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MISMANAGED SACHETS: WILL EPR SOLVE THE PLASTIC PROBLEM?

INSIGHTS FROM INDIA, INDONESIA,
THE PHILIPPINES AND VIETNAM

Dr Dominic Hogg

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#BreakFreeFromPlastic

Mismanaged Sachets: Will EPR Solve The Plastic Problem?

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Executive Summary

This study set out to consider the extent to which small format sachets were likely to be affected by the introduction of EPR-type systems for (plastic) packaging in four Asian countries: India, Indonesia, Vietnam and the Philippines. In doing so, the study sought to understand:

- a) the extent to which sachets are a problem in the countries included in the study;
- b) the options for addressing the problem of sachets, drawing on lessons from some specific application of sachets that seemed to be implicated as ‘important contributors’ to the existing problem (as indicated by the existing data);
- c) the extent to which the emerging EPR systems seemed likely to address the problem of sachets;
- d) to propose changes to the existing approaches, as deemed necessary; and
- e) with the foregoing in mind, to propose approaches which might be taken in countries which might be considering EPR systems, or stand-alone approaches to dealing with problems of sachets.

In conducting the work, it became apparent that there is no universally agreed definition of what we mean by ‘sachets’. For this reason, it has been considered important to clarify what the subject of our investigation should be. It was also clear from the outset that undertaking the assessment as per c) and d) above would demand some attempt to understand how the EPR systems, as a whole, were functioning, or might be expected to function once fully operational.

That, in turn, is difficult to appreciate fully without situating the approaches chosen for implementation of EPR in the context of the wider system of waste management policy and law. One of the major reasons for this is that EPR systems typically seek to extend the responsibility of businesses to doing something they would not otherwise have to do¹: not unusually, this is something that someone else (usually, one or other tier of local government) is required, under existing waste management law, to do, even if not everyone who *should* be doing these things (as tasked by existing law) is actually doing them.

This in turn raises two fairly obvious questions:

- a) Where the local government entities are not doing what they should be, what is it in policy, or law, or their financial and / or political circumstances that prevents them from discharging their lawful duty? And
- b) Wherever local government entities are already discharging their legal duty, what is it that producers are being asked to do, and where is the additionality to come from as regards EPR?

With these questions in mind, this Executive Summary offers a synthesis of some key findings.

¹ The term ‘producer’ can be misleading in some contexts for implementation of EPR. In all EPR schemes, it is crucial to identify which businesses are obliged to do what. These businesses are typically labelled ‘producers’ even if they are not all engaged in the activity of producing packages (or products). In the rest of this report, the term ‘producer’ is used to denote the obligated businesses. In small island states, obligated businesses might include few, if any, businesses who are producers of packaging or products. More likely, the ‘producers’ are likely to be defined as brands, retailers, importers and on-line platforms.

E.1.0 What is 'a Sachet'?

There is no single definition of 'sachet': its use in the context of discussions related to plastic pollution, however, is more or less well understood. Sachets, for the purpose of this work, were considered to be sealed, flexible plastic packages, designed for single-use, made using one or more layers of plastic and other materials. They are usually not resealable.

The main issue of definition around which there is least agreement is that of size: at what size (if any) does a package cease to be 'a sachet' and become (for example) 'a flexible plastic package'? The audits undertaken by organisations under the Break Free from Plastic umbrella set the size limit as 'not larger than A4 size'² Others have made a delineation on the basis of the volume / weight contained by the package: reports for the India Plastics Pact have defined sachets as packages containing '*up to 10 grams of solid product, or up to 10 ml of liquid product*'.³ They also define 'small format packages' as packaging containing up to 50 grams of solid product, or up to 50 ml of liquid product. Each of these definitions could imply different package dimensions for different products, depending on the bulk density of those products.

Were specific legislation to target 'sachets', the issue of definition would acquire considerable relevance so that terms such as 'plastic', or 'single-use', or 'sealed' would need to be clearly elaborated. In this work, however, the countries concerned do not target 'sachets' *per se*. Hence, we investigated types of application which seemed to be highlighted by either, or both, of consumption and brand-audit data, considering the matter of size distribution after that choice was made.

E.2.0 Market for 'Sachets'

We conducted a brief review of data on sachets in relation to our chosen countries. Given the interest in understanding the extent to which sachets might contribute to the problem of plastics discarded into the environment, we considered this matter from two perspectives: data on consumption; and evidence from brand audits of discarded plastic packaging. Neither gives a perfect insight into how significant the problem of littered / mismanaged sachets is since the former does not tell us much about how sachets are managed at end of life, and the latter are not necessarily statistically representative of the overall situation, and cannot be used to derive estimates of the total quantity of sachets (or the proportion of consumption) that is mismanaged.

Nonetheless, given the prevalence of consumption in at least three of the four countries under investigation (the evidence from both viewpoints indicates that prevalence may be much lower in Vietnam), and given that the coverage in each country of collection services is far from comprehensive, it would be reasonable to expect that a considerable share of what is consumed is either uncollected or mismanaged following collection given that sachets – especially those of smaller size – are unlikely to be attractive to waste

² A4 size has the dimensions 210 x 297 mm / 8.3 x 11.7 inches.

³ CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024.

pickers (the value – if any - relative to time spent collecting would be very low). Unless those that are mismanaged are burned (itself a problem), then there is a strong likelihood that the uncollected packages will be discarded in the environment.

E.3.0 Alternatives to Sachet for Selected Products

As indicated above, our review noted some variation in levels of consumption, with (small format) sachets being most prevalent in India, Indonesia and the Philippines.

Based on our review, we investigated alternatives to the use of single-use plastic sachets for:

1. Shampoo;
2. Milk (and milk-based drinks);
3. Instant coffee;
4. Tomato ketchup; and
5. Chip / crisp packages (small, not family, size).

These products span the food and personal care / hygiene sectors which between them appear to account for a large share of sachet consumption. The choice of food products spans liquids and dry goods, as well as products with barrier requirements that present different challenges. In the case of milk / milk-based drinks, we suspect the prominence of such items in audits might reflect consumption of both larger and smaller formats, including beverage cartons (which may be classified as ‘plastic’ where they incorporate a plastic layer). Chip / crisp packages may be consumed in varying pack sizes: our attention was on smaller sized (less than A4 but potentially above 10g) packages.

For the first four of these items, alternative delivery models already exist, though which of these are most readily applicable depends in part on how the products are consumed.⁴ The item for which alternative delivery approaches are less readily available is the chip / crisp pack, which has particular barrier requirements, and for which the quality of product benefits from the ‘pillow bag’ design of most packages. It seems more likely that for crisp packs, the design of packages is likely to change towards either ‘nature-degradable’ materials or more readily recyclable formats. Evidently, switching to more recyclable formats is all but useless in those circumstances and locations where the package is unlikely ever to be collected in the first place. That, though, ought to be where the principle of extended producer responsibility (EPR) becomes highly relevant.

E.4.0 What is Extended Producer Responsibility?

It is easy to over-complicate what is implied by EPR. ‘EPR’ is not *‘any policy that affects a product (or a package)’*. Some jurisdictions may seek to include a range of initiatives within a piece of law affecting packaging, or plastic packaging, for example: strictly speaking, EPR might simply be considered as constituting one part of such legislation.

⁴ Further investigation on where and how the specific items are consumed would be required to inform this. Such investigations are outside the scope of this work.

Although it is tempting to assign to EPR all sorts of policy intervention across the lifecycle of a product or package, it is the 'post-use' stage which is the key focus of EPR. Considering the matter literally, business already has, either directly or indirectly – responsibility for the product and packaging they place on the market. Rarely, however, in the absence of policy intervention, are they required to take responsibility for the product or package post-(first-)use.

At its heart, therefore, EPR is a means to oblige businesses (producers) to take responsibility for managing the products and packages they place on the market following their use. In different contexts, they may have both financial and operational responsibility for managing products and packages following their use, but in other circumstances, the responsibility will be financial only. Without financial responsibility, however, it might be argued that there is no EPR. In some instances, it will be appropriate for businesses to have financial responsibility for some aspects, and financial and operational responsibility for others, as regards management of products and packages post-use.

Because producers are given responsibility for post-use management of products / packages, EPR systems tend to specify targets for the management of the targeted items. If they fail to do so, then they are likely to seek the least cost route to comply with their obligation. Targets for recycling, for example, can ensure that producers are not simply collecting waste to transport it to landfill or incineration facilities (or co-incineration facilities). To discourage poor performance, sanctions should be applied as necessary for failure to meet targets, or fraudulent declarations related to the meeting of obligations.

Fundamentally, EPR is about making a more direct link between those who produce and consume products and packaging, and the funding of the management of products and packaging at end of life. In making this financial link, and recognising that improving management of products and packaging does not always come without cost, the extension of producers' responsibility to covering the costs of end-of-life management enables policy makers to push for enhanced performance in respect of management of products and packaging at end of life.

It may be considered that the greater is the scope of the end-of-life costs for which producers are made responsible, and the more challenging the targets become, the more likely it becomes that businesses have an incentive to re-design packaging to reduce these costs.

The relevance of EPR in countries with poorly developed waste management is potentially profound: if one of the reasons why waste is not being collected today is that there are inadequate funds available, EPR can constitute a flow of funds from producers to support collection and management of products and packages post-use, thereby reducing the financial resources required from (for example) local government.

E.5.0 EPR in the Countries Studied

The main report provides a detailed review of the main (not all) laws regarding waste management and EPR in the four countries studied. As regards EPR, and with potential to affect sachets, the following are in place:

1. In India, a set of EPR Guidelines which were introduced in 2022 as an amendment to existing Plastic Waste Management (PWM) Rules, which were notified in 2016. The Guidelines became a new Schedule II under the PWM Rules. The Guidelines have been revised on multiple occasions;
2. In the Philippines, the Extended Producer Responsibility Act of 2022 was passed in 2022. It effectively amends the Ecological Solid Waste Management Act (ESWMA) of 2000, and ‘institutionalised’ EPR on plastic packaging, notably by adding a new Chapter III-A to the ESWMA. Pursuant to the amending Act, Implementing Rules and Regulations (IRRs) were promulgated to prescribe procedures and guidelines related to EPR;
3. In Indonesia, a Regulation concerning a Roadmap for Waste Reduction by Producers, which seeks to implement something akin to EPR for packaging, was passed in 2019; and
4. In Vietnam, a Law on Environmental Protection was passed in 2020 and an associated Decree on Elaboration of Several Articles of the Law on Environmental Protection was promulgated in 2022. Together, these establish a framework for implementing EPR for packaging.

The four countries have made progress to varying degrees. As regards implementation, the schemes in India and Philippines are already ‘active’. Whilst the first ‘compliance year’ in the Vietnamese scheme commenced at the start of 2024, there are some key scheme details which are (at the time of writing) awaited and which are likely hindering progress. In the case of Indonesia, although the Regulation was passed earlier than in the other countries, the scheme appears to be barely operational. Even making allowance for potential issues in translation, the Regulation (and the associated waste law) appears to be too loosely drafted to give the scheme the necessary impetus.⁵

It will be noted that the schemes in India and the Philippines are targeted only at plastic packaging, whilst both Vietnam and Indonesia chose to target a wider range of packaging materials. As well as what is in scope of EPR, the schemes vary by a range of other key features. We have set out a comparative assessment in Table E - 1. This highlights that the schemes vary considerably, suggesting little agreement on the most desirable approach, and suggesting that whatever lessons may or may not have been learned from elsewhere, they do not translate into a preferred option being implemented.⁶ Even terms such as ‘plastic’, and ‘plastic packaging’, are defined differently, and the way in which ‘compostable’ / ‘biodegradable’ plastics are included (and defined, if at all) varies.

⁵ In EPR policy and law, a useful test of its quality is to adopt the position of an ‘obliged entity’ – a ‘producer’ – which the scheme intends to require to do something under the law. If an objective reading of the law leaves one unclear as to what that entity’s obligation is, let alone whether the entity has any obligation, then such a law seems unlikely to be ineffective.

⁶ In the development phase for the schemes, various actors were active in seeking to bring learning from elsewhere in the countries concerned, including GIZ and consultants Adelphi in India, WWF in Vietnam and the Philippines, and IUCN in Vietnam. The eventual outcomes suggest limited influence was exerted over scheme design.

Table E - 1: Comparison of EPR Systems in the Four Countries

	India	Indonesia	Philippines	Vietnam
Scope of EPR instrument(s)	<p>PWM Rules – Plastics</p> <p>EPR Guidance (Schedule to the PWM Rules) – Plastic packaging and (as of 2024) 'commodities made from compostable plastics or biodegradable plastics'</p> <p>Materials within scope split into five Categories:</p> <p>I. Rigid plastic packaging;</p> <p>II. Flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic), plastic sheets or like and covers made of plastic sheet, carry bags, plastic sachet or pouches;</p> <p>III. Multi-layered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic);</p> <p>IV. Plastic sheet or like used for packaging as well as carry bags and commodities made of compostable plastics.</p> <p>V. Plastic sheet or like used for packaging as well as carry bags and commodities made of biodegradable plastics.</p>	<p>Packaging (not only plastics)</p> <p>Three sectors covered are:</p> <p>a. manufacture;</p> <p>i. food and beverage industry;</p> <p>ii. consumer goods industry; and</p> <p>iii. cosmetics and body care industry</p> <p>b. food and beverage services;</p> <p>iv. restaurant;</p> <p>v. café;</p> <p>vi. restaurant;</p> <p>vii. catering services; and</p> <p>viii. hotel.</p> <p>c. retail.</p> <p>ix. Shopping centre;</p> <p>x. Modern shop; and</p> <p>xi. Public market.</p>	<p>Plastic packaging – post-consumer only</p> <p>In theory, the EPR Act could be extended beyond packaging (there is a 'general EPR' Section), but as per the 2022 Act, the scope is plastic packaging.</p>	<p>The LEP and 2022 Decree cover all wastes, and include obligations for a range of items, including packaging (not only plastics).</p> <p>They cover 'consumer packaging', "including primary packaging and secondary packaging", though neither of these terms is defined in the LEP or Decree.</p> <p>The LEP applies requirements to producers and importers, though the wording in the LEP applies to producers and importers 'of recyclable products and packages'. 'Recyclable' does not appear to be defined. The Decree does not use this term, simply referencing Column 3 of Appendix XXII.</p> <p>Packaging covered includes that used for:</p> <p>a) Food prescribed by regulations of law on food safety;</p> <p>b) Cosmetics prescribed by regulations of law on conditions for cosmetics manufacturing;</p> <p>c) Medicine prescribed by regulations of law on pharmacy;</p> <p>d) Fertilisers, feeds and veterinary drugs prescribed by regulations of law on fertilisers, feeds and veterinary drugs;</p> <p>dd) Detergents and preparations for domestic, agricultural and medical use;</p> <p>e) Cement.</p>

	India	Indonesia	Philippines	Vietnam
Which entities carry an obligation?	Producers, importers and brand owners (PIBOs), as well as processors and manufacturers	Obligated entities are producers, defined in the EPR Law as business actors that produce goods that use packaging, distribute imported goods using packaging, or sell goods using packaging that cannot be, or are difficult to, decompose by natural processes. This term 'cannot be, or are difficult to, decompose by natural processes' is not defined.	Producers, defined as brand owners, manufacturers and importers	The Decree confers an obligation on ' <i>Organizations and individuals that manufacture/import (hereinafter referred to as "producers and importers")</i> ' except where they re-export.
Are there 'de minimis' exemptions (and in what form)?	Brand owners (and since 2024, Producers) which are micro and small enterprises as per the criteria of Micro, Small and Medium Enterprises Development Act, 2006 (27 of 2006) are exempt	The 2019 Regulation specifies no exemption in relation to size of business	Micro, small and medium sized enterprises (MSMEs), unless the total value of assets of all enterprises carrying the same brand, label or trademark exceeds that of medium enterprises as prescribed by Republic Act No. 9501.	Producers of packaging having a revenue from sale of goods and provision of services in the previous year <30 billion dong (US \$ 1.2 million), and Importers of packaging having total value of imports (according to customs value) in the previous year <20 billion dong (US \$ 0.8 million).
Definition of Plastic	Material which contains as an essential ingredient a high polymer such as polyethylene terephthalate, high density polyethylene, Vinyl, low density polyethylene, polypropylene, polystyrene resins, multi-materials like acrylonitrile butadiene styrene, polyphenylene oxide, polycarbonate, Polybutylene terephthalate	Not defined in the Law, though actions are articulated for plastics, including PE (HDPE / LDPE); PET; PVC; PP; and PS.	<i>A synthetic material made from a wide range of organic polymers such as polyethylene terephthalate, high density polyethylene, low density polyethylene, polypropylene, polystyrene, PVC and nylon that can be processed to form solid objects of various shapes</i>	Not defined as such - <i>"Non-biodegradable plastic packaging"</i> is defined as packaging which is primarily composed of petroleum-based polymers such as polymers Ethylene (PE), Polypropylene (PP), Polymer Styrene (PS), Polymer Vinyl Chloride (PVC) and Polyethylene Terephthalate (PET) and is usually non-biodegradable or lasts for long periods of time in the environment (water environment, soil environment or at a solid waste landfill).

	India	Indonesia	Philippines	Vietnam
Definition of (Plastic) Packaging	Plastic Packaging means packaging material made by using plastics for protecting, preserving, storing and transporting of products in a variety of ways	Not defined (this may be defined elsewhere in law). Note that this makes it difficult to define precisely who are 'producers'	<i>'the polymer material designed to protect a product from environmental factors, or carry goods for transportation, distribution, and sale, including service necessities and more particularly described under Section 44-C of the Act.'</i> "Plastic packaging shall include the following: "(a) Sachets, labels, laminates and other flexible plastic packaging products, whether single layer or multi-layered with plastics or other materials; "(b) Rigid plastic packaging products, whether layered with any other materials, which include containers for beverages, food, home, personal care and cosmetic products, including their coverings, caps, or lids and other necessities or promotional items, such as cutlery, plates, drinking straws, or sticks, tarps, signage, or labels; "(c) Plastic bags, which include single-use plastic bags, for carrying or transporting of goods, and provided or utilised at the point of sale; and "(d) Polystyrene. Note some of the examples at 44C are not 'packaging' as defined above (and neither are they 'necessities')	'Packaging' is not defined in the LEP / Decree (it may be defined elsewhere in Law)
Treatment of biodegradable /compostable / bio-derived etc.	Compostable plastics are defined. Biodegradable plastics are defined. The definition of plastics does not specifically include or exclude either: the EPR obligations do apply to compostables and biodegradables	In principle, packaging which is not 'packaging that cannot be, or is difficult to, decompose by natural processes.' Is excluded. How and when packages are determined to be 'easy to decompose' is not made clear in Law.	Items which are 'biodegradable' are included in the definition 'environmentally acceptable' (they could not, therefore, be included on the list of non-environmentally acceptable products that could be designated for phase-out)	The reduction of non-biodegradable plastics is encouraged. They are entitled to incentives and assistance, as may be prescribed. Phase out of non-biodegradable plastic packaging from retail by 2025 (this appears mainly to be plastic bags).

	India	Indonesia	Philippines	Vietnam
Targets for plastic packaging under EPR	<p>Recycling (% by wt. for those obligated)</p> <p>Year 24/25 25/26 26/27 27/28</p> <p>Cat II 30 40 50 60</p> <p>Cat III 30 40 50 60</p> <p>Recycled Content (% by wt.)</p> <p>Year 24/25 25/26 26/27 27/28</p> <p>Cat II 10 10 20 20</p> <p>Cat III 5 5 10 10</p> <p>Also for 'residual' plastics</p>	<p>To achieve, through Road maps, a 'waste reduction target by the producer by 30% (thirty percent) compared to the amount of waste generated in the year 2029.' Waste reduction includes reducing waste generation, and increasing reuse and recycling. It appears to be set relative to a baseline projection.</p>	<p>Targets for Plastic Waste Diversion (% by wt. for those obligated)</p> <ul style="list-style-type: none"> • 2023 - 20 • 2024 - 40 • 2025 - 50 • 2026 - 60 • 2027 - 70 • 2028 - 80 <p>Note, the term 'diversion' in the EPR Law includes reuse, recycling, treatment, or proper disposal. Only non-sanitary landfilling / dumping and open burning seems to be excluded from this.</p>	<p>Recycling targets, 2024-26 (%)</p> <p>Rigid PET Packaging 22</p> <p>Rigid HDPE, LDPE, 15</p> <p>PP and PS packaging</p> <p>Rigid EPS packaging 10</p> <p>Rigid PVC packaging 10</p> <p>Other rigid packaging 10</p> <p>Mono-material flexible 10</p> <p>Multi-material flexible 10</p> <p><i>At least 40% of the above to be achieved by producing</i></p> <ol style="list-style-type: none"> <i>1. recycled plastic particles used as production raw materials for industrial use.</i> <i>2. other products (including PE and PP fibres).</i> <i>3. chemicals (including oil).</i>
Means of demonstrating compliance	<p>Recycling certificates from registered recyclers. Provision was made in 2024 for trading platforms with the CPCB potentially setting a price range within which trading can occur (30% to 100% of relevant environmental compensation)</p> <p>Until 2025/26, certificates for categories in surplus may (subject to CPCB) be used to make up for deficits in other categories</p>	<p>Would appear to be via Plans, and what they achieve relative to the target 30% reduction. This is measured relative to a baseline, which could allow for manipulation of reported performance</p>	<p>Through obtaining the required number of notarized certificates in line with targets, and as per EPR programs submitted to the National Ecology Center. Compliance can be by individual companies, groups thereof, or PROs. Auditing is to be arranged by whoever submits the EPR Program, and is undertaken by independent third parties in line with Department standards. Targets have to be met independently for flexibles and rigids</p>	<p>Either paying into the Fund, or by registering their recycling plans and submitting annual reports on recycling results to the Ministry of Natural Resources and Environment. Note that evidence of recycling needs to 'match' the type set out in Appendix XXII.</p>

	India	Indonesia	Philippines	Vietnam
What are the sanctions for non-registration / fraudulent declarations / failure to meet obligations?	The financial sanctions are set out by the CPCB in guidelines on environmental compensation. For obliged enterprises and processors, these are not overly punitive, though they increase with successive offences.	Arts 13 and 14 of the EPR Law are very much about self-monitoring and self-evaluation Art 21 mentions Sanctions, and references the 'provisions of the Legislative Regulations'. It is not clear what sanction would apply to which actions.	Offences include (S.49): <ul style="list-style-type: none"> failure to register falsification of documents misdeclaration of generated or recovered footprint using a scheme to maliciously evade responsibility under the EPR Law tamper its compliance with Section 44F of the Act. First Offence: not less than Five million Pesos but not exceeding Ten million Pesos Second Offence: not less than Ten million Pesos but not exceeding Fifteen million Pesos Third Offence: not less than Fifteen million Pesos but not exceeding Twenty million Pesos and automatic suspension of business permit until the requirement of the Act is complied with. Where the offence relates to failure to meet targets, either the above fines are paid, or a fine twice the cost of recovery and diversion of the footprint or its shortfall is levied, whichever is higher.	Because the LEP is so far-reaching, the approach to compliance vis a vis EPR seems bound up with more general law regarding pollution events. There are some statements that seem designed to encourage 'under-declaration' of obligated quantities of packaging (for example, <i>'If the declared weight of the product or packaging is less than the actual weight of the product or packaging manufactured, put on the market and imported must make payments for the difference in the next year'</i>)
Defining Sachets (or similar)	Not defined "multilayered packaging" means any material used or to be used for packaging and having at least one layer of plastic as the main ingredients in combination with one or more layers of materials such as paper, paper board, polymeric materials, metalised layers or aluminium foil, either in the form of a laminate or co-extruded structure	Not defined	Not defined	Not defined

	India	Indonesia	Philippines	Vietnam
Targets Applicable to Sachets	As either Cat II or Cat III packaging, targets for recycling and recycled content (see above)	No specific treatment of sachets.	Targets for 'Plastic Waste Diversion' (the term 'diversion' in the EPR Law includes reuse, recycling, treatment, or proper disposal. Only non-sanitary landfilling / dumping and open burning seems to be excluded from this): <ul style="list-style-type: none"> • 2023 - 20%; • 2024 - 40%; • 2025 - 50%; • 2026 - 60%; • 2027 - 70%; • 2028 - 80%; 	Recycling rate targets for: Mono-material flexible packaging – 10%; and Multi-material flexible packaging - 10% These apply for 2024-2026. Note that the recycling specifications applied indicate that at least 40% of weight of products and packaging recycled at mandatory recycling rates has to meet the specifications
Special Treatment of Sachets?	Initially (2016) indicated: <i>'Manufacture and use of non-recyclable multilayered plastic, if any, should be phased out in Two years' time'.</i> This was subsequently made irrelevant by exempting packages that were <i>'energy recoverable'</i> On collection, the following was indicated: <i>'Primary responsibility for collection of used multi-layered plastic sachet or pouches or packaging is of Producers, Importers and Brand Owners who introduce the products in the market. <u>They need to establish a system for collecting back the plastic waste generated due to their products.</u>'</i> This was further changed in the 2024 amendment to the PWM Rules so that there is no 'primary responsibility' and the responsibility of PIBOs is considered discharged if they meet their EPR obligations. There is no indication of a financial responsibility, or any requirement for producers to make a financial transfer to entities already conducting collections	In Appendix I, a specific suggestion is made in respect of PP sachets: <i>Prohibition of the use of flexible PP plastic (sachets) as packaging products with sizes less than 50 ml or 50g are effective 1st January, 2030. For example:</i> <i>a. food sachets;</i> <i>b. soap and shampoo sachets</i> There is no provision for PE sachets, or sachets where PP is one of multiple polymers, and given that not all sachets are PP, even if it was mandated to happen (which is not clear – the Regulation relates to a period from 2020 to 2029), then it is unclear what is intended.	None. The ESWMA (and the EPR Act) provided for a list of <i>'non-environmentally acceptable products'</i> to be identified, and banned. The IRRs for both the ESWMA and EPR Acts have made it difficult to give substance to this clause, with the lack of funding for the NSWMC also being blamed for the lack of action in this regard. Retail of products in packaging that is not environmentally acceptable (packaging that is not reusable, biodegradable or compostable, or recyclable, or was hazardous) was also to be banned. Neither of the above has been meaningfully implemented. Obligations under the EPR Law are required to be met by obligated entities separately for rigids and flexibles, but not specifically for a sub-category of flexibles.	None. The breakdown of products for which there are mandatory recycling rates and specifications includes: a) Mono-material flexible packaging; and b) Multi-material flexible packaging

	India	Indonesia	Philippines	Vietnam
Role of local govt vis a vis waste management (waste law)	<p>Both the MSW Rules (the law on 'waste') and the PWM Rules make the operational side of waste management the responsibility of (urban) local bodies (including 'arrange for door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises').</p> <p>The PWM Rules suggest, inter alia, for local bodies: 'segregation, collection, storage, transportation, processing and disposal of plastic waste; ensuring recyclable plastic waste fraction is channelled to recyclers; ensuring processing and disposal on non-recyclable fraction of plastic waste in accordance with the guidelines issued by the Central Pollution Control Board; and encourage the use of plastic waste (preferably the plastic waste which cannot be further recycled) for road construction as per Indian Road Congress guidelines or energy recovery or waste to oil etc.'</p>	<p>Local government has responsibility for waste management (Art 6, and 8.9 Law of 2008)</p> <p>Financing of waste is to be from central and local governments.</p> <p>The Regulations on Household and Household-like Waste set out requirements in terms of infrastructure (including the number of fractions into which waste should be sorted) and makes provision for levies to be imposed on households, and the purposes for which such revenue is to be used</p>	<p>Responsibility with LGUs for the implementation and enforcement of the provisions of the ESWMA within their respective jurisdictions</p> <p>Barangays are responsible for 'ensuring that a 100% collection efficiency from residential, commercial, industrial and agricultural sources, where necessary within its area of coverage, is achieved'</p> <p>Plans have to ensure (inter alia) Segregation of different types of solid waste for reuse, recycling and composting</p> <p>There is some confusion around which tier of local government has which responsibility.</p> <p>Minimum standards for segregation are set, but are lacking in detail.</p> <p>A Materials Recovery Facility (MRF) is required to be established in every barangay or cluster of barangays</p>	<p>Communal, district-level and provincial people's committees have lead responsibility for waste management. Provinces 'direct and organise', districts 'manage collection and treatment', and communal level people's committees take a lead on collection. Funding is envisaged to be derived from charges: <i>Charges for domestic solid waste collection, transport and treatment services payable by households and individuals shall be calculated as follows:</i></p> <p><i>a) The charges shall be calculated in accordance with regulations of law on prices;</i></p> <p><i>b) The charges vary by quantity or volume of the classified waste;</i></p> <p><i>c) If solid waste are reusable and recyclable and hazardous waste is classified, households and individuals are not required to pay charges for collection, transport and treatment services.</i></p>

	India	Indonesia	Philippines	Vietnam
Role of producers vis a vis waste management (waste law)	<p>This seems to have diminished over time in the PWM Rules as a result of changes to Rule 9, and seems now to be such that as long as producers discharged EPR obligations, they have no clearly defined operational responsibility</p> <p>The SWM Rules conflict with this (and with what is elsewhere in the Rules) in saying:</p> <p><i>'All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of a waste management system.</i></p> <p><i>(2) All such brand owners who sell or market their products in such packaging material which are nonbiodegradable shall put in place a system to collect back the packaging waste generated due to their production.'</i></p>	<p>Art 15 of the 2008 Law obliges 'producers' (to "manage" packaging and/or products which are not (easily) decomposed by natural processes. There is no clear meaning given to what is required to be done under the Law in response.</p> <p>The only relevant definition (producer) is 'waste producer', which includes all producers of waste. The preceding Article, though, requires producers to label packaging related to waste reduction and handling.</p> <p>The 2012 Regulation envisages producers preparing plans to reduce and reuse waste, and to recycle waste either themselves, or through others acting on their behalf. Art 26 envisages that local government could partner with businesses or the community in delivering some activities..</p>	<p>None of significance – S.28 of the ESWMA comes close – it requires the National Ecology Center to assist LGUs in establishing and implementing deposit or reclamation programs <i>'in coordination with manufacturers, recyclers and generators to provide separate collection systems or convenient drop-off locations for recyclable materials and particularly for separated toxic components of the waste stream like dry cell batteries and tires to ensure that they are not incinerated or disposed of in a landfill'</i></p> <p>Nothing specific is mandated, and the drop-off points probably relate to the specific products identified for take-back. S.30 should also have outlawed sale of a range of products and packages but has never been properly implemented.</p>	<p>Producers and importers of recyclable products and packages are required to recycle them according to the mandatory recycling rates and specifications. They either 'organise' the recycling themselves, or pay into the Vietnam Environment Protection Fund to support recycling of products and packages</p>
Targets for local Government vis a vis waste management	<p>There are no targets in the Rules, rather, a list of duties. The duties in the SWM Rules for the Secretary-in-charge, Urban Development in the States and Union territories include:</p> <p><i>'while preparing State policy and strategy on solid waste management, lay emphasis on waste reduction, reuse, recycling, recovery and optimum utilisation of various components of solid waste to ensure minimisation of waste going to the landfill and minimise impact of solid waste on human health and environment.</i></p> <p>The duties in the SWM Rules for local authorities and village Panchayats of census towns and urban agglomerations include <i>'preparing a solid waste management plan'</i>, but there are no targets required to be included (unless required by virtue of the State policy and strategy).</p>	<p>In the 2017 Regulation,</p> <p>i) reduction of Household Waste and Waste Similar to Household Waste by 30% by 2025; and</p> <p>ii) handling of household waste and similar waste is 70% of generation by 2025.</p> <p>The first target seems to be set relative to a 'policy off' baseline. The term 'reduction' includes reducing quantities generated, reuse, and recycling (the baseline chosen, as regards waste generation, becomes important as a result). The term 'handling' seems to include anything other than mismanagement</p> <p>Indicators for tracking both targets were proposed in the 2017 Regulation.</p>	<p>'Waste diversion' targets set in the National Development Plan (80% for 2022).</p> <p>Waste diversion is: <i>'activities which reduce or eliminate the amount of solid waste from waste disposal facilities'</i>, and 'disposal' is defined as the <i>'discharge, deposit, dumping, spilling, leaking or placing of any solid waste into or in any land.'</i></p>	<p>These are not evident: rather, there are obligations in terms of what people's committees have to do (as confirmed in Arts 58 and 63 of the 2022 Decree and Arts 75-80 of the LEP).</p> <p>Note that responsibilities for 'household-like' waste generated by businesses are not entirely clear. The extent to which this matters for the matter of EPR for packaging depends on how the terms consumer packaging (and primary and secondary packaging) are defined, and the extent to which this is found in the non-'household-like' waste stream.</p>

	India	Indonesia	Philippines	Vietnam
Role of local govt vis a vis waste management (EPR law)	Responsible for development and setting up of infrastructure for segregation, collection, storage, transportation, processing and disposal of the plastic waste either on its own or by engaging agencies.	Largely retains the same responsibilities as in the Waste Law.	Local government retains its responsibilities as per waste law	See above (waste and EPR law are in the same documents)
Role of producers vis a vis waste management (EPR law)	<p>PWM Rules state: <i>'The local body for setting up of system for plastic waste management shall seek assistance of producers and such system shall be set up within one year from the date of final publication of these rules in the Official Gazette of India'</i>.</p> <p>No further detail is given regarding this assistance.</p> <p>There had been a requirement for producers to 'work out modalities for waste collection system based on Extended Producers Responsibility and involving State Urban Development Departments, either individually or collectively, through their own distribution channel or through the local body concerned as per guidelines specified in Schedule – II (EPR Guidelines).'</p> <p>This is no longer required.</p>	<p>There is scope for, but no requirement for, cooperation with municipalities (for example, in providing recycling receptacles – Art 7), and there is the possibility for, but no requirement for, financial support for local government.</p> <p>These would, though, be in lieu of things which local government is required to do (see above), and which producers are not required to fund.</p>	Producers have no specific financial or operational role vis a vis waste management	See above (waste and EPR law are in the same documents)

	India	Indonesia	Philippines	Vietnam
Financial contribution from producers to local government	<p>None mandated – in waste law, funding is to come from user fees.</p> <p>Waste law indicates: <i>manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide <u>necessary financial assistance</u> to local authorities for establishment of a waste management system.</i></p> <p>There is no indication of what 'necessary financial assistance' might be, and no equivalent clause in the PWM Rules (including Schedule II on EPR)</p> <p>The EPR law makes no requirement for financial transfers from producers to local government, though neither are these ruled out.</p>	<p>None mandated in waste law – 2008 Law makes financing the responsibility of central and local government. 2017 Regulation makes funding the responsibility of various tiers of government but not of producers.</p> <p>In EPR law, no specific requirements: it is recognised that 'producers' may bear some of the costs of waste reduction, but the sources of public finance are to fund 'the implementation of duties and authorities of Minister and / or Local Government'</p>	<p>None mandated in waste law – funding was anticipated to come from user fees and a SWM Fund which was meant to be administered by the NSWMC. Neither the body nor the Fund has been resourced.</p>	<p>The financial contributions would come potentially in two ways: a) an unspecified / unknown contribution where producers organise recycling themselves; b) funds from the VEPF, linked to contributions made by producers to the VEPF.</p> <p>Neither offers a stable source of funds which would enable them to be factored into planning of budgets and service delivery by People's Committees.</p> <p>In any event, the Law and Decree tend towards a view that the resources for the activities of local government will come from the State budgets for current expenditures and investment expenditures, though the Provincial people's committees also impose charges for 'domestic solid waste collection, transport and treatment services' (though waste that is reusable and recyclable does not attract a charge for collection, transport and treatment services).</p>

	India	Indonesia	Philippines	Vietnam
Recycling	<p>In SWM Rules, defined as <i>'the process of transforming segregated non-biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original products'</i></p> <p>In PWM Rules: <i>'the process of transforming segregated plastic waste into a new product or raw material for producing new products'</i></p> <p>Segregation is not defined in PWM Rules, but in SWM Rules "segregation" is defined as: <i>'sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non biodegradable wastes including recyclable waste, non-recyclable combustible waste, sanitary waste and non recyclable inert waste, domestic hazardous wastes, and construction and demolition wastes'</i></p>	<p>(3) Recycling of waste (as part of 'waste reduction') is intended to mean:</p> <ol style="list-style-type: none"> using production raw materials that can be recycled; and/or using recycled production raw materials. <p>Article 7 appears to define recycling and reuse to include processing, which in turn includes both material recycling and 'energy recycling'.</p>	<p><i>The treating of used or waste materials through a process of making them suitable for beneficial use and for other purposes and includes any process by which solid waste materials are transformed into new products in such a manner that the original products may lose their identity, and which may be used as raw materials for the production of other goods or services: Provided, that the collection, segregation and re-use of previously used packaging material shall be deemed recycling under the Act.</i></p> <p>No clear methodology as to when this is measured.</p>	<p>"Waste recycling" means a process of using technological solutions and techniques to recover valuable components from waste.</p>

E.6.0 Key Observations and Recommendations

E.6.1 Scope

In terms of scope, two countries – India and the Philippines – focus only on plastics. Vietnam and Indonesia both cover a more complete range of consumer packaging materials, but both limit the sectoral scope of EPR's application.

