retrieved from http://marinelitternetwork.com/wp-content/uploads/2018/04/NAP-Marine-Plastic-Debris-Indonesia_Summary.pdf

Council of the European Union, "Council Directive 1999/31/EC" Official Journal of the European Union Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31999L0031&from=EN>

Department of Economic Planning and Development (DEPD), "Tenth National Development Plan (2012 – 2017)" DEPDP, Accessed (Mar 2019) Retrieved from <http://depd.gov.bn/DEPD%20Documents%20Library/NDP/RKN%20English%20as%20of%2011.12.12.pdf>

Department of Environment and Natural Resources (DENR), "Implementing Rules and Regulations of Republic Act 9003" DENR Accessed (Feb 2019) Retrieved from <https://emb.gov.ph/wp-content/uploads/2015/12/DAO-2001-34.pdf>

Environmental Conservation Department (ECD), MONRE, "National Waste Management Strategy and Master Plan for Myanmar, the Republic of the Union of Myanmar, Nay Pyi Taw, Myanmar" - MONRE 2018

Edward J., "Waste segregation enforcement starts today" The Malay Mail Accessed (Feb 2019) Retrieved from <https://www.malaymail.com/news/malaysia/2016/06/01/waste-segregation-enforcement-starts-today/1131527>

European Bioplastics, "Over 150 organisations back call to ban oxo-degradable plastic packaging" European Bioplastics Accessed (Feb 2019) Retrieved from <https://www.european-bioplastics.org/over-150-organisations-back-call-to-ban-oxo-degradable-plastic-packaging/>

European Committee for Standardisation (CEN) Standards Accessed (Mar 2019):

"Packaging - Requirements specific to manufacturing and composition - Prevention by source reduction" EN 13428:2004

"Packaging – Reuse" EN 13429:2004

"Packaging- Requirements for packaging recoverable by material" 13430:2004

"Packaging - Requirements for packaging recoverable in the form of energy recovery, including specification of minimum inferior calorific value" EN 13431:2004

"Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging" EN 13432:2000

European Commission, Report From the Commission to the European Parliament and the Council" European Commission Accessed (Feb 2019) Retrieved from <http://ec.europa.eu/environment/circular-economy/pdf/oxo-plastics.pdf>

European Commission, "Packaging and packaging waste" European Commission Accessed (Feb 2019) Retrieved from https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/packaging_en

European Council, "Single-use plastics: Presidency reaches provisional agreement with Parliament" European Council, Accessed (Feb 2019) Retrieved from <https://www.consilium.europa.eu/en/press/press-releases/2018/12/19/single-use-plastics-presidency-reaches-provisional-agreement-with-parliament/>

European Parliament, "Circular economy package - Four legislative proposals on waste" Accessed (Mar 2019) Retrieved from <http://www.europarl.europa.eu/EPRS/EPRS-Briefing-573936-Circular-economy-package-FINAL.pdf>

European Parliament and the Council, "Directive 2008/98/EC" Official Journal of the European Union Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0098&from=EN>

European Parliament and the Council, "Directive 94/62/EC" Official Journal of the European Union Accessed (Mar 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01994L0062-20150526&from=EN>

FAIRS, "FAIRS Report for Myanmar", USDA Foreign Agricultural Service Accessed (Feb 2019) Retrieved from <http://agri.ckcest.cn/ass/54679302-cfc5-4566-8f2f-a791f065d641.pdf>

Gentill, "Municipal waste management in Belgium", European Environment Agency, Accessed (Feb 2019) Retrieved from <https://www.eea.europa.eu/publications/managing-municipal-solid-waste/belgium-municipal-waste-management>

Global Business Guide (GBG), "Expanded Coverage and New Feed-in Tariff for Indonesia's Waste to Energy Projects" Legal Updates Accessed (Feb 2019) Retrieved from http://www.gbgingonesia.com/en/main/legal_updates/expanded_coverage_and_new_feed_in_tariff_for_indonesia_s_waste_to_energy_projects.php

Global Green Growth Institute (GGGI), Solid Waste Management in Vientiane, Lao P.D.R" GGGI Accessed Feb 2019 Retrieved from http://ggi.org/_site/assets/uploads/2018/09/Solid-Waste-Management-in-Vientiane-Lao-P.D.R_Publication-3.pdf