We would recommend – not least if EPR is to support funding of (household / municipal) waste management – that all packaging materials are included within the scope of EPR, and that all sectors are included also. The risk of not doing so is that the waste management system becomes fragmented, and that the delivery of waste collection and management services is made less efficient.

E.6.2 Exemptions for Small Businesses

Both Vietnam and the Philippines exempt small producers, whilst India exempts brand owners, and more recently, producers. Each of these countries uses a threshold linked to the definition of Micro, Small and Medium enterprises or similar. Exemptions may tend to make it easier for targets which have been set for 'obligated businesses' easier to achieve. For example, if a 60% recycling target is set for businesses, but the obligated businesses count for only half of what is being used (or 'placed on the market'), then the aggregate target for obligated businesses translates into a 30% target for the country as whole. Also, in some countries, collecting data from those who are not obligated may not be straightforward. Finally, exemptions do, of course, present a risk to obligated enterprises in the form of competition. In markets where margins may be low, competition from smaller (and unbranded) producers may be relatively fierce so that differences in the way obligations are applied may affect competitiveness of businesses.

We would recommend that exemptions are kept to a minimum (so the level at which an exemption is relevant is as low as possible). Where some enterprises are exempt from some targets, there should be a requirement to report relevant data. If there are reasons why it may be more difficult to make some enterprises financially responsible, different mechanisms could be considered (for example, levies, where these are feasible).

E.6.3 Targets

The targets vary across countries, both in terms of the activity, and in terms of the required level of performance. So, for example, in India, the targets relate to recycling, recycled content, and (to a limited extent) reuse, as well as to management of residual plastics. In Indonesia and the Philippines, the targets are much more 'general', effectively applying to anything other than dumping / open burning. In Vietnam, there are recycling targets but these are at a relatively low level and for plastics, they include plastics being converted to oil. The targets are also not well-defined as regards when a given action is considered to count towards targets. For example, where recycling targets are set, it is not clear at what point plastics are considered to have been recycled.

We would recommend that targets are set in such a way that there is upward progression over time in such a way that obligated enterprises can make plans to ensure future compliance. We would also suggest that an approach where targets effectively equate activities with very different outcomes (as, for example, in the Philippines and Indonesia) should be avoided: these fail to give credit to ways of managing waste which deliver the best outcomes.

We recommend that the measurement methods for each target should be clear (when is plastic considered to have been ‘recycled’, for example), and should be auditable, and audited on a random basis by those charged with regulatory oversight.

E.6.4 Compliance with Obligation

The routes to compliance in both India and the Philippines appear to be through the acquisition of certificates linked to the activities under the obligation. Where compliance certificates are tradable, then in a functional market for these, the cost / value of compliance certificates reflects the marginal cost of acquiring them. Unless, and until, the targets for compliance require obligated entities to go beyond what currently happens, then marginal costs may be close to zero (or they do not *have to* depart significantly from zero). Where they do require activities that stretch beyond what currently happens, then the cost / value of certificates might reflect the marginal costs relative to what currently happens. In neither case does the cost / value of the certificate necessarily bear a close resemblance to the full cost of the activity that leads to the certificate being generated: rather, it represents costs over and above what currently takes place. Furthermore, the recipients of the funds associated with delivering compliance are not necessarily those who undertake the activity leading to the certificate being generated (and still less, in proportion to the costs they incur).

In Vietnam, there are various routes to compliance, but full details of the costs of the ‘backstop’ are not (at time of writing) available. In Indonesia, the way in which the targets are set, and compliance might be demonstrated, seem open to manipulation.

We would recommend that countries seek to ensure that the funds generated from EPR are used to cover the full net costs of the end-of-life management of the packaging for which businesses are given an obligation in the law. Where operational responsibility rests with others (e.g. waste collection undertaken by municipalities), the funds should be channelled to the entities with responsibility for service delivery. For activities where operational responsibility rests with businesses to organise, full net costs should also be paid for by businesses.

E.6.5 Sanctions

The approach to sanctioning those who transgress the law is set out relatively clearly in India and the Philippines, and is also set out in Vietnam, but it is less apparent in Indonesia. In each of the specific circumstances, whether or not sanctions are applied, and with how much rigour, is likely to affect outcomes. Some sanctions have already been applied in India, but in the Philippines, despite the failure of many businesses to register, the willingness to apply sanctions seems less evident, even though this is clearly indicated in the Law as an offence which should trigger a sanction.

We would recommend that sanctions for non-compliance are set out clearly in law, and set at relatively punitive levels to dissuade non-registration, under-declaration of obligation, and over-declaration of performance by obligated enterprises.

In the case of India and the Philippines, the fact that compliance is to be demonstrated through (tradable) certificates gives those who issue certificates (and, potentially, those who verify them) an incentive to falsify certificates, since they have value in the compliance market. Sanctions for such fraud should be sufficiently punitive that any temptation to engage in such activity is eliminated as far as possible.

Recognising that enforcement may be an issue, consideration should be given to identifying an ‘administrative component’ of the fees collected from businesses to cover enhanced staffing costs.

E.6.6 How Will EPR Help Improve Waste Management, and Support it Financially?

In all countries reviewed, the contribution that EPR makes to management of household / municipal waste is uncertain. In no country is there a direct relationship between what producers will pay, and the costs of managing their packaging at end-of-life. Indeed, despite the fact that in all countries, the laws on waste management imply that responsibility for managing household / municipal waste rests with (various tiers of) local government, there is no guarantee that local government is the beneficiary of funding from obligated businesses under EPR.

This is disappointing in that it implies that in all cases, the design of EPR falls short of making producers responsible for funding end-of-life management of packaging. Given that in all countries, the resourcing of waste management would seem to persist as a major hurdle, this is puzzling. Why allow producers off the hook in this regard, and why not ensure that EPR generates funds in support of those who deliver waste management services?

In all the countries examined, ensuring that waste management law gives rise to service delivery has been a struggle. Countries have struggled for decades to close the ‘implementation gap’, and there are a number of reasons behind this. A successful implementation of EPR will be far more likely in the context of a well-drafted, and implemented, suite of waste management policy and law. It is not at all clear that this exists in any of the countries studied, and indeed, the links between policy and law on waste management, and the EPR laws and regulations promulgated, have not always been well made, and are sometimes contradictory.

In the negotiations around a globally binding instrument on plastics pollution, many major brands are indicating that they support a form of EPR where they pay for end-of-life management of packaging, as long as they are convinced the funds raised are ear-marked for that purpose. In local markets, however, global brands’ margins may be narrow, and they may perceive a competitive threat from local brands, and sometimes from unbranded goods. This reinforces the desirability of minimising the scope of exemptions (see above), and where necessary, using different approaches to recover the costs of end-of-life management from smaller businesses.

We would recommend that in implementing EPR, countries ensure that their foundational waste management policy and law is well drafted, is up to date, is

being implemented, and is aligned with the EPR law. In turn, policy and law on waste management, and the law on EPR, should not introduce confusion, still less, contradictions. This is especially true as regards the role of local government in waste collection, and also, in their broader waste management functions (so laws regulating local government may also be relevant).

The EPR law should ensure businesses cover the full costs of end-of-life management of their packages. That extends beyond collecting and recycling those packages that are collected and recycled, but should include the costs of collecting and managing packages which are not recycled (including paying for clean-up of littered packages).

The law should be clear as to who is operationally responsible for collection, sorting, recycling, and sustainable management of, and cleaning up littered items of, packages.

The funding, whatever the means by which it is collected, should be ear-marked for the intended purposes, and should not fund inefficient service delivery.

E.6.7 Treatment of (Small-Format) Sachets

India's PWM Rules initially paved the way for a ban on 'non-recyclable' multi-layered packages, but subsequent amendments to the Rules changed this. It was also the case that producers were given 'principal responsibility' for collecting such packaging (and later, all packaging), despite the fact that this responsibility rested with urban local bodies as per the SWM Rules. This was also changed in 2024, long after this 'principal responsibility' should have been discharged by producers, but clearly was not.

Otherwise, however one defines 'sachets', they are dealt with as part of the flexible packaging category, and in India and Vietnam, this is split by whether these are mono- or multi-material. The extent to which the targets that have been set affect 'sachets' does, however, depend upon how one defines them. In particular, share of the flexible packaging market accounted for by 'sachets' will determine whether any attention needs to be paid to them at the level at which targets for flexible packaging are set. Our working assumption would be that, notwithstanding the number that are used, the management of the small-format sachets might not be significantly affected by the existing legislation as it is specified. That might be different where individual businesses seek to demonstrate compliance by themselves, and where the share of small format sachets in the flexible packaging they themselves place on the market is significant.

We would recommend that where sachets are considered to be particularly poorly managed, then specific measures are applied to deal with them, including:

- **Considering bans on specific uses (for example, of personal care sachets in hotels, or on free distribution of condiments with meals delivered from on-line purchases, or on use of sachets for condiments in cafes / restaurants); and**
- **Applying escalating taxes on single-use plastic sachets with a view to phase out after a specified period, and applying taxes on single-use non-plastic alternatives.**

Although in EU countries, modulation of EPR fees is popular, fee modulation has to take place at extreme levels to generate changes in the choice of packaging format. Fee modulation can be constrained by a cost recovery objective, a constraint which need not

apply to taxes. Furthermore, modulating EPR fees is not straightforward to agree, as demonstrated by the varied approaches taken to implementation in the EU.

E.7.0 EPR in the International Context

The lessons learned through the study can be considered alongside some of the issues being considered in the context of the ongoing work of the Intergovernmental Negotiating Committee regarding an Internationally Binding Legal Instrument (ILBI) aimed at addressing plastic pollution.

The Zero Draft of the ILBI included EPR as a specific measure. It included, separately, a measure regarding ‘waste management’. One of the key lessons of this study is that there is little point in considering ‘EPR’ independently from ‘waste management’, not least because there will need to be comprehensive waste collection systems in place, and whatever is not recycled still needs to be managed. There is, and will be, no ‘well-functioning EPR system’ in the absence of a ‘well-functioning system of waste management’.

On the other hand, it is possible to have a well-functioning system of waste management without EPR. The question, though, is why would a country *not* introduce EPR, if only as a means to have businesses fund ‘their share’ of the costs of waste management? This question looms especially large in contexts where countries are struggling to provide citizens (and businesses) with a waste management service which meets basic environmental standards, let alone those needed to achieve the objectives which we may wish to set for the management of waste.

In the context of the ILBI discussions, a fairly EU-centric view of what EPR ‘should be’ has often been proposed. What might be considered appropriate for the EU, however, need not necessarily be appropriate for other countries. Indeed, some of the terminology may be alienating for some jurisdictions:

1. Island states contain few ‘producers’ in the sense usually understood;
2. It is often suggested that EPR seeks to achieve a range of outcomes which might be better achieved using alternative policy instruments (much as we have suggested might be the case if the impact of mismanaged sachets is to be addressed);
3. The supposed need for a single ‘producer responsibility organisation’ might not suit all countries, with quite varied views on their economic and political organisation, in all situations; and
4. The view of businesses might suggest that EPR should cover a limited range of the end-of-life costs associated with their packages, whilst countries’ (and local government’s) sources of funding might be limited.

What has been discussed as EPR, usually independently from ‘waste management’, might best be considered as part of waste management, and re-titled as ‘recovering end-of-life costs from businesses’ (RELCob). This might help de-mystify the thrust of EPR, and is consistent with what we consider to be the central element of EPR in this study.

This also helps clarify why it might be an important concept in making the ILBI a success, and why, independently of the ILBI, countries ought at least to consider the role that RELCoB / EPR could play, suitably designed, in helping support the provision of sustainable waste management services to their citizens.

The point regarding RELCoB as part of, rather than independent from, waste management ought also to be considered. Where local government has, or seems best placed to be given, responsibility for providing waste collection services for citizens, then local government should likely continue to have responsibility for providing waste collection services, and government should establish a framework through which to ensure that these services can deliver high performance whilst embracing waste pickers in their provision.

Beyond waste collection, who takes what operational responsibility is the main question for countries to consider: in some, it may be more straightforward to maintain a 'financing only' role for businesses. In others, it may make sense for a business-led entity to take responsibility for subsequent sorting and recycling infrastructure, and in still others, it might be sensible to deploy a hybrid (for example, smaller businesses paying simplified levies, with larger businesses taking both financial and operational responsibility). Countries should make their choices according to what is most likely to work in their specific political and economic structures, but in all cases, ensuring transparency and value for money from the spend linked to the funds derived from businesses.

As regards small-format sachets, however, RELCoB / EPR is unlikely to be the best tool through which to address such packages, although it may help ensure that more of them are collected. Depending on the contexts in which they are used, however, they may well persist as a problem without additional action to reduce their use. Our preferred approach, as noted above, is to use targeted bans, alongside a system of levies that increase over time to convey an economic signal which then leads to most sachets being phased out over time.

1.0 Introduction

This Draft Final Report considers how policy might give effect to a major reduction in, or a phasing out of, the use of single-use sachets in the Asia Pacific region. It does this by reviewing the potential to achieve the objective through:

1. Amending existing EPR (or similar) schemes;
2. Implementation of EPR (in countries where this does not currently exist in a statutory form);
3. In each of 1. and 2. above, considering what complementary measures/ instruments might be necessary / appropriate; and
4. Implementing stand-alone measures, other than EPR, to achieve the objective.

The countries of focus are India, Indonesia, the Philippines and Vietnam.

The work also seeks to inform discussions in countries currently with no EPR law, or system, in place (including countries outside the Asia Pacific region).

1.1 Approach to the Work

In seeking to deliver the objective, a stepwise approach has been adopted:

1. **Step 1**
We reviewed data regarding the market for single-use sachets, focussing on Indonesia, Philippines, Vietnam and India. The intention was to understand what such sachets are currently used for. This Step was also used to shed light on how best to define (as necessary) 'sachets' and to select five uses of sachets for closer investigation;
2. **Step 2**
Based on Step 1, for each of the five sachets, we considered alternative mechanisms for delivery, and potential alternative packages, for the product which the five chosen uses of sachet currently contain;
3. **Step 3**
We set out our understanding of what EPR should be considered to include, and the potential implications for sachets;
4. **Step 4**
We reviewed policy and law in India, Indonesia, Philippines and Vietnam with a view to understanding:
 - a) What producers are required to do;
 - b) What producers are required to pay for; and
 - c) What performance targets and other obligations are established in law.

This step included consideration of waste management legislation, which is closely linked to EPR legislation. We also considered the likely effect of the EPR scheme in each country on the use and management of single-use sachets.

5. **Step 5**
On the basis of Steps 2, 3 and 4, we consider what alternative formulations of the law might be required to give greater clarity to:
 - a) how legislation specifies what producers must do;

- b) whether and how the scope of cost recovery might be changed;
- c) the performance objectives that are set (and how they are defined); and
- d) other aspects of the policy and law which might be considered relevant to EPR policy and law.

These recommendations are made for each of the countries whose EPR schemes have been examined (though there is repetition across them). They are made with a view to driving a reduction in use (and improvement in the management of) single-use sachets.

6. **Step 6**

In the case of existing schemes, there may be limitations to the nature of change that can be implemented through the EPR law. There may be measures which are necessary, or desirable, to complement what EPR can do, or there may be other policies / laws which might be more appropriate for achieving the objective. The desirability of / need for measures which complement those suggested in Step 5 will be considered. The rationale for these will be presented in terms of what they would add to the incentives and motivations of actors, and to the costs of achieving the desired (and / or wide environmental) objectives.

7. **Step 7**

Reflecting primarily on Step 3 to 6, we will consider what those countries who currently have no EPR system in place, but which may be considering implementing such, could consider if they intend to reduce the problems associated with sachet use.

These 'steps' have been considered broadly in sequence, though for obvious reasons, there has been some iteration between them over the life of the project. They are reflected in the structure of this report.

2.0 Market for Single Use Sachets

2.1 Global Use of Sachets

Research by 'A Plastic Planet' suggested that, globally, 855 billion sachets are consumed each year.⁷ This includes sachets for food and drink products, as well as those for personal care and hygiene, and other uses. A more recent Greenpeace report placed the figure at 956 billion sachets annually, predicted to rise to 1.5 trillion in 2033.⁸

The way in which 'sachet' is defined varies considerably: some market research studies, including that which informed Greenpeace's estimate, classifies sachets in sizes, from 0-<5 ml, 5-<10ml, 11-<15ml, and >15ml. Another source indicates that the global sachet packaging market is projected to grow from \$8.30 billion in 2022 to \$11.97 billion by 2029, at a CAGR of 5.4% during the forecast period. Within the market, it notes that the 1-10ml segment '*is the dominating segment attributed to the surging product demand in single dose application solutions, trial packs and travel packs. These can be used for sampling condiments, seasonings, sauces, shampoo, and other healthcare & beauty products.*'

The Ellen Macarthur Foundation, in reflecting on 5 years of its Global Commitment, wrote:⁹

Flexible packaging, such as wrappers, pouches, and sachets, are the fastest growing type of plastic packaging. Given their high functional properties, low weight, and cost-effectiveness, they are used ever more around the world [...]

In many high-leakage regions, there exists a 'sachet economy', where numerous products are sold in small, single-portion, flexible packaging to low-income consumers. Yet, in these regions there is often also a lack of adequate infrastructure for collecting and managing packaging after use. While informal waste pickers play a hugely important role in these regions, picking up many other types of packaging, small-format flexibles tend not to get collected by those waste pickers due to their low value, and therefore have a much higher likelihood of ending up in nature. [...]

Without tackling flexible plastic packaging in high-leakage regions, plastic pollution will continue to surge. Currently, an estimated 25,000 flexible plastic packaging items end up in the ocean every second. If we remain on this track, the number will double

⁷ <https://aplasticplanet.com/media/uk-must-act-to-stamp-out-curse-of-plastic-sachets/>

⁸ Based on data from Future Market Insights (2023) *Sachet Packaging Market, Global Industry Analysis 2018-2022 and Opportunity Assessment 2023-2033*, available from www.futuremarketinsights.com

⁹ Ellen Macarthur Foundation with UNEP (2023) *The Global Commitment Five Years In: Learnings to Accelerate Towards a Future Without Plastic Waste or Pollution*. Note the estimates in the cited paragraphs were based on a previous estimate of the current weight (tonnage) of flexible plastic packaging ending up in the ocean (The Pew Charitable Trusts and Systemiq (2020) *Breaking the Plastic Wave*), converted to an estimated number of items based on an assumption of 10g per item. This figure will likely understate the number of items as approximately 80% of all items are under 15ml (based on data from Future Market Insights (2023) *Sachet Packaging Market, Global Industry Analysis 2018-2022 and Opportunity Assessment 2023-2033*, available from www.futuremarketinsights.com), so would weigh 10g only if at least half full of the product they were meant to contain. A 3.8% compound annual growth of flexible plastic packaging use was assumed, alongside continuation of the existing rate of leakage to oceans

by 2040. In such a scenario, a staggering 20 trillion flexible packaging items would end up in the ocean, and many more in the environment in general, between now and 2040

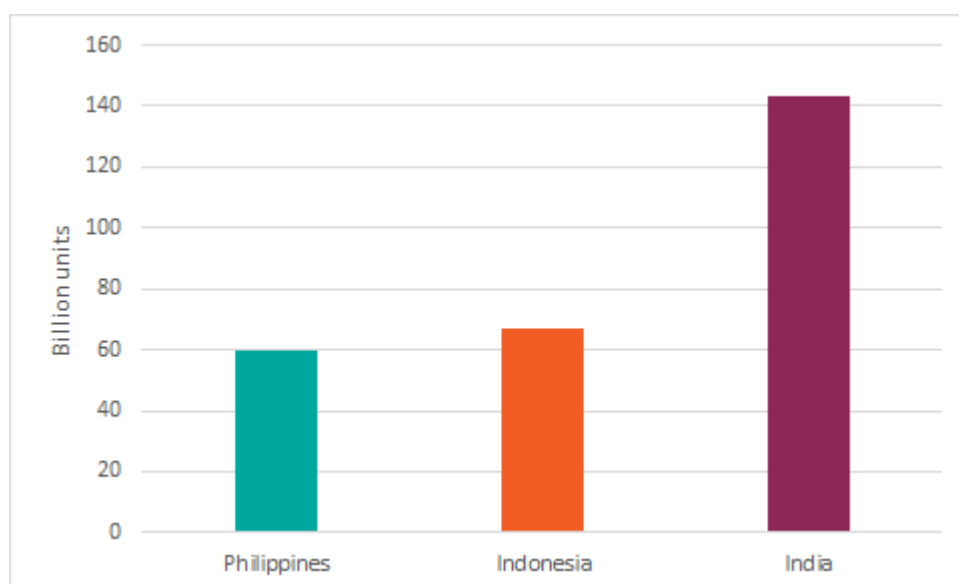
An earlier report by GAIA reported estimated tonnages and quantities of material in three key Asian markets of interest, India, the Philippines and Indonesia:

- India 143 billion sachets consumed each year (143kt of waste);¹⁰
- Indonesia 67 billion sachets (67kt of waste);¹¹
- Philippines ~60 billion (60kt of waste).¹²

It noted that according to these figures, sachet consumption per capita in the Philippines was nearly double that in the other two countries, at 591 units/cap/year.

Figure 1 and Figure 2 show the annual consumption levels in these markets, as well as the consumption per capita. This reveals the potential for the markets in India and Indonesia to grow were the consumption levels per capita to develop in line with the Philippine pattern.

Figure 1: Sachets Consumed Each Year



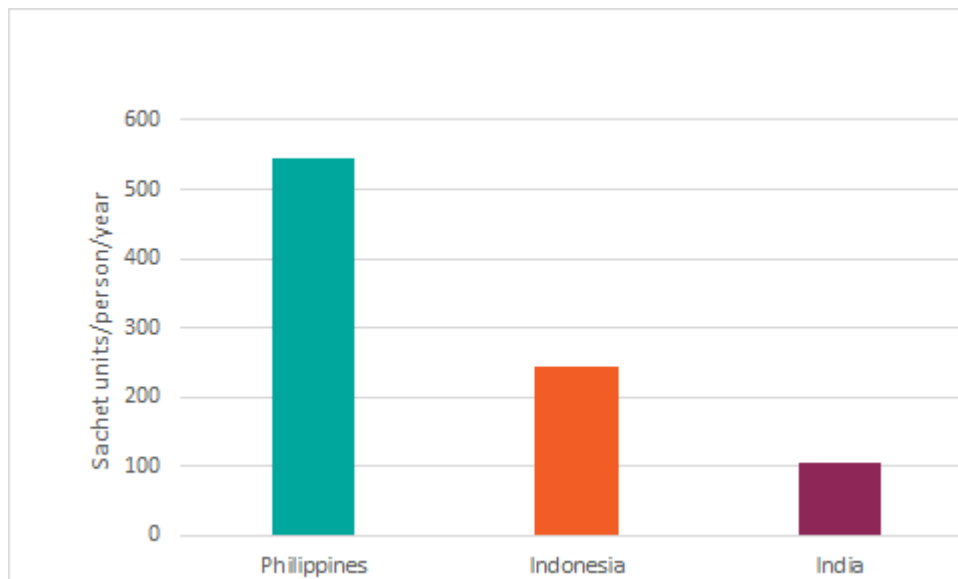
Sources: Bor, W. (2020) [*Releasing the Reuse Revolution in the Global South: The Transition of Businesses from Single-Use Plastic Packaging to Reuse Models at the Base of the Pyramid In Indonesia*](#), Master's Thesis, Utrecht University; Global Alliance for Incinerator Alternatives (2019) [*Plastics Exposed: How Waste Assessments and Brand Audits are Helping Philippine Cities Fight Plastic Pollution*](#), June 2019

¹⁰ Bor, W. (2020) [*Releasing the Reuse Revolution in the Global South: The Transition of Businesses from Single-Use Plastic Packaging to Reuse Models at the Base of the Pyramid In Indonesia*](#), Master's Thesis, Utrecht University.

¹¹ Ibid

¹² Global Alliance for Incinerator Alternatives (2019) [*Plastics Exposed: How Waste Assessments and Brand Audits are Helping Philippine Cities Fight Plastic Pollution*](#), June 2019.

Figure 2: Sachets Consumed Per Capita in Key Countries



Sources: Bor, W. (2020) [*Releasing the Reuse Revolution in the Global South: The Transition of Businesses from Single-Use Plastic Packaging to Reuse Models at the Base of the Pyramid In Indonesia*](#), Master's Thesis, Utrecht University; Global Alliance for Incinerator Alternatives (2019) [*Plastics Exposed: How Waste Assessments and Brand Audits are Helping Philippine Cities Fight Plastic Pollution*](#), June 2019

Sachets have become part of the culture in the three countries considered here. The success of the sachet market has been attributed to several consumer related factors:

- **Suited to low-income groups:** In countries where many workers are paid daily, and have limited space to store larger items, it is argued that sachet packaging presents an affordable and practical solution.¹⁰⁴ However, consumption is no longer restricted to low-income groups: in India 95% of shampoo (by units) are purchased in sachets, suggesting a much deeper penetration;¹⁰⁵
- **Convenience:** A highly dispersed distribution network, it is suggested, makes purchasing sachets very convenient, for example at street stalls/kiosks as well as local stores, particularly in urban areas where consumption per capita has been shown to be higher; and
- **Brand conscious consumers:** Sachets also allow consumers to access specific branded products, which, it is suggested, are sought after because of the consistency in quality of the product, but also, as a result of marketing campaigns.

In India, the Philippines and Indonesia, as well as many other countries, sachets have become the primary way of purchasing personal care products, partly because each country has a large population of low-income workers, many of whom, it has been suggested, can generally only afford to buy small-size products.

2.2 India

One 'brand audit' of littered plastic (and other) items conducted audits in sites such as public parks, water bodies, and resource recovery centres.¹³ The sampling, therefore, covers both sites likely to be sampling 'littered' waste, and sites likely to be sampling waste collected by waste pickers and others. The data as presented do not permit a 'split' by these different locations. Nonetheless, the broad pattern of results of the study are of some interest.¹⁴

Waste was classified into seven main categories (unbranded plastics, branded plastics, polystyrene, rubber, glass/metal, textile, and paper/cardboard), and then measured by weight and volume. Of the overall amount of waste sampled, 47.5% by weight were plastics and polystyrene.

The branded plastics – representing 63% of the weight of all plastics - were further audited to record the brand and identify the manufacturer.¹⁵ They were also categorised into product types (food, household and personal care), and type of plastic packaging (single layer, multilayer/composites/laminates, polystyrene, expanded polystyrene, hard plastics, polyethylene, foil, and others). The audit data were recorded by participating organisations and aggregated by the authors. The audit data were generally reported in terms of count, rather than by weight.

Notwithstanding questions as to how representative (or of what) the data were, the results are of interest in that they indicate a large share of the branded products sampled were those classified as either single-layer or multilayer flexible packages. Indeed, the following headlines are relevant:

1. The sampled branded items were split according to type of use, with plastics linked to food products accounting for more than 90% of sampled items, and the balance split between household care products (5.3%) and personal care products (4.4%);¹⁶
2. 75% of all plastic food packages, 75% of all plastic household care packages, and 58% of all plastic personal care packages were either single- or multi-layer flexibles;¹⁷
3. Across the different cities where sampling was conducted, the proportion of all items sampled that were single- or multi-layer plastics ranged from 62% to 92% in

¹³ The aim of brand audits is to assign waste plastic items to the brand from whose product the waste was derived, and to link responsibility for plastic waste to the brands identified. It is not, therefore, intended to be a perfect representation of the composition of waste plastics per se.

¹⁴ Satyarupa Shekhar (2018) Are Businesses Ready to Beat Plastic Pollution, Report for GAIA, CAG and Break Free from Plastic.

¹⁵ In a more recent audit brought to our attention at time of final drafting, the share of branded plastic packaging was 69% by item count (see Break Free from Plastic (2021) *Unwrapped Exposing India's Top Plastic Polluters, Plastic Waste Brand Audit India 2021*, <https://swachhcoop.com/assets/2021-unwrapped.pdf>)

¹⁶ The equivalent split in a more recent study appears to have been 79% food packaging (assuming that 'packaging material' is mostly food packaging), household care products (7%) and personal care products (8%), with smoking materials and others making up the balance (Ibid.).

¹⁷ The more recent study focuses only on multi-layer packages, and indicates that 35% of items were multi-layered plastics, or 40% of all branded packaging (Ibid.).

13 of the 15 cities.¹⁸ In the other two cities, in Goa (where the share was 19%), the sampling – undertaken it seems on beaches - indicated a very high proportion of PET; and in Bengaluru, sampling was at dry waste collection centres, so that the ‘hard plastics’ category was much more heavily represented in sampling than in situations where the sampled waste was more likely to resemble ‘litter’.

Table 1: Composition of Plastics Collected in Waste Audits

Type of Product	Packaging	No. of Pieces	Share
Food Products	SL	6,485	14.1%
	ML	24,611	53.4%
	PS	138	0.3%
	HP	3,989	8.7%
	PET	6,196	13.4%
	O	220	0.5%
FP Sub-Total		41,639	90.3%
Household Care Products	SL	506	1.1%
	ML	1,320	2.9%
	PS	7	0.0%
	HP	292	0.6%
	PET	227	0.5%
	O	82	0.2%
HP Total		2,434	5.3%
Personal Care Products	SL	264	0.6%
	ML	910	2.0%
	PS	10	0.0%
	HP	656	1.4%
	PET	21	0.1%
	O	166	0.4%
PC Total		2,027	4.4%
Grand Total		46,100	100.0%

Source: Satyarupa Shekhar (2018) *Are Businesses Ready to Beat Plastic Pollution, Report for GAIA, CAG and Break Free from Plastic*.

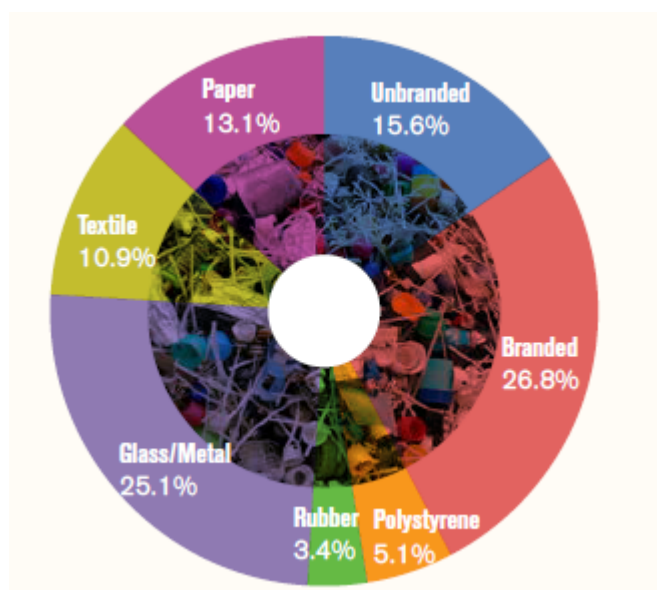
Note: SL - Single Layer; ML - Multilayer/Composites/Laminates; PS - Polystyrene; HP - Hard Plastics; PET – Polyethylene; O - Others

Another important feature of the Indian analysis is that plastic packages are often unbranded. Figure 3 shows that unbranded products which were found constituted a significant share (37%) of those identified in the analysis.¹⁹

¹⁸ The more recent study indicated that multilayer plastic packaging alone was responsible for 33%-71% of items in specific locations (Ibid.).

¹⁹ The more recent study indicated that the share of unbranded plastic items was 29% (Ibid.).

Figure 3: Waste Composition for all 15 Cities Where Audits were Conducted



Source: Satyarupa Shekhar (2018) *Are Businesses Ready to Beat Plastic Pollution*, Report for GAIA, CAG and Break Free from Plastic.

This observation is, by and large confirmed by work undertaken by Sattva Consulting (see Figure 4)²⁰ and work undertaken by CII et al for the India Plastics Pact (see Figure 5).²¹ The CII et al work noted, though, that:²²

Product categories which have a high share of unbranded sales include pulses, cereals, dairy, edible oils and fats, all of which are often sold loose in India. These are also categories which are not commonly associated with small formats.

Note that the CII et al study used a definition of small format packaging as ‘packaging containing up to 50 grams of solid product, or up to 50 ml of liquid product.’ It may be the case, therefore, that unbranded products account for a smaller market share of the small format flexible packages.

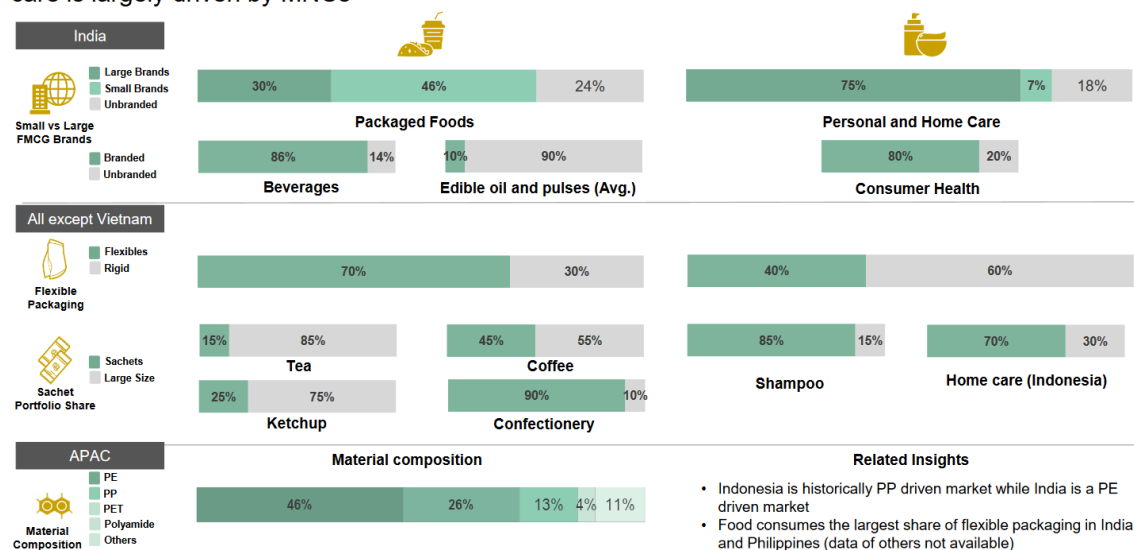
²⁰ Sattva Consulting (2021) *Asia Sachets Landscape Research: Insights Workshop, Findings from India, Indonesia, Philippines and Vietnam*, Plastic Solutions Fund, April 1, 2021

²¹ CII, WWF India and DSS (2022) *Insights Report: Small Formats and Sachets*, Report for India Plastics Pact, December 2022.

²² Ibid.

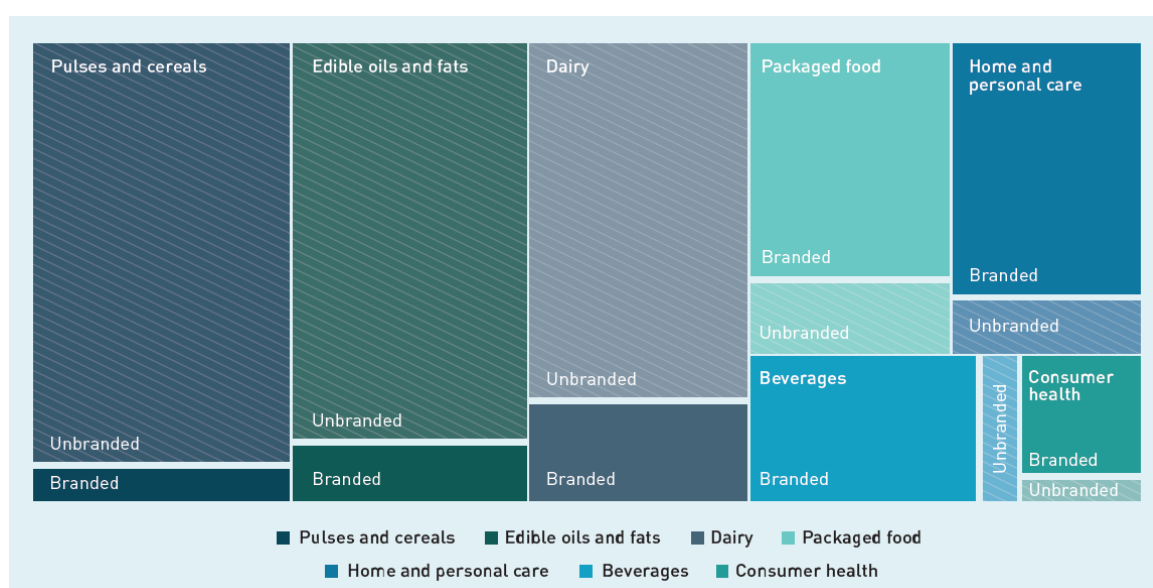
Figure 4: Analysis of FMCG Sector Packaging in India and Other Asian Countries

Only 34% of the total FMCG sector in India is branded with similar trend expected in South East Asia. Food industry holds the maximum share of flexible packaging but is mostly fragmented, while personal care is largely driven by MNCs



Source: Sattva Consulting (2021) Asia Sachets Landscape Research: Insights Workshop, Findings from India, Indonesia, Philippines and Vietnam, Plastic Solutions Fund, April 1, 2021

Figure 5: Relative share of different product categories in FMCG sector revenue (2015)



Source: CII, WWF India and DSS (2022) Insights Report: Small Formats and Sachets, Report for India Plastics Pact, December 2022 (based on BCG and CII. (2015). *Re-Imagining FMCG in India*. <https://media-publications.bcg.com/india/Re-Imagining-FMCG-in-India.pdf>).

It is not entirely straightforward to understand which SUP sachets are the most often found in waste, or in litter from the study. However, given the nature of the local brands in particular, it would seem likely that sachets of milk products might be prominent

contributors to the sample. The presence of both PepsiCo and Perfetti van Melle in the international brands, and Parle at the top of national brands, with Britannia, ITC and Haldiram also featuring in the top 10, might suggest that sweet-style wrappers and crisp-style packages are also contributing to the sample, although each of these businesses delivers a diverse range of products (i.e. not only crisps and sweets).

Data from Future Market insights were used to gain additional insights. These help shed some light on the distribution across sectors though it should be noted that the split is not by number of items, but by value of the packaging in the segment concerned: some indication of the weighted average price of packaging per unit is given in Figure 6, suggesting a scaling of roughly 2 small format items for each large format item.²³ The food products and personal care sectors dominate,

Table 2: Estimated Breakdown of Sachet Use in India, Current and Future

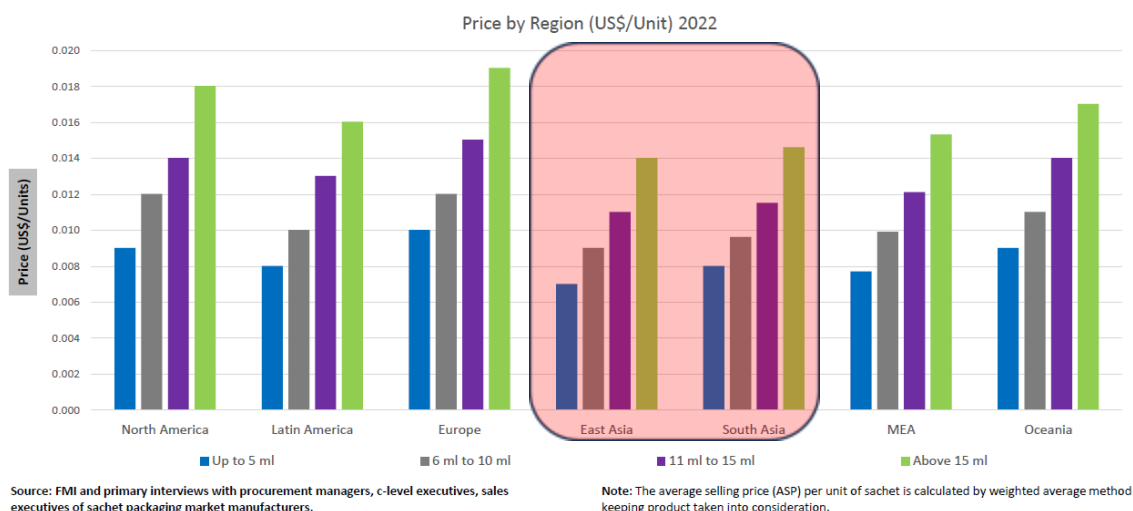
	2023	2033	2023	2033	2023	2033
	814.6	1509.2	814.6	1509.2	815.5	1509.2
Food	319.3	562.4			322	562.3
Up to 5 ml			52.1	93.5		
>5-10ml			79.1	137.8		
>10-15ml			134.2	216.9		
>15ml			56.6	114.1		
Personal Care and Cosmetics	263.7	483.8			263.5	483.9
Up to 5 ml			42	80.5		
>5-10ml			64.9	118.6		
>10-15ml			110.1	186.6		
>15ml			46.5	98.2		
Pharmaceuticals	164.9	326.7			164	326.7
Up to 5 ml			26.2	54.3		
>5-10ml			40.4	80.1		
>10-15ml			68.5	126		
>15ml			28.9	66.3		
Other Industrial	66.8	136.3			66	136.3
Up to 5 ml			10.5	22.7		
>5-10ml			16.3	33.4		

²³ The pricing analysis helps explain why small format sachets are relatively unattractive to recyclers. In few cases will more than half the package price be driven by the price of the primary materials. In order to recycle such materials, the costs of doing so have to be considered against the value of the resin. Even supposing the sachet was made from a single material (or of more than one material, but where these were compatible with existing recycling processes), the processing cost eats into the residual value available for the collector. Given that the value of the material might be of the order US\$0.003 for small sachets, then after accounting for the cuts taken by aggregators / middle-men, it is easy to see why a large number of sachets would need to be collected to generate US\$1.00 of income, even supposing viable recycling processes were available. By comparison, in each typical 500ml PET bottle, the raw material value is close to ten times that of the smaller sachets, the recycling process is well understood (and lower cost), so that residual value to collectors can justify collection of PET bottles with no subsidy.

>10-15ml			27.6	52.5		
>15ml			11.6	27.7		

Source: Future Market Insights (2023) Sachet Packaging Market, Global Industry Analysis 2018-2022 and Opportunity Assessment 2023-2033, available from www.futuremarketinsights.com

Figure 6: Packaging Market – Pricing Analysis



Source: Future Market Insights (2023) Sachet Packaging Market, Global Industry Analysis 2018-2022 and Opportunity Assessment 2023-2033, available from www.futuremarketinsights.com

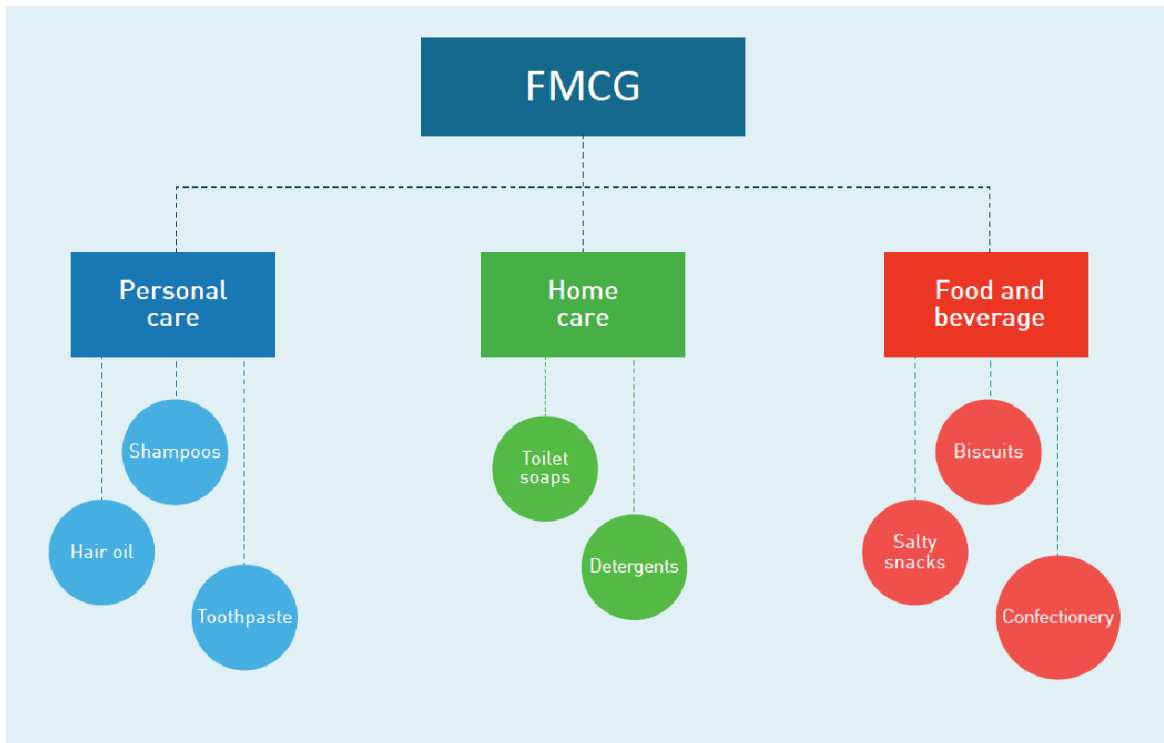
Work by CII and WRAP for the India Plastics Pact (IPP) identified eight priority products for its study. The basis for the choice seems not to have been especially scientific, with the report stating:²⁴

A total of eight such 'priority products' were studied, three each from the F&B and personal care segments, and two from the home care segment (very few products in this segment are sold in small formats at all, so only two were picked).

The selected products are shown in Figure 7 below. The main overlap with the study by Shekhar discussed above is in respect of confectionery items, biscuits and salty snacks. The focus of the CII and WRAP study on 'small formats' may explain the omission of milk products, which seemed prominent in Shekhar's study. Some milk products will be sold in flexible packages which would not fall under the 'small format' definition used by CII and WRAP.

²⁴ CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024.

Figure 7: Choice of Priority Products in Work for India Plastics Pact



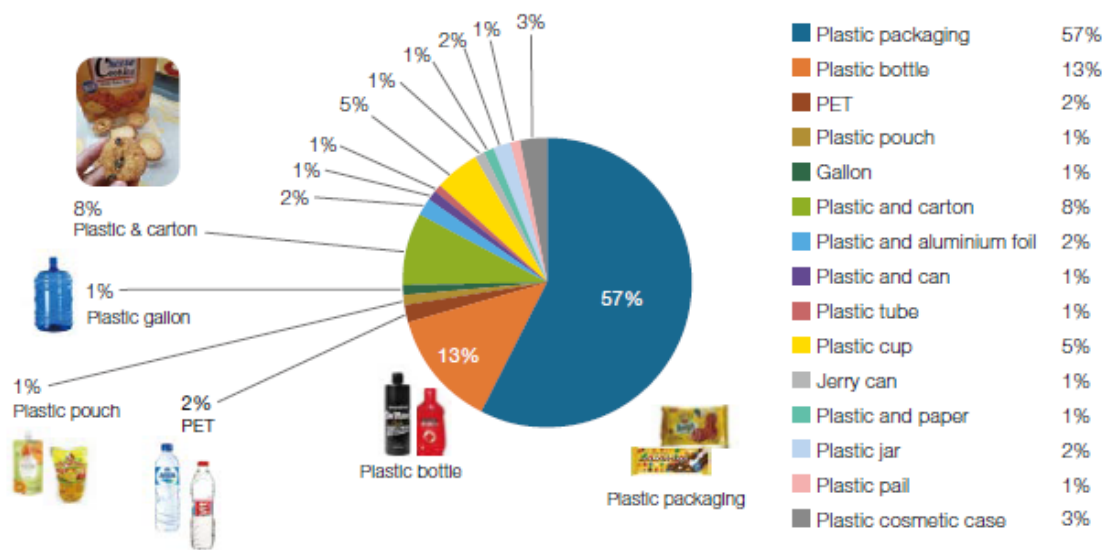
Source: CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024.

2.3 Indonesia

In Indonesia, we found no detailed breakdown of consumption by type of use. A presentation from the Director for Solid Waste Reduction to the WTO in 2023 indicated that of 68.5 million tonnes of municipal waste, 18.2% was plastics.²⁵ The same presentation (and other official documents) give a breakdown of plastic containers and packaging from 2019: somewhat unhelpfully, as well as giving a breakdown by types of plastic containers and packaging, it also indicates ‘plastic packaging’ as a separate category alongside a range of plastic packaging items which are specifically identified. Since this category accounts for the majority (57%) of the amount (see Figure 8), the breakdown is not as illuminating as it could be.

²⁵ S. S. Soemiarno (2023) Regulation of Plastic Waste Management in Indonesia, Presentation to WTO Thematic Session, 7th March 2023 by Director for Solid Waste Reduction Ministry of Environment and Forestry, Republic of Indonesia.

Figure 8: Types of Plastic Containers and Packaging in Indonesia



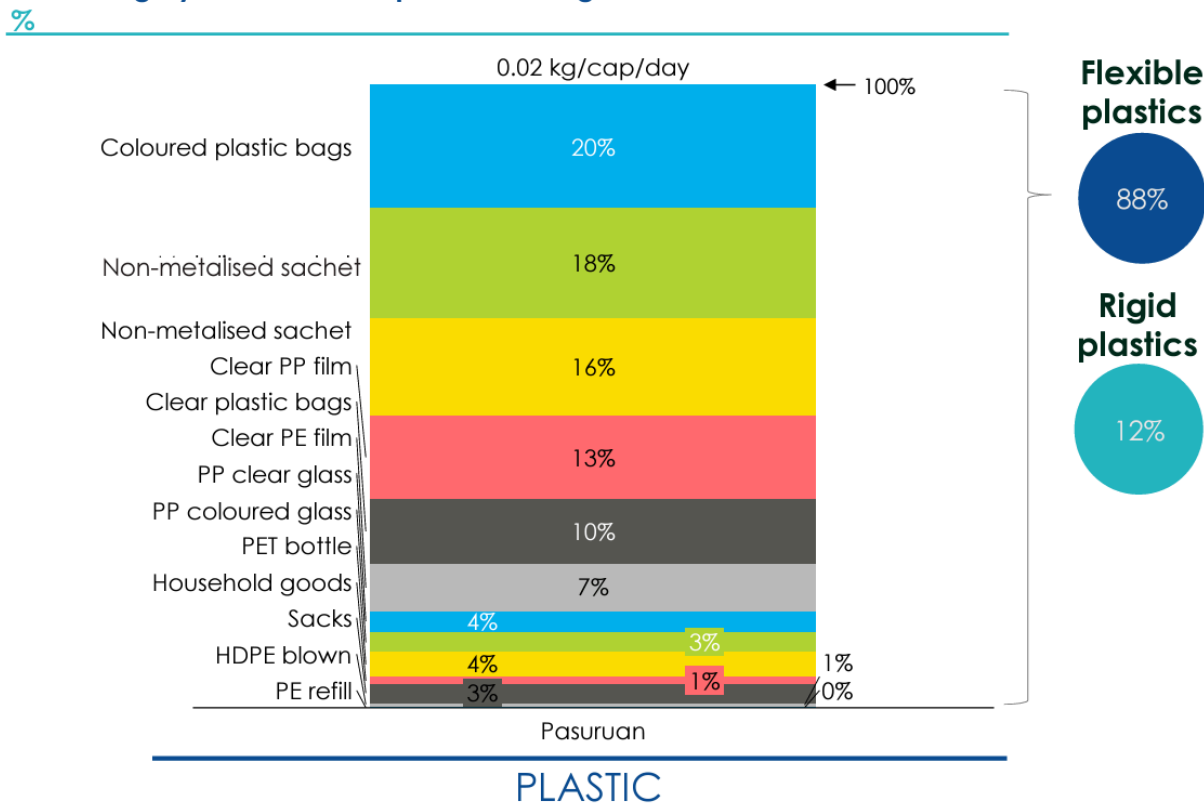
Source: cited as BPOM 2019 (retrieved from cekbpom.pom.go.id) (in S. S. Soemiarno (2023) Regulation of Plastic Waste Management in Indonesia, Presentation to WTO Thematic Session, 7th March 2023 by Director for Solid Waste Reduction Ministry of Environment and Forestry, Republic of Indonesia.)

Work by APKASI, APEKSI and Systemiq included a breakdown of plastics from Project STOP in Pasuruan (see Figure 9). This shows the prominence of sachets (it is not clear how ‘sachet’ was defined for the purposes of the analysis), as well as other flexible packaging, including bags. Sachets account for 34% of the total, and if included along with other flexible packages, constitute the vast majority of plastic waste as analysed. It should be considered that, judging by the relatively low share of PET bottles in this analysis, this appears to represent packaging leftover after initial (waste-picker) sorting for recycling has occurred, so might not be a true reflection of the share of total waste plastics (rather, it reflects the ‘leftover’ plastics after sorting). Note that a figure reportedly from GAIA suggests that sachet waste amounted to 16% of all plastic waste in Indonesia.²⁶

²⁶ Cited in <https://www.packaginginsights.com/news/devil-in-the-detail-unilever-denies-pr-stunt-in-indonesia-after-halting-%E2%82%AC10m-recycling-project.html>

Figure 9: Breakdown of Plastic Waste Generation in Pasuruan, Indonesia

Sub-category breakdown of plastic waste generation



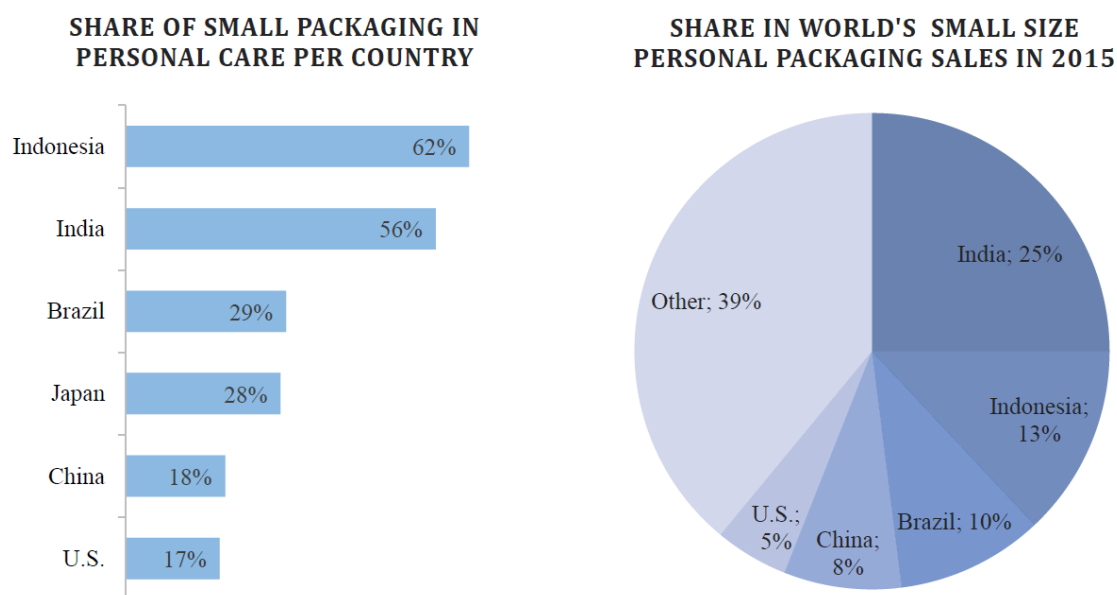
Source: SYSTEMIQ, Universitas Yudharta, Pasuruan, 2019 (cited in APKASI, APEKSI and Systemiq (2021) Building Robust Governance and Securing Sufficient Funding to Achieve Indonesia's Waste Management Targets, November 2021).

Bor, in his thesis, noted:²⁷

A personal care small packaging market share of 13% for Indonesia in compared to 25% in India, means 41.6 billion small packaging's in personal care for Indonesia per year (Euromonitor, 2015b). In Indonesia 62% of the personal care products are sold in small sizes, the largest amount in the world (shown as Figure 10 below). For detergent Poggenpohl (2018) conservatively estimates that 5.5 million sachets are sold each day, based on one sachet per household living in poverty.

²⁷ Bor, W. (2020) Releasing the Reuse Revolution in the Global South: The Transition of Businesses from Single-Use Plastic Packaging to Reuse Models at the Base of the Pyramid in Indonesia, Master's Thesis, Utrecht University

Figure 10: Indonesia's Share of 'Small Size Packaging'



Source: cited (in Bor, W. (2020) *Releasing the Reuse Revolution in the Global South: The Transition of Businesses from Single-Use Plastic Packaging to Reuse Models at the Base of the Pyramid In Indonesia*, Master's Thesis, Utrecht University) as *Mini Merchandise, Massive Market: Most Personal Care Products are Sold in Small Packets*, adapted from Wall Street Journal website by Euromonitor International, 2015b, retrieved from:

<https://www.wsj.com/articles/loreal-tries-on-smaller-packets-for-size-in-india-1465405814>

From this, it is difficult to identify priority products as such from the data available to us, though the 'relative prominence' of sachet use for personal care products in Indonesia suggests that there would be merit in their inclusion in our priority products.

2.4 Philippines

An estimated 164 million sachets are used by Filipinos every day, which equates to 591/capita/year, or a total of 59.7 billion/year.²⁸ 62% of these were found to be multi-layer sachets, equating to around 101 million multi-layer sachets a day being consumed. 52% of the residual plastic waste stream in the Philippines is believed to consist of sachets.²⁹

Raw data on the types of plastic residuals included in the Plastics Exposed study appear to show that plastic sachets are the most prevalent kind of non-recyclable plastic waste in households in all the areas surveyed, regardless of whether the location was highly

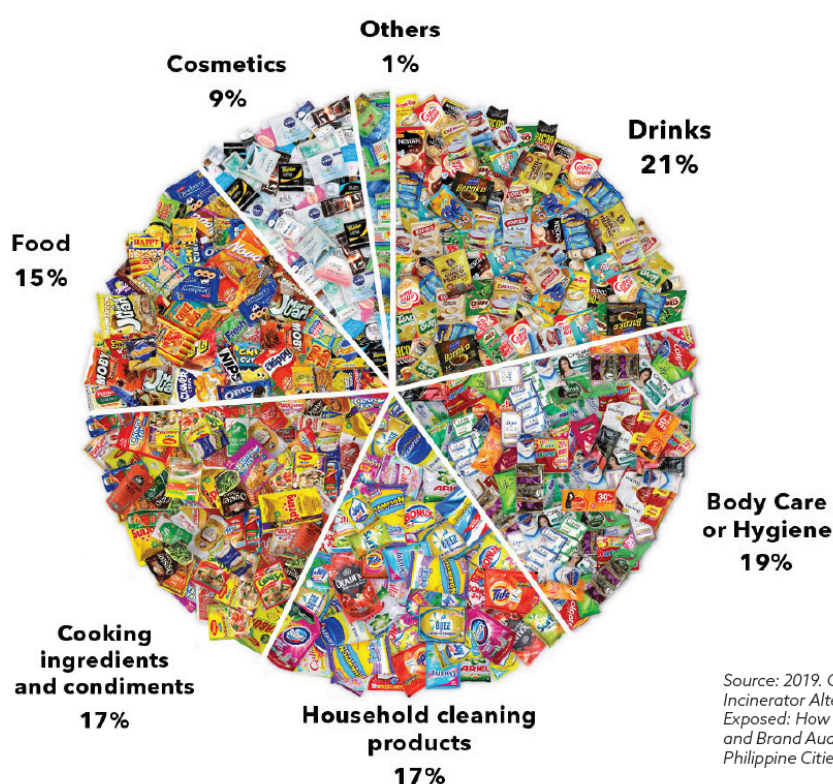
²⁸ Global Alliance for Incinerator Alternatives (2019) *Plastics Exposed: How Waste Assessments and Brand Audits Are Helping Philippine Cities Fight Plastic Pollution*, p.7
<https://www.no-burn.org/plastics-exposed-how-waste-assessments-and-brand-audits-are-helping-philippine-cities-fight-plastic-pollution/>

²⁹ Global Alliance for Incinerator Alternatives (2020) *Sachet Economy: Big Problems in Small Packets*.

urbanised or rural.³⁰ Multi-layer sachets are commonly used for liquids, such as shampoo, and powdered drinks like milk, juice, and coffee. The estimated 62 million single-layer sachets consumed daily are used as packaging for snacks and detergent bars.³¹ More specifically, sachet products frequently purchased by Filipinos have been broken down as follows (see Figure 11):

- 21% beverage products (including instant coffee and powdered juice drinks)
- 19% body care or hygiene care (soap, shampoo)
- 17% household cleaning products
- 17% cooking ingredients and condiments
- 15% food
- 9% cosmetics
- 1% others

Figure 11: Sachet Products Frequently Purchased by Filipinos



Source: 2019, Global Alliance for Incinerator Alternatives. *Plastics Exposed: How Waste Assessments and Brand Audits are Helping Philippine Cities Fight Plastic Pollution*.

Source: Global Alliance for Incinerator Alternatives (2019) *Plastics Exposed: How Waste Assessments and Brand Audits Are Helping Philippine Cities Fight Plastic Pollution*, p.7

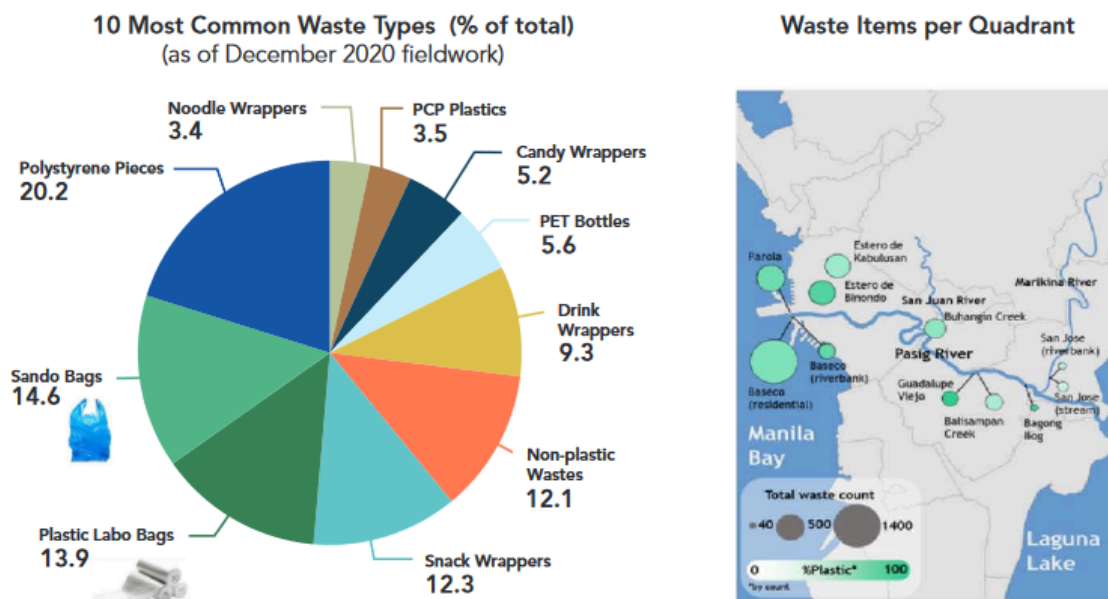
³⁰ Global Alliance for Incinerator Alternatives (2019) *Plastics Exposed: How Waste Assessments and Brand Audits Are Helping Philippine Cities Fight Plastic Pollution*, p.7
<https://www.no-burn.org/plastics-exposed-how-waste-assessments-and-brand-audits-are-helping-philippine-cities-fight-plastic-pollution/>

³¹ Global Alliance for Incinerator Alternatives (2020) *Sachet Economy: Big Problems in Small Packets*, July 2020.

<https://www.no-burn.org/plastics-exposed-how-waste-assessments-and-brand-audits-are-helping-philippine-cities-fight-plastic-pollution/>

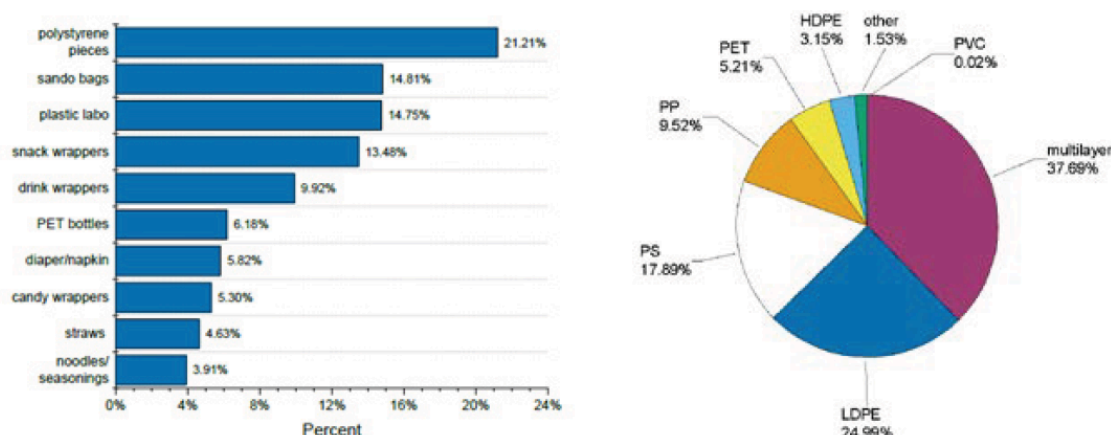
A World Bank study included figures for the top 10 types of plastic waste recovered from the Pasig River in Metro Manila during a survey conducted in 2020–2021. The figures are as shown in Figure 12. There is an indication that as well as bags, wrappers for snacks, drinks and noodles are problematic. These might indicate sachets, though not necessarily (a candy *wrapper* might be considered different to a sachet, which is typically considered as a sealed packaging item. Note these figures are similar, though not the same, as those presented in a different World Bank study, though the information could not be traced to the source cited in the study.

Figure 12: Results of Plastic Field Surveys, Monitoring, And Diagnostics In The Pasig River, Philippines



Source: World Bank (2021) *Plastic Field Surveys, Monitoring, and Diagnostics on Pasig River Philippines*, Washington, DC: World Bank (cited in World Bank. (2022) *Reducing Plastic Waste in the Philippines: An Assessment of Policies and Regulations to Guide Country Dialogue and Facilitate Action*. Washington DC)

Figure 13: Top 10 Littered Plastic Items in the Philippines by Type of Packaging (left) and Type of Plastic (right)



Source: cited as World Bank (2023) *Combating the Plastic Waste Crisis in the Philippines: Implementing Extended Producer Responsibility with Lessons Learned from Korea* (in World Bank (2021). *Market Study for the Philippines: Plastics Circularity Opportunities and Barriers*, Washington, DC: World Bank.

<https://openknowledge.worldbank.org/handle/10986/35295?show=full>.

The GAIA 2019 study found that ten companies made up 35% of all branded items. The top three brands found amongst all branded residual plastic waste (52% of which is sachets) were:

- Nestle 14.8% of all branded residual plastic waste
- Unilever 10.38%
- Procter & Gamble 7.96%.

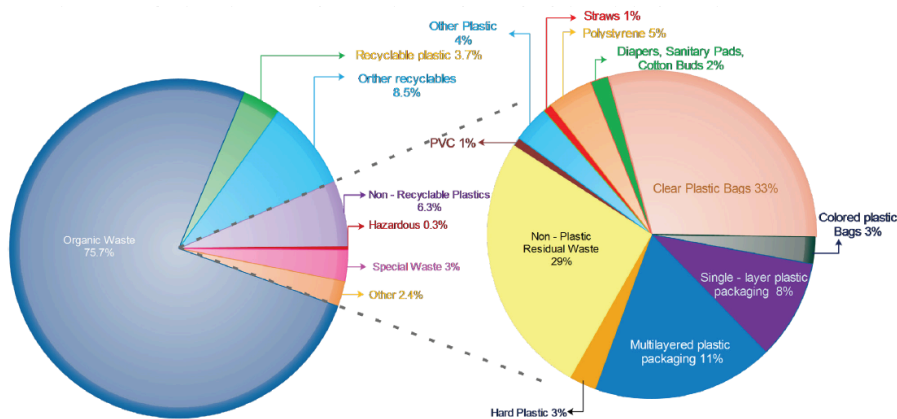
Note, however, that five of the remaining seven companies making up the top 10 were local Philippine companies, with the 4th placed company being Indonesia based. Nonetheless, given the brand focus, it might be suspected that snack wrappers, crisp packages, coffee sachets and personal care products could be prominent in the products used. The Unilever brand Dove produced an estimated 6.4bn sachets in 2022, many of which have been found polluting beaches and other waterways in the Philippines and Indonesia.³²

2.5 Vietnam

In Vietnam, the audits reported on by Portley et al, conducted in various types of location, suggested that the composition of waste was as in Figure 14. A further breakdown of plastic waste is given in Figure 15.

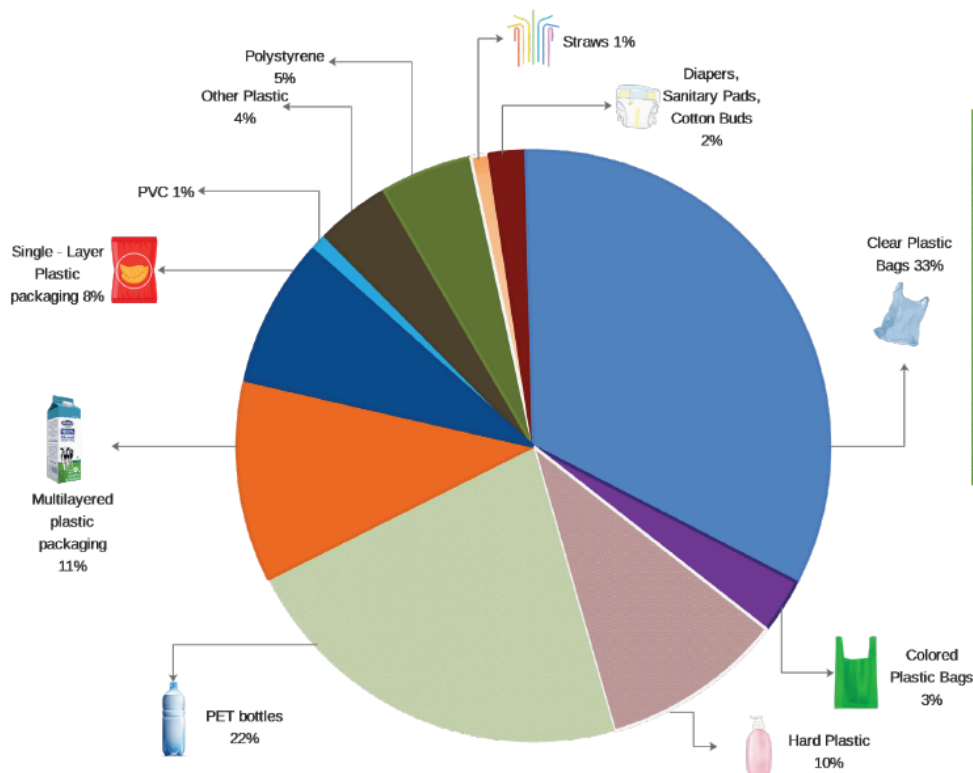
³² Helena Horton (2023) *Unilever accused of breaking plastics pledge as sachet sales approach 53bn*, [The Guardian](#), 28 November 2023.

Figure 14: Composition of All Waste Audited by Weight



Source: Nicole Portley, Quach Thi Xuan and Tran Thi Hoa (2021) *The Vietnam Waste Assessment and Brand Audit Report 2018-2020: Highlights and Recommendations for Initiating Zero Waste in Vietnam*, Report for Vietnam Zero Waste Alliance.

Figure 15: Major Contributors to the Vietnamese Plastic Waste Stream.



Source: Nicole Portley, Quach Thi Xuan and Tran Thi Hoa (2021) *The Vietnam Waste Assessment and Brand Audit Report 2018-2020: Highlights and Recommendations for Initiating Zero Waste in Vietnam*, Report for Vietnam Zero Waste Alliance.

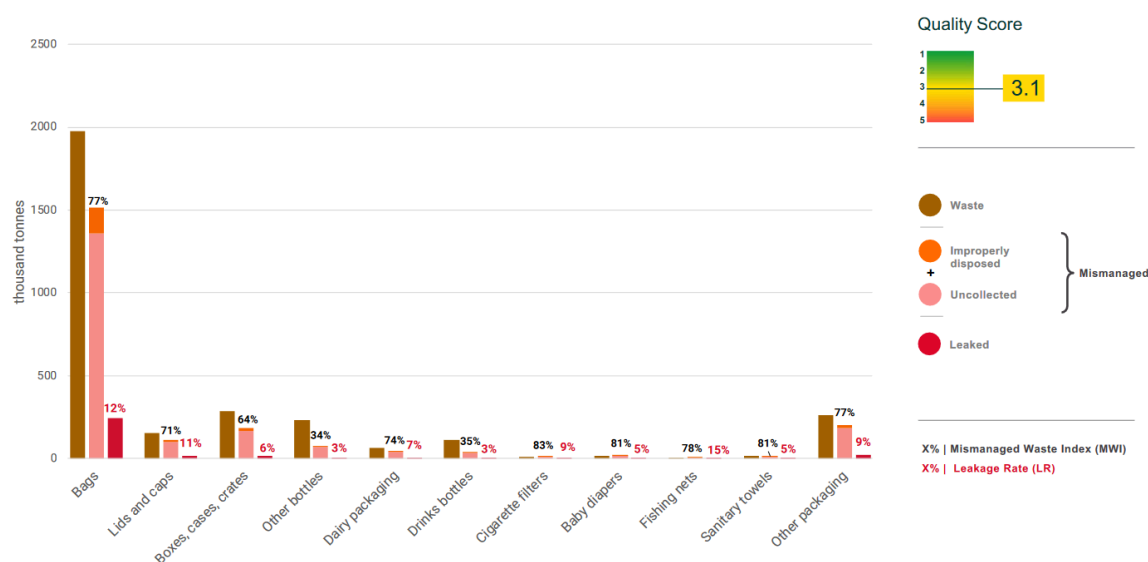
The report reflected on this as follows:³³

Among the most frequently-occurring products produced by these and the other top 10 brands are bottled water and soft drinks, Tetra Pak containers of milk and yoghurt, instant coffee and shampoo sachets, multilayer seasoning and cigarette packs, and ramen noodles in single- or multilayer packaging.