Gokkon, "As planned excise flops, Indonesia ponders how to give up plastic bags" Mongabay Accessed (Feb 2019) Retrieved from <https://news.mongabay.com/2018/07/as-planned-excise-flops-indonesia-ponders-how-to-give-up-plastic-bags/>

Gokkon, B., "Indonesia leans on businesses to do more about plastic waste" Eco-Business Accessed (Feb 2019) Retrieved from <https://www.eco-business.com/news/indonesia-leans-on-businesses-to-do-more-about-plastic-waste/>

Hoang, TH., (2019). "Decision on approving the National Strategy of Integrated Solid Waste Management up to 2025, vision towards 2050" Accessed (Feb 2019) Retrieved from [http://www.uncrd.or.jp/content/documents/PM%20Decision%20of%20Approval%20of%20NSISWM%20\(Eng\).pdf](http://www.uncrd.or.jp/content/documents/PM%20Decision%20of%20Approval%20of%20NSISWM%20(Eng).pdf)

Institute for Global Environment Strategies (IGES), "Solid Waste Management in Laos" Accessed (Mar 2019) Retrieved from https://www.iges.or.jp/en/archive/wmr/pdf/activity100728/5_Lao_Day1_Session2.pdf

Institute for Global Environment Strategies IGES, "Quick Study on Waste Management in Myanmar" CCET Accessed (Feb 2019) Retrieved from https://www.iges.or.jp/files/research/scp/PDF/20160613/17_Quick_study_Web.pdf

Institute for Global Environment Strategies (IGES) and UN Environment Programme (UNEP), "State of Waste Management in Phnom Penh, Cambodia 2018" United Nations Environmental Programme (2018)

International Finance Corporation, "Increasing the Use of Alternative Fuels at Cement Plants: International Best Practice" International Finance Corporation, Accessed (Feb 2019) Retrieved from https://www.ifc.org/wps/wcm/connect/cb361035-1872-4566-a7e7-d3d1441ad3ac/Alternative_Fuels_08+04.pdf?MOD=AJPERES

Lazarevic, D. et al, "The influence of the waste hierarchy in shaping European waste management: the case of plastic waste" Regional development dialogue 31(2):124-148 · September 2010

Lindberg, K., "After China, Southeast Asia is also detoxing from imported plastic trash" Quartz Accessed Feb 2019 Retrieved from <https://qz.com/1516317/southeast-asia-is-detoxing-from-imported-plastic-trash/>

Lim, S., "Companies must give data on packaging used on products by 2021" The Straits Times Accessed (Feb 2019) Retrieved from <https://www.straitstimes.com/singapore/companies-must-give-data-on-packaging-used-on-products-by-2021>

Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), "Malaysia's Roadmap Towards Zero Single-use Plastics 2018-2030" MESTECC Accessed (Feb 2019) Retrieved from <https://www.mestecc.gov.my/web/download/1905/2018/39652/malaysia-roadmap-towards-zero-single-use-plastics-2018-2030.pdf>

Ministry of Housing and Urban Affairs (MoHUA), "Guidelines on Usage of Refuse Derived Fuel in Various Industries" MoHUA, Accessed (Feb 2019) Retrieved from <http://164.100.228.143:8080/sbm/content/writereaddata/Guidelines%20on%20RDF%20Usage.pdf>

Ministry of Natural Resources and Environment (MONRE), "National Environmental Policy of Myanmar" MONRE, Accessed (Feb 2019) Retrieved from https://businesshumanrightsburma.files.wordpress.com/2016/12/national-environmental-policy-statement-2016_eng_nov20_final_clean_ta.pdf

Novastria, "A green fiscal policy for recycling industry" The Jakarta Post, Accessed (Feb 2019) Retrieved from <https://www.thejakartapost.com/academia/2019/02/06/a-green-fiscal-policy-for-recycling-industry.html>

Ocean Conference, "Thailand makes an effort to protect marine environment from marine debris and land-based pollution" United Nations Accessed (Feb 2019) Retrieved from <https://oceanconference.un.org/commitments/?id=18208>