As regards sachets, therefore, shampoo, coffee and noodles, as well as condiments, would seem relevant in small format sachets. The report suggested that sachets were a far less significant issue in Vietnam than in the Philippines (18 used per capita per year, as opposed to 2,343 in the Philippines). The report spent considerable time regarding, as part of multilayered plastic packaging, beverage cartons, noting the widespread use of milk.

The view that sachets might be less problematic in Vietnam finds further support in the work by IUCN/EA/QUANTIS.³⁴ Sachets were not identified as applications giving rise to significant leakage in Vietnam, with plastic bags being the most relevant contributor to leakage as assessed by tonnage.

Figure 16: Mismanaged Waste and Leakage by Application, 2018



Source: IUCN-EA-QUANTIS (2020) *National Guidance for Plastic Pollution Hotspotting and Shaping Action, Country Report Vietnam*.

³³ Nicole Portley, Quach Thi Xuan and Tran Thi Hoa (2021) *The Vietnam Waste Assessment and Brand Audit Report 2018-2020: Highlights and Recommendations for Initiating Zero Waste in Vietnam*, Report for Vietnam Zero Waste Alliance.

³⁴ IUCN-EA-QUANTIS (2020) *National Guidance for Plastic Pollution Hotspotting and Shaping Action, Country Report Vietnam*, https://www.iucn.org/sites/default/files/content/documents/2021/vietnam - national guidance for plastic pollution_hotspotting_and_shaping_action.pdf

2.6 Defining 'Plastic Sachets'

The above discussion has, at various points, highlighted that the definition of 'plastic sachet' is not always made clear when it is being used.³⁵ In its brand audits, BFFP has defined plastic sachets as:

Sealed, flexible plastic packaging, designed for single-use, with any number of layers, not larger than A4 size (A4 size is 210 x 297 mm / 8.3 x 11.7 in).

That the package is one that was sealed is more or less well understood (although resealable film plastic packages exist – we assume the definition excludes re-sealable packages). The meaning of 'designed for single-use' would seem to be intended to apply to the package, not the product. A4 size is relatively large compared with other definitions of 'sachet' where this has been attempted. Consider also that the A4 size is a two-dimensional one, and that A4 sized flexible plastic packages could be designed with varied volumetric (and weight-bearing) capacity.

It seems important to distinguish between sealed flexible packages, and the usually small format – often 'portion-sized' – sachets used to deliver various products. Such sachets are manufactured using one or more plastic polymers / materials and are used in one or more layers to constitute a flexible package, which is sealed to prevent leakage / spoiling of the contents. The desired / required barrier properties of the sachet will vary according to the specific product contained within the sachet.

Work by Sattva Consulting highlighted a range of definitions for 'sachets' (see Figure 16).³⁶ Some clearly prefer not to use the term 'sachet' at all. Indeed, several studies tend only to refer to flexible (plastic) packaging, though as noted in the Figure below, some items are referred to as pouches where they are not 'tearable, single-use' packages. This presumes a meaningful delineation along lines of what is or is not 'tearable'. Size is also a feature of some definitions, but the definitions below draw the line at different scales (or not at all). One of the definitions below uses the size at which items pass into the undersize fraction following screening as the basis for a definition. The reference to A4 size could, for example, be based on a view as to what is considered viable for recycling markets.³⁷ The danger here is that a definition of 'a sachet' seeks to become at one and

³⁵ In addition, in figures suggested to represent the share of sachets in plastic waste, it is not always clear whether this represents the share of 'all plastic wastes', or the share of 'plastic wastes after waste pickers have removed the items of interest to them', or 'items found littered on beaches': the context is important.

³⁶ Sattva Consulting (2021) *Asia Sachets Landscape Research: Insights Workshop, Findings from India, Indonesia, Philippines and Vietnam*, Plastic Solutions Fund, April 1, 2021.

³⁷ The standard used in many countries for recyclable films is DKR 310, a specification for plastic films, which references 'Used, completely emptied, system-compatible articles made of plastic film, surface > DIN A4, e.g. bags, carrier bags and shrink-wrapping film, incl. packaging parts such as labels etc.' (<https://www.nedvang.nl/wp-content/uploads/2019/03/Kunststoffolie-DKR-310.pdf>). It also references a purity of at least 92%. Recently, CEFLEX developed design standards for flexible packaging and suggested packages should be no smaller than 20mmx20mm. This relates to screen sizes used to separate out 'oversized' and 'under-sized' plastics in the early stages of sorting – the screen undersize is basically not targeted for recycling. The same CEFLEX study noted, however, that only the most up-to-date facilities operate with such a small screen size, and that it might be more common for the first separation to screen at a 70mm x 70mm screen size (see CEFLEX (2020) *Designing for a Circular Economy: Recyclability of Polyolefin-based Flexible Packaging*, Phase 1, June 2020, pp16-17, p 32). In work for Plastic Recyclers Europe, Eunomia observed 'In Germany and Italy, larger films, primarily PE, are sorted into a PE film output grade, and smaller flexible films (including pouches and snack packaging) are

the same time a definition of what is ‘recyclable’, which is itself a term that is not straightforward to define.

Figure 17: Definitions of Sachets and Other Terms Used

Lack of universal definition for sachets leads to Governments/FMCG brands using parameters like grammage, size, price point limiting the definition, while on the other hand having a broader definition also increases the size of the problem and makes solutions viable



Source: Sattva Consulting (2021) Asia Sachets Landscape Research: Insights Workshop, Findings from India, Indonesia, Philippines and Vietnam, Plastic Solutions Fund, April 1, 2021

Lau et al refer to ‘sachets’ as part of the multi-material / multilayer group of plastics.³⁸ However, ‘sachet water’, which is a fast-growing source of water in Africa (and also growing in parts of Asia) is mainly, according to our own understanding, single polymer HDPE.

In January 2021, Sri Lanka effectively introduced a ban, which was due to take effect at the end of March 2021, on (amongst other things) specification for ‘any process trade or industry’ of:³⁹

Sachets having less than or equal to a net volume of 20ml / net weight of 20g (except for packing food and medicines).

Since ‘process’ includes ‘manufacturing’, and trade includes ‘sale and offer for sale’, the ban should be relatively clear, though there are reports that some brands may be flouting the ban.

included in a mixed plastic output. The smaller flexible films fraction typically contains higher levels of food packaging and other polymers and materials.’ Currently, the vast majority of flexible films from household waste which are being recycled in Europe are finding markets in applications such as refuse sacks and street furniture (due to printed colours, coatings etc.), and whilst this is set to improve, the viability of investment in further sorting requires a scale that justifies the activity (see Eunomia (2020) *Flexible Films Market in Europe: State of Play: Production, Collection and Recycling Data*, Report for Plastics Recyclers Europe, 2020).

³⁸ W. W. Y. Lau et al (2020) Supplementary Material for Evaluating Scenarios Toward Zero Plastic Pollution, Science, DOI: 10.1126/science.aba9475.

³⁹ L.D.O.4/81 (XIII), No. 2211/51, The National Environmental Act, No. 47 of 1980 Order Under Section 23 W (1)(a), Thursday, January 21, 2021.

The reports for the India Plastics Pact use the following definitions:⁴⁰

- *Small format packaging refers to packaging containing up to 50 grams of solid product, or up to 50 ml of liquid product.*
- *Sachet packaging refers to packaging containing up to 10 grams of solid product, or up to 10 ml of liquid product.*

Sachets are, therefore, variously defined as A4 size, less than or equal to 20ml / 20g capacity, and no less than 10ml / 10g capacity. It would be useful to have a standard definition so that those discussing ‘sachets’ are not speaking at crossed purposes. Otherwise, the question that arises is what differentiates ‘a sachet’ from ‘flexible packaging’ more generally?

Sachets are usually discussed separately from ‘plastic bags’: sachets, as usually discussed, have the characteristic of being ‘sealed’. However, sealed flexible plastic packages exist in various guises and sizes. 25kg (and larger) sacks of cement can be packaged in sealed flexible plastic packages. There is also the matter of how sachets are defined in terms of their plastic content: we noted above the discussion in the Vietnam study regarding beverage cartons made primarily from fibre. So, both size and the plastic content are relevant.

Decisions taken in the EU regarding the definition of ‘plastic’ items for the purpose of the so-called Single-use Plastics Directive took the view that flexible packages composed of composite products, including those where plastics play a role in lining other (e.g., fibre-based) materials, should be considered as ‘plastic’ items, albeit they might be better viewed as composite items containing plastics (see Appendix A.1.0). That was in the context of a specific Directive seeking to minimise plastic pollution: there may be good reasons to define plastic sachets as ones where most of the weight (or where more than a specified minimum percentage of the weight) of the sachet is plastic. This highlights how the definition used might need to reflect the intended purpose of the definition.

This leaves only the matter of size / capacity to be dealt with. It might be argued that the question of size only needs to be considered to the extent that it proves important, or necessary, for the purposes of policy and law. Arguably what matters currently is the fact that various sized flexible packages are problematic. At the same time, market research data appears to indicate that the vast majority (just over 80%) of the market value of ‘sachets’ (in terms of their value ‘as packaging sold’) is for sizes 15ml and below (suggesting that, by number of items sold, the market share might be closer to 90%). It would seem sensible, therefore, to focus on smaller size formats to capture the most widely consumed items.

In the ICC and WRAP work for the IPP, for the 8 priority products, a review of the sales by size of item, based on Nielsen IQ data, was conducted. It found, within the small format (<50g) category:⁴¹

- Some of these – such as confectionery, shampoos and hair oil – are heavily weighted towards the <10g size;
- Detergents were mainly in the 10-20g size;

⁴⁰ CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024.

⁴¹ Ibid.

- Salty snacks were mostly in the 10-30g range, with some above that size;
- Toothpaste was mostly in the 15-30g range with a significant share in 35-50g range (and most likely, a reasonable share above the 50g size);
- Toilet soaps and biscuits 20-50g (and some likely to be above).

These 'weights' do not necessarily take account of the relative density: for example, a 30g pack of crisps, will be of much greater volume and physical dimensions than a 20g pack of detergent, or a 20g soap bar.

If the aim is to tackle existing low value packages which are widely mismanaged, then in countries with under-performing waste management systems, arguably, delineating based on size becomes more or less irrelevant: indeed, each larger sized package may ultimately lead to a greater secondary microplastic loading in the environment than each smaller item based purely on the mass of plastic. Where ease of collection and sorting are of importance, the smaller sized items are more problematic, though it might be reasonable to set the sizing closer to A5 size, which would (for example) include smaller sized crisp packs, but not family packs. Note also that at the best modern sorting plants, sorting may occur down to the 20mm x 20mm size, as per research undertaken by Ceflex (see footnote 34), though few mechanised facilities currently in operation will be configured with that capability. Similarly, in situations where waste-pickers are the main source of recycled plastics, the size of package has relevance in that it determines ease of identification (larger is easier), and also, larger sizes typically contain more of the relevant material. So, a mono-material flexible package used to contain half a litre or more of milk will be of far greater interest than a 5 millilitre multilayer sachet used for ketchup. The former is readily emptiable (so a cleaner material), and has greater value by virtue of being cleaner, easier to recycle (single polymer), and containing more material per unit picked up.

It should be noted that discussions regarding the socio-economic consequences of intervening in the market for sachets is also likely to bear some correspondence to the question of sachet size. If one accepts that small formats bring products within the reach of consumers who might not otherwise purchase them, then the small format sachets are likely to warrant closer attention to the extent that alternatives might not be available.

2.7 Selection of Products of Focus

Were specific legislation to target 'sachets', the issue of definition would acquire considerable relevance so that terms such as 'plastic', or 'single-use', or 'sealed' would need to be clearly elaborated. In this work, however, as will become clear, the countries concerned do not target sachets per se. Hence, we investigated types of application which seemed to be highlighted by either, or both, of consumption and brand-audit data, considering the matter of size of package after that choice was made. It seems reasonable to suggest, though, that small sized formats are likely to be most problematic given that larger formats might a) be consumed in contexts where they are less likely to be discarded into the environment and b) they may be more recyclable. Multi-material flexibles are also more problematic from the perspective of recycling. Generally, we have used the term 'small-format' sachets where we are referring to flexible packages of 10 ml and lower.

We set out to select no more than 4 products which the evidence indicated were a) widely consumed, b) prominent in waste / brand audits, and likely to be found in

mismanaged waste, and c) offered a range of challenges, because of the nature of the product, as regards substitution of sachets by other packages or delivery mechanisms.

Given the above review, we chose the following:

- Shampoo sachets;
- Milk (and milk-based drinks) delivered (in liquid form) in sachets;⁴²
- Sachets for instant coffee;
- Sachets of tomato ketchup; and
- Small size chip / crisp packages.

The products span food and personal care sectors. The food products include liquids and dry goods, as well as products with specific barrier requirements.

⁴² The most recent brand audit in India noted that 25% of plastic items identified were packaging for milk (see Break Free from Plastic (2021) *Unwrapped Exposing India's Top Plastic Polluters, Plastic Waste Brand Audit India 2021*, <https://swachcoop.com/assets/2021-unwrapped.pdf>)

3.0 Selected Products: Potential Alternative to Plastic Sachets

In considering potential alternative delivery systems (which includes refillables and reuse systems) and packaging formats for the chosen products, one is not as well-informed as one might like in that even though we have specified a product, the specific packaging format has not been identified. We have sought to elaborate what we have in mind, but even for each product, the potential for it to be delivered in a different way depends partly on how and where it is consumed, and how the consumer plans to use it. This would require far more detailed market data than is available to us. Hence, the discussion is somewhat general (although we note, in passing, that others have been no less general in their analysis).

Another key point to note is that in discussing alternative packaging formats, we have used the term 'nature-degradable'. We have done so as we take the view that replacement sachet-type formats are generally seeking to be less problematic if discarded. Of course, this raises questions as to whether such packages provide a genuine solution to the problem, but it also raises a range of further questions regarding what performance requirements a 'nature degradable' sachet would need to pass to be considered as such. 'Nature', after all, covers a range of different environments, some much more conducive to swift biodegradation than others. We acknowledge these issues here, but include consideration of what 'nature degradable' materials could be used in the different formats. The prior question, though, is whether the sachet is needed, and whether there are alternatives that prevent discarding into the environment in the first place.

To contextualise the discussion of sachets, a summary of the conventional, usually fossil-derived, materials used in flexible packaging, along with their barrier performance, is given in Table 3, where the importance of moisture and gas barriers is emphasised (some products also require barriers to daylight). The coverage does not appear to extend to 'nature degradable' alternatives.

Table 3: Materials Used in Flexible Packaging and their Properties

Material	Description	Types	Moisture barrier	Gas barrier	Other properties	Heat sealable?	Uses
PE	Polyolefin-based polymer, very common use	HDPE, LDPE, LLDPE including copolymers and homopolymers	GOOD	POOR	Depending on grade, high tensile strength, high temperature tolerance, can be used in retort structures	YES	Multiple applications across many areas often used as a sealing layer. Combined with other materials to give the gas barrier that PE lacks - for use in food, personal care, household, pharmaceutical.
PP	Polyolefin-based polymer, very common use	PP, CPP, OPP, BOPP including copolymers and homopolymers	GOOD	POOR	Depending on orientation - good tear, strong tensile, high gloss, low temperature durability, grease barrier, can be used in retort structures	YES	Used particularly in freezer applications, in combination with other materials for food, pharmaceutical, beauty, household, applications.
EVOH	Thin barrier film or coating	EVOH	POOR	EXCELLENT	Good aroma barrier, highly resistant to hydrocarbons, organic solvents	NO	Where a gas barrier is needed, for example powders, coffee, cheese, meat, etc. used as a layer or coating combined with other polymer materials.
PET	Typically found as a 12-micron film commonly used in many applications	PET, PBT, PEN, PEF, PTF, LCP, PC, PETG, PCT, PCTA	MODERATE	MODERATE	Very good clarity, good aroma barrier and stiffness, very good heat resistance (over 200°C), can be used in retort structures	NO*	Cheese, meat, ready meals, ovenable applications, wet wipes, personal care, household detergents. *combined with coatings and other polymers to make heat sealable though PETG can be sealed against PET. Some PET copolymers have sealable properties and some PET can seal to other PET in the same family
PA	Film / co-extruded layer which provides high barrier with very good puncture resistance	PA, OPA, BOPA, PA6, PA6/6, PA12, PA11, PA611, C-PA, PA612	POOR	VERY GOOD	Good grease barrier, puncture resistance, barrier to gases, oils, fats and aromas. Good strength toughness, over a broad temperature range, can be used in retort structures	NO*	Cheese, meat, pharmaceuticals are some of the main applications. *combined with coatings and other polymers to make heat sealable.
PVDC	Very high barrier used in thin layers/coatings	PVDC	GOOD	VERY GOOD	Good flavour, aroma barrier and chemical resistance	YES	Meat, pharmaceuticals are typical applications. Mainly used as in combination with other materials.
SiOx	Very high barrier used in thin coatings	SiOx	EXCELLENT	EXCELLENT	n/a	NO	Where high gas barrier is needed and applied to other material substrates.
AlOx	Very high barrier used in thin coatings	AlOx	EXCELLENT	EXCELLENT	n/a	NO	Where high gas barrier is needed and applied to other material substrates.
PVOH	Water soluble film	PVOH	POOR	EXCELLENT	Resists most chemicals	YES	Used to package dry goods such as agricultural chemicals and detergents which are added to water in the package where it dissolves. Used in disposable bags used for hospital laundries, powder dyes and agrochemicals. It can also sometimes be used as a top coating without being declared in the specification.
Metallisation	Laminated and printed or surface metallisation	Various application methods	VERY GOOD	VERY GOOD	n/a	NO	Where high gas barrier is needed and applied to other material substrates.
EVA	Typically, a coating or a co-extrusion	EVA	n/a	n/a	To improve stretch, heat-sealability and cling	YES	Applied as a sealing layer on other materials to improve sealing.
Acrylic	Usually in a coating form	Acrylic	n/a	n/a	Broaden sealing range and improve hot tack and gloss and printability for holographic applications	YES	Applied on PP films for dried goods applications etc.
Al (Aluminium)	Foil thickness 6-50 micron	Al aluminium foil	ABSOLUTE	ABSOLUTE	Dead-fold property, heat conductivity, heat resistance, push-through ability, can be used in retort structures	NO	Where very high barrier against gas and/or light is needed (for example coffee, powders, pharmaceuticals, etc.) and/or for retortable packs (for example wet pet food) (can be made sealable by applying coatings or laminating with sealable polymers).
Paper	Many grades at 10gsm to in excess of 250gsm depending on application	Various types, bleached, virgin, recycled materials, with various finishes	n/a	n/a	Good dead-fold property, easily printed	NO	Used laminated with polymers or coatings to give sealability, food contact, gas and moisture barrier, grease resistance and improved printing characteristics. Applications include food, personal care, pharmaceuticals.

Source: Ceflex (www.ceflex.eu)

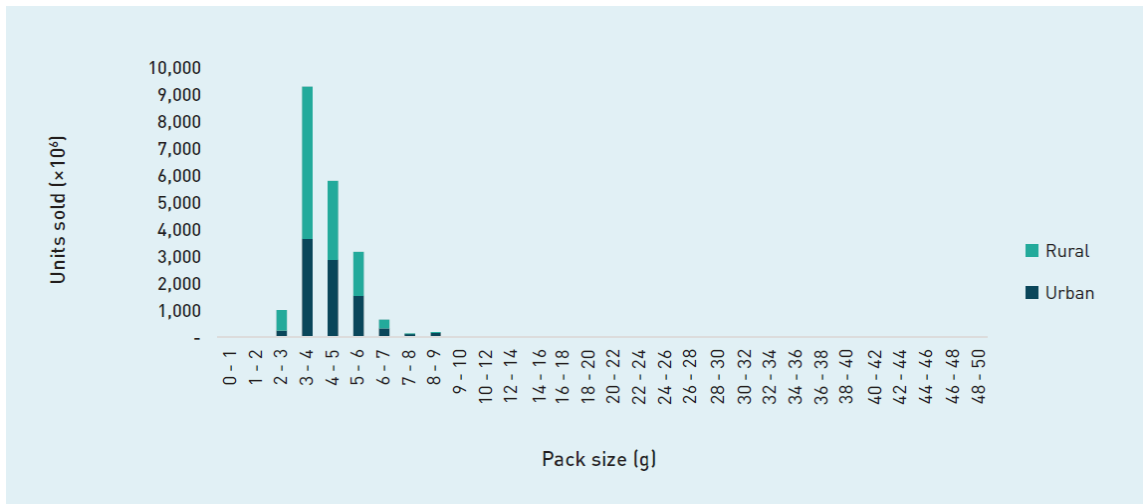
3.1 Shampoo (and Other Personal care)

Work for the IPP indicated that in India, a large share of small format packages of shampoo were of very small size (see Figure 17). The report noted that most units (99%) are sold in 2-layer or 3-layer sachets such as PET II PE, PET II metallized PET II PE, and sometimes, BOPP II metallized BOPP II PE, the metallization used primarily for aesthetic purposes.⁴³

Accordingly, this discussion mainly has in mind single portion sized shampoo sachets. As noted in the introduction to this Section, we do not have data on, for example, the ways in which these are consumed, or how many might be purchased at each visit to a kiosk, for example. The presumption, though, is that the sachets are small. It might be considered, in relation to the size of sachet sold, that sachets are not especially convenient means of delivering anything more than single-portions (once the sachet is unsealed, any unused shampoo can leak, and the wet environment where it is used would make larger sachets problematic, unless they were made as resealable pouches. So, although there seems to be a view in the literature that consumers ‘like’ buying single portion sized sachets, where shampoo is concerned, much larger sachets would likely lead to considerable wastage. Indeed, offering single portions might also be wasteful to the extent that consumers have little or no choice to use the whole contents shortly after the sachet is opened.

⁴³ CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024. Note BOPP indicates biaxially oriented (BO) polypropylene (PP). The biaxial orientation – essentially, stretching the film in two directions – is usually undertaken so as to increase toughness or stiffness, or enhance clarity, or improve oil and grease resistance, or to enhance barrier properties to water vapour and oxygen.

Figure 18: Unit Sales of Small Format Shampoo Sales Across Pack Sizes



Source: CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024.

3.1.1 Solid Personal Care Products - Elimination

Solid personal care products (e.g., shampoo bars) can be sold in reusable tins, cardboard-based packaging, or wrapped in tissue paper: they can also be sold without packaging, though the feasibility of this might depend on the nature of the store from which the purchase is made.

While bar soaps of various kinds have been having a renaissance in western countries of late, and have their origins in the very first Unilever ‘sunlight’ products, the volumes are small compared to more modern liquid alternatives. In particular, the global shampoo bar market was valued at only US\$ 10.2 million in 2018 (compared to many \$ billions for liquid shampoos),⁴⁴ although it was forecast to grow.

Solid personal care products eliminate the need for sachets, and can provide additional carbon and water savings. They can also be sized appropriately to varying demand and incomes. Bar soaps can also be used for hand-washing laundry and for washing dishes, which is how they were widely used in the early part of the 20th century.

In the countries under consideration, it is suggested that sachets are chosen by consumers due, amongst other things, to their affordability, convenience, and their market presence, whilst they are likely easier to store in varying climatic conditions.⁴⁵ Solid personal care would need to compete on these characteristics and would need to be available for purchase in small quantities, where the portion size can be controlled.

Primary data on the consumer cost and mass of bottled shampoo and sachet-packaged shampoo, per 8 gram serving, was provided to Pew Trusts by direct measurements in

⁴⁴ Grand View Research Inc. (2019) Shampoo Bar Market Size, Share & Trends Analysis Report by Distribution Channel (Online, Offline), By Region (North America, Europe, APAC, CSA, MEA), And Segment Forecasts, 2019 – 2025,

⁴⁵ Liamzon, C., Benosa, S., Aliño, M., and Baconguis, B. (2020) Sachet Economy: Big Problems in Small Packets, July 2020, <http://www.no-burn.org/Sachet-Economy>

India⁴⁶ and Indonesia.⁴⁷ The average cost to consumers in middle-/low-income countries of sachets was based upon these two sources and taken to be approximately US\$0.05 per use, less than the approximately US\$0.075 per use for bottles. Note that although a comparison of the costs of alternative delivery mechanisms was provided in the same study, there was no specific discussion in the report of the potential for elimination of sachets.

3.1.2 Refillable Dispensers – Reuse Delivery Models

Dispensers that allow consumers to pay ‘by the gram / millilitre’ for shampoo (and other household cleaning products) whilst using reusable containers can help to reduce plastic pollution from sachets. Numerous examples are already in existence in the countries of interest.⁴⁸ New, smart dispensing systems are being developed, with Algramo being one such example.⁴⁹⁵⁰⁵¹ Algramo is believed to be currently focusing mainly on middle-income countries, and within those, on retail outlets (large and small) and other (non-retail) high-footfall strategic locations.

Alner (formerly Koinpack) is a business which is expanding its presence in Jakarta though it seems to focus largely on larger format sales: that may or may not limit the extent to which the approach substitutes small format sachets.⁵²

In the Philippines, the Philippine Reef and Rainforest Conservation Foundation has established a programme aimed at reducing the use of sachets at sari-sari stores.⁵³⁵⁴ The programme sets out to respond to the following questions:

⁴⁶ A. Bagla, Sistema Asia Capital, pers. comm. to Systemiq, Sept. 24, 2019.

⁴⁷ A. Kremer, associate, Systemiq, pers. comm. to Systemiq, Aug. 28, 2019

⁴⁸ GAIA (2021) *Business Unusual: Enterprises Paving The Way To Zero Waste*, January 2021, <https://www.no-burn.org/wp-content/uploads/2021/11/business-unusual-asia-pacific.pdf> ; Break Free from Plastic (2020) JUANAZERO: A Zero Waste store of Mother Earth Foundation, <https://www.breakfreefromplastic.org/2020/10/20/juanazero-zero-waste-store-mother-earth-foundation/> ; Hoi An City of Crafts and Folk Art (u.d.) *First refill station in Hoi An strives to reduce plastic waste*, <https://hoiancreativecity.com/en/first-refill-station-in-hoi-an-strives-to-reduce-plastic-waste>

⁴⁹ <https://algramo.com/en/home/>

⁵⁰ <https://www.newplasticseconomy.org/innovation-prize/winners/algramo>

⁵¹

<https://www.strategy-business.com/article/Reuse-and-refill-The-model-that-will-help-consumers-quit-single-use-plastics?gko=bac79>

⁵² See <https://www.alner.id/our-story>

⁵³ A ‘sari-sari’ store is a small, neighbourhood convenience store selling consumer goods, often in small quantities (‘sari-sari’ is a Tagalog word, and translates as ‘variety’).

⁵⁴ Philippines, the Philippine Reef and Rainforest Conservation Foundation (u.d.) *Wala Usik - Redesigning Sachet Culture in Community Convenience Stores in the Philippines*, <https://prrcf.org/wala-usik/>; see also Urban Links (2020) *USAID Grantee Celebrates Successful Zero-Waste Stores in Philippines*, June 9, 2020, <https://urban-links.org/insight/usa-id-grantee-celebrates-successful-zero-waste-stores-in-philippines/>

Can we redesign the sari-sari store to be free of single-use plastic? How can we sell consumer goods with the same “tingi-tingi” volumes available, with the same price points, but without the sachets?

It is clear that household cleaning and personal hygiene products are an area of focus for re-use / refill operations. Note that it would seem that Alner sells pre-filled reusable containers, collecting the empty containers on return trips. Nonetheless, it might not necessarily have the effect of reducing the use of small format packaging if the refillable containers being sold are large format ones.

Analogue dispensing systems are already in use across many countries. The exact refill model varies, with some requiring a standardised bottle (and thus refill volume) to be used.⁵⁵ This approach might not meet the requirements of consumers wanting to purchase small quantities at low cost per purchase. Others, however, allow customers to bring any container, and charge based on its weight once refilled (i.e., the tared quantity).⁵⁶ Customers simply pay at the counter with cash, or a mobile-phone based payment system.

In many countries, micro-entrepreneurs will often buy a bulk pack of a product and then on-sell smaller quantities to lower-income consumers via a market or street stall, often dispensing into plastic bags or bottles, which could, potentially, be made reusable. This approach could negate the need for more formal systems. However, brands have noted concerns regarding the risk of their product being watered down, or substituted, by cheaper local products, affecting product performance, and hence, their reputation (in extreme cases, giving rise to liability issues). They also suggest potential risks to health from replacements, or from being sold in containers which may not be clean. A good degree of control over the system used is, therefore, generally deemed important by brands, though unbranded products are unlikely to be subject to the same level of concern.

It is worth noting that ‘mobile’ money is increasingly being adopted in the countries of interest, so transactions are increasingly cashless. This might help, rather than hinder, the shift to reuse systems where, for example, systems can be based on an individual’s account with a given refill system

3.1.3 Tear-off Dissolvable Pods - Substitution

Several brands have redesigned the packaging concept for laundry detergent pods, and in ways which could be applicable to several packaging applications, such as shampoo and other body care products.⁵⁷ The package itself is a sheet of detergent pods stitched together into a perforated sheet (see Figure 19). Product details and brand information are then printed directly onto this sheet. All inks are water-soluble, and dissolve in the wash.

⁵⁵ For example, <https://www.ecover.com/refill/>

⁵⁶ For example, <https://www.getmosoap.com/copy-of-products>

⁵⁷ <https://disappearingpackage.com/solutions/tide/>

The pod's plastic is supposed to be water-soluble and is usually made from polyvinyl alcohol (i.e. a hydro-carbon plastic) sometimes called PVA or PVOH. MonoSol⁵⁸ is one of the largest providers and offers films that are used for many applications, ranging from home and personal care applications (e.g., detergent pouches, household and personal care refills), to food applications (e.g., single-serve packets of nutrition supplements, instant coffee, pre-measured spices for caterers and restaurants). The films provide gas, odour and oil barriers, and the temperature at which they dissolve can be controlled by design.

There are concerns, however, that materials used, once dissolved, do not actually degrade and will still accumulate in water courses with a largely unknown effect on wildlife and the aquatic ecosystem.⁵⁹ Until these concerns are addressed, then especially since these products might often be used in circumstances where wastewater will not be treated prior to eventual discharge, this is not considered a suitable avenue to pursue.⁶⁰

3.1.4 Nature-biodegradable Sachets - Substitution

Packaging that is seaweed-based may be more suitable substitutes, as long as they can demonstrate adequate barrier properties. A range of companies are active in this space, including NotPLA⁶¹ and Kelpi.⁶² The Notpla material combines seaweed and plants, is edible and is claimed to 'nature-biodegrade' in 4 to 6 weeks although the evidence to support this, including test conditions, is not readily available. This material is currently being marketed for food and beverage products, and it is not yet clear whether this technology can be applied to shampoo and laundry detergent sachets.

One potential problem here is that materials claiming to 'nature degrade' tend, as a result, to have poor barrier properties to gases and moisture, and the shelf life for perishable items might be shortened significantly as a result. One possibility is to make use of a machine that produces the sachets immediately before use, at the point of use, but this might have limited application. Kelpi claims to have made great progress on enhancing the barrier properties of its seaweed-based packaging, though the company is in a relatively early stage in developing its technology. Even so, there might be an opportunity for 'just-in-time' production of the packages, recognising the (currently) inferior barrier properties.

Note that this is an area where claims of manufacturers are often difficult if not impossible to substantiate: the relevant material formulations are typically protected intellectual

⁵⁸ <https://www.monosol.com/>

⁵⁹ Eunomia (2020) *Bio-based and Biodegradable Plastics in Denmark: Market Applications, Waste Management and Implications in the Open Environment*, Environmental Project No. 2125, Ministry of Environment and Food of Denmark, February 2020, <https://www.eunomia.co.uk/reports-tools/bio-based-and-biodegradable-plastics-in-denmark/>; see also <https://www.plasticpollutioncoalition.org/blog/2022/11/18/pva-plastic-what-you-need-to-know>

⁶⁰ See Charles Rolsky and Varun Kelkar (2021) Degradation of Polyvinyl Alcohol in US Wastewater Treatment Plants and Subsequent Nationwide Emission Estimate, *International Journal of Environmental Research and Public Health* 18, no. 11: 6027, <https://doi.org/10.3390/ijerph18116027>. See also NDTV (2024) New York City Considers Banning Detergent Pods To Fight Microplastic Pollution, February 13, 2024.

⁶¹ <https://www.notpla.com/products-2/>

⁶² <https://www.kelpi.net/>

property and often undergoing patent registration. It is important, therefore, to adopt a suitable inquisitive approach to understanding the properties of manufacturers of materials which variously claim to facilitate full biodegradation.

Contacts with brands in previous studies have also indicated that some are sceptical regarding the use of packaging claiming to be variously compostable, or biodegradable, noting that there would be concerns about shelf life in distribution, and on shelves in shops that may not have air-conditioning, and be located in countries which may frequently experience hot and/or humid conditions. For this reason, some brands are more likely to favour attempts to ensure that recycling systems are in place (though these can hardly be said to have become widespread) or to support refill solutions. Given that small format sachets, even if technically recyclable, will likely remain unattractive to recycle in the absence of significant intervention to support collection, and without requirements to achieve higher recycling targets / incentives or regulations to make use of secondary materials, so such a solution is dependent on significant policy intervention, including through extended producer responsibility (EPR). In the absence of comprehensive collection systems, and suitably developed recycling markets and infrastructure, whether a package is 'technically recyclable' or not is meaningless.

3.1.5 Changing Packaging Design – Design for Recycling

Even if it seemed likely that sachets would be collected and sorted, as necessary, then there is clearly a problem if formats which are in use are essentially non-recyclable, even if adequate and comprehensive collection systems are in place. Single polymer polyolefin (PP or PE) formats with the lowest possible level of additional materials / elements would be more appropriate as per, for example, Ceflex's 'Designing for a Circular Economy' Guidelines. Note that even in these cases, however, unless regulatory and / or technical systems allow, the recycled materials so derived would unlikely to be eligible for use in contact-sensitive applications (for example, food packaging). It follows that there might be limits to the 'circulation' of the secondary plastics, not least since the separation of the films would be unlikely to take place in an 'application-specific' manner.

3.1.6 Summary

For shampoos (and other personal care applications), with suitable will and economic drivers, it should be possible to facilitate delivery of the relevant products in reusable packaging, either with the refill system operator providing pre-filled containers, or with users filling their own containers. There are sufficient precedents to suggest that the main obstacle is the economics driving the existing approach. Nonetheless, research by Pew Charitable Trusts suggests that new delivery models on the market today can offer 30% savings to consumers compared with bottles, bringing them in line with sachet costs — with much less waste and plastic flow to the ocean per use.

There is potential for substitution by other materials which might render the package itself less problematic, but this solution is less preferable to the refill option for the simple reason that as long as waste management systems remain poorly developed, then unless the alternative formats used were of, or were made to be of, a value that made them attractive to informal sector actors to collect, then they are likely to still be discarded.

As a last resort, the market should shift towards formats that are amenable to recycling using existing collection systems and technologies. In this regard, it should be considered

that the definition of what is indicated by 'recycling' might require some narrowing in some jurisdictions, and that the adequacy of collection services, and as necessary, sorting systems, would need to be ensured, not least through well-designed EPR systems.

3.2 Milk (and Milk-based Drinks)

The size distribution of 'sachets' for liquid milk products is unclear, as is the nature of the milk / milk products they contain (e.g., fresh, or UHT, etc.). Many units might be sold or used in the form of single-portion milk sachets at cafes and restaurants, but there are also considerable markets for milk packaged in larger e.g. half-litre sachets. These would not qualify as 'small format' or sachets under some of the definitions mentioned in Section 2.6, though they are included in the BFFP audits.

The variation in ways these different sized sachets are sold and consumed is likely to be significant, with one used for (for example) coffee and tea (possibly purchased in large numbers of units by cafes, etc.), and the other used for more general day-to-day use in the home / office. We do not know the size distribution of flexible packages consumed in the countries concerned, but half litre / litre milk packages are a means by which milk may be consumed. UHT milk – and beverages made using milk - will also be consumed in beverage cartons which make some use of plastic: although these would fall under some definitions of 'plastic sachets', the formats which are uppermost in our mind in this Section are the portion-sized sachets for liquid milk, and flexible packages for larger quantities sold in half litre / litre sizes, given that these appear to be prominent in the waste stream in India (and potentially, other countries also).

Milk and milk-based products are increasingly sold in both flexible packages, and in beverage cartons.⁶³ Where milk is sold in flexible sachets, they may be mono-material LDPE, or co-extruded LDPE / LLDPE although other options, such as metalized PET with PE laminates, may be used to give additional protection. The technical recyclability of different options is affected by the mixing of polyolefins with other polymers, as well as the use of other materials.

3.2.1 Selling Beverages in Reusable Containers

In the case of milk and milk products sold in larger formats, the question appears to be a relatively straightforward one regarding the choice of packaging and the nature of delivery systems. There are clearly a range of packaging alternatives available, and the delivery systems for milk (or milk products) using refill systems, where households either bring their own packages to refill stations, or where delivery of products is in containers which are taken back to be washed and refilled by the distributor, are clearly possible.

Milk is (and other beverages are) already delivered in refillable containers. In some rural areas in the Philippines, for example, fresh carabao's milk is still sold in refillable glass bottles.⁶⁴ Many DRSs have tended to exclude milk and other dairy products from the system, partly because of concerns from retailers regarding the potential for problems to

⁶³ See for example Indian Centre for Plastics in the Environment (ICPE) (u.d.) Packaging of Milk and Dairy Products, https://www.icpe.in/icpefoodnpackaging/pdfs/15_milk.pdf

⁶⁴ See, for example, <https://www.facebook.com/photo?fbid=1232700427682924&set=pcb.1232692627683704>

arise where milk packages are stored over a lengthy period. This appears to be changing as the range of packaging formats (for example, including beverage cartons), and associated issues in relation to the littering of packaging, become more pressing.

Where single-portion format sachets are sold at cafes, street stalls and other quick-service restaurants, it ought to be possible to replace sachets with milk from bottles, or via dispensers (in stores). Restricting the use of such sachets would encourage the development of alternative means of delivery appropriate to the context.

3.2.2 Drink Dispenser Refills

Installing drink dispensers in local shops and other high-footfall (i.e. customer traffic), secure areas has the potential to reduce consumption not only of flexible packages, but also of other forms of packaging of milk and milk products. Dispensers clearly need to be managed and serviced so that this option would need to be supported by a comprehensive service package.

India's Mother Dairy brand operates refill stations for so-called 'token milk' where customers take their own container to be refilled and pay for the amount they have utilised (see Figure 20). This approach is especially suited to situations where, for example, producers of milk and producer cooperatives are represented by entities that have a significant market share, but similar systems are equally applicable in stores, implying a suitable choice of milk supplier.

Figure 20: Self-serve Refill Station in India



Source:

https://www.reddit.com/r/ZeroWaste/comments/fr99jw/india_is_slowly_moving_away_from_plastic_milk/?rdt=37117

Algramo uses dispenser machines for beverages, and as with personal (and home) care products, it has developed ‘packaging as a wallet’ technology, whereby consumers upload funds, via an app, into an account linked to an RFID tag on the drink container (which is owned by them). This allows the system to give consumers the opportunity to earn ‘discount credits’ with each use of the container, incentivizing them to refill, rather than throw away the containers, and incentivising multiple refills. This means the customer pays only for the beverage used and not the bottle, reducing costs to the consumer. This approach could also allow a shift from sales of non-concentrated to concentrated products for some beverages, but this might not be appropriate for milk: although powdered milk is widely sold, it requires addition of suitably clean water for safe consumptions. National government could, in principle, mandate standard dispensing containers and procedures to ensure consumer safety and ease of replication of the system (similar to water dispensing stations and their standard water containers, which are consistent in the Philippines).⁶⁵

Some brands offer vending machines that enable distribution of a variety of products: ‘Coca-Cola Freestyle’ machines offer more than 100 different types of drinks, and custom mixes. Using the Freestyle App on a mobile phone, consumers can select and save their preferred mix, ordering at the machine by scanning a code from the app. Users can prepay for drinks in various ways (single, multiples of 10, etc.). These types of technology could, perhaps, also be the basis for, for example, offering multiple flavoured milk products from a single machine, for dispensing into refillable containers.

3.2.3 Sale of Concentrated Products – Reuse, (New) Delivery Model

Innovative delivery models can help to significantly reduce plastic packaging and can apply to a range of segments including beverages. For some dairy products, the ‘active ingredients’ could be sold as concentrated products, or as powders. A new delivery model using refillable bottles, whereby only the concentrated product is sold (and shipped), could also bring significant packaging savings. There may also be a significant proportion of sales of single-format milk packages that could be replaced by use of powdered milk / creamer as long as wastage of product can be minimised through use of suitably moisture-proof containers.

Models akin to those used by SodaStream might also provide a suitable business model for some milk drinks.⁶⁶ The company provides different flavour options, and consumers simply use the beverage dispenser and a reusable bottle to make their drink. These SodaStream units, though, can be used at home or in workplaces, universities, and hospitality partner settings, sold as ‘SodaStream Professional’. SodaStream Professional makes use of a smartphone app called SodaStream Connect, and an individualised QR code sticker for reusable bottles that recognizes users when they fill up. There could be potential to expand their use to on-the-go settings, for example in supermarkets and other shops (at which point, they resemble the preceding example).

⁶⁵ Global Alliance for Incinerator Alternatives (2019) *Plastics Exposed: How Waste Assessments and Brand Audits Are Helping Philippine Cities Fight Plastic Pollution*, p.7
<https://www.no-burn.org/plastics-exposed-how-waste-assessments-and-brand-audits-are-helping-philippine-cities-fight-plastic-pollution/>

⁶⁶ <https://www.pepsico.com/sustainability/focus-areas/packaging>

3.2.4 Nature Biodegradable Sachets for Milk - Substitution

As we noted for shampoos, alternative packaging materials, including ‘nature biodegradable’ materials, could be used to replace small format (single-portion-style) offerings. The use of this type of sachet would, in theory, allow the elimination of plastic sachet packs. However, as we noted there, one issue is the barrier properties of the materials used to make the flexible package, raising questions as to how to address what might be a shorter shelf-life (which could, in theory, be addressed through ensuring something more akin to a just-in-time delivery model).

3.2.5 Changing Packaging Design – Design for Recycling

We noted at the outset that where milk is concerned, there are plenty of packaging options which would be more suitable for use, and be far more attractive to those already engaged in recycling activity, including the use of PET bottles, which are more likely to be recycled owing to their inherent value to informal (and formal) collectors.

If sachets are to be used, then as per shampoos, single polymer polyolefin (PP or PE) formats with the lowest possible level of additional materials / elements would be appropriate as per, for example, Ceflex’s ‘Designing for a Circular Economy’ Guidelines. As we noted above, even in these cases, unless regulatory and / or technical systems allow, the recycled materials so derived would be unlikely to be eligible for use in contact-sensitive applications (for example, for use in food packaging, including milk). There are existing regulations, though, regarding PET. The UK established a suitable market for closed loop recycling of HDPE milk bottles. In principle, if closed recycling of plastics is being sought, these would be preferable solutions, and in some developed countries, this is leading to some businesses reappraising the suitability of packaging of dairy products in favour of PET.⁶⁷ Of course, other materials, including glass, would also allow closed loop recycling, though the greater weight of glass tends to mitigate against its use, unless it is designed for use in a reuse / refill system where the bottle is used numerous times (prior to loss / breakage).

3.2.6 Summary

For milk and milk products, where larger format flexible packaging is concerned, there is plenty of scope for delivery of the relevant products in reusable packaging which could be made from glass or plastic or other materials. Alternatively, a refill system operator could either provide pre-filled containers (taking back used containers for refilling), or encourage users to refill their own containers. There are enough precedents to suggest that the main obstacle is the prevailing economics.

There is potential for substitution by similar packaging formats using other materials which might render the package itself less problematic, but this solution is likely to be less preferable to the refill option. There is potential to deliver milk in powdered form in containers other than sachets, though this is likely to be more acceptable in some circumstances than in others. Notably, this might be well-suited to reduce use of single-serving small format sachets.

⁶⁷ See, for example, Packaging Gateway (2024) *Coop and Emmi switch dairy products to sustainable PET bottles*, <https://www.packaging-gateway.com/news/coop-emmi-pet-bottles/>

In the case of milk and milk products, these are not generally consumed only in small formats, and even where they are, replacement of sachets would seem to be no less applicable. The choice of flexible packages as the packaging format of choice might not be a responsible one in the context of a poorly developed waste management system. There are formats – including other plastic packages, but in different formats, as well as packages made from other materials - which are far less likely to give rise to problems of littering and mismanagement.

3.3 Instant Coffee

Instant coffee may be sold in relatively small sachets for single-use servings: it can also be sold in larger format flexible packages (and packaging made from other materials), but the small format package is the focus of this discussion. As we noted at the outset of this Section, we do not have information that allows us to know the channels through which instant coffee in this format is consumed, in what number of units (per purchase), and for what purpose.

These sachets may be found boxed as multi-sachet packs, or they may be sold individually. Key properties required of the packaging are that it presents a barrier to moisture (instant coffee particles are dry, and can easily absorb moisture from the air); that it is adequately resistant to puncture; and there needs to be protection from UV light. Some materials may also be considered superior for preserving aroma and flavour. Combinations used in sachets are likely to include: OPP || PET || LDPE, PET || Al || LDPE and Paper || PET || LDPE.

The perceived ‘need’ for the sale of instant coffee in sachets might be linked to how they are consumed. Where they are purchased individually, or in small numbers (as opposed to in quantities purchased in secondary packaging), it might be assumed that these purchases are for short-term consumption by lower-income households. They may, though, be consumed for other reasons, including for use in hotels, restaurants, cafes, street stalls and other outlets. In these cases, the need to use sachets at all (as opposed to other packaging formats, or larger format flexibles) is unclear.

3.3.1 Refillable Packages

Relatively low-tech approaches – where consumers have containers refilled with granules from larger containers by micro-entrepreneurs, for example – might not find favour with many brands, or even store operators. Nonetheless, that possibility clearly exists, with sellers refilling from jars or from larger format pouches. Brands might be concerned about the use of alternative brands for refilling, whilst store owners might consider that the implications of using large format containers for refill for their store space are not favourable.

Machine-based approaches that have the capability to deliver coffee (and other products) from a range of brands might also be possible, though the ability of such coffee to absorb moisture could become problematic.

3.3.2 “Nature-biodegradable” Sachets

We considered above some packages that may or may not be suitable (because of their limitations) for replacing materials used in shampoo sachets and flexible packages used for milk and other dairy products. The dry nature of coffee granules may make it possible

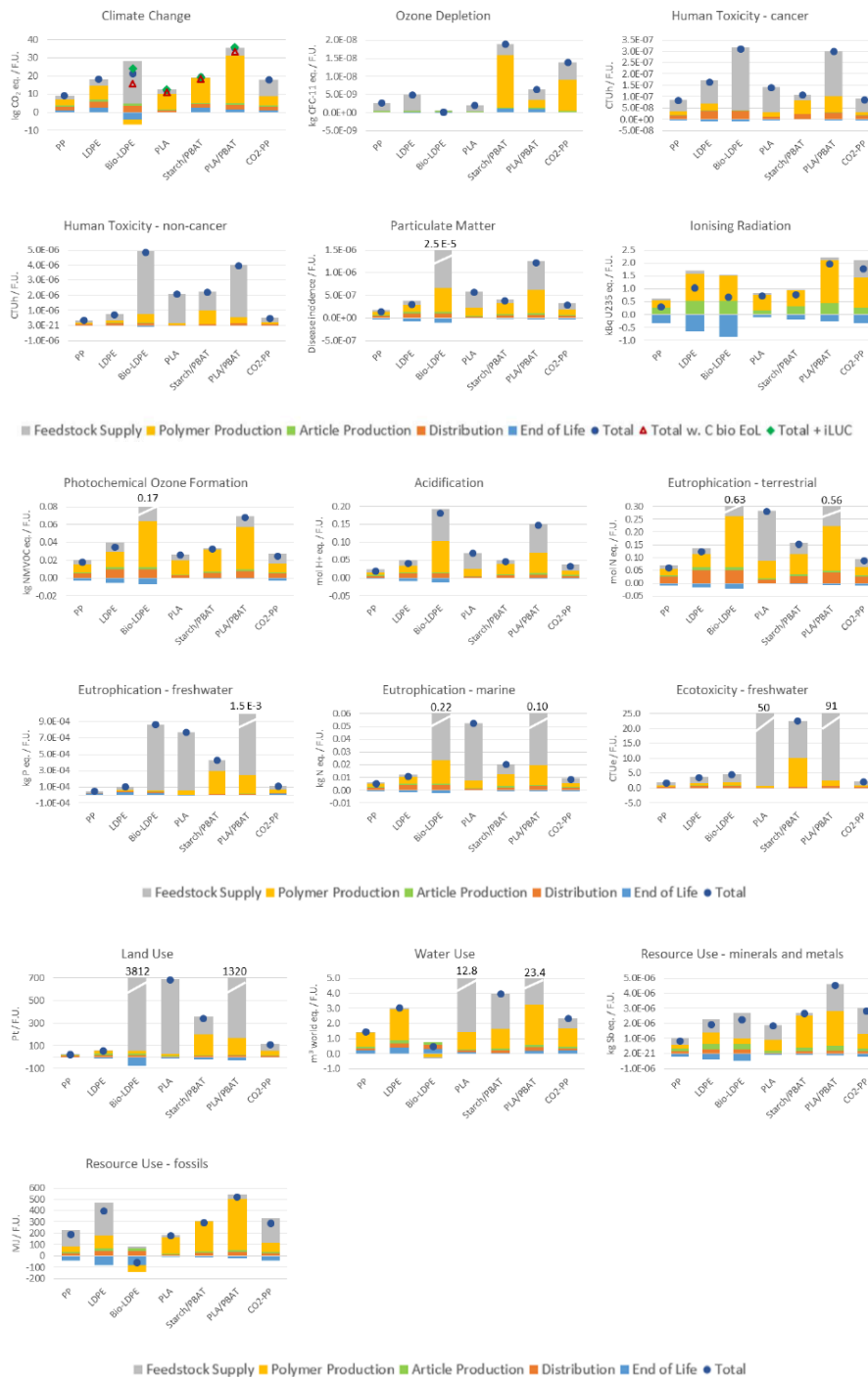
to use some packaging materials which are not generally considered so suitable for packaging liquids, such as Futamura's Natureflex films, which are already used for packaging coffee and tea (and crisps – see Section 3.5.2 below).

The supposed attraction of some of such bio-derived materials, whatever their merits, should take into account wider environmental impacts. A study conducted in Europe for DG Environment, and one conducted by the Joint Research Centre of the European Commission, have both highlighted the potential downsides of the 'bio-derived' materials, whether bio-derived compostable or non-compostable plastics, or fibre-based materials.⁶⁸ In particular, the impact, in terms of land-take, of substituting plastic with paper / compostables may be important, whilst augmenting the harvesting of wood products incurs a carbon debt which is not quickly repaid.⁶⁹ This would seem to be the impact category where use of the selected substitutes would lead to the largest (relative) worsening of performance, and is highlighted in Figure 21. This shows that when considering food packaging films, the compostable polymers are actually those which perform worst in a range of impact assessment categories, and especially where use of land and water are concerned. It might be added, though, that as with most LCAs, the analyses do not adequately consider the fate of the items when littered, or mismanaged in other ways. Nonetheless, the land-take issues are of relevance.

⁶⁸ See ICF and Eunomia (2018) [Assessment of measures to reduce marine litter from single use plastics, Final Report and Annex](#), prepared for DG Environment, European Commission, by Eunomia and ICF, May 2018; Joint Research Centre (2020) Comparative Life-Cycle Assessment of Alternative Feedstock for Plastics Production, Draft report for Stakeholder Consultation – Part 2 – 10 LCA Case Studies, https://eplca.jrc.ec.europa.eu/permalink/PLASTIC_LCI/Plastics%20LCA_Report%20II_LCA%20Case%20Studies_2020.06.03.pdf

⁶⁹ See, for example, D. Brack (2017) *Woody Biomass for Power and Heat Impacts on the Global Climate*, Chatham House Research Paper, February 2017; T. Searchinger et al (2023) *The Global Land Squeeze: Managing the Growing Competition for Land*, Washington, DC: World Resources Institute; J. Chen et al (2018) Assessing the greenhouse gas effects of harvested wood products manufactured from managed forests in Canada, *Forestry* 2018; 91, 193–205.

Figure 22: Potential Impact of Using Different Materials for Food Packaging Film, LCA scenarios



Note: in some impact categories a part of the results is out of scale and is curtailed. Climate Change impacts denoted with “C bio EoL” accounts for the contribution of biogenic carbon not released after 100 years from landfiling of bio-based food packaging films or from on-land application of residual organic matter derived from their composting or anaerobic digestion. Source: Joint Research Centre (2020) Comparative Life-Cycle Assessment of Alternative Feedstock for Plastics Production, Draft report for Stakeholder Consultation – Part 2 – 10 LCA Case Studies, pp.136-8,

The conditions under which substitution by these materials is likely to be beneficial are likely to be rather more restrictive than is often considered (because of ongoing concerns, and the potential need for appropriate standards, for the acceptable nature of coatings, the assessment of biodegradability / nature degradability, etc.). If it were possible to identify consumption routes which are associated with much higher likelihoods of littering, it could be that these routes were targeted for switches in material use, but the wider impacts should also be considered.

3.3.3 Changing Packaging Design – Design for Recycling

As noted for other products, even if it seemed likely that sachets would be collected and sorted, as necessary, then there is clearly a problem if formats which are in use are essentially not recyclable, even if the appropriate infrastructure was in place. Single polymer polyolefin (PP or PE) formats (not those which include both PET and one or other of PE / PP) with the lowest possible level of additional materials / elements would be appropriate as per, for example, Ceflex's 'Designing for a Circular Economy' Guidelines.

Again, as noted above, even in these cases, however, unless regulatory and / or technical systems allow, the recycled materials so derived would unlikely to be eligible for use in contact-sensitive applications (for example, food packaging). It follows that there might be limits to the 'circulation' of the secondary plastics, not least since the separation of the films would be unlikely to take place in an 'application-specific' manner.

In the case of dried coffee, alternative packages do exist, with cans being used down to sizes of the order 50g. For larger formats, all sorts of options are available that are likely to be less problematic as regards mismanagement of packaging waste.

3.3.4 Summary

For instant coffee, sachets do facilitate the ability to sell portion sized quantities from small stalls, but they are also likely to be used in a relatively wasteful, sometimes unnecessary manner in other contexts. There are other means of delivery in alternative packages, but sachets are convenient means to deliver portion-sized quantities. The relevant question might be how much consumption takes place in situations where the portion-sized nature of the sachet is crucial (how many consumers purchase single sachets?) The quality of data available does not allow an understanding of what purchases are made by whom and in what circumstances, but it seems likely that many purchases could be made in other, larger formats (such as small jars / cans) rather than in sachets. Indeed, small format coffee sachets cannot be used without the addition of water, so to the extent that these become widely littered, it seems reasonable to ask what are the different circumstances where their use leads to littering, and where that activity might persist if adequate waste collection services were in place.

Evidently, the humid conditions in many parts of many of the countries under consideration make the moisture barrier very important, and some may take the view that sachets eliminate the likelihood of spoilage, which potentially increases as the size of package increases also. Nonetheless, resealable jars are likely to be an alternative for many consumers, potentially with refill of those containers taking place via larger format

flexibles that are suitably designed to be recycled: this, though, might still be problematic in situations where waste collection services are either not present, or inadequate.

3.4 Tomato Ketchup (and other condiments)

Condiments are likely to be consumed in similar contexts to coffee (both at home / in office canteens, and in quick service restaurants and cafes). Also, as with most of the products we are examining, the product is sold in flexible packages of very different sizes.⁷⁰ Here, our focus (as with coffee) is predominantly on the portion-sized sachets, typically sold in packages of around 8-12 grams. It seems reasonable to speculate that the nature of the products when consumed in this form is likely to be linked with more instantaneous usage, including alongside food delivered in a rapidly growing on-line delivery market. The sachets used are likely to be similar to those for coffee, including PET || Al || LDPE: larger format pouches are also used, and these may have greater thickness sometimes with four layers, such as PET || AL || PA || LDPE.

3.4.1 Refillable Packages

In many settings where ketchup and other condiments are consumed in sachets, their use can probably be substituted by users obtaining the products from refillable containers, or simply from larger format bottles. This includes where ketchup is used on items which are sold to be eaten off the premises since consumers can apply the product prior to their taking the product away. This is a simple way of reducing the littering of sachets where they are linked to take-away purchases.

3.4.2 “Nature-biodegradable” Sachets

The materials being considered for liquids, such as for shampoos, are also relevant here. Notpla has already teamed up with Heinz to create a seaweed-based ketchup sachet.⁷¹ Other materials are likely to emerge in future, though the extent to which such replacement single-use products should be given serious consideration as a solution ought to reflect patterns of consumption: replacing the use of plastic sachets in quick service restaurants with sachets made from alternative materials would not seem to be especially progressive. Their use would best be confined to circumstances where the form of purchase is relatively strongly correlated with littering behaviour, if at all.

3.4.3 Changing Packaging Design – Design for Recycling

Similar comments can be made here as for coffee, though the use of squeezable plastic containers is likely to be more attractive for ketchup than glass / cans (which are better suited to coffee). In this respect, a key design feature which is often overlooked in ‘design for recycling’ criteria is the ease with which containers can be emptied. This is especially relevant for viscous liquids, as the example – shown for a large format bottle, though the principle remains applicable - in Figure 22 shows. The degree to which packages cannot be emptied can be a key source of contamination, so that even where the material from

⁷⁰ Larger format flexible multi-material pouches with spouts are used for large formats to deliver ketchup (and other condiments).

⁷¹ See https://www.linkedin.com/posts/notpla_notpla-x-heinz-tomato-ketchup-sachet-activity-6889624307694125056-GkZx/.

which a package is made is recyclable, the weight of baled plastic that is sent for recycling can include a significant quantity of non—target material that is of no value to recyclers.

Figure 23: Weights of Bottles with Varying Levels of Fill



Even if it seemed likely that sachets would be collected and sorted, as necessary, then there is clearly a problem if formats which are in use are essentially not recyclable, even if the appropriate infrastructure was in place. Single polymer polyolefin (PP or PE) formats with the lowest possible level of additional materials / elements would be appropriate as per, for example, Ceflex's 'Designing for a Circular Economy' Guidelines. Note that even in these cases, however, unless regulatory and / or technical systems allow, the recycled materials so derived would unlikely to be eligible for use in contact-sensitive applications (for example, food packaging). It follows that there might be limits to the 'circulation' of the secondary plastics, not least since the separation of the films would be unlikely to take place in an 'application-specific' manner.

A further complication relates to the ease of emptying alluded to above: given the low weight of the single-portion sachets, even if what might appear to be a small amount of the product is left in the sachet, the proportion of the weight of the sachet which is not the target material may be of the order 50% of the weight of the pack as collected for recycling. It should also be considered that the sachet is not the most convenient means

of dispensing ketchup (and other condiments): it does not direct the product where it is intended, and in some uses, customers might want to ‘dip’ something into the ketchup (or other condiment), something that the format makes very difficult. Given that users might not want all the product in the single-serve sachet, there is also potential for considerable waste. Taking into account the above, notwithstanding the quantities likely to be being sold, sachets might not be especially efficient means of delivering viscous condiments.

3.4.4 Summary

For ketchup, much of the sachet consumption might be readily supplanted by use of larger format, refillable containers for delivering the product (or through use of eminently recyclable larger formats), and eliminating sachets from stalls, quick-service restaurants and cafes where their use seems most likely to be problematic. Purchases for ‘at home’ consumption could also be shifted to larger more readily recyclable formats. Here, it is also worth noting that increasing resort to use of sachets accompanying food order on-line and delivered to home / offices has the potential to be enormously wasteful – at the very least, it should not be permitted to make these available free of charge so as to encourage those ordering to use their own condiments. The potential for wastage (of both product and packaging) is also considerable.

As a last resort, the market should shift towards formats that are amenable to recycling using existing collection systems and technologies. However, we have noted above the limits to what the design of a supposedly recyclable sachet can achieve in a context where management of waste is poor, and a combination of the circumstances of consumption (e.g. ‘on-the-go’) and the nature of the package (storing a half-empty ketchup sachet is messy) may make inappropriate discard a relatively likely outcome. For small format sachets that may be consumed in

3.5 (Small Size) Chip / Crisp Packages

Work by CII and WRAP for the IPP noted (see also Figure 23):⁷²

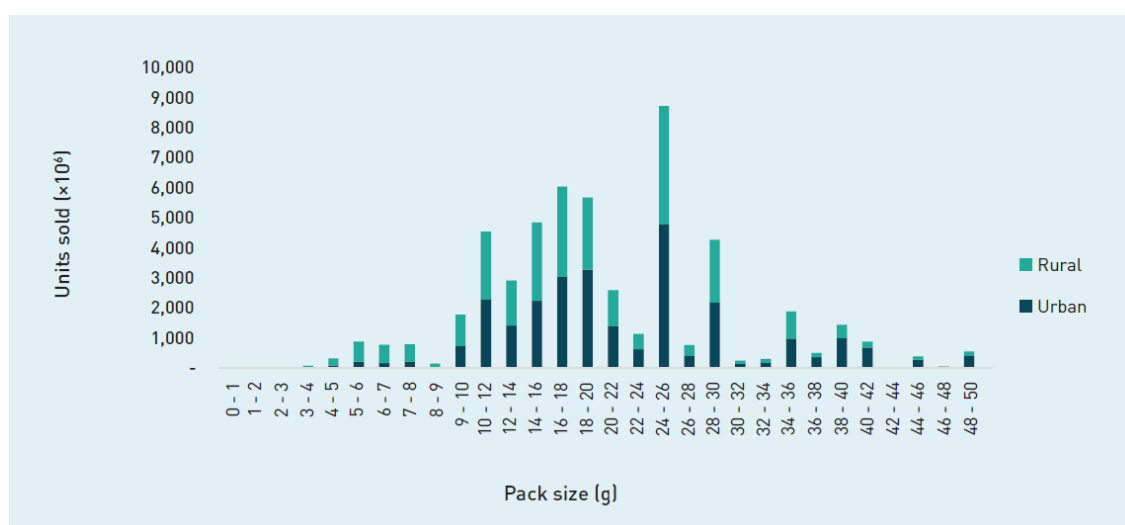
Nearly 54 billion units of salty snacks were sold in 2021, 97% of which were sold in small format packaging (88% in pack sizes between 10g and 50g, and 9% in sachets, i.e., below 10g).

These small packs are sold at a low price point, thus making them accessible and convenient on-the-go single-serve snacks. Data suggest that snacks in the range of 24 g to 26 g are the most popular (in terms of number of units sold: 17% of small format unit sales). These are usually impulse purchase packs, priced at INR 10. It is also observed that sales of sachets are a little higher in rural markets, while packs between 10g and 50g dominate the urban markets.

Data indicate that almost all units sold (>99%) are described as ‘plastic pouches’ in the Nielsen database.

⁷² CII and WRAP (2022) Small Formats and Sachets: Exploring Challenges, Solutions and Interventions, January 2024.

Figure 24: Unit Sales of Small Format Salty Snacks Sales Across Pack Sizes



Source: CII and WRAP (2022) *Small Formats and Sachets: Exploring Challenges, Solutions and Interventions*, January 2024.

This last point highlights the fact that, as regards crisps and many other salty snacks, the use of sachets / flexible packaging is less obviously a matter related to the amount of item consumed: flexible packages have become, in essence, the package of choice for containing salty snacks.

Our main focus – partly because it might represent one of the more awkward products as regards replacing flexible packages – is on a ‘consumer-’ (not family-) sized pack of crisps, typically of the order 25g in weight.

It is interesting to recall that in the early days of their consumption, crisps were purchased in bulk from barrels or tins. Crisps and some other snacks, though, have a tendency to lose their crispness, and over time, tend to go rancid. Even early in the development of the market for crisps, their widespread marketing was facilitated by the use of waxed paper packaging and cellophane (and interestingly, modern versions thereof are becoming available - see Section 4.5.1 below). It is important for packaging to achieve good barrier properties to air and moisture, and in their distribution, to ensure the crisps are not crushed into small fragments, though this can also be helped through use of appropriate secondary / tertiary packaging (for example, cardboard boxes).

We noted in the market assessment that in India – and potentially other countries also – unbranded products account for a significant share of the market for many FMCG items. Especially some of the more traditional (to local cultures) snack foods might be expected to be either branded or non-branded. Non – branded snacks may be packed with a shorter shelf-life in mind, and might be contained in (unprinted) low density polyethylene (LDPE) and polypropylene (PP) pouches.

For branded snacks and nuts, longer shelf lives are typically sought, and printed packages are used. These are typically laminated structures, and commonly used materials are (B)OPP film, PET film, aluminized film, and LDPE film. Because oxygen in the air, combined with ultraviolet rays, will accelerate fat oxidation, for some potato chips, aluminium is often used to block light and oxygen thereby prolonging shelf life.

One (perhaps a little dated) report in India noted that common combinations for salty snacks were:⁷³

- BOPP / LDPE
- BOPP / PET / LDPE
- Metallised PET / LDPE
- BOPP / Metallised PET / LDPE
- PET / LDPE
- PET / Al foil / LDPE

It also noted that in the US and Europe, it was more common to find use of OPP and PVDC coated glassine. The CII and WRAP report for the IPP noted the ‘typical’ use of polyolefins with metalized PET, such as PET II metallized PET II PP (or PE). They noted also that some businesses were transitioning to BOPP II metallized BOPP II PP (or PE), which they indicated was ‘technically recyclable’, though acknowledging that collection of such packages would remain an obstacle.⁷⁴

3.5.1 Alternative Delivery Mechanisms

Most snacks, including crisps, can be delivered through alternative means: in principle, there can be bulk containers where customers fill their own containers, but this is likely to be more difficult for snacks such as crisps, where the shelf-life in hot and humid climates is likely to be short, and the bulk density of what is to be sold is low (unless the product is crushed, in which case, it loses much of its appeal).⁷⁵ It might be much more difficult for small stores to store and distribute the range of snacks that they supply in small flexible packages if they were required to sell them free of packaging. If there was to be a strong push towards refill-style systems, the relative impact on small stores would deserve some consideration.

3.5.2 “Nature-biodegradable” Sachets

We mentioned above that nature biodegradable sachets could be used for crisps. Two Farmers crisp packs are made using NatureFlex, a eucalyptus-derived material originally created by Japanese packaging experts Futamura. It seems likely, given the commitments being made by PepsiCo and others, that the search for suitable materials which possess both suitable barrier properties, but also show desirable properties as regards the environment.

⁷³ Indian Centre for Plastics in the Environment (ICPE) (u.d.) Packaging of Snack Food, https://www.icpe.in/icpefoodnpackaging/pdfs/22_snackfood.pdf

⁷⁴ CII and WRAP (2022) Small Formats and Sachets: Exploring Challenges, Solutions and Interventions, January 2024.

⁷⁵ Many of the small format sachets – with the exception of those for milk and for shampoo (and even some of these) – might be considered to be examples of ‘pillow bags’. These are flexible packages which are sealed at top and bottom and resemble, in shape, a pillow: the crisp pack offers the most obvious example, not least because the air is effectively replaced with nitrogen, and the pack filled so as to present some resistance to the crisps becoming crushed.

3.5.3 Changing Packaging Design – Design for Recycling

Crisp packs are generally not recycled. Even if it seemed likely that sachets would be collected and sorted, as necessary, then there is clearly a problem if formats which are in use are essentially not recyclable, even if the appropriate infrastructure was in place. Single polymer polyolefin (PP or PE) formats with the lowest possible level of additional materials / elements would be appropriate as per, for example, Ceflex's 'Designing for a Circular Economy' Guidelines. Note that even in these cases, however, unless regulatory and / or technical systems allow, the recycled materials so derived would unlikely to be eligible for use in contact-sensitive applications (for example, food packaging). It follows that there might be limits to the 'circulation' of the secondary plastics, not least since the separation of the films would be unlikely to take place in an 'application-specific' manner.

It seems unlikely that these formats – without significant financial support for collection - would be of sufficient value for them to be collected. The fate, then, for any alternative sachets is that they are unlikely to be recycled, and will maintain a 'single trip / disposable' mentality.

Note that other packaging formats that have been used for crisps and other salty snacks include:

- Paper bags;
- Resealable pouches;
- Cardboard tubes;
- Cellophane bags;
- Plastic tubs;
- Cardboard cartons;
- Tins;
- Compostable packaging;
- Cardboard boxes; and
- Screw-top jars.

Flexible packages are used because they offer functionality at low cost to those who sell them. Too many of the above alternatives would be one or more of a) more expensive, b) lacking the desired functionality or c) require adaptation of the product itself.

3.5.4 Summary

For crisps, for the specific product, a straightforward refill / reuse option is likely to be more difficult to deliver in many circumstances without significant deterioration in the quality of the product. The situation will be different (more straightforward) for some other salty snacks.

There are alternative packaging options, though they are unlikely to be widely used without relevant policy drivers. There is potential for substitution by other materials which might render the package itself less problematic, but this solution is less preferable to the refill option. In particular, nature degradable options seem likely to play an increasingly prominent role in years to come as businesses seek to address (in various ways) the problem of mismanaged crisp packages.

The market could seek to shift towards formats that are far more likely to be recycled using existing collection systems and technologies, but the ease with which this can be done for crisps / chips may be less straightforward than for other products considered in this Section. We also reiterate that the definition of what is indicated by 'recycling' might

require some narrowing in some jurisdictions, and that the adequacy of collection services, and as necessary, sorting systems, would need to be ensured, not least through well-designed EPR systems.

Finally, it is perhaps at least worthy of comment that crisps cannot lay claim to being the healthiest of snacks and they have likely partially supplanted culturally distinct alternatives. Crisps have particular requirements that make them more difficult to deliver through 'packaging free' / refill approaches. For the foreseeable future, crisp packs seem likely to be problematic.

It is worth noting that at the global level, crisp and sweet wrappers feature prominently in beach litter surveys. In Asia, based on data from Ocean Conservancy and Trash Information and Data for Education and Solutions (TIDES), they account for more than 9% (by number) of all plastic items (excluding cigarettes) found in beach litter counts, and 20% (by number) of all plastic packaging items found in counts in Asia.⁷⁶ They are, therefore, an important product to address in the context of plastic pollution of rivers and oceans.

3.6 Overview

This brief overview highlights a range of issues affecting small format packages used to contain our products of interest. There appear to be a range of strategies that can be adopted:

1. The replacement of sachets by refillable / reusable alternatives with the refillable / reusable container provided / 'owned' by the consumer: this seems eminently possible in the case of shampoo, the larger format packages of milk, and in some circumstances, for small format instant coffee. It seems unlikely that those consuming small format ketchup sachets are using them in contexts that would make this form of replacement relevant. It is also not an approach that seems likely to work for crisps.
2. The replacement of sachets by refillable / reusable alternatives with the refillable / reusable container provided to, or made available for use by, the consumer. This is likely to work for ketchup and for milk in situations where they are used as part of on-the-go consumption of food, and of beverages, respectively: the outlet would replace sachets with containers for use by the customer. In some hospitality situations, instant coffee sachets could also be replaced by small refillable jars.
3. The replacement of sachets by other packaging formats:
Some of the above approaches necessarily imply the use of alternative packages, but there are other instances where sachets are consumed where simply changing the choice of format may play a key role (for example, choosing alternatives to multi-pack sachets of instant coffee);
4. The replacement of existing flexible packages made using conventional plastics with 'nature degradable' flexible packages / pods:
This option is one of the key routes being explored in relation to crisp packages. It may also have some relevance to the other products as sold in small formats, but could be of greatest interest in respect of shampoo;

⁷⁶ Data from Ocean Conservancy and Trash Information and Data for Education and Solutions (TIDES)
<https://www.coastalcleanupdata.org/reports>

5. Changes in the design of existing flexible packages so as to render them technically recyclable wherever they currently are not. This is relevant for all packages (probably less so for large format flexible milk packages), but the design as 'recyclable' will not in any way guarantee that the package will be recycled. The validity of this strategy is based on the waste management system effectively ensuring the collection of the packages. If this is not secured, the approach is pointless. Yet if the collection service was fully functional, then the subject this work seeks to address would not be a problem. This 'strategy' is designed to deflect from the central issue, and maintain the status quo in respect of the use of different packaging formats.

Finally, of the five products we have highlighted, crisps are the only product unlikely to be consumed in any large quantity in small format packages. All other products can be consumed in large format flexible packaging as well as small formats, but the argument that small formats are important to make the product readily available to lower income consumers is not obviously applicable to crisps. Crisps are unlikely to be seen as necessities by lower-income (or, arguably, any) consumers.

This gives some form of hierarchy of approaches, and sets the products examined in context. The development of reusable alternatives cannot happen overnight and would take time to achieve: this is an important point for policy makers to recognise since it mitigates against, for example, the rapid implementation of a ban.

4.0 Defining EPR

4.1 What Do We Mean by EPR?

Most authors attribute the origins of the concept of producer responsibility to Thomas Lindhqvist, who proposed that as a means to reduce the life-cycle impact of products and packaging, manufacturers ought to be responsible for the entire life-cycle of the product and in particular, for the take-back, recycling and final disposal of the product. Lindhqvist, defined EPR as:⁷⁷

a policy principle to promote total life cycle environmental improvements of product systems by extending the responsibilities of the manufacturer of the product to various parts of the entire life cycle of the product, and especially to the take-back, recycling and final disposal of the product

Note the term ‘policy principle’: this suggests not policy per se, but the underlying basis for considering it.