Official Journal of the European Communities, "2001/524/EC: Commission Decision of 28 June 2001" EUR-Lex Accessed (May 2019) Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1559185935097&uri=CELEX:32001D0524>

Penang Green Council, "Waste Segregation At Source Policy in Penang" Penang Green Council Accessed (Feb 2019) Retrieved from <http://www.pgc.com.my/wsas>

Plastics News Europe, "UK to introduce plastic packaging tax by 2022, Plastics News Europe, Accessed (Feb 2019) Retrieved from <https://www.plasticsnewseurope.com/article/20181030/PNE/181039996/uk-to-introduce-plastic-packaging-tax-by-2022>

Rijk, R. & Veraart, R., "Global Legislation for Food Packaging Materials" Wiley-VCH Accessed (Feb 2019) Retrieved from http://lib3.dss.go.th/fulltext/fcm/ebook_Global_legislation_P345-356.pdf

Suksod, J., "Thailand Green Public Procurement (Thai GPP)" Pollution Control Department Accessed (Feb 2019) Retrieved from http://www.switch-asia.eu/fileadmin/user_upload/RPSC/policy-dialogue/ap-meeting-10yfp/WG2_-_Thailand_Green_Public_Procurement_Janjob_Suksod_.pdf

Subramaniam, A., Miquelis, P. "Depok: The front line in Indonesia's fight against waste." The Jakarta Post Accessed (Feb 2019) Retrieved from <https://www.thejakartapost.com/life/2017/08/21/depok-the-front-line-in-indonesias-fight-against-waste.html>

Tan W., "Packaging of consumer products to be regulated" Today Accessed (Feb 2019) Retrieved from <https://www.todayonline.com/singapore/packaging-consumer-products-be-regulated>

The Jakarta Post, "Government to exclude F&B plastic packaging from new tax rule", The Jakarta Post Accessed (Feb 2019) Retrieved from <https://www.thejakartapost.com/news/2017/02/07/fb-plastic-packaging-has-not-be-taxed-official.html>

The LawPhil Project, "Republic Act 9003 January 26, 2001", The LawPhil Project Accessed (Feb 2019) Retrieved from https://www.lawphil.net/statutes/repacts/ra2001/ra_9003_2001.html

UN Environment, "Empowering waste workers for a cleaner, safer city" UN Environment Accessed (Feb 2019) Retrieved from <https://www.unenvironment.org/news-and-stories/story/empowering-waste-workers-cleaner-safer-city>

UN Environment Programme (UNEP), "IV Waste Management Policies and Strategies" State of Waste Management in South East Asia. Accessed (Feb 2019) Retrieved from http://www.unep.or.jp/ietc/Publications/spc/State_of_waste_Management/9.asp

UN Environment Programme (UNEP), "Legal Limits on Single-Use Plastics and Microplastics: A Global Review of National Laws and Regulations" UNEP Accessed (Feb 2019) Retrieved from https://wedocs.unep.org/bitstream/handle/20.500.11822/27113/plastics_limits.pdf?sequence=1&isAllowed=y

Yamaguchi, "Extended Producer Responsibility in Japan", ECP Newsletter 2002

Zannia N., "NEA to implement mandatory reporting of packaging data and waste reduction plans in 2020" The Online Citizen Accessed (Feb 2019) Retrieved from <https://www.theonlinecitizen.com/2018/07/10/nea-to-implement-mandatory-reporting-of-packaging-data-and-waste-reduction-plans-in-2020/>

Zein Z., "Malaysia to ban single-use plastic" Eco-business Accessed Feb 2019 Retrieved from <https://www.eco-business.com/news/malaysia-to-ban-single-use-plastic/>

Zero Waste Europe, "Bioplastics in a Circular Economy : The need to focus on waste reduction and prevention to avoid false solutions" Zero Waste Europe 2017

ZICO, "New Sub-Decree on Management of Plastic Bags" ZICO, Accessed Feb 2019 Retrieved From <http://zico.group/blog/legal-alert-cambodia-new-sub-decree-on-management-of-plastic-bags/>

APPENDIX

Policies and Regulations for Waste Management, Packaging and Packaging Waste in ASEAN

BRUNEI (BN)

National Environment Strategy⁷⁸

Environmental Protection and Management Order, 2015⁷⁹

Prevention of Pollution of the Sea Order, 2005⁸⁰

Laws of Brunei (Revised Edition), 2013⁸¹

Brunei Darussalam's Second National Communication: Under the United Nations Framework Convention on Climate Change, 2017⁸²

Public Health (Food) Regulations S 80/00 (Revised Edition), 2001⁸³

CAMBODIA (KH)

Sub-Decree on Solid Waste Management No.36 ANRK.BK, 1999⁸⁴

Sub-Decree on the management of plastic bags No.168, 2017⁸⁵

Sub-decree on Management of Garbage and Solid Waste of Downtowns No.113 ANKr. BK, 2015⁸⁶

⁷⁸National Environment Strategy of Brunei states that waste can either be collected by private waste collectors or disposed of in communal bin centres. Retrieved from <http://www.mod.gov.bn/SitePages/Environmental%20Policies.aspx>

⁷⁹Environmental Protection and Management Order, 2015 Retrieved from [http://www.memi.gov.bn/Shared%20Documents/HSSE/Law/Environment/EPMO%20Final%20working%20draft%20\(clean%20copy\).pdf](http://www.memi.gov.bn/Shared%20Documents/HSSE/Law/Environment/EPMO%20Final%20working%20draft%20(clean%20copy).pdf)

⁸⁰Prevention of Pollution of the Sea Order, 2005 Retrieved from http://agc.gov.bn/AGC%20Images/LAWS/Gazette_PDF/2005/EN/S018.pdf

⁸¹Laws of Brunei (Revised Edition), 2013 Retrieved from http://www.agc.gov.bn/AGC%20Images/LAWS/ACT_PDF/Cap030.pdf

⁸²Brunei Darussalam's Second National Communication: Under the United Nations Framework Convention on Climate Change, 2017 Retrieved from https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/8560731_Brunei%20Darussalam-NC2-1-Brunei%20Darussalam%20Second%20National%20Communication_5%20Nov%202017.pdf

⁸³Public Health (Food) Regulations S 80/00 (Revised Edition), 2001 Retrieved from http://www.agc.gov.bn/AGC%20Images/LAWS/ACT_PDF/Cap182subRg1.pdf

⁸⁴Sub-Decree on Solid Waste Management No.36 ANRK.BK, 1999 Retrieved from <https://data.opendevlopmentmekong.net/dataset/511ce6fc-bdc1-45f0-9ab2-0424626a4b82/resource/58a85196-614a-496e-b526-2f28fcd7e668/download/665f617e-a4ae-4b8a-8ece-d2f69f610fc1.pdf>

⁸⁵Sub-Decree on the management of plastic bags No.168, 2017 Retrieved from <https://opendevlopmentmekong.net/dataset/?id=ecf7d0e0-86b9-4982-af37-b206e6251e99>

⁸⁶Sub-decree on Management of Garbage and Solid Waste of Downtowns No.113 ANKr. BK, 2015 Retrieved from https://www.ajne.org/sites/default/files/resource/laws/7216/sub-decree-113-on-garbage-and-municipal-waste_management-translated.pdf

INDONESIA (ID)

Act No.18/2008 on Waste Management, 2008⁸⁷

Peraturan Badan Pengawas Obat Dan Makanan Nomor 20 Tahun 2019, 2019⁸⁸

Presidential Regulation No. 97/2017 on Solid Waste Management, 2017⁸⁹

Presidential Regulation No. 35/2018 on The Acceleration Of Waste To Energy Facility Installation That Are Based From Environmentally Friendly Technology, 2018⁹⁰

Presidential Regulation No. 16/2018 on Public Procurement of Goods and Services, 2018⁹¹

Government Regulation No. 81/2012 Regarding Waste Management⁹²

DKI Jakarta District Regulation No.3/2013 about Waste Management at Source , 2013⁹³

Governor Regulation (Pergub) No. 97/2018, 2018⁹⁴

Degree No. 31/2016 on The Regulations of the Importation of Non Hazardous Wastes⁹⁵

Regulation No. 3/2013 on Implementation of Solid Waste Infrastructure and Facilities in Handling Household and Household-like Solid Waste⁹⁶