In the years since Lindhqvist’s first work in the early 1990s, the concept has gained broad acceptance among, for example, OECD countries, although implementation has varied significantly across countries. The OECD defines Extended Producer Responsibility (EPR) as:⁷⁸

an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle.

The OECD does not define the scope of that extended ‘responsibility’, merely that it extends to the post-consumer stage. Lindhqvist’s definition is, in theory, not limited to post-consumer stages, but on the other hand, it might be argued that producers do already have responsibility for what happens prior to those stages, so it is not clear how responsibility is ‘extended’ where upstream stages of the lifecycle are involved. Producers already have responsibility here (for example, in the choice of packaging used), even if empirical evidence suggests they frequently exercise it in ways that are less than conducive to minimising environmental harm.

Including all policies that deal with any stage of the lifecycle of a product within ‘EPR’ would make the definition of EPR somewhat meaningless simply because it becomes impossible to delineate it from what it is not. The OECD’s definition focuses on the extension of responsibility to areas where producers typically have none (in the absence of EPR) – the post-consumer stage.

⁷⁷

Thomas Lindhqvist (2000) Extended Producer Responsibility in Cleaner Production: Policy Principle to Promote Environmental Improvements of Product Systems, Doctoral Dissertation, IIIIEE, Lund University, May 2000, <https://lup.lub.lu.se/search/files/4433708/1002025.pdf>

⁷⁸ OECD (2016) Extended Producer Responsibility: Updated Guidance for Efficient Waste Management, OECD Publishing, Paris.

Within the European Union, a range of so-called producer responsibility Directives have been developed, covering packaging, batteries, waste electrical and electronic equipment (WEEE), and end-of-life vehicles (ELVs). A recently passed amendment to the Waste Framework Directive also requires schemes to be established to cover the costs of public waste collection and clean-up of litter in the case of a specified list of items often found littered on beaches. These set the framework for a legislated form of producer responsibility.

Under the European Commission's Waste Framework Directive, Article 3 (21) defines an "extended producer responsibility scheme" as:⁷⁹

'A set of measures taken by Member States to ensure that producers of products bear financial responsibility or financial and organisational responsibility for the management of the waste stage of a product's life cycle.'

This fits with the overarching statement of the OECD, but is more specific, highlighting *financial and organisational* responsibility as the areas which producers would take on. As with the OECD definition, the focus is on post-consumer stages.⁸⁰

The USEPA, in its National Recycling Strategy, defined EPR policies, as:⁸¹

policies that place a shared responsibility for end-of-life product management on producers and other entities involved in the product chain.

This is somewhat ambiguous in the nature of the sharing envisaged (what if financial responsibility is not shared with anyone other than producers?), but it explicitly references the end-of-life phase.⁸²

The shifting of costs to producers was understood by Lindhqvist to be an attraction of EPR systems.⁸³

⁷⁹ Council of the European Union (2018) *Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste*, February 2018, <http://data.consilium.europa.eu/doc/document/ST-6516-2018-INIT/en/pdf>

⁸⁰ It should be noted, in passing, that different jurisdictions interpret the term 'waste' in different ways.

⁸¹ EPA (2021) National Recycling Strategy: Part One of a Series on Building a Circular Economy for All, November 2021.

⁸² The USEPA previously defined Product Stewardship / EPR as follows:

Product stewardship is a product-centred approach to environmental protection. Also known as extended product responsibility (EPR), product stewardship calls on those in the product life cycle—manufacturers, retailers, users, and disposers—to share responsibility for reducing the environmental impacts of products.

Product stewardship recognizes that product manufacturers must take on new responsibilities to reduce the environmental footprint of their products. However, real change cannot always be achieved by producers acting alone: retailers, consumers, and the existing waste management infrastructure need to help to provide the most workable and cost-effective solutions. Solutions and roles will vary from one product system to another.

⁸³ Thomas Lindhqvist (2000) *Extended Producer Responsibility in Cleaner Production: Policy Principle to Promote Environmental Improvements of Product Systems*, Doctoral Dissertation, IIIEE, Lund University, May 2000, <https://lup.lub.lu.se/search/files/4433708/1002025.pdf>

One should not fail to mention that EPR provides a financing solution for a government wanting to improve the waste management and recycling standards in its country. Contrary to the traditional ways of financing such activities, EPR provides a means of not raising taxes and municipal charges. This fact is attractive, and relevant, to developing countries and economies in transition, as well as to OECD member countries.

This is an important point for countries seeking to develop sustainable, holistic and appropriate waste management systems (SHAWS). A key barrier to development of SHAWS in many low- and lower-middle income countries is likely to be funding, and the reluctance of elected officials to raise the taxes and charges necessary, a reluctance which Lindhqvist recognised could be side-stepped by gaining revenue from producers. Unless waste management has become an important political issue, there are unlikely to be many votes to be gained (and many might be lost) from increasing taxes and charges on voters with a view to ensuring that services are fully funded. Other things being equal, EPR can play a role in reducing the extent to which fees might otherwise need to be introduced / increased.

As exemplified by the above definitions, EPR literature typically distinguishes between systems which take on varying degrees of:⁸⁴

- **Financial responsibility:**
To what extent are producers financially responsible for end-of-life management? The EU has sought a minimum level for this through Article 7 of the PPWD, and Article 8a of the WFD to which the aforementioned Article 7 refers. However, the scope of costs to be covered is not fully specified.
Also in the EU, producers of some single use plastic packaging items are expected to cover the costs of 'public collection systems' (on-street bins / containers for waste discarded on-the-go, etc.) and the clean-up of litter (i.e. wastes discarded in the environment, and not in the designated receptacles); and
- **Organisational / operational responsibility:**
To what extent do producers become involved in the operational side of service provision? For example, in some systems, PROs are directly responsible for aspects of (and the scope of these varies) the operational side of waste management. In some situations in Canada, municipalities may opt-in or opt-out of providing waste services themselves, and where they opt out, producers become operationally involved (if not directly, then through arranging for the relevant services to be provided). In other systems, producers may have no operational responsibility. In EU systems, most of the EPR systems considered to be the most successful are ones where producers are not directly involved in waste collection services to households. There are very good reasons why producers would not be required to (and some why they might not want to) provide waste collection services to households. First, this is typically considered a responsibility of the municipality: where services are of low quality (for example,

⁸⁴ The WFD also states (Art 8(1)): 'Member States may decide that producers of products that undertake financial or financial and organisational responsibilities for the management of the waste stage of a product's life cycle of their own accord should apply some or all of the general minimum requirements laid down in Article 8a.'

waste is not collected, and / or starts to accumulate), this may trigger complaints to local officials or politicians. The route to accountability might not be so straightforward if services are offered by an entity that is not directly accountable to residents. Second, and arguably more importantly, waste collection services are best considered as 'systems': what happens in one part of the service affects other parts. So, for example, the frequency and scope of services offered for separation of recyclables, as well as the quality of collection services for food waste, impact on the necessary 'volume' that residents might need for refuse collection. The containment type and volume, and the (offered) frequency of collection, for each aspect of the service must be considered in a holistic way. Implementing a separate service would potentially raise coordination problems with the municipality, and the provision of a sub-optimal service. What is important, therefore, is that the service which municipalities are required to provide is capable of achieving whatever targets producers are required to meet (e.g., in respect of recycling). Note that an exception to this 'municipalities collect' rule would be in respect of systems designed to focus on high performance systems that complement the waste collection service: examples would be deposit refund systems and re-use / refill systems (although in the case of reuse / refill, it might be argued that the items were never discarded, and never became 'waste');

If producers are to be made 'responsible for' meeting targets set in law, then they do need to have responsibility for some aspects of the service. It makes sense, in our view, for producers to take operational responsibility (i.e. they arrange for the services to be implemented) from the point where waste is taken after collection. In other words, they should take responsibility for systems of sorting, and the recycling of the materials then sorted. Provided the collection services on offer are suitably designed with meeting those targets in mind, then producers have some ownership of targets. Note that if even well-designed collection services prove incapable of enabling targets to be met, then producers might be required to do one or more of: a) propose improvements in collection services (which they would pay for); b) enhance the capability of sorting and recycling infrastructure (their responsibility); c) implement additional sorting (e.g., of leftover mixed waste); or d) choose to use different packaging formats which enable the targets to be met. It might be considered that the perceived need for re-design of plastic packaging was one reason why fee modulation was popularised as a concept in the EU: progress in increasing the proportion of plastic packaging being recycled was too slow, especially when recycling was 'measured properly'. Where producers are subject to suitable pecuniary sanctions, then unless producers apportion the sanction to those who bear responsibility for it (they might be joint and severally liable), then modulating fees so that the packages least likely to be recycled pay more (and are encouraged to switch format) will tend to support meeting recycling targets. Note that an alternative system, which should not be ignored, is one where the municipalities take full operational responsibility for waste management. In such a form, the financing role would remain, but the operational responsibility would not reside with producers: it would follow that producers could not be held responsible, themselves, for meeting recycling

targets: such targets could be placed on the municipalities themselves. This form of EPR would need to satisfy producers that their money was being well spent (services were being delivered efficiently). Linked to this, it could also suffer from the drawback that the organisation of the operations is too decentralised, and lacks the scale of operation that might encourage more technologically sophisticated investments. Sorting and recycling operations benefit from scale, and investors seek security of access to feedstock: if the system effectively supports small scale facilities, and if recyclers are forced to seek commitments of feedstock from multiple parties, this can slow the pace of, and diminish the quality of, investment in the recycling system. That coordination problem could, in principle, be overcome through establishing an institution with a coordinating role designed to achieve those purposes.

More broadly, one can also argue that EPR could require producers to be involved in, or fully responsible (including financially) for, one or more of:

- **Data generation / collection / reporting**
for example, regarding the quantity of packaging being placed on the market (suitably broken down according to material and format), and regarding the amount of waste being recycled. This could, though, also refer to the responsibility of waste management operators in providing data regarding the flow of packaging materials at end of life, not least to ensure that the reported level of recycling is aligned with targets that may be set. These data generation / collection / reporting systems can be regarded as costs that should appropriately be borne by producers;
- **Funding provision of information to consumers (broadly understood)**
for example, regarding the desirability of preventing and reusing packaging, and what can or cannot be recycled at end of life, and how / where. As with data collection / reporting, this activity has a cost which should be borne by producers, not least since it has a bearing on how well packaging is managed at end of life (and so, if producers are held responsible for meeting recycling targets, the activity has an impact on whether or not these targets are achieved, or the extent to which they are exceeded);
- **Funding of administrative and regulatory costs incurred by regulators in overseeing – monitoring, enforcing, regulating – the system**
A key issue here is auditing of the underlying data which is used to assess performance against targets. These are also seen as legitimate costs for producers to cover (see also Section 5.1 below).

These matters ought to be considered part of the core financing responsibility of producers under EPR.

In addition to the above, the following are also sometimes considered as legitimate areas for exploration under EPR (in our view, there are often alternative, and potentially better, policy instruments for achieving these objectives):

- **Ensuring recyclability of packaging (though assessing this is not always straightforward);**
Strictly speaking, producers already have control over the recyclability of their

packaging. As such, this is not so much an extension of their responsibilities but a means of regulating a responsibility which already resides with them.

Nonetheless, EPR schemes in the EU, for example, will be required to modulate fees paid by producers, and most Member States seem likely to base fee modulation on some proxy measure of recyclability. In this way, modulation of fees can support increasing recyclability, but it is clear that the same objective could be met through regulation, or through taxation, or both;

- **Requiring producers to use a minimum level of recycled content;**

There is a range of mechanisms that can be used to increase the use of recycled materials in products and packaging. Producers already have the ability to specify the use of recycled content. In principle, measures that incentivise / require higher levels of recycled content do not extend responsibility, but they encourage / require producers to do more than they do currently. That being the case, EPR can influence a) the amount of recycled material available in the jurisdiction to which the system is applied, and b) it can, and in our view, should be configured to encourage producers to ensure the system delivers recycled materials of a high quality. EPR's environmental objectives are compromised if the quality of, or the demand for, the secondary material which the system delivers is poor / weak. It follows that even if EPR might not, strictly speaking, have increased recycled content at its core, the system design should be such that producers have an interest in delivering quality materials. It also follows that measures to stimulate the use of recycled content – which may be based on other policy instruments – are natural complements to, even if they are not an integral part of, EPR; they stimulate demand for, just as EPR can increase supply of, quality secondary materials;

- **Requiring producers to reduce their use of packaging waste;**

Again, it is questionable whether this should necessarily be considered part of EPR. Targets for refillables, or elimination / reduction in the prevalence of single-use items may well be appropriate, but these may be best addressed through specific regulations and bans, or through taxes.

This list might not be exhaustive. However, as indicated in the above discussion, in respect of many of these objectives, there may be better policy instruments than EPR for achieving the desired outcomes. EPR is not the only tool in the policy maker's toolkit. EPR can, and should, complement the broader suite of policy tools that can address packaging (and other products). The fact that we consider these not to sit within the core of EPR is not to imply the objectives are not worth pursuing, rather that there are alternative means to achieve the objective.

4.1.1 Mechanism Design

It is important to be aware of one of some of the issues associated with introducing EPR. Because EPR implies that producers need to make financial contributions, and because this is linked to their own activities, there need to be systems in place for making sure producers 'pay what they owe'. Producers and those acting on their behalf may have incentives to skew reporting, principally with a view to reducing their financial liabilities under the system. This is a 'mechanism design' problem: how can systems be designed to ensure that those being regulated are encouraged to report truthfully what they are

doing? This issue is especially problematic in systems (such as the one that the UK has operated for many years) where compliance is demonstrated through means of tradable compliance certificates: the system encourages activity that swells the low-cost supply of certificates, and this is not always a reflection of additional recycling activity. More generally, systems have suffered with issues of free-riding where producers who should be obligated under the system choose not to register. This matter is compounded by matters of under-reporting of obligations even by those who register, a matter of particular relevance to plastic packaging where changing assumptions around the weights of each unit of packaging by 1g or less can translate into major percentage changes in the amount of packaging for which an obligation should arise.⁸⁵

These considerations highlight the need for both auditing and for credible sanctions, the latter to be applied in cases of fraudulent declarations, or failure to register. Some EU countries have addressed this far more positively than others, the Belgian law, for example, providing for potentially punitive sanctions in such cases. The approaches of countries such as Greece, UK, and even (as regards free-riding, until more recently) Germany have been weak by comparison.

The drafting of law needs to recognise the potential for producers to dispute the system, and to implement measures to prevent that, or reduce its extent. The necessary enforcement capacity ought to be considered part of the costs to be recovered by the system.

4.2 Summary

EPR is primarily a policy that makes producers responsible for end of use management. Central to this 'responsibility' is the financial aspect, including, as a minimum, paying for the end-of-life management stage.

Where packaging is concerned, the financial responsibility element typically involves a change in the way in which the costs of managing waste are covered. Revenues generated from producers effectively reduce the funding that is required to be generated through other means. These other means may include funds raised either directly (household waste charges / user fees), or indirectly (local / regional / national taxation) from citizens, as well as funding support from multilateral donors.

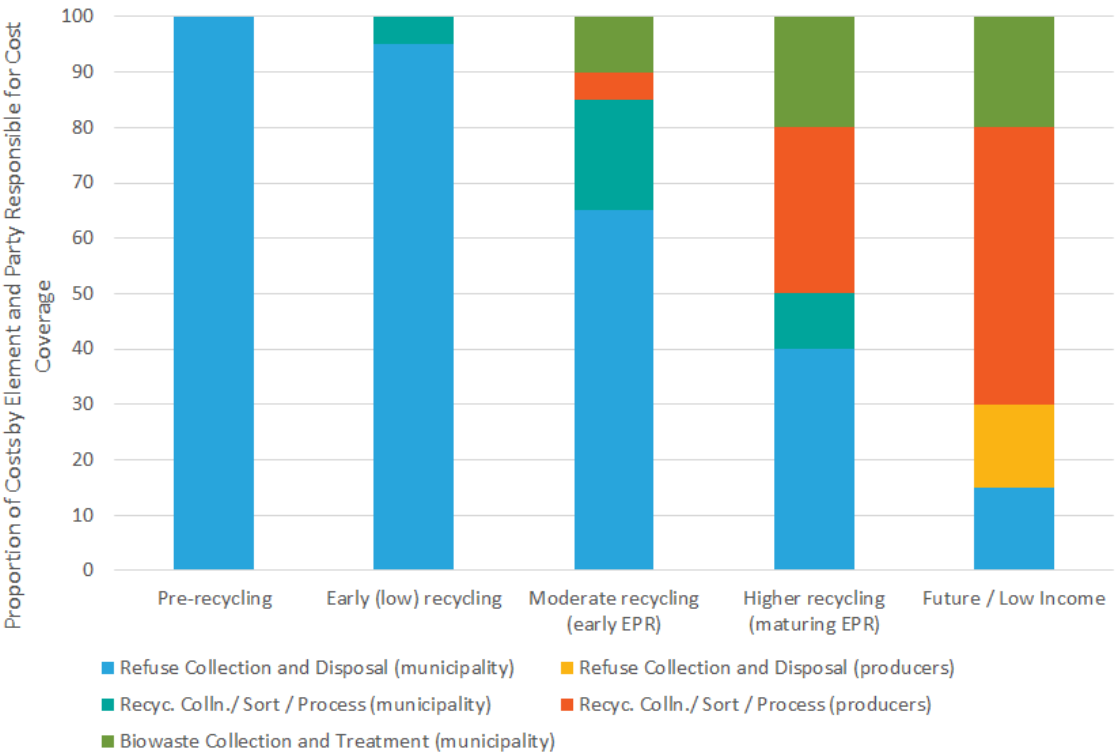
EPR is, therefore, at its core, a means of changing the way in which the costs of delivering waste management services are being covered (relative to how things would look in the absence of EPR). It also helps to align what citizens pay for waste management with the contribution they make to the problem (because of what they consume).

Nonetheless, it remains the case that the scope of costs to be recovered, and the proportion of those costs that producers are required to cover, varies enormously across systems. The scope of 'end-of-life-management' for which producers are held responsible varies considerably: in lower-income countries, there are strong arguments for ensuring this scope is broad, rather than narrow, whilst respecting the principle that

⁸⁵ If a flexible package for crisps weighs 2g, then lowering that by 0.2g per pack – which might seem a tolerable shift – reduces the crisp-pack related obligation by 10%. Since not all packs of similar format will weigh exactly the same, then assuming the 'lowest likely weight' as opposed to the 'highest likely weight' can allow businesses to lower their compliance costs through simply choosing low- but eminently plausible – unit weights.

producers should only pay for the costs relevant to their products. Figure 22 indicates what has, by and large, happened / is happening in EU countries under EPR as recycling systems have improved (the shares are approximate). Producers take a progressively increasing share of costs over time. In the ‘future’ case, at the right-hand side of the Figure, we show what may happen under EPR in the EU in future: it is suggested that lower-income countries might want to ‘leap-frog’ to such a situation, by-passing the earlier stages that some developed countries – which already had comprehensive ‘dustbin’ collections in place – have passed through.

Figure 25: Stylized Representation of Evolution in Cost Coverage Under EPR, and Potentially Use in Lower-income Countries



EPR may also involve an organisational element. What exactly is meant by ‘organisational’ can vary enormously in scope. Some ‘organisational’ element, in its most basic sense, would likely be required to ensure that the requisite sum of money was generated to cover the costs deemed to be recoverable from producers under EPR. In this sense, all systems will require some organisational element. At the other end of the spectrum, EPR may imply transfer of responsibility for physically managing waste from municipalities or those acting on their behalf to producers (who may arrange for the management rather than undertake it themselves). The potential scope of organisational responsibility is very broad. We argue above, however, that for materials such as (plastic) packaging, which constitute a significant share of household waste by volume and weight, responsibility for arranging delivery of collection services should rest with the municipality. Alternatives are likely to prove inefficient as a result of coordination problems.

EPR systems should also seek to improve the environmental impact of the (end of use management of) targeted products and / or packaging. To the extent that this is indeed the case (it rarely is not), then ensuring that funding is available (partially or fully) to meet

these objectives is the responsibility of producers. Whether responsibility for meeting targets can be given to producers ought to depend on the extent to which they have control over those matters that influence whether targets will be met. This means that the responsibility for performance targets ought, where recycling is concerned, to be linked to the question of operational responsibility.

Fundamentally, EPR is about making a more direct link between those who produce and consume products and packaging, and funding its management at end of life. In making this financial link, and recognising that improving management of products and packaging does not always come without cost, the extension of producers' responsibility to covering the costs of end-of-life management enables policy makers to push for enhanced performance in respect of management of products and packaging at end of life.

These two issues, therefore, should go hand in hand, and this is consistent with the Lindhqvist definition above. This is not only about extending financial responsibility, but it is also about improving the overall performance of packaging across the life-cycle. As an obvious example, a high recycling target for plastic packaging cannot be met if most of the plastic packaging has no hope of ever being recycled, assuming that 'recycling' itself is sensibly defined (which might not always be the case).

Finally, and as we have hinted in discussing additional targets / responsibilities, if one defines EPR as a tool for extending the responsibilities of producers to areas where they may otherwise have none, then some targets, which are legitimate ones for policy makers to set, should probably not be considered part of, let alone, central to, EPR. Making packaging more recyclable, setting recycled content mandates, increasing the market share of refillables – these are entirely reasonable objectives for policy makers to have in mind. It is, though, useful to maintain a distinction between the core elements of EPR, and some of these other objectives which may either have no relationship to EPR, or which may be better addressed using other policy instruments, even if they are sometimes addressed through EPR, and even if cost recovery systems under EPR may be configured to complement those objectives.

These points are made not only to delineate the core of EPR, but also, to encourage policy makers to consider the potential for the application of the full range of tools in the policy makers toolkit so as to deliver the objectives in the most effective and efficient ways.

4.2.1 How Might EPR Affect Sachets?

Based on the above discussion, it should be considered that, as regards sachets, EPR could do the following:

1. Producers' responsibility should be extended at least to ensuring that the costs of collecting and managing all (plastic) packaging, including sachets, is visited on producers themselves:
 - a. Given the currently poor state of waste collection services in many developing countries, and given the widespread mismanagement of many plastic packages, including sachets, the first objective is to ensure everything is collected. This requires the EPR law and the waste management law to be aligned as regards both operational responsibilities and financial responsibilities. Given that the countries examined each indicate that the municipality or equivalent has responsibility for waste

collection, then EPR law should not undermine that role insofar as that responsibility applies. It may be that local government responsibility starts and ends with households, and does not extend to non-household wastes. Both waste management law and the EPR law need to have in mind a clear route through which operational and financial responsibility for business waste applies.

- b. EPR systems should include, in the costs of collection to be covered by producers, the collection and clean-up of mismanaged waste. In order to ensure that this supports clean-up of mismanaged waste, and to provide an incentive to those whose products are widely mismanaged to either choose different packaging designs, or at least, to ensure that a comprehensive collection service is developed, the law should set expectations as regards the level of cleanliness which is expected in different areas (commercial centre, other urban, suburban, rural, roadside, beaches, riverbanks, etc.). Producers would then need to fund a service that delivers cleanliness to that standard in proportion to the costs that are linked to their products and market share of those products.
- c. The EPR law should be clear as to who – is it local government, a central government agency, or a producer-led body - is expected to arrange for the sorting and recycling of collected sachets and other packaging. It should also clarify that producers will cover the full costs of doing this, and the mechanism for doing so (see below);
- d. The EPR law should consider that, to the extent that some packages will be, and others will not be, recycled, that if there is no requirement to fund the management of the packages that are not recycled, then there is no incentive to ensure that packages are recycled other than to meet specific performance targets. It follows that i) performance targets should be set (see below), ii) the law should consider how producers should cover the costs of managing unrecycled packages, and iii) consideration should be given to incentivising the improved design / management of packaging. This could either happen as part of the EPR law, or in separate legislation. As regards ii) there are good reasons to require the costs of collecting and managing packaging that is not recycled to be covered by producers (these activities are generally the responsibility of local government). Because the costs of disposal are often extremely low in lower income situations, then the implied costs may be low. As regards iii), therefore, as a means to incentivise improved performance, two options are worthy of consideration:
 - i. an additional tax on 'unrecycled packaging' could be introduced as part of the law. This would be levied on each producer in proportion to the weight of packaging that is not recycled;
 - ii. a tax which is dependent on the recycling rates is applied. This could be made 'format specific'. The tax could be designed to fall to zero at a specified recycling rate. This type of tax, applied to beverage containers, drove the voluntary implementation of a DRS by industry in Norway;

The taxes are, essentially, equivalent (or can be made so). They act rather like a tax on disposal, but applied in this way, they have the merit of not

imposing additional costs on local government and residents (which would be the case were a tax on landfill to be applied);

- e. Where the law requires that producers will pay for activities undertaken by others (for example, collection, or clean-up, as indicated above), it should indicate how the costs to be covered by producers will i) be established, and ii) apportioned across different packaging formats. So, for example, as regards litter, where elements of clean-up are manual, then the allocation of those components of cost should be based on item counts (not weight), whilst for other (transport) costs, volume or weight may be more appropriate. Some 'engineering analysis' to apportion these costs across packages will generally be required;
 - f. Where operational activities are made the responsibility of producers, it may be expected that the producers themselves will 'organise' the means of apportioning those costs they are required to cover across packaging formats;
2. As well as being absolutely clear (so that, for example, a producer, as defined, is under no doubt as to what its responsibilities are), these responsibilities have to be stable: if these change, or are poorly defined so that they may change, over time, then the ability of parties to enter into agreements / contracts with those who are seeking to invest in improving the system (sorting, reprocessing) may not have adequate security of supply of flows of material into the future;
 3. The EPR law should include safeguards to producers such that, consistent with the mechanisms above, they are not:
 - a. Paying too much because they are funding inefficient services;
 - b. Paying for services that they are not responsible for, or paying fees to cover the cost of services which are not actually delivered (the funds are used for purposes other than the intended ones).
 4. Performance targets being set for the system should be clearly defined, the basis for performance measurement should be made clear, and the reported performance should be auditable. As regards sachets in particular, it may or may not be considered possible to establish specific e.g. recycling targets for these, but we suspect that doing so in relation to size would be difficult, and varying in relation to the specific composition of the sachet would be more difficult still. The term 'recycling' ought to be defined clearly, and in our view, should not include (for example) use of plastics in road construction. The measurement of the mass of material recycled should take place at the point where the material enters the final recycling process;
 5. Consideration should be given to ensure that performance targets do not undermine, or act to diminish incentives to engage in refill and reuse. So, for example, recognising that refillable packages might tend to be heavier than single-use ones, the nature of performance criteria and incentives should not be such as to penalise moves to refillable packages in unjustifiable ways.

Evidently, complementary measures could be used, and these are considered further in Section 11.1.

5.0 Existing EPR Legislation in India

In India, the management of plastic waste has been the subject of a range of regulation over more than a decade. The Plastic Waste (Management and Handling) Rules, 2011 were published on 4th February, 2011 by the Government of India (and subsequently amended).⁸⁶ The intention of the Rules was to provide a regulatory framework for management of plastic waste generated in the country.

In 2015, the Government consulted on a review of the existing Rules with a view to implementing Rules more effectively, and “*to give thrust on plastic waste minimization, source segregation, recycling, involving waste pickers, recyclers and waste processors in collection of plastic waste fraction either from households or any other source of its generation or intermediate material recovery facility and adopt polluter’s pay principle for the sustainability of the waste management system*”.

In 2016, the Ministry of Environment, Forest and Climate Change (MEFCC) notified the Plastic Waste Management Rules, 2016 (PWM Rules).⁸⁷ The PWM Rules have been amended on several occasions since then (2018, twice in 2021, twice in 2022, twice in 2023, and once – so far – in 2024). Some of these amendments have been more consequential than others. In what follows, we highlight the issues in relation to a) the initial 2016 Rules, and b) the successive amendments. A key amendment is the 4th Amendment of 2022, which introduced, as a new Schedule II to the Rules of 2016, Guidelines on Extended Producer Responsibility for Plastic Packaging (the EPR Guidelines).⁸⁸ We also briefly consider the Solid Waste Management Rules 2016 (SWM Rules) that were introduced at more or less the same time as the PWM Rules (see Section 5.9.1).⁸⁹

A very useful chronological overview of evolving Indian law / regulation / perspectives on waste is to be found in the work by Chandran et al.⁹⁰

5.1 The PWM Rules 2016 (as issued in 2016)

The Rules superseded those of 2011. Rule 2 notes that as regards Scope:⁹¹

rules shall apply to every waste generator, local body, Gram Panchayat, manufacturer, Importers and producer.

⁸⁶ Plastic Waste (Management and Handling) Rules, 2011, S.O 249(E), dated 4th February, 2011.

⁸⁷ Plastic Waste Management Rules, 2016, G.S.R. 320(E), 18th March 2016.

⁸⁸ Plastic Waste Management (Amendment) Rules, 2022, G.S.R. 133(E), 16th February 2022.

⁸⁹ Solid Waste Management Rules, 2016, S.O. 1357(E), 8th April 2016.

⁹⁰ Chandran, P., Arora, K., Abubaker, M., & Shekar, N (2018), Valuing Urban Waste: The need for comprehensive material recovery and recycling policy, published by Hasiru Dala.

⁹¹ Plastic Waste Management Rules, 2016, G.S.R. 320(E), 18th March 2016.

It is clear that the Rules, as set out, do not exempt any of the above entities other than to the extent that these exemptions are set out within the Rules. There are some key definitions under Rule 3:⁹²

(h) "extended producer's responsibility" means the responsibility of a producer for the environmentally sound management of the product until the end of its life;

(s) "producer" means persons engaged in manufacture or import of carry bags or multilayered packaging or plastic sheets or like, and includes industries or individuals using plastic sheets or like or covers made of plastic sheets or multilayered packaging for packaging or wrapping the commodity;

(p) "plastic sheet" means Plastic sheet is the sheet made of plastic;

(b) "brand owner" means a person or company who sells any commodity under a registered brand

(d) "commodity" means tangible item that may be bought or sold and includes all marketable goods or wares;

(o) "plastic" means material which contains as an essential ingredient a high polymer such as polyethylene terephthalate, high density polyethylene, Vinyl, low density polyethylene, polypropylene, polystyrene resins, multi-materials like acrylonitrile butadiene styrene, polyphenylene oxide, polycarbonate, Polybutylene terephthalate;

(n) "multilayered packaging" means any material used or to be used for packaging and having at least one layer of plastic as the main ingredients in combination with one or more layers of materials such as paper, paper board, polymeric materials, metalised layers or aluminium foil, either in the form of a laminate or co-extruded structure;

(y) "waste generator" means and includes every person or group of persons or institution, residential and commercial establishments including Indian Railways, Airport, Port and Harbour and Defense establishments which generate plastic waste;

(z) "waste management" means the collection, storage, transportation reduction, re-use, recovery, recycling, composting or disposal of plastic waste in an environmentally safe manner;

(aa) "waste pickers" mean individuals or agencies, groups of individuals voluntarily engaged or authorised for picking of recyclable plastic waste.

(t) "recycling" means the process of transforming segregated plastic waste into a new product or raw material for producing new products;

These definitions are highlighted both in relation to their direct relevance to this work (many sachets might be considered to be 'multilayered packaging, although there is some potential ambiguity as regards single polymer flexible packaging depending on how the term 'layer' is interpreted). The definition of 'producer' seems to exclude someone who manufactures packaging which is single layer, and not in sheet form. Packaging itself is left undefined in the Rules themselves. It is also unclear whether 'compostable plastics' are to be considered 'plastics', or a category that is distinct from 'plastics' (the definition of 'plastic' gives plenty of reason to believe that, somewhat confusingly, 'compostable plastics' do not fall under the definition of 'plastics': this has implications for,

⁹² Ibid.

for example, who has responsibility for what in the Rules themselves). Finally, the definition of 'brand owners' is interesting in India, where evidence tends to support that a large amount of packaging is not branded (presumably, the packaging is of unbranded products).⁹³ Hence, the term 'brand owner' might not cover all packaging placed on the market for final consumption.

Rule 4 sets out a number of conditions which should be respected in *'the manufacture, importer stocking, distribution, sale and use of carry bags, plastic sheets or like, or cover made of plastic sheet and multilayered packaging'*.⁹⁴

Rules 5, 6 and 7 set out Rules regarding Plastic Waste Management (for urban local bodies), Responsibility of Local Body, and Responsibility of Gram Panchayat. This relates to the structure of local government in India.

As regards urban local bodies, Rule 5 requires (amongst other things) that:⁹⁵

they 'channelize' plastic waste which can be recycled to a registered plastic waste recycler,

that local bodies shall encourage the use of plastic waste (preferably the plastic waste which cannot be further recycled) for road construction as per Indian Road Congress guidelines or energy recovery or waste to oil etc.

Local bodies are defined very broadly in the law as follows:⁹⁶

"local body" means urban local body with different nomenclature such as municipal corporation, municipality, nagarpalika, nagarnigam, nagarpanchayat, municipal council including notified area committee (NAC) and not limited to or any other local body constituted under the relevant statutes such as gram panchayat, where the management of plastic waste is entrusted to such agency'.

Rule 6 states that local bodies *'shall be responsible for development and setting up of infrastructure for segregation, collection, storage, transportation, processing and disposal of the plastic waste either on its own or by engaging agencies or producers'*.⁹⁷ This is important since it establishes that local bodies have these important responsibilities. The same rule goes on to state that local bodies:⁹⁸

'shall be responsible for setting up, operationalisation and co-ordination of the waste management system and for performing the associated functions, namely:-

(a) Ensuring segregation, collection, storage, transportation, processing and disposal of plastic waste;

(b) ensuring that no damage is caused to the environment during this process;

⁹³ See India Plastics Pact (2022) Insights Report: Small Formats and Sachets, December 2022.

⁹⁴ Plastic Waste Management Rules, 2016, G.S.R. 320(E), 18th March 2016.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ Ibid.

- (c) *ensuring channelization of recyclable plastic waste fraction to recyclers;*
- (d) *ensuring processing and disposal on non-recyclable fraction of plastic waste in accordance with the guidelines issued by the Central Pollution Control Board;*
- (e) *creating awareness among all stakeholders about their responsibilities;*
- (f) *engaging civil societies or groups working with waste pickers; and*
- (g) *ensuring that open burning of plastic waste does not take place.*

(3) The local body for setting up a system for plastic waste management shall seek assistance of producers and such a system shall be set up within one year from the date of final publication of these rules in the Official Gazette of India.

The wording is not precise as regards what the local bodies should be entitled to expect from producers: on the one hand, the activities a) to g) above are made the responsibility of the local bodies, they are also to seek assistance from producers. Sub-para 3 does not make the producers responsible for any of the activities, and it does not prescribe what assistance – if any – they are required to provide. Presumably, producers could simply decline to help, not least given that this is not their responsibility.

Rule 7 makes a similar range of functions the responsibility of Gram Panchayats.

Comparing Rule 7 to Rule 6:

- the local bodies can develop infrastructure on their own, or by engaging agencies, or by engaging producers, but Gram Panchayats are not given the option of engaging producers (and there is no equivalent of Rule 6 sub-para 3);
- Gram Panchayats have no responsibility comparable to that of local bodies in respect of '*ensuring processing and disposal on non-recyclable fraction of plastic waste in accordance with the guidelines issued by the Central Pollution Control Board*';

Rule 8 places requirements on waste generators, including that they must segregate litter, and must not litter. It also indicates that:⁹⁹

(3) All waste generators shall pay such user fee or charge as may be specified in the bye-laws of the local bodies for plastic waste management such as waste collection or operation of the facility thereof, etc.;

This would support the view that the services in respect of plastic waste management indicated above are to be paid for not by producers, but by waste generators through the payment of user fees.

Rule 9 – Responsibility of producers, Importers and Brand Owners – then states:¹⁰⁰

(1) The producers, within a period of six months from the date of publication of these rules, shall work out modalities for waste collection system based on Extended Producers Responsibility and involving State Urban Development Departments, either individually or collectively, through their own distribution channel or through the local body concerned.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

(2) Primary responsibility for collection of used multi-layered plastic sachet or pouches or packaging is of Producers, Importers and Brand Owners who introduce the products in the market. They need to establish a system for collecting back the plastic waste generated due to their products. This plan of collection to be submitted to the State Pollution Control Boards while applying for Consent to Establish or Operate or Renewal.

Taken together, the Rules 5) to 7) for local government, Rule 8 for waste generators, and Rule 9 for producers, give limited clarity, and indeed, introduce some confusion, as to who has what responsibility vis a vis plastic waste collection, and especially, who should be paying for what part of the system. This is also the only mention of the term 'extended producers responsibility', which is defined in the earlier Rule (see above). But the main problem is the lack of clarity over who has what responsibility for (for example) collection services (in whichever stream), but also, for funding those services.

Sub-paragraph 3 of Rule 9) also stated:¹⁰¹

(3) manufacture and use of non-recyclable multilayered plastic if any should be phased out in Two years time.