⁸⁷Act No.18/2008 on Waste Management, 2008 Retrieved from http://www.vertic.org/media/National%20Legislation/Indonesia/ID_Waste_Management_Act_2008.pdf

⁸⁸Peraturan Badan Pengawas Obat Dan Makanan Nomor 20 Tahun 2019, 2019 Retrieved from [file:///Users/gacircular/Downloads/PBPOM%20Nomor%2020%20Tahun%202019%20tentang%20Kemasan%20Pangan%20\(2\).pdf](file:///Users/gacircular/Downloads/PBPOM%20Nomor%2020%20Tahun%202019%20tentang%20Kemasan%20Pangan%20(2).pdf)

⁸⁹Presidential Regulation No. 97/2017, 2017 Retrieved from <https://peraturan.bpk.go.id/Home/Details/73225/perpres-no-97-tahun-2017>

⁹⁰Presidential Regulation No. 35/2018, 2018 Retrieved from http://file.inc.co.id/perpres_nomor_35_tahun_2018-dea63-2551_193.pdf

⁹¹Presidential Regulation No. 16/2018, 2018. This legislation states that sustainability of products/ services is one of the criteria determining the procurement decision. However, it does not dive in to niche areas such as recycled material or packaging. Retrieved from <https://jdih.setkab.go.id/PUUdoc/175466/Perpres%20Nomor%2016%20Tahun%202018.pdf>

⁹²Government Regulation No. 81/2012 Regarding Waste Management requires manufacturers to conduct business and/or activities in accordance with the policies and strategies of the waste management plan program including reuse of waste as raw materials. Retrieved from http://www.vertic.org/media/National%20Legislation/Indonesia/ID_Waste_Management_Act_2008.pdf

⁹³DKI Jakarta District Regulation No.3/2013, 2013 Retrieved from <https://www.basishukum.com/perda-dki-jakarta/3/2013/V>

⁹⁴Governor Regulation (Pergub) No. 97/2018, 2018 Retrieved from <https://bulelengkab.go.id/assets/instansikab/56/bankdata/pergub-no-97-tahun-2018-tentang-pembatasan-timbulan-sampah-plastiksekali-pakai-71.pdf>

⁹⁵Degree No. 31/2016 on The Regulations of the Importation of Non Hazardous Wastes Retrieved from http://jdih.kemendag.go.id/backends/image/regulasi/22200711_Permendag_No_31_tahun_2016.pdf

⁹⁶Regulation No. 3/2013 on Implementation of Solid Waste Infrastructure and Facilities in Handling Household and Household-like Solid Waste, 2013 Retrieved from <http://extwprlegs1.fao.org/docs/pdf/ins137639.pdf>

LAO PDR (LA)

Environmental Protection Law (Revised Edition), 2012⁹⁷

Decree on Disposal site management No 520 / TCPC, 2007⁹⁸

MALAYSIA (MY)

Solid Waste and Public Cleansing Management Act 2007, Act 672⁹⁹

Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030, 2018¹⁰⁰

National Sustainable Consumption and Production (SCP) Blueprint 2016-2030, 2016¹⁰¹

Food Regulations 1983¹⁰²

Dasar Pengurusan Sisa Pepejal 2016, 2016¹⁰³

MYANMAR (MM)

National Environmental Policy of 1994¹⁰⁴

National Environmental Conservation Law, 2012¹⁰⁵

National Environmental Quality Emission Guideline, 2015¹⁰⁶

National Waste Management Strategy and Action Plan for Myanmar 2017-2030, 2018¹⁰⁷

⁹⁷Environmental Protection Law No. 02/99/NA, 1999. This law sets the legal basis for Waste Management in Laos. Retrieved from <https://data.opendevlopmentmekong.net/dataset/environmental-protection-law/resource/6b31cb7b-a0bf-4e26-b868-af0b4e22d5f/view/5e5e3650-503c-4966-8806-02deba9da174>

⁹⁸Ministry of Public Works and Transport and Ministry of Natural Resources and Environment, (2013) Brief Country Analysis Paper Lao PDR, Retrieved from http://www.uncrd.or.jp/content/documents/Country%20Analysis%20Paper_Lao%20PDR_rev.pdf

⁹⁹Solid Waste and Public Cleansing Management Act 2007, Act 672 Retrieved from http://jpspn.kpkt.gov.my/resources/index/user_1/Perundangan/Akta-akta/act672bi.pdf

¹⁰⁰Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030 Retrieved from <https://www.mestec.gov.my/web/wp-content/uploads/2019/03/Malaysia-Roadmap-Towards-Zero-Single-Use-Plastics-2018-20302.pdf>

¹⁰¹National Sustainable Consumption and Production (SCP) Blueprint 2016-2030. This blueprint provides mechanisms to increase efficiency of productivity through efficient use of resources and reduction of waste. Retrieved from <https://www.oneplanetnetwork.org/resource/national-scp-blueprint-2016-2030-announced-eleventh-malaysia-plan>

¹⁰²Food Regulations 1983, Act 281, 1983 Retrieved from <http://www.hdcglobal.com/upload-web/cms-editor-files/HDC-26/file/Act%20281%20-%20Food%20Act%201983.pdf>

¹⁰³Dasar Pengurusan Sisa Pepejal 2016, 2016 emphasises on Waste-to-Energy and Anaerobic Digester as alternatives to landfilling. Retrieved from https://www.pmo.gov.my/wp-content/uploads/2019/07/Dasar_Pengurusan_Sisa_Pepejal_2016.pdf

¹⁰⁴National Environmental Policy of 1994, 1994 Retrieved from https://businesshumanrightsburma.files.wordpress.com/2016/12/national-environmental-policy-statement-2016_eng_nov20_final_clean_ta.pdf

¹⁰⁵National Environmental Conservation Law, 2012 was enacted as an enforcement mechanism for the National Environmental Policy. Retrieved from http://www.burmalibrary.org/docs15/2012-environmental_conservation_law-PH_law-09-2012-en.pdf

¹⁰⁶National Environmental Quality Emission Guideline, 2015 covers guidelines for solid waste management facilities including incinerators. Retrieved from <https://www.myanmar-responsiblebusiness.org/resources/emissions-guidelines.html>

¹⁰⁷National Waste Management Strategy and Action Plan for Myanmar 2017-2030, 2018 Retrieved from https://optoce.no/wp-content/uploads/2019/04/Myanmar-National-Waste-Management-Strategy_Mar-2018.pdf

PHILIPPINES (PH)

Ecological Solid Waste Management Act of 2000 (RA 9003), 2001¹⁰⁸

Marine Pollution Decree of 1976 (No. 979), 1976¹⁰⁹

Plastic Bag Regulation Act of 2011¹¹⁰

House Bill No. 3579 An Act Regulating the Production, Sale, Use, Recovery, Recycling, and Disposal of Plastic Bags, Promoting the Use of Reusable Bags, Providing Mechanism for the Recovery, Collection, and Disposal of Plastic bags, and for other Purposes, 2017¹¹¹

House Bill No. 7903 An Act Providing for the Phase-out of Single-Use Plastic Products in the Country, 2018¹¹²

House Bill No. 4922 An Beverage Container Deposit Act, 2017¹¹³

House Bill No. 5774 An Act Mandating the Use of Recyclable or Biodegradable Materials for the Packaging of Consumer Products, 2017¹¹⁴

Revised DENR Administrative order No 2013-22, 2013¹¹⁵

¹⁰⁸Ecological Solid Waste Management Act of 2000 (RA 9003), 2001 Retrieved from <http://119.92.161.2/ECA%20Center/RA9003.pdf>

¹⁰⁹Marine Pollution Decree of 1976 (No. 979) is a national policy preventing and controlling pollution of the seas by the dumping of wastes and other matters. Retrieved from <https://www.ecolex.org/details/legislation/marine-pollution-decree-of-1976-no-979-lex-faoc019097/>

¹¹⁰Plastic Bag Regulation Act of 2011 is an Act regulating the production, importation, sale, provision, use, recovery, collection, recycling and disposal of plastic bags. Retrieved from <http://www.senate.gov.ph/lisdata/1193210143!.pdf>

¹¹¹House Bill No. 3579, 2017. Retrieved from http://www.congress.gov.ph/legisdocs/basic_17/HB03579.pdf