The Rules themselves offered no definition of what was to be considered 'recyclable' or 'non-recyclable'. As such, the drafting left something to be desired, but given the limited extent of recycling of multilayered plastic (including multilayered packaging), then this could have been assumed to apply to all multilayered plastic. Nonetheless, it could equally be argued that, spending enough time and money, it might be possible to recycle some part of some multilayered plastics. The absence, therefore, of clear definitions would not have helped. Furthermore, the time given for the phase out is worth considering. This would likely have led to considerable redundancy of capital assets (and associated costs) if Rule 9 really had been implemented as planned, with a collection system being established for materials that would subsequently – eighteen months or so later – be phased out.

Rule 10 specified protocols for testing degradability / degree of disintegration of plastic materials outlined in Schedule I. The purpose of the testing, and the tests required are not clearly indicated (Schedule I list 9 protocols).

Rule 12 listed the prescribed authorities for enforcement: it would have made sense to link these responsibilities to the specific Rules (the enforcement responsibilities are loosely worded).

Rule 15 appears to be the only place where any private sector operator is required to pay fees, and this is for carry bags – a plastic waste management fee is to be paid by shopkeepers and street vendors who provide carry bags (Rs 48,000 per annum).

5.1.1 The Role of the CPCB

Rule 6(2) stated that one of the responsibilities of local bodies was:

ensuring processing and disposal on non-recyclable fraction of plastic waste in accordance with the guidelines issued by the Central Pollution Control Board

¹⁰¹ Ibid.

After the PWM Rules were issued, the Central Pollution Control Board (CPCB) issued (September 2017) a set Consolidated Guidelines for Segregation, Collection and Disposal of Plastic Waste.¹⁰² These are of interest because, notwithstanding the nature of responsibilities in the Rules, and the responsibility of local bodies for '*ensuring channelization of recyclable plastic waste fraction to recyclers*', the CPCB Guidelines have scant focus on recycling, but rather more on disposal. The schematic used by CPCB is instructive, with waste being split into two fractions, '*incinerable waste (plastics)*' and '*non-incinerable solid waste*', this being split into organic waste for composting, and inorganic waste for grit making. Only a fraction of the incinerable waste is indicated as being channelled for recycling. The representation is highly misleading, and could easily be construed to be indicative of a bias, or lack of competence, on the part of the CPCB.

It should be noted that the work of Chandran et al makes the observation that the Swachh Bharat Mission launched by the Prime Minister in 2014 also tended to support 'waste to energy', and it noted also the misalignment between a Swachh Bharat campaign, in 2017, to push for two-stream collection, and the SWM Rules of 2016, which proposed (at least) three stream separation.¹⁰³

5.2 2018 Rules (First Amendment)

An important change to the 2016 Rules because of the 2018 Amendment was to change the nature of the implied ban in Rule 9(3). The wording changed from:¹⁰⁴

manufacture and use of non-recyclable multilayered plastic if any should be phased out in Two years time

to:

manufacture and use of non-recyclable multilayered plastic which is non-recyclable or non-energy recoverable or with no alternate use should be phased out in Two years time

The term recyclable remained undefined. However, two new definitions were added:

ab) 'alternate use' means use of a material for a purpose other than for which it was conceived, which is beneficial because it promotes resource efficiency

and

“(ga) ‘energy recovery’ means energy recovery from waste that is conversion of waste material into usable heat, electricity or fuel through a variety of processes including combustion, gasification, pyrolysis, anaerobic digestion and landfill gas recovery substituted.

It might be considered that the initial 2016 restriction was thereby rendered meaningless: if the non-recyclable multilayered package (MLP) was capable of being burned, or if it

¹⁰² Central Pollution Control Board (2017) Consolidated Guidelines for Segregation, Collection and Disposal of Plastic Waste, September 2017.

¹⁰³ Chandran, P., Arora, K., Abubaker, M., & Shekar, N (2018), Valuing Urban Waste: The need for comprehensive material recovery and recycling policy, published by Hasiru Dala.

¹⁰⁴ Plastic Waste Management (Amendment) Rules, 2018, G.S.R. 285(E), 27th March 2018.

could be anaerobically digested, or if it could generate landfill gas, it would no longer be required to be phased out.

It is interesting to note that the Initial Rules were applicable from the date 18th March 2016. A two-year period would have ended on 17th March 2018. The 2018 Rules were published after that 2 year period came to an end (27th March 2018). In theory, there ought already to have been considerable removal of products from the market by the time the 2018 Rules were issued, but evidence of this is difficult to find: rather the 2018 Rules seem to have intended, by the changed wording and the new definitions, to render the phase out proposed in the 2016 PWM Rules meaningless.

Rule 15 – applying the levy to carry bags – was also removed, thereby removing the only form of fees that the Rules *required* producers to pay.

These two amendments were significant, therefore, and diluted the effect of the 2016 Rules.

5.2.1 Role of the Ministry of Environment, Forestry and Climate Change

The changes above followed a period in which the effect of the 2016 SWM Rules and PWM Rules were considered, and representations made by various bodies. The Ministry of Environment, Forestry and Climate Change (MoEFCC) published a report in 2017 (the date on the publication may be incorrect) following three meetings of a dedicated committee and a stakeholder meeting.¹⁰⁵ The report is of interest partly because it sheds light on the reasons for the aforementioned changes, but also because it seemed to indicate an emergent perspective on EPR, and associated thoughts regarding waste collection, which never actually came to fruition.

In particular, in discussing Rule 9 (see above), it was noted that there was a contradiction between the apportionment of responsibilities – something we allude to repeatedly above and below. The discussion is represented in the document as follows:¹⁰⁶

representations were received in the Ministry and various queries have been raised. e.g. When segregation does not take place, what will be the liability of producers, what is demarcation of roles between producers and ULBs? Will trade bodies/associations be considered by Local bodies for partnership rather than individual Producers? How will the quantum of cost from producers be decided? What would be the responsibility of brand owners in this? How would apportionment of costs between ULB & producers be carried out? Further it was stated in the stakeholders meeting that the EPR guidelines need to be well defined and responsibilities in the entire EPR value chain should be clearly enumerated. The primary responsibility should be of the local bodies in the entire operation. Value chain for the recyclers also to be included. It was also proposed that cess could be a good option for producer/brand owners.

¹⁰⁵ Ministry of Environment, Forestry and Climate Change (2017) Report on Recommendations of the Committee on Issues/challenges faced by Municipalities related to Implementation of Solid Waste Management Rules, 2016 and Plastic Waste Management Rules, 2016, November, 2017.

¹⁰⁶ Ibid.

These are salient observations. The document continued:¹⁰⁷

How would EPR be done if waste segregation is not done at source? Are there any graded EPR targets or producers have to recycle 100% from 1st year? Will the responsibility of collection be divided amongst the various entities in the value chain (product manufacturer, brand owner, recycler etc) and in what proportion?

Further it was mentioned that clarity is required on whose responsibility it is to submit the waste collection plan and how the implementation of this rule would be monitored in a situation when all the producers are expected to give collection plans to practically all the state PCBs. Since waste is not necessarily restricted to the state where the product is manufactured, how will the implementation of this rule be monitored?

These observations are clearly alluding to the folly of an EPR approach where producers are expected to take operational responsibility for collection when that responsibility clearly rests already with the local bodies (not least in the SWM Rules – see below). It also highlights that it would be problematic to expect all producers, individually, to submit plans for collection to the State PCBs.

The recommendation is eminently sensible:¹⁰⁸

The Committee noted that the responsibility of waste collection and segregation rests solely with the ULBs. Handing over this responsibility to the producers would be very impractical and inefficient. We would have a situation wherein there would be multiple channels for waste collection leading to large inefficiencies. Similarly, if the waste segregation is not done at source, it would be difficult to expect producers to implement EPR. Further, the committee noted that collection and segregation of household waste is the basic responsibility of the ULBs. Shifting them to producers is neither desirable nor feasible.

The committee therefore recommended that under the PW Rules the EPR concept needs to be reworked. We may move to a concept of a “modified EPR” wherein a suitable fee depending on the quantum of production of plastics would be imposed on producers/ brand owners. This fee would get collected into a fund which would be used only for the purpose of plastic waste handling/ collection/ segregation/ treatment/ processing. The committee also decided that this principle should be presented before the competent authority in MoEF&CC for consideration and approval. Once this principle was accepted the committee would deliberate on the details of level of fee, constitution of the fund, disbursement from the fund etc in its next report.

There is little here to disagree with: the problem is that it is not what subsequently happened.

As regards multilayered packages (MLPs) in particular, the report recommended:¹⁰⁹

The committee noted that MLPs are used world over and it is not banned anywhere. The committee also noted that MLPs perform a very important function, especially in

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

the food processing industry. The committee was of the view that we should remove the Rule regarding banning of MLPs from the PW Rules. MLPs waste should be regulated and its use in WE plants, cement plants etc be promoted. CPCB should modify its guidelines to reflect the fact that MLPs would also be used in the above plants in a safe manner.

Further the committee opined that the 'modified EPR' scheme outlined in its recommendations for rules 6 & 9 as mentioned above, should be adopted for MLPs as well. Thus producers/brand owners would be required to pay a specified fee depending on the quantum of production of MLPs. The fees should be higher than that of plastic producers/ brand owners to reflect the fact that processing MLPs is a more resource intensive operation. Details of the fund and related modalities could be worked out separately by the committee, once this principle is accepted.

As regards the first paragraph, nothing here was not already known when the Rule was originally promulgated. The second paragraph hints at modulation of fees for MLPs. As with the approach noted above for EPR generally, this recommendation was not followed through.

Of no lesser interest are some of the arguments to which the Committee was exposed:¹¹⁰

Representations mentioned that there is lack of clarity on categorization of items - CPCB guidelines treat MLP used for packaging as non-recyclable plastic waste and hence needs to be phased out though it is considered as a recyclable product by the industry. Other countries are developing technologies that can be used to recycle MLP e.g. Pyrolysis. If there are solutions for reuse like cement manufacture/ waste to energy/ use (brick kilns etc), there would be little justification for phase out in view of the utility of the products.

[...] In the stakeholders meeting it was suggested that only non-recyclable and non-energy recoverable plastic should be banned. However, practically there is no plastic which is not recyclable or non energy recoverable. Therefore, there is no need to ban MLP.

Both of these paragraphs make claims that are inaccurate, and do not seem especially relevant. They both seem to conflate 'recycling' with other management options, with the second paragraph essentially equating the recycling of plastic (that can lead to a reduction in GHG emissions) with energy recovery (which is likely to increase GHG emissions). The climate change impacts of the two could hardly be more different.¹¹¹

5.2.2 Role of the CPCB

Even though the CPCB had already issued Guidance in 2017, it saw fit to offer Guidelines again in 2018 on disposal of 'the non-recyclable fraction (Multi-layered packaging)' shortly after the 2018 amendment.¹¹² In these Guidelines, there are some strange statements, including that recycled plastics 'are more harmful to the environment

¹¹⁰ Ibid.

¹¹¹ Dominic Hogg (2022) The Case for Sorting Recyclables Prior to Landfill and Incineration, Special Report prepared for Reloop, June 2022.

¹¹² CPCB (2018) Guidelines for the Disposal of Non-recyclable Fraction (Multi-layered) Plastic Waste (As per Rule '6(2)(d) & 9(2)' of Plastic Waste Management Rules, 2016, as amended 2018), April 2018.

than the virgin products due to mixing of colour, additives, flame retardants, stabilisers etc.’ This perhaps helps to explain the rather limited attention given to recycling in previous Guidelines.

On the other hand, the Guidelines claim that only 6% of plastic waste in India is ‘non-recyclable’, raising questions as to what to do with the 2.7 million tonnes of non-recyclable plastic waste generated each year across the whole of India, of which the Guidelines estimate that 0.56 million tonnes is dumped each year. It gives a priority ordering for this waste of minimizing waste generation, co-processing in cement kilns, disposal by plasma pyrolysis technology or disposal in secured landfills. Within a year (see Section 5.1.1), the CPCB had dropped ‘conversion into fuel oil’ and ‘use in road construction’, at least for non-recyclable multi-layered packaging. It had become acceptable, on the other hand, to dispose of this to landfill. There ought to have been some basis for making these decisions but none was offered.

5.3 2021 Rules (Second Amendment)

An important amendment was made in the Second Amendment to Rule 4 in respect of some single-use plastic items. After sub-rule (1), the following sub-rules were inserted:¹¹³

“(2) The manufacture, import, stocking, distribution, sale and use of following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from the 1st July, 2022:-

(a) earbuds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration;

(b) plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.

(3) The provisions of sub-rule (2) (b) shall not apply to commodities made of compostable plastic.

Note that the Amendment was dated 12th August 2021, so the Rules gave less than a year for the ban to take effect.

There was another interesting addition, perhaps reflecting on experience with the proposal for phasing out multilayered plastic in the 2016 Rules as initially made, and then amended:¹¹⁴

(4) Any notification prohibiting the manufacture, import, stocking, distribution, sale and use of carry bags, plastic sheets or like, or cover made of plastic sheets and multilayered packaging and single-use plastic, including polystyrene and expanded polystyrene, commodities, issued after this notification, shall come into force after the expiry of ten years, from the date of its publication”.

This looks likely to have been a response to industry concerns that banning items required a longer lead time than 2 years. Ten years, though, is overly cautious, and may

¹¹³ Plastic Waste Management (Amendment) Rules, 2021, G.S.R. 571(E), 12th August 2021.

¹¹⁴ Ibid.

have reflected central government's concerns that some States were introducing bans of wider scope than it had envisaged.¹¹⁵ Furthermore, given that previous amendments had rescinded Rules made only 2 years before, it would seem eminently possible for the new sub-rule 4 above to be changed. This might have been considered a quid pro quo for industry given the new sub-rules 2 and 3.

New definitions were introduced, one of relevance to the new sub-rules 2 and 3 above:¹¹⁶

(va) "Single-use plastic commodity" mean a plastic item intended to be used once for the same purpose before being disposed of or recycled;"

This is a somewhat loose definition.

Also, a definition for 'plastic waste processing' was introduced. This is a terms which required definition since it was used widely in the initial Rules:¹¹⁷

(qa) "Plastic waste processing" means any process by which plastic waste is handled for the purpose of reuse, recycling, co-processing or transformation into new products"

This appears to imply all ways of dealing with plastic waste other than disposal.

Rule 9 sub-rule 1 was amended to include the underlined clause below:

The producers, within a period of six months from the date of publication of these rules, shall work out modalities for waste collection system based on Extended Producers Responsibility and involving State Urban Development Departments, either individually or collectively, through their own distribution channel or through the local body concerned as per guidelines issued under these rules from time to time.

This seems to have been anticipating the 4th Amendment, and the introduction of EPR Guidelines (which were already being discussed).

Other Amendments were made to update the wording of the Rules in terms of references to law that had been superseded, and functions of enforcement bodies.

5.4 2021 Rules (Third Amendment)

There are no major changes of relevance to this work in the Third Amendment.¹¹⁸

5.5 Fourth Amendment (EPR Guidelines) 2022

We noted above that the Rules of 2016 defined Extended Producer Responsibility, but made only one reference to it, with this being less than enlightening as to what was intended.

Rule 9 sub-rule 1 was amended to reference a new Schedule 2 as follows:¹¹⁹

¹¹⁵ See Citizen matters (2021) How will Centre's 2021 plastic ban affect Bengaluru? September 27, 2021.

¹¹⁶ Plastic Waste Management (Amendment) Rules, 2021, G.S.R. 571(E), 12th August 2021.

¹¹⁷ Ibid

¹¹⁸ Plastic Waste Management (Second Amendment) Rules, 2021, G.S.R. 647(E), 17th September 2021.

¹¹⁹ Plastic Waste Management (Amendment) Rules, 2022, G.S.R. 133(E), 16th February 2022.

The producers, within a period of six months from the date of publication of these rules, shall work out modalities for waste collection system based on Extended Producers Responsibility and involving State Urban Development Departments, either individually or collectively, through their own distribution channel or through the local body concerned as per guidelines specified in SCHEDULE II.

Schedule II was entitled Guidelines on Extended Producer Responsibility for Plastic Packaging. These were published on 16th February 2022, and came into force ‘with immediate effect’.

A range of definitions were articulated in the Schedule. These definitions do not, however, replace the ones in Rule 3 of the initial Rules. This can be problematic: if EPR Guidelines – set out in a Schedule - include definitions which are not aligned with those in the main Rules, the two sets of definitions could introduce, unintentionally, conflicts, and these may have legal consequences. It would have been useful for the Main Rules and the Guidelines to be working off one consistent set of definitions. Subsequent amendments have addressed this issue, although not completely (see below).

Additional definitions included:¹²⁰

(d) —End of Life disposal means using plastic waste for generation of energy and includes co-processing (e.g. in cement kilns) or waste to oil or for road construction as per Indian Road Congress guidelines, etc;

Interestingly, this could include burning waste for use for space heating / cooking fuel where it happens on private land (the prohibitions on ‘open burning’ seem not to include burning waste within homes, etc.).¹²¹

There is no mention here of landfilling. This might be because it is considered that the Solid Waste Management Rules 2016 effectively rule out landfilling of waste whose calorific value exceeds a given level (see below), but an approach which tends to favour combustion (or other thermal treatment) of fossil-derived plastic wastes is likely to have negative consequences for climate change.

There is a somewhat loosely worded definition for plastic packaging:¹²²

(h) —Plastic Packaging means packaging material made by using plastics for protecting, preserving, storing and transporting of products in a variety of ways

The word ‘or’ might have been better than ‘and’ in the above. The definition also raises questions as to whether this includes all packages using any quantity of plastics (e.g. paper cups lined with plastic liners).

¹²⁰ Ibid.

¹²¹ It is clear that burning waste remains a problem and it is not difficult to understand why. Although the PWM Rules and the SWM Rules (see below) seek to forbid this, in the absence of comprehensive waste collection services, those generating waste face stark options as to how waste should subsequently be managed. In such circumstances also, enforcing a ban on the practice is incredibly challenging. So, whilst the Rules and various Directions by the National Green Tribunal have been made, the problem is likely to persist as long as collection services are not comprehensive.

¹²² Ibid.

The use of recycled plastic is defined as:¹²³

(q) —Use of recycled plastic means recycled plastic, instead of virgin plastic, is used as raw material in the manufacturing process;

The definition of virgin plastic only appears in the main Rules:¹²⁴

(x) “virgin plastic” means plastic material which has not been subjected to use earlier and has also not been blended with scrap or waste;

At some stage, the manufacturing process may blend plastic which is not derived from recycling processes with plastic that has been derived from recycling processes. Would that mean that the former is no longer to be considered ‘virgin plastic’ (because it has been blended with “scrap”?). “Scrap” is not defined either in the Rules or the Schedule II.¹²⁵

In terms of the actual substance, the Guidelines consider that the following are in Scope:¹²⁶

(i) Producer (P) of plastic packaging;

(ii) Importer (I) of all imported plastic packaging and / or plastic packaging of imported products;

(iii) Brand Owners (BO) including online platforms/marketplaces and supermarkets/retail chains other than those, which are micro and small enterprises as per the criteria of Ministry of Micro, Small and Medium Enterprises, Government of India;

(iv) Plastic Waste Processors

Four Categories of packaging are established in Para 5. They include (para 5.1):¹²⁷

(i) Category I

Rigid plastic packaging;

(ii) Category II

Flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic), plastic sheets or like and covers made of plastic sheet, carry bags, plastic sachet or pouches;

(iii) Category III

Multi-layered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic);

¹²³ Ibid.

¹²⁴ Ibid.

¹²⁵ The term ‘waste/scrap’ is defined in Public Notice No. 58(PN)/97 02, but the definition therein does not help clarify matters since a) the term ‘waste/scrap’ is used, and b) the definition states that such material (which is effectively process waste / offcuts) ‘can be termed as virgin or new material’.

¹²⁶ Ibid.

¹²⁷ Ibid.

(iv) Category IV

Plastic sheet or like used for packaging as well as carry bags made of compostable plastics.

Sachets, therefore, could be either in Category II or III, depending on whether or not they include other materials. Category II is likely to include a wide range of plastics which are relatively easy to recycle alongside plastic sachets and the like which will be more difficult to recycle.

The PIBOs and Processors are all (other than the exempted MSME BOs) required to register on a centralised EPR portal developed by the Central Pollution Control Board (CPCB). Paras 6.2. to 6.4 cover the cases of where businesses either do not register, or conceal information, and in principle, those who do not register cannot carry out 'any business', and those who conceal information can have registration revoked for a year.

Para 7 sets targets and obligations for producers, importers and brand owners. For producers and importers, the obligations / targets relate to recycling, and use of recycled content. For brand owners, there are also reuse obligations applicable to rigid plastic packaging of volume or weight equal or more than 0.9 litre or kg but less than 4.9 litres or kg, and for rigid plastic packaging equal or more than 4.9 litres or kg. For all three (PIBOs), there are Rules regarding end-of-life disposal.

For Categories II and III (sachets), the targets are set out below. Although Rule 7 presents these for each of producers, importers and brand owners, the targets are the same (see Table 4). The recycling targets are the same for Categories II and III: the recycled content targets, however, are lower for Category III. The rationale for this is less than clear: why would a recycled content target be lower for one than for the other? Might the consequence be that producers shift packaging from Category II to Category III? After all, as we indicate below, there would appear to be no financial incentive to opt to use Category II rather than Category III provided by the system itself. So, perversely, this could result in more multi-material flexibles as a result of the differences in the recycled content targets. On the other hand, the recycling targets themselves are likely to be far easier to meet in Category II to the extent that it includes (for example) clean films used in transit packaging.

Table 4: Recycling and Recycled Content Targets for Category II and III Packaging

	2024/25	2025/26	2026/27	2027/28
Recycling				
Cat II	30	40	50	60
Cat III	30	40	50	60
Recycled Content				
Cat II	10	10	20	20
Cat III	5	5	10	10

Source: Plastic Waste Management (Amendment) Rules, 2022, G.S.R. 133(E), 16th February 2022.

There are no methodologies alluded to which would set out how ‘recycling’, or ‘use of recycled content’ should be assessed and reported (so, for example, at what stage in the supply chain is plastic considered to be ‘recycled’? How is the recycled content to be ‘tracked’ to verify claims made?).

Also, because all PIBOs are required to send only those plastics not recycled to end of life disposal, and because end-of-life disposal does not include landfilling, so there should be no landfilling of plastics under an obligation. The PWM Rules already ‘encouraged’ this, but the Guidelines appear to mandate it.

In the description of the obligations, as regards use of recycled content (but not recycling), there is provision for meeting obligations through trading certificates:¹²⁸

In cases, where it is not possible to meet the obligation in respect of recycled plastic content on account of statutory requirements, the exemption will be granted by the Central Pollution Control Board on a case-to-case basis. However, in such cases, the Producers, Importers & Brand-Owners will have to fulfil its obligation of use of recycled content (in quantitative terms) through purchase of a certificate of equivalent quantity from such Producers, Importers & Brand-Owners who have used recycled content in excess of their obligation. The Central Pollution Control Board will develop a mechanism for such exchange on the centralised online portal.

Nonetheless, without having introduced the concept of such certificates, Para 8 seems to envisage tradable certificates being allowable means to meet obligations beyond those related to recycled content, as well as allowing them to offset shortfalls in the previous year, and bank for use in the following year. As regards the different obligations, it is stated:¹²⁹

(8.2) Surplus in one category can only be used for off-setting, carry forward and sale in the same category. A surplus under reuse can be used for against reuse, recycling and also end of life disposal. A surplus under recycling can be used for recycling and end of life disposal. A surplus under end of life disposal cannot be used for reuse or recycle.

The Paragraph 8, entitled ‘Generation of surplus Extended Producer Responsibility certificates, carry forward and offsetting against previous year Extended Producer Responsibility targets and obligations, and sale and purchase of surplus Extended Producer Responsibility certificates’, appears without there having been any elaboration of when such certificates are generated, by whom, and with what ownership rights. The matter of certificates re-emerges in Para 11, which states (11.5):

(11.5) Only plastic waste processors registered under Plastic Waste Management Rules, 2016, as amended, shall provide certificates for plastic waste processing, except in case of use of plastic waste in road construction. In cases where plastic waste is used in road construction the Producers, Importers & Brand-Owners shall provide a self-declaration certificate in pro forma developed by Central Pollution

¹²⁸ Ibid.

¹²⁹ Ibid.

Control Board. The certificate provided by only registered plastic waste processors shall be considered for fulfilment of Extended Producer Responsibility obligations by Producers, Importers & Brand-Owners.

The second sentence seems likely to be open to abuse. The third sentence could be construed as excluding the self-declared certificates as a means of fulfilling obligations, but one suspects that is not the intent.

The extent of oversight envisaged seems worryingly limited:¹³⁰

(11.6) The pro forma for the certificate shall be developed by the Central Pollution Control Board. In no case, the amount of plastic packaging waste recycled by the enterprise shall be more than the installed capacity of the enterprise.

It is also of interest that those undertaking ‘end of life disposal’ would also generate certificates. To this end:¹³¹

(11.8) The Plastic Waste Processors undertaking end-of-life disposal of plastic packaging waste viz. waste to energy, waste to oil, cement kilns (co-processing) shall provide information on an annual basis as per prescribed pro forma, on the centralised portal developed by Central Pollution Control Board. These entities shall ensure the disposal of plastic packaging waste as per relevant rules, guidelines framed by regulatory bodies in an environmentally sound manner.

There is very little in the Guidelines about what the rules for trading of certificates would be, but the presumption is that these are tradable. Para 7 does say that shortfalls on recycled content are to be purchased only from PIBOs and that the CPCB will ‘develop mechanisms for such exchange on the centralised online portal’. Processors seem to be the entities entitled to generate certificates (see above), but the event that triggers the certificate being generated is not elaborated. It would seem to be problematic for PIBOs to be generating certificates themselves (moral hazard), although they are entitled to do so in respect of use of plastic in road construction. The lack of detail around trading in the legislation is concerning: traded certificates are traded because they have value. In one of few other schemes - the UK - where tradable certificates are the means through which producers demonstrate compliance against recycling targets, the problem that has emerged is one where the prime motivation is for producers, or collective compliance schemes acting on their behalf, to seek acquisition of certificates at lowest cost. That tends to incentivise processors to generate as many certificates as possible at lowest cost to themselves, generally leading to a ‘race to the bottom’, and not infrequently (likely, far more frequently than is reported / uncovered), fraudulent declaration of certificate generation.

The system’s design also seems likely to lead to rent-seeking behaviour: in the short- to medium-term, there is likely to be a new revenue stream for ‘end-of-life disposal’ facilities. But it is not clear whether that revenue stream is deserved. What would such facilities be doing that they might not already do? It seems incredibly unlikely that a conventional waste-to-energy facility would be constructed purely for the purpose of disposing of plastics. Indeed, were that to be the case, the climate impacts of such a facility would be enormous, and enabling a revenue stream to be generated through

¹³⁰ Ibid.

¹³¹ Ibid.

demonstration that plastics had indeed been burned there might be considered perverse. Similar considerations apply in respect of co-processing at cement kilns: kilns already have an incentive to use plastics where they are equipped to do so. Substituting plastics for petcoke, for example, is unlikely to deliver a radical improvement in greenhouse gas emissions, and it is possible that such a revenue stream shifts the focus of kilns away from non-fossil sources of calorific value and towards plastics, if additional revenue can be generated through selling certificates.

As regards PIBOs, Para 10 notes:¹³²

(10.2) Producers, Importers & Brand-Owners shall provide Action Plan containing information on the Extended Producer Responsibility Target, category-wise, where applicable, through the online centralised portal developed by Central Pollution Control Board, along with application for registration or renewal of registration under Plastic Waste Management Rules, 2016. The Action Plan shall cover tenure of the Registration as per the provisions of Plastic Waste Management Rules, 2016. The standard operating procedure for registration and the action plan pro forma shall be developed by Central Pollution Control Board as per these guidelines.

What this Action Plan would be is unclear: might it be acceptable to simply say ‘we’ll buy certificates’? That is, after all, permitted by the scheme.

Para 10 goes on:¹³³

(10.5) In order to develop a separate waste stream for collection of plastic packaging waste for directly fulfilling Extended Producer Responsibility obligations, the Producers, Importers & Brand-Owners may operate schemes such as deposit refund system or buy back or any other model. This will prevent mixing of plastic packaging waste with solid waste.

We noted above that the PWM Rules themselves are unclear as to who has what responsibility for collection of plastic waste, and also, funding thereof. The above paragraph merely adds to this confusion. Whereas Rule 9 makes collection the primary responsibility of PIBOs (at least for some packaging), and whereas Rules 5-7 variously make this the responsibility of local government, now, the Guidance indicates that PIBOs may (not shall, or must) operate models to generate a separate waste stream for collection. The fact that the Guidelines fail to make the link between producers’ obligations, and the activities they will be required to fund, is a major missed opportunity.

Para 14 is also relevant:¹³⁴

14. Plastic Packaging Waste Collection System by Producers, Importers & Brand-Owners

(14.1) Producers, Importers & Brand-Owners while fulfilling their Extended Producer Responsibility obligations may develop collection and segregation infrastructure of plastic packaging waste, as required, based on the category of plastics. It may include the following based on implementation modality of Extended Producer Responsibility adopted by Producers, Importers & Brand-Owners: -

¹³² Ibid.

¹³³ Ibid.

¹³⁴ Ibid.

(a) *establish waste plastic collection points and Material Recovery Facilities (MRFs);*

(b) *ensure the collection of the plastic packaging waste from the collection points, with a frequency that is proportionate to the area covered and the volume;*

(c) *offer the collection of plastic, from the entities like urban local bodies, gram panchayats, other public authorities or third parties carrying out waste management, and provide for the collection from all entities that have made use of that offer; provide for the necessary practical arrangements for collection and transport;*

(d) *ensure that the plastic packaging waste collected from the collection points are subsequently subject to recycling in a registered facility by a recycler or its permitted end use in the designated manner.*

(14.2) *Producers, Importers & Brand-Owners may ensure the network of collection points taking into account population size, expected volume of plastic or packaging waste, accessibility and vicinity to end-users, not being limited to areas where the collection and subsequent management is profitable.*

(14.3) *The entities involved in waste collection will hand over the waste for treatment and recycling or for identified end uses.*

(14.4) *Participation of voluntary collection points - voluntary collection points will hand over plastic packaging waste to the Producers, Importers & Brand-Owners or third party agencies acting on their behalf with a view to their treatment and recycling or their identified end use.*

This does little to clarify matters – there is no ‘must’, only ‘may’. How will those services be considered in the above interface with collection services implemented by local bodies? How is a waste collection service to be optimally configured if PIBOs step in at various points at a whim? Under what conditions would they do that? This simply seems to exacerbate the uncertainty already present in the PWMs regarding who is going to do what, and who will pay. 14.4 might be considered (depending on how this is interpreted – there is no definition of ‘voluntary collection points’) to have implications for materials collected by informal actors and other third parties.¹³⁵ On what terms do such actors transfer plastics? How do they benefit (if at all) from any positive value assigned to tradable certificates?

It remains enormously unclear who will undertake collection, and how collection would be funded, still less, why it is not the local bodies. If the expectation is that the discounted future value of traded certificates will drive this activity, then it seems reasonable to point out that – not least given the absence of clear description as to how certificates may be exchanged – this revenue stream is likely to be so uncertain as to be insufficient to drive significant investment in the system for plastics collection, recycling and processing.

The uncertainty regarding who is required to / will play which role vis a vis collection is especially relevant given the focus of the Rules and of the Guidelines on plastics, and

¹³⁵ The Swachh Bharat Mission’s advisory on Material Recovery Facility (MRF) (for Urban local bodies) simply re-emphasises the point: whilst there may be EPR for plastic packaging, it is still seen as the duty of the ULBs under the SWM Rules to set up MRFs: given that, PIBOs would, presumably, not need to pay anything to support establishing a MRF in an urban area (see Ministry of Housing and Urban Affairs (2020) *Swachh Bharat Mission – Urban: Advisory on Material Recovery Facility (MRF) for Municipal Solid Waste*, June 2020, <https://sbmurban.org/storage/app/media/pdf/SBM%20Advisory%20on%20MRF%20for%20MSW.pdf>).

plastic packaging. An efficient collection service for 'waste' ought to consider how to collect plastics as part of a system that addresses all wastes. It might be the case that a focus only on plastics / plastic packaging is warranted because of the linked problems, but we suspect that treating the service for collecting and managing plastic (packaging) waste as distinct from collecting and managing all other wastes will lead to inefficiency in the design and operation of collection and sorting services.

The MSWM Rules 2016 state, after all, under Rule 15(x), that the duties of local authorities and Panchayats include requiring them to:

make adequate provision of funds for capital investments as well as operation and maintenance of solid waste management services in the annual budget ensuring that funds for discretionary functions of the local body have been allocated only after meeting the requirement of necessary funds for solid waste management and other obligatory functions of the local body as per these rules

These functions include (Rule 15(b)):

arrange for door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location;

Why not simply require producers to pay their relevant share of what local bodies are required to do? The Guidelines offer plenty of scope for a chaotic evolution in the future.

5.6 Plastic Waste Management (Second Amendment) Rules, 2022

We noted above that there might be problems with the two sets of definitions, one in the Rules, the other in Schedule II. Much of this Fifth Amendment seeks to address this by consolidating definitions in one place (in the Rules).

The definitions for Plastic Packaging and Use of Recycled Plastic are as per what was in Schedule II. In addition, definitions that were changed include:¹³⁶

(ac) — Biodegradable plastics means plastics, other than compostable plastics, which undergoes degradation by biological processes under ambient environment (terrestrial or in water) conditions, without leaving any micro plastics, or visible, or distinguishable or toxic residue, which has adverse environment impacts, adhering to laid down standards of Bureau of Indian Standards and certified by the Central Pollution Control Board;

In Rule 9, an important change was made as shown below:

(2) Primary responsibility for collection of used multi-layered plastic sachet or pouches or packaging is of Producers, Importers and Brand Owners who introduce the products in the market. They need to establish a system for collecting back the plastic waste generated due to their products.

¹³⁶ Plastic Waste Management (Second Amendment) Rules, 2022, G.S.R. 522(E), 6th July 2022.

The rationale for this change is unclear: two years after the original Rules would have been March 2018, so this should already have happened. More than four years after compliance should have been secured, the Rules were changed to allow for a different approach. It seems likely that the reason was that it was appreciated that the Rule was poorly drafted, and had little likelihood of being implemented.¹³⁷ Given that there was, originally planned, a phase-out of multi-layered plastic packaging, the further weakening of obligations as regards such packages is troubling.¹³⁸

As per our comments above regarding Rule 10, some further clarification was given regarding what Protocols are applicable in what circumstances and to which definitions.

Paragraph 9.2 of Schedule-II made through Amendments to the previous amendment to the PWM Rules stated that:¹³⁹

‘Central Pollution Control Board shall lay down guidelines for imposition and collection of environment compensation (EC) on Producers, Importers & Brand-Owners, recyclers and end of life processors, in case of nonfulfillment of obligations set out in these guidelines, and the same shall be notified. The Guidelines for Environmental Compensation shall be updated, as required.’

A new paragraph 18 was introduced in these amendments as follows:¹⁴⁰

‘The Environmental Compensation shall be levied based upon the polluter pays principle, on persons who are not complying with the provisions of these rules, as per guidelines notified by the Central Pollution Control Board.’

The latest version of the CPCB’s Guidelines for Environmental Compensation was published in April 2024.¹⁴¹

5.7 Plastic Waste Management (Amendment) Rules, 2023.

There were relatively minor amends made (from the perspective of this work) in these amendments of April 2023.¹⁴²

¹³⁷ Imagine, at the time the Rules were promulgated, that this could have led to all the PIBOs with this obligation approaching multiple State Pollution Control Boards. When the CPCB reported on the implementation of the PWM Rules in 2020, it noted, with classic understatement: ‘Only 11% of the Registered brand owners have engaged with 6% ULBs for PWM. Increased engagement of brand owners with ULBs is recommended for efficient PWM’ (cited in Execution Application No. 13/2019 in Original Application No. 247/2017, Date of hearing: 08.01.2021).

¹³⁸ The CPCB did issue Directions in this regard in 2020, but they presumably, they failed to elicit the desired response (see <https://cpcb.nic.in/openpdf.php?id=UHVibGJiYXRpb25GaWxILzM4ODVfMTYwMjA3MjM2M19tZWRRpYXBo b3RvOTQzNi5wZGY=>).

¹³⁹ Plastic Waste Management (Amendment) Rules, 2022, G.S.R. 133(E), 16th February 2022.

¹⁴⁰ Plastic Waste Management (Second Amendment) Rules, 2022, G.S.R. 522(E), 6th July 2022.

¹⁴¹ CPCB (2024) *Guidelines for Assessment of Environment Compensation to be Levied for Violation of Plastic Waste Management Rules, 2016*, April 2024, https://cpcb.nic.in/uploads/plasticwaste/EC_Regime_PWM_04-04-2024.pdf

¹⁴² Plastic Waste Management (Amendment) Rules, 2023, G.S.R. 318(E), 27th April 2023.

5.8 Plastic Waste Management (Second Amendment) Rules, 2023

In this amendment of October 2023, some amendments of interest were made.