¹¹²House Bill No. 7903 An Act Providing for the Phase-out of Single-Use Plastic Products in the Country, 2018. This House Bill seeks to institute mechanisms to prevent and reduce the impact of plastic products. Retrieved from http://www.congress.gov.ph/legisdocs/basic_17/HB07903.pdf

¹¹³House Bill No. 4922 An Beverage Container Deposit Act, 2017. Retrieved from http://www.congress.gov.ph/legisdocs/basic_17/HB04922.pdf

¹¹⁴House Bill No. 5774 An Act Mandating the Use of Recyclable or Biodegradable Materials for the Packaging of Consumer Products, 2017. Retrieved from http://www.congress.gov.ph/legisdocs/basic_17/HB05774.pdf

¹¹⁵Revised DENR Administrative order No 2013-22, 2013 covers the import of recyclable materials containing hazardous substances and export of hazardous wastes. Retrieved from <https://server2.denr.gov.ph/uploads/rmd/dao-2013-22.pdf>

SINGAPORE (SG)

Environmental Public Health Act (Revised Edition), 2000¹¹⁶

Prevention of Pollution of the Sea Act (Revised Edition), 1999¹¹⁷

Singapore's Zero-Waste Masterplan, 2019¹¹⁸

Resource Sustainability Act, 2019¹¹⁹

Food (Amendment) Regulations 2019¹²⁰

THAILAND (TH)

Enhancement and Conservation of National Environmental Quality Act, B.E. 2535, 1992¹²¹

Public Health Act B.E.2535, 1992¹²²

Plastic Debris Management Plan, 2017-2021¹²³

Thailand Energy Policy, 2009¹²⁴

Notification of the Ministry of Public Health (No. 295) B.E. 2548, 2005¹²⁵

¹¹⁶Environmental Public Health Act 2002 (Revised Edition) defines what waste is and the appropriate stakeholders involved in the management of waste. Retrieved from <https://sso.agc.gov.sg/SL/EPHA1987-RG12>

¹¹⁷Prevention of Pollution of the Sea Act (Revised Edition), 1999. Retrieved from <https://sso.agc.gov.sg/Act/PPSA1990>

¹¹⁸Singapore's Zero-Waste Masterplan, 2019 aims to reduce the waste sent to landfill by 30% and achieve a 70% recycling rate by 2030. Retrieved from <https://www.towardszerowaste.sg/>

¹¹⁹Resource Sustainability Act, 2019 is an environmental law that compels businesses to reduce e-waste, packaging and food waste in Singapore. Retrieved from <https://sso.agc.gov.sg/Acts-Supp/29-2019/Published/20191004?DocDate=20191004>

¹²⁰Singapore's G.N. No. S 59/2019 – Food (Amendment) Regulations 2019 Part III, Art.

37 outlines the regulations with respect to food packaging which prohibits usage of food packaging containing heavy metals or other carcinogenic, mutagenic, teratogenic, poisonous or injurious substance. Retrieved from <https://www.ecolex.org/details/legislation/enhancement-and-conservation-of-national-environmental-quality-act-be-2535-lex-faac019415/>

¹²¹Enhancement and Conservation of National Environmental Quality Act, B.E. 2535, 1992. Retrieved from <https://www.ecolex.org/details/legislation/enhancement-and-conservation-of-national-environmental-quality-act-be-2535-lex-faac019415/>

¹²²Public Health Act B.E.2535,1992. Retrieved from http://thailaws.com/law/t_laws/tlaw0223.pdf

¹²³Pollution Control Department, 2018. Policies and Practices for Plastic Waste Management in Thailand. Retrieved from https://dunaregiostrategia.kormany.hu/download/9/b9/42000/3/VuttichaiKaewkrajang_7th%20ASEM%20SDD.pdf

¹²⁴Thailand Energy policy, 2009 aims to intensify energy development for greater self-reliance by looking into the biomass and bio-fuel as an optional energy. Retrieved from <http://www.eppo.go.th/images/POLICY/ENG/policy-wannarat-12jan2552-E.pdf>

¹²⁵Notification of the Ministry of Public Health (No. 295) B.E. 2548, 2005 prohibits the use of plastic containers made from reused plastic exempt using for packing fruits with peel. Retrieved from http://food.fda.moph.go.th/law/data/announ_moph/V.English/No.295-48%20Qualities%20or%20standard%20for%20container%20made%20from%20plastic.pdf

VIET NAM (VN)

Law on Environmental Protection 55/2014/QH13, 2014¹²⁶

Decision on Approving the National Strategy of Integrated Solid Waste Management up to 2025, vision towards 2050¹²⁷

Degree No. 12/2006/QD-BTNMT List of Scraps Permitted for Import as Secondary Production Materials, 2006¹²⁸

Environmental Protection Tax Law (Decree No. 67/2011/ND-CP)¹²⁹

National technical regulation on safety and hygiene for synthetic resin Implement, container and packaging in direct contact with foods QCVN 12-1:2011/BYT¹³⁰

¹²⁶Law on Environmental Protection 55/2014/QH13, 2014. Retrieved from <https://www.ecolex.org/details/legislation/law-on-environmental-protection-no-552014qh13-lex-faac168513/>

¹²⁷Decision on Approving the National Strategy of Integrated Solid Waste Management up to 2025, vision towards 2050, 2009. Retrieved from [http://www.unccd.or.jp/content/documents/PM%20Decision%20of%20Approval%20of%20NSISWM%20\(Eng\).pdf](http://www.unccd.or.jp/content/documents/PM%20Decision%20of%20Approval%20of%20NSISWM%20(Eng).pdf)

¹²⁸Degree No. 12/2006/QD-BTNMT List of Scraps Permitted for Import as Secondary Production Materials, 2006. Retrieved from https://www.env.go.jp/en/recycle/asian_net/Country_Information/Law_N_Regulation/Vietnam/Dec12_2006_QD-BTNMT_scrap.pdf

¹²⁹Environmental Protection Tax Law (Decree No. 67/2011/ND-CP), 2011. This law is currently under review as the current nylon bag (plastic bag) tax is proposed by the Ministry of Finance to increase from 40,000 VND/kg (USD\$1.72) to 200,000 VND/kg (USD\$9). Retrieved from <https://www.informea.org/en/legislation/decre-no-672011nd-cp-detailing-and-guiding-number-articles-law-environmental-protection>

¹³⁰National technical regulation on safety and hygiene for synthetic resin Implement, container and packaging in direct contact with foods QCVN 12-1:2011/BYT, 2011. Retrieved from http://nifc.gov.vn/attachments/article/229/bao%20bi_NHUA%20TONG%20HOp.pdf

ACKNOWLEDGEMENTS



ACKNOWLEDGEMENTS

Published by: **UN Environment and GA Circular**

UN Environment:

UN Environment's Asia and the Pacific Office is working to support prosperity, build resilience and boost resource efficiency across the region.



UN Environment Programme

Regional Office for Asia and the Pacific
2nd Floor, Block A, UN Building
Rajdamnern Avenue, Bangkok 10200

Contact:

Kakuko Nagatani-Yoshida
Regional Coordinator for Chemicals, Waste
and Air Quality, Asia and the Pacific Office
E: nagatani-yoshida@un.org



GA Circular

Founded in 2011, we are research and strategy experts in post-consumer packaging and food waste in Asia. We envision a world without waste.
54D South Bridge Road, Singapore, 058685
www.gacircular.com

Contact:

Sumangali Krishnan
Head of Research
E: sumangali@gacircular.com

Report Content:

Sumangali Krishnan
Ashwin Subramaniam
Amita Baecker



SEA circular

SEA circular is an initiative from UN Environment Programme and the Coordinating Body on the Seas of East Asia (COBSEA) to inspire market-based solutions and encourage enabling policies to prevent marine plastic pollution.

Supported by:



DISCLAIMER

The facts set out in this report are obtained from sources which we believe to be reliable. However, we accept no legal liability of any kind for the publication of content, nor any information contained therein nor conclusions drawn by any party from it.

UN Environment and GA Circular acknowledges product, service and company names referred to in this report, many of which are trade names, service marks, trademarks or registered trademarks.

The information contained in this report is made available for non-commercial use with proper attribution. This report should not be reproduced in whole or in part for any commercial use without the prior written consent of the authors.