Under definitions, ‘producers’ were defined as follows:¹⁴³

“producer” means persons engaged in the manufacture of plastic packaging.

This highlights the problem already raised: as far as we can discern, the original 2016 Rules did not apply to packaging only, but to a wider range of plastics. The definition here is applicable to Schedule II (the EPR Guidelines), but we question whether the intent was that the definition should apply to the Rules as a whole. It may have been appropriate here to state that the scope of the definition of producers applicable to Schedule II was ‘packaging’, but that elsewhere in the Rules, it was intended to refer to producers of all plastics within the scope of the Rules.

We also highlighted above how the term ‘multi-layered packaging’ might not be easy to interpret. The replacement of this term by the term ‘plastic packaging’ makes sense (in Rules 4 and 9), although in Rule 9, the term ‘multilayered packaging’ is never used exactly in this form. Of course, had the ban on multi-layered packaging been implemented, the definition of ‘multi-layered packaging’, being the items to be banned, would have been necessary. The change to Rule 9, presumably, means that 9(2) now reads:¹⁴⁴

Primary responsibility for collection of used packaging is of Producers, Importers and Brand Owners who introduce the products in the market. They need to establish a system for collecting back the plastic waste generated due to their products.

This change does not seem to have triggered any additional changes vis a vis, for example, financial responsibilities, let alone in the SWM Rules. What does having ‘primary responsibility’ mean if this is also a responsibility of urban local bodies? And if the change above implies that it became the case that all collection of plastic packaging undertaken by urban local bodies was now the ‘primary responsibility’ of PIBOs, what changes were anticipated to flow from this?

Rule 5 replaced the term ‘urban local bodies’ with ‘local bodies’. There was considerable duplication in the form of words used in Rule 5 and Rule 6. It would have made sense to consolidate these Rules into one now that they were applied to the same entities, but Rule 6 – which had always been applicable to ‘local bodies’, was not removed.

In Schedule II (the Guidelines), the following was added to Para 15:¹⁴⁵

“15A Purchase of extended producer responsibility certificate from different categories.-

(1) The Central Pollution Control Board may allow purchase of extended producer responsibility certificates for those categories where surplus exists over the extended

¹⁴³ Plastic Waste Management (Second Amendment) Rules, 2023, G.S.R. 807(E), 30th October 2023.

¹⁴⁴ Plastic Waste Management (Second Amendment) Rules, 2023, G.S.R. 807(E), 30th October 2023.

¹⁴⁵ Plastic Waste Management (Second Amendment) Rules, 2023, G.S.R. 807(E), 30th October 2023.

producer responsibility obligation of that category for fulfilment of extended producer responsibility obligation of such category where deficit exists.

(2) In such cases, the Central Pollution Control Board shall prescribe the quantum of extended producer responsibility certificates of the category required to be procured, where surplus exists, for fulfilment of extended producer responsibility obligation of the category where deficit is present, based on the availability and cost of collection, segregation and processing for different categories of plastic packaging waste.

(3) The provision of this paragraph shall cease to apply at the end of 2025-2026.”.

The first paragraph seems to allow for trading of obligations across the different Categories. So, for example, if the recycling of Category I material was such that the quantity of certificates exceeded the overall obligation for Category I, then if, for example, there was minimal recycling of Category III material, and a corresponding deficit relative to total obligation, then the CPCB could allow trading of certificates across the Categories. The approach sounds logical, but does leave CPCB in a position where, in principle, they are entitled to determine who is and who is not able to sell any surplus certificates, and on what terms. It might also reduce the incentive to meet obligations, not least it becomes likely that certificates in one or other Category are likely to be in oversupply. As an external observer, at a guess, this clause may have arisen as a result of industry lobbying to ensure that certificates ‘would be available to buy’, and that they would be ‘available to buy on reasonable terms’. This, though, strikes at the heart of the problem: the Guidelines and Rules, taken together, offer no certainty of the desired outcomes being met, and are unlikely to offer a level of support for new investment that alternative configurations might provide.

5.9 Plastic Waste Management (Amendment) Rules, 2024

More changes were made to the PWM Rules in March 2024. Key changes to definitions were the definition of ‘biodegradable plastics’ (still considered separate from compostable plastics), while definitions of importer, manufacturer and producer were revised, and a new definition of ‘seller’ was introduced.¹⁴⁶

Under Rule 4, a new sub-rule 5 was introduced regarding pre-consumer waste, seeking to ensure ‘processing’ of the waste. An important change was made to Rule 6(1) in that the words ‘or producers’ were removed. That change means that local bodies are required to establish infrastructure, ‘either on its own or by engaging agencies.’ It appears to remove producers from the responsibilities at Rule 6.

A new Rule 6(1A) was introduced as follows:¹⁴⁷

Every manufacturer, producer, importer, brand owner, manufacturer of commodities made from compostable plastics or biodegradable plastics may engage with local body on voluntary basis, as per mutually agreed terms and conditions entered into by them and the local body

This seems a rather pointless addition, making no binding requirement on the entities mentioned. New sub-rules 5-8 were introduced under Rule 6 which simply added further

¹⁴⁶ Plastic Waste Management (Amendment) Rules, 2024, CG-DL-E-15032024-253031, 14th March 2024.

¹⁴⁷ Ibid.

requirements on already struggling local bodies. Similar changes to those noted above were made to Rule 7.

Under Rule 7, new clauses d) and e) were added to the responsibilities, as regards waste management in the rural areas under their control, of the Gram Panchayat. These are:¹⁴⁸

(d) engaging civil societies or groups working with waste pickers;

(e) ensuring that open burning of plastic waste does not take place;

(f) taking necessary measures to prevent stocking, distribution, sale and usage of prohibited Single Use Plastic items in their jurisdiction.'

Important changes were made as regards Rules 9(1) and (2). These had been progressively revised so that they were implementable, but they seemed to introduce confusion around who had what responsibility for collection of (multilayer) plastic packaging, given the responsibilities already residing with the local bodies (and, arguably, broadened under the changes noted above). With the new changes, the confusion is largely resolved, but with PIBOs effectively let off the hook:¹⁴⁹

—(1) The Producers, Importers and Brand Owners who introduce any plastic packaging in the market shall be responsible for collection of such plastic packaging.

(2) Where any Producer, Importer or Brand owner fulfils his extended producer responsibility, he is deemed to have complied with his responsibility under sub-rule (1).

(2A) The Producers, Importers, Brand Owners, manufacturers, and manufacturers of commodities made from compostable plastics or biodegradable plastics, shall fulfil Extended Producer Responsibility as per guidelines specified in Schedule- II.

Important changes were made regarding labelling, but these are not of major concern here other than to the extent that the new Rule 11(2) provides for labelling of recycled content with no clear rules as to how such labels would be verified so as to prevent corporations from making exaggerated claims.

As regards Schedule II, on EPR, the scope is changed to include 'commodities made from compostable plastics or biodegradable plastics.' Presumably, that may imply that some 'commodities' which are made from compostable plastics or biodegradable plastics are included under EPR, whilst similar commodities made from 'conventional' plastics are not. Paras 4 and 5 were amended in line with the change in scope, and within the change to Para 4, the de minimis threshold for Micro, Small and Medium Enterprises was extended to the Producer category, and redefined through reference to the Micro, Small and Medium Enterprises Development Act, 2006 (27 of 2006). The MSME producers are, however, still required to register: the obligation that would otherwise apply to them is effectively transferred to manufacturers or importers who supply them with material through a new para. 7.8. A new category of material, Category V, was introduced at para 5(1)(v): '*Plastic sheet or like used for packaging as well as carry bags and commodities made of biodegradable plastics.*'

¹⁴⁸ Ibid.

¹⁴⁹ Ibid.

Important amendments were made to paragraph 8, where new sub-paragraphs 8.5 to 8.9 were added:¹⁵⁰

(8.5) The Central Pollution Control Board shall issue guidelines for authorisation of agencies for establishment of electronic platforms for trade of Extended Producer Responsibility certificates between obligated entities.

(8.6) The number of electronic platforms may be restricted keeping in view volume of trade of Extended Producer Responsibility certificates.

(8.7) The operation of the electronic platform shall be as per guidelines issued by the Central Pollution Control Board after approval of the Central Government.

(8.8) The Central Pollution Control Board shall fix the highest and the lowest price for extended producer responsibility certificates which shall be equal to 100 % and 30 %, respectively, of the Environment Compensation leviable on the obligated entities for non-fulfilment of Extended Producer Responsibility obligations, under rule 18 of these rules.

(8.9) The exchange price of Extended Producer Responsibility certificate between registered entities through the portal shall be between the highest and the lowest prices as fixed above.

These provide for agencies to establish trading platforms in line with CPCB Guidelines, and with potential for numbers to be controlled. This is somewhat concerning since it implies that the CPCB loses some control over the nature of trades. There would, presumably, need to be a link to the CPCB platform, but of most concern is why having more than one platform would improve matters. Doing so risks introducing additional avenues for fraudulent trades unless adequate safeguards are in place, whilst the costs incurred in establishing multiple trading platforms might be assumed to be greater than the costs of establishing one.

It is not clear how the pricing restrictions set out at 8.8 above will be applied, or indeed, why they are being implemented at all. As regards the first point, there are not clearly identifiable compensation values in the CPCB's Guidelines to which the 30% and 100% figures could be applied, whilst in respect of the latter, if the price floor is activated, then who benefits from excess revenue, and a price ceiling might undermine future investment.

5.10 Links to Solid Waste Management Rules

The significance of the above review should be understood in the context of the extent of implementation of India's various Solid Waste Management (SWM) Rules in the past, and notably, those of 2000 (as amended), and the Municipal Solid Waste (Management and Handling) Rules, 2000.

Like the PWM Rules, the SWM Rules 2016 superseded earlier Solid Waste (Management and Handling) Rules, issued in 2000. Rule 4 of the 2000 Rules stated:¹⁵¹

1. Every municipal authority shall, within the territorial area of the municipality, be responsible for the implementation of the provisions of these rules, and for any

¹⁵⁰ Ibid.

¹⁵¹ Municipal Solid Wastes (Management and Handling) Rules, 2000, 25 September 2000.

infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes.

This is important since it tells us that ever since 2000, and for 16 years prior to the issuance of the SWM Rules and the first iteration of the PWM Rules, there was a clear statement as to where responsibility lay for municipal waste, defined therein as (Rule 3(xv)):

‘commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes.’

A problem with Rule 4’s wording may have been that the specific responsibilities of different tiers of ‘municipal authority’ may not have been clear. Nonetheless, Schedules I and II in the Rules set down requirements, and deadlines (which, most observers would agree, were ridiculously ambitious given what they required) which have clearly still not been met in India almost a quarter of a century later. Note that Schedule 2 included: *‘littering of municipal waste shall be prohibited in cities, towns and in urban areas notified by the State Government’*.

The extent to which these Rules were implemented has been highly variable across States (and ULBs / GPs). Successive Annual Reports, which themselves suffer shortcomings, have indicated a persistent failure on the part of many States and local bodies to do what they seem to be required to under the relevant Rules, including the Municipal Solid Waste (Management and Handling) Rules 2000 under the Environment Protection Act 1986.¹⁵²

A World Bank publication noted, in 2008, that:¹⁵³

Indian municipalities have overall responsibility for solid waste management (SWM) in their cities. However, most of them are currently unable to fulfil their duty to ensure environmentally sound and sustainable ways of dealing with waste generation, collection, transport, treatment, and disposal.

The same report catalogued the failures of implementation and enforcement on the part of those responsible – the municipal authorities, the state pollution control boards, relevant urban development departments of state governments, district magistrates and others – in allowing deadlines to pass with little or no progress made towards implementing the various Schedules outlined in the aforementioned Rules. The Department of Economic Affairs was moved to comment, in 2009, that:¹⁵⁴

‘Complete compliance within 31st Dec 2003 remains a distant dream. Many cities and towns have not even initiated measures whereas some cities have moved forward.’

It seems relatively clear that if the Rules already promulgated as early as 2000 had been properly implemented, then matters would be considerably improved already. That

¹⁵² See <https://cpcb.nic.in/status-of-implementation-of-solid-waste-rules/> for the Annual Reports of the CPCB.

¹⁵³ World Bank (2008) Improving Municipal Solid Waste Management in India: A Sourcebook for Policy makers and Practitioners, Washington DC: World Bank, http://www.tn.gov.in/cma/swm_in_india.pdf

¹⁵⁴ Department of Economic Affairs, Ministry of Finance, Government of India (2009) *Position Paper on the Solid Waste Management Sector in India. Public Private Partnerships in India*. [Online] November 2009

having been said, the Municipal Solid Waste (Management and Handling) Rules 2000 themselves were not especially well considered and left a great deal open to interpretation, whilst the means to fund the changes envisaged was unclear. They were, on the other hand, quite ambitious (and arguably, far too ambitious given the absence of a clear route to implementation across India).

5.10.1 SWM Rules 2016

The most recent revision of the Solid Waste Management (SWM) Rules was in 2016.¹⁵⁵ The timing of those should have enabled their elaboration to be made consistent with the PWM Rules of the same year, yet there are few references to the Solid Waste Management Rules in the PWM Rules, and it was only following the amendments that the PWM Rules made reference to the updated version of the SWM Rules (the PWM Rules were issued on 18th March 2016, the SWM Rules on 8th April 2016: the timing and the lack of cross-referencing suggests that there might not have been sufficient attention given to ensuring the respective sets of Rules ‘spoke’ to each other). It may have been that there were different legislative processes being followed, each with different timelines and associated risks to the proposed Rules.

There are a set of definitions in the SWM Rules which are not always well-aligned with the PWM Rules. There is a definition of EPR:¹⁵⁶

“extended producer responsibility” (EPR) means responsibility of any producer of packaging products such as plastic, tin, glass and corrugated boxes, etc., for environmentally sound management, till end-of-life of the packaging products;

It seems odd that this would, on the one hand, only mention packaging, but having done so, given that it mentions other packaging materials, then the EPR Guidelines address *only plastic packaging*.

As regards the operational side of waste management, Rule 15 sets out ‘Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations.’ Amongst these responsibilities are:

(b) arrange for door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location;

(c) establish a system to recognise organisations of waste pickers or informal waste collectors and promote and establish a system for integration of these authorised waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste;

(d) facilitate formation of Self Help Groups, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;

¹⁵⁵ Solid Waste Management Rules, 2016, S.O. 1357(E), 8th April 2016.

¹⁵⁶ Ibid.

(f) prescribe from time-to-time user fee as deemed appropriate and collect the fee from the waste generators on its own or through authorised agency;

(g) direct waste generators not to litter i.e throw or dispose of any waste such as paper, water bottles, liquor bottles, soft drink cans, tetra packs, fruit peel, wrappers, etc., or burn or bury waste on streets, open public spaces, drains, waste bodies and to segregate the waste at source as prescribed under these rules and hand over the segregated waste to authorised the waste pickers or waste collectors authorised by the local body;

(h) setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities; Bins for storage of biodegradable wastes shall be painted green, those for storage of recyclable wastes shall be printed white and those for storage of other wastes shall be printed black;

In the list of responsibilities, there is only one mention of ‘private’ (in relation to a potential role of the private sector in constructing facilities), and no mention of ‘producer’ or ‘brand’. There is no provision for financial support from producers, or from EPR schemes more generally. It is also worth mentioning that these 2016 responsibilities are not so radically different from what was required in the 2000 Rules in Schedule II: some key differences seem to be that the term municipal waste is no longer defined, or used (other than in referencing Guidelines from the CPCB), with the wording referencing types of waste producer.

The confusion created in the PWM Rules and EPR Guidelines, which we have alluded to repeatedly above, regarding ‘who does what’ and ‘who pays for what’ is not present in Rule 15: these are activities for which local bodies are clearly responsible (as they were in the 2000 Rules). There is no provision made for a stream of funding from producers, even though the PWM Rules were being promulgated at the same time, and both sets of rules define EPR. Might they not have envisaged a situation whereby EPR funds could be used to cover the costs of various activities which the responsible parties were charged with delivering? Indeed, as we noted above, the Rules are clear that local bodies should make provision for capital investment, operating and maintenance costs in their annual budgets, and that this should take precedence over allocation of funds for discretionary spending.

There are duties under Rule 17 for ‘manufacturers or brand owners of disposable products and sanitary napkins and diapers’. These include the following:¹⁵⁷

17. Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers.-

(1) All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of a waste management system.

¹⁵⁷ Ibid.

*(2) All such brand owners who sell or market their products in such packaging material which are nonbiodegradable **shall put in place a system to collect back the packaging waste generated due to their production.***

(3) Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.

(4) All such manufacturers, brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

Sub-rules 1 and 2 do not seem to be consistent: if the manufacturers / brand owners are paying local authorities to establish the system (sub-rule 1), then why would they need to put in place the collection system (sub-rule 2)? Rule 15 makes it the responsibility of local bodies to ‘*arrange for*’ door to door collection. It also suggests that user fees will fund the service. There is no mention of funding from PIBOs via EPR, and neither is there any reference to (for example) a methodology for calculating the ‘*necessary financial assistance*’ that is mentioned in Rule 17 (see above). What, then, happens if the ‘*necessary financial assistance*’ is not forthcoming? And why would PIBOs pay local bodies to discharge what are effectively their duties, unless that was clearly required under EPR law (and perhaps equally, why would local bodies do something they could argue is the responsibility of producers)? To put it another way, if local bodies properly discharge their duties, what is it that producers have to do?

There are other issues worthy of note. The first relates to the diversity of the organisations with some responsibility for the Rules. MoEFCC has responsibility for ‘*over all monitoring the implementation of these rules in the country*’. A Central Monitoring Committee was to be constituted for the purpose. On the other hand, it is the Ministry of Urban Development (MoUD) which is to ‘*coordinate with State Governments and Union territory Administrations*’ and which has the responsibility for ‘*reviewing measures taken by the states and local bodies for improving solid waste management practices*’. It also has the task of formulating national policy and strategy on waste ‘*including policy on waste to energy*’. It has other roles vis a vis States, Union Territories and local bodies such that the MoEFCC review would potentially become a review of the MoUD.

The Department of Fertilisers, Ministry of Chemicals and Fertilisers and the Ministry of Agriculture, Government of India both have responsibilities vis a vis compost. These might be eminently sensible – in too many situations, the use of compost is hindered somewhat by the perceptions of farmers of compost – but they are contingent on the role of the Ministry of Agriculture maintaining confidence in the product through quality standards as per Rule 8(d).

It is easier to envisage that the roles of the Ministry of Power and the Ministry of New and Renewable Energy Sources might come into conflict with the Rules (and the MoUD’s roles). These have responsibility for setting tariffs and charges, and ‘*providing appropriate subsidy or incentives*’ for waste to energy. These might be expected to influence the fees required for waste to energy to be viable: the lower these are, the more likely the waste hierarchy will be undermined.

This links to a second issue regarding both sets of Rules: the apparent preference given to incineration and co-incineration (also present in the 2000 Rules¹⁵⁸). Included in Rule 15 (*Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations*) are:

(zh) stop land filling or dumping of mixed waste soon after the timeline as specified in rule 23 for setting up and operationalisation of sanitary landfill is over;

(zi) allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill and the sanitary landfill sites shall meet the specifications as given in Schedule-I, however, every effort shall be made to recycle or reuse the rejects to achieve the desired objective of zero waste going to landfill;

The sub-rule (zh) should probably reference rule 22. This, though, is an enormous challenge, bearing in mind that so many challenges remain for India. The issue is less the aspiration for 'not landfilling', but more the issue of where does 'what cannot be recycled' go? After all, the recycling targets for plastic packaging are not 100%.

A clear indication comes through Rules 18 and 21, regarding industrial units and waste to energy:

18. Duties of the industrial units located within one hundred km from the refuse derived fuel and waste to energy plants based on solid waste- *All industrial units using fuel and located within one hundred km from a solid waste based refuse derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refuse derived fuel so produced. [...]*

21. Criteria for waste to energy process.- *(1) Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feedstock for preparing refuse derived fuel.*

(2) High calorific wastes shall be used for co-processing in cement or thermal power plants.

(3) The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tones per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorisation.

¹⁵⁸ Schedule II in the 2000 Rules states:

'(ii) Mixed waste containing recoverable resources shall follow the route of recycling. Incineration with or without energy recovery including pelletisation can also be used for processing wastes in specific cases. Municipal authority or the operator of a facility wishing to use other state-of-the-art technologies shall approach the Central Pollution Control Board to get the standards laid down before applying for grant of authorisation.

Land filling shall be restricted to non-biodegradable, inert waste and other waste that are not suitable either for recycling or for biological processing. Land filling shall also be carried out for residues of waste processing facilities as well as pre-processing rejects from waste processing facilities. Land filling of mixed waste shall be avoided unless the same is found unsuitable for waste processing. Under unavoidable circumstances or till installation of alternate facilities, land-filling shall be done following proper norms. Landfill sites shall meet the specifications as given in Schedule -III.'

(4) The State Pollution Control Board or Pollution Control Committee, on receiving such an application for setting up a waste to energy facility, shall examine the same and grant permission within sixty days.

These two Rules suggest that all wastes with a calorific value of waste exceeding around 6MJ/kg should either be processed to deliver RDF, or sent directly to waste-to-energy facilities. That does raise the question as to what would happen to residues from RDF preparation that are, for example, biodegradable. They could not be landfilled. Where should they go?

The PWM Rules are consistent with this, effectively ruling out landfill as an acceptable form of end-of-life disposal. The implications, for climate change and air pollution, are likely to be negative, especially as regards management of plastics.

As regards implementation, there is, at Rule 22, a time frame for implementation (which seems hopelessly optimistic from the starting point India found itself in 2016). It is not clear what happens to whom if implementation falls behind the envisaged timeframe. Here, the multiple actors implicated in the Rules feels like an attempt to bolster implementation, but one fears it will be in vain. There are multiple entities with varying responsibilities identified in the MSWM Rules 2016:

- a. Central Monitoring Committee of the Ministry of Environment, Forest and Climate Change
'monitor and review the implementation of these rules'
there is no indication as to what might happen if they are not implemented;
- b. The Ministry of Urban Development, in coordination (?) with State Governments and Union territory Administrations
'take periodic review of the measures taken by the states and local bodies for improving solid waste management practices and execution of solid waste management projects funded by the Ministry and external agencies at least once in a year and give advice on taking corrective measures'
Presumably, if this is advice, it need not be acted on;
- c. Secretary-in-charge, Urban Development in the States and Union territories
'ensure implementation of provisions of these rules by all local authorities'
The Secretary in charge has powers to direct town planning departments to undertake actions, but not much else;
- d. District Magistrate or District Collector or Deputy Commissioner
'review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development'
This mechanism would seem to have some potential, but there is no supporting incentive or sanction to take the corrective measures. Some announcements by District Magistrates seem intended more to attract headlines than address fundamental problems of implementation;
- e. Secretary-in-charge of Village Panchayats or Rural Development Department in the State and Union territory (responsibilities as for the previous, *'for the areas which are covered under these rules and are under their jurisdictions'*);
- f. Central Pollution Control Board
'coordinate with the State Pollution Control Boards and the Pollution Control Committees for implementation of these rules and adherence to the

prescribed standards by local authorities’;
‘monitor through State Pollution Control Boards or Pollution Control Committees the implementation of these rules by local bodies’;
‘prepare an annual report on implementation of these rules on the basis of reports received from State Pollution Control Boards and Committees and submit to the Ministry of Environment, Forest and Climate Change and the report shall also be put in public domain’.

- g. State Pollution Control Board or Pollution Control Committee
‘enforce these rules in their State through local bodies in their respective jurisdiction and review implementation of these rules at least twice a year in close coordination with concerned Directorate of Municipal Administration or Secretary-in-charge of State Urban Development Department’

This begs the question as to what that enforcement power looks like, not least since it seems not to be especially effective in practice. Note that the CPCB’s report for 2021 suggested that the State PCBs/PCCs needed to fulfil their duty of enforcement as above (and that State Urban Departments needed to address the infrastructure gap which was identified).

There appears to be no shortage of bodies with a duty to monitor (it might be a separate matter as to how well that duty is being discharged), but there seems to be virtually nothing that would compel local bodies to implement the Rules.

There is a need for an implementation plan to cascade down to operational matters, rather than simply to regulatory functions, and the ‘plan writing’ functions. That should include a need for a clear pathway for financing of waste management services provided by urban local bodies. Unfortunately, the SWM Rules are not clear on this. Given past experience with the 2000 Rules, establishing a credible mechanism for generating action on the ground as a result of drafting the new Rules would have seemed an important matter to address. A significant share of funding could have been secured via a suitably designed EPR system, but as we have seen, the PWM Rules opted for a different approach which leaves the level of support for urban (and rural) local bodies uncertain, and most likely, very limited.

5.11 Summary

The Rules as regards both Solid Waste Management and Plastics are, in general, to be welcomed, but the track record of implementation is poor, especially as regards Solid Waste Management. Arguably, much that is in the PWM Rules could have been made redundant had the SWM Rules been properly implemented. What the SWM Rules and the PWM Rules do not address, however, is how the local bodies that have so far failed to do what they should have (sixteen years elapsed between the first and second iteration of the SWM Rules). It seems reasonable to argue (many have) that one of the problems is funding.

As regards the 2016 Rules, therefore, they remain problematic because they do not make sufficiently clear who has operational responsibility for what parts of the (plastic and otherwise) waste management service, at least as regards the combined effect of the PWM Rules and the SWM Rules leave financial responsibilities as correspondingly opaque. In such circumstances, unless, for example, the central government were to pump significant funds into collection, sorting and recycling (and if it did so, it would need to consider how best to ensure its effectiveness), one might expect a lack of investment and development of the service.

As regards the EPR Guidelines, there are two extremes on offer for PIBOs:

- In the first of these, they take control themselves, and de-risk the process by implementing / arranging for implementation of collection and (as relevant) sorting services with a view to channelling materials to recyclers. These businesses, who might be considered those keenest to comply with their obligations irrespective (within reason) of cost, would presumably arrange to acquire certificates from recyclers in lieu of demonstrating compliance. These businesses may find themselves paying sums well above those which they might pay in an efficiently designed system;
- On the other extreme, businesses seek to trade their way to compliance, and seek to acquire evidence in the form of certificates at the lowest cost. This tends to lead to a competition to lower costs not only through legitimate means (efficiency, innovation, scale-up), but also through increasing the number of certificates issued above what might perhaps be considered legitimate (and the less clear the Rules are, the more likely this becomes). Compliance, in the form of certificates, can be delinked from the activity compliance was intended to promote.

Neither of these extremes is especially attractive. Our prediction is that a system based on an as yet unclear value of potentially traded certificates will not provide a sufficient basis for investment in the system. Implementation will remain, therefore, patchy.

Utterly central to the unfolding of the system will be the financing of waste management. It could have been made clear – in the Guidelines – what PIBOs were required to pay for (and methodologies developed accordingly) in relation to the responsibilities given to urban local bodies under the SWM Rules (and seeking to elaborate these separately for plastic wastes – for all local bodies - under the PWM Rules has simply added to confusion). The confusion around responsibilities unsurprisingly finds its parallel in the financing. Why should fees be paid by households for managing plastic packaging when producers could have been made responsible for this? But why should producers of plastic packaging pay local bodies to do what they have a duty to do anyway?

It is, of course, of great interest to this study that what looked like an intention to ban multilayered plastic packaging was then retracted: the relevant law was published, as far as we can discern, days after the ban had been scheduled to take effect.

Nonetheless, the recycling targets that have been established are likely to be quite challenging to meet, albeit that much remains unclear in respect of:

- a) how 'recycling' / recycled content will be measured;
- b) what the rules for trading of certificates will be. For example, is trading restricted of certificates restricted within the categories, or could trading occur across (for example) Categories II and III? Even without 'inter-category' trading, the obligations of those using multilayer (plastic only) sachets could be fulfilled through recycling of / use of recycled content in homogenous plastic films. The 'carry forward' rules are also of interest;
- c) what proportion of the market is 'exempt' (i.e. MSMEs / packaging of unbranded products): the greater this share is, the smaller the share of the total market accounted for by the obligated PIBOs becomes;
- d) how well the CPCB oversees the system: in particular, how determined it shows itself to be in eliminating fraudulent claims vis a vis certificates (how much of which category of materials has been recycled, related to point a) above).

In respect of d) above, data gathered from newspaper reports indicate that the fraudulent excess certificates generated from four facilities alone accounted for 19% of the EPR target for PIBOs for 2022/23 (see Table 5). These facilities have been identified and sanctioned: it remains to be seen whether further facilities will be identified, or whether fraud goes undetected. At least three of the four companies identified below would have been quite obviously over-declared, but other processors may over-issue certificates in less obvious quantities.

Table 5: Fraudulently Declared Certificates as Percentage of 2022/23 EPR Target

	Certificates Generated	Capacity at Facility
Karnataka		
M/s Enviro Recycleclean Pvt Ltd, Bengaluru	350,000	0
Gujarat		
M/s Asha Recycleclean India Private Ltd	11,482	518
Maharashtra		
M/s Shakti Plastics Industries	256,240	17,760
Technova Recycling India Pvt Ltd	92,500	4,700
Totals	710,222	22,978
Potential fraudulent issue (certificates generated net of capacity)	687,244	

EPR Target 2022-23

Cat-I (Rigid Plastic)	1,575,116.47
Cat-II (Flexible Plastic)	1,658,055.05
Cat-III (MLP)	389,718.62
Cat-IV (Compostable Plastic)	15,366.89
Total	3,638,257.03

Fraudulent Issue as % of 2022/2023 total 19%

Source: Data from CPCB portal and Times of India (2023) GPCB told to act against unit violating EPR guidelines, Nov 11, 2023, <https://timesofindia.indiatimes.com/city/ahmedabad/gpcb-told-to-act-against-unit-violating-epr-guidelines/articleshow/105137897.cms> ; The Indian Express (2024) CPCB audit finds irregularities in 3 state boards; fines 4 firms more than Rs 355 crore for violating norms, Thursday, Jun 13, 2024, <https://indianexpress.com/article/cities/bangalore/cpcb-audit-finds-irregularities-in-3-state-boards-fines-4-firms-9020554/>

Even under these conditions, the extent to which producers will need to pay to generate additional activity is likely to be more limited than might be expected. If urban local bodies discharge their duties under the MSWM Rules, and if all local bodies discharge their responsibility under the PWM Rules, then arguably, obligated PIBOs will not need to generate much by way of additional activity.

We would also be of the view that the uncertainty in respect of financing and responsibilities is likely to lead to under-investment, especially in the final stage recycling infrastructure. Those investments will flourish best where there is certainty in the stream of feedstock being provided. In the short term, there might be more sachets collected under a range of agreements between PIBOs / those acting on their behalf, and informal collectors. The question will be 'where does this go?' The likely destination is facilities which are already there, such as co-processing facilities, and means of managing the stream which require minimal additional investment (using plastic in roads). Both of these activities likely have their drawbacks in environmental terms, and neither should be considered 'recycling'. The real test of the system, therefore, will come when the recycling targets move to higher levels in the late 2020s, at which point, its potential to

generate genuine change will be tested. Until then, the system appears to require little change, and the nature of any transactions of certificates might not be especially transparent.

An important observation regarding the evolution of the PWM Rules is that they have been subject to regular, frequently significant, amendments. The amendments typically enter into force on the date of their publication in the Official Gazette. It is of some concern that Rules such as these are promulgated with the expectation that they take immediate effect, given that the changes are rarely specified with reference to any time-lag / future date. In our view, this approach will lead to the credibility of policy makers being greatly diminished since they essentially show a repeated failure to recognise what is, or perhaps more relevant, what *should be* in place already.

6.0 Existing EPR Legislation in the Philippines

In the Philippines, the foundational law on waste remains Republic Act No. 9003.¹⁵⁹ This is widely referred to as the “Ecological Solid Waste Management Act” (ESWMA), and provides the framework for regulations and operations on solid waste management. The law’s implementing rules and regulations (ESWM-IRR) are contained in DENR Administrative Order (DAO) No. 2001-34,¹⁶⁰ as well as which, there are also local ordinances related to various aspects of waste management. A Handbook was also produced to help inform and guide those affected, and provides an easy-to-read distillation of the ESWMA and ESWM-IRR.¹⁶¹

As regards EPR, an EPR Act related to plastic packaging waste was passed in July 2022.¹⁶² This was followed by the associated implementing Rules and Regulations (EPR-IRR) in January 2023.¹⁶³ The former effectively revises the ESWMA, whilst the associated Administrative Order stands alone. Below, we first consider the ESWMA, and reflect briefly on some of the implementation issues raised in the 2023 Report by the Commission on Audit.¹⁶⁴ We then consider the EPR Act: the Implementing Rules and Regulations include a considerable amount of repetition of the Act, but we seek to reflect these in the discussion.

¹⁵⁹ *Republic Act 9003* (2001) An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes, January 26, 2001
<https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>

¹⁶⁰ *DENR Administrative Order No. 2001-34* (2001) Implementing Rules and Regulations of Republic Act 9003, December 20, 2001.

¹⁶¹ Philippine Environmental Governance Program, Department of Environment and Natural Resources (2003) *Handbook on The Ecological Solid Waste Management Act of 2000 (RA 9003) and its Implementing Rules and Regulations (IRR)*, July 2003.

¹⁶² *Republic Act 11898* (2022) An Act Institutionalizing the Extended Producer Responsibility on Plastic Packaging Waste, amending for this Purpose Republic Act No. 9003, Otherwise Known as The “Ecological Solid Waste Management Act Of 2000”, July 2022.

¹⁶³ *Administrative Order No. 2023-02* (2022) implementing Rules and Regulations of the EPR Act of 2022, January 2023.

¹⁶⁴ Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

6.1 ESWMA

Section 3(s) of the ESWMA defines municipal waste as:¹⁶⁵

‘wastes produced from activities within local government units which include a combination of domestic, commercial, institutional and industrial wastes and street litters;’

The Act excludes hazardous waste, infectious clinical waste and waste from mining activities from the definition ‘solid waste’.

The ESWMA provided, in Section 4, for the establishment of the National Solid Waste Management Commission (NSWMC). The NSWMC was to be led by the Department of Environment and Natural Resources (DENR) with fourteen government sectoral members and three private sectoral members. Representatives from the private sector consist of one member each from a non-governmental organisation, the recycling industry, and the manufacturing and packaging industries. DENR, through the Environmental Management Bureau, was due to provide secretariat support to the Commission.

The NSWMC’s main duty was to prescribe policies to attain the objectives of RA 9003 and to oversee the overall implementation of the solid waste management plans and programs.

The NSWMC was tasked with overseeing the implementation of solid waste management plans and has power to prescribe policies designed to achieve the Act’s objectives. It was required to prepare the national framework, and also approve, review and monitor local solid waste management plans. It is also tasked with a range of activities designed to assist local government to develop and implement plans, including through technical assistance. It was also due to develop *‘a mechanism for the imposition of sanctions for the violation of environmental rules and regulations.’* It has a range of other well-specified tasks, including managing the Solid Waste Management Fund, and so, was given a challenging brief, most of which relies upon adequate resourcing, not least the disbursement of the anticipated Fund. As the subsequent COA report makes clear, the NSWMC has never really had a chance to do all that was intended for it.¹⁶⁶ The COA’s report is somewhat alarming:¹⁶⁷

To kick-start the SWM implementation, RA 9003 mandated the appropriation of P20 million for the initial operating expenses of the NSWMC, the NEC, and the LGUs to carry out the mandate of RA 9003. Moreover, the law also created the SWM Fund that shall be made available to the NSWMC, the NEC, and LGUs to achieve and perform their roles and responsibilities to attain the goals of SMWP. However, according to DENR-EMB, the P20 million was not released, and the SWM Fund has

¹⁶⁵ Republic Act 9003 (2001) An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes, January 26, 2001 <https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>

¹⁶⁶ Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

¹⁶⁷ Ibid.

not been established since the adoption of RA 9003. Thus, the NSWMC and some LGUs cannot cope with complying with the law because of, among others, financial and technical capacity.

Almost a quarter of a century after the ESWMA was passed, and despite (as the COA report documents) five attempts to have the funding released, a key component of the institutional structure remains unfunded, and a key part of funding remains to be committed. As regards the link between the two:¹⁶⁸

To date, the SWM Fund has not been established yet nor funded. According to DENR-EMB, the SWM Fund cannot be established under the current institutional engagement because the needed human resource of the NSWMC to manage and administer the SWM fund was not established.

The Act also (Section 7) provided for establishment of the National Ecology Center (NEC) under the NSWMC, headed by the Director of DENR's Environmental Management Bureau (which also provides the secretariat for the NSWMC). The NEC was to provide technical support and input to inform the NSWMC's work, as well as maintaining relevant databases. However, the COA report makes similar observations as it made for the NSWMC:¹⁶⁹

despite the existing mandate that NEC be established, no organisational structure, no personnel assigned, and no budget has been allotted for the NEC. Hence, to implement its mandate, the Secretariat or the DENR-EMB has been partly functioning as the NEC since CY 2002.

Section 8 sets out what should have been DENR's responsibilities, including chairing the NSWMC. It has responsibility for preparing an annual National Solid Waste Management Status Report, as well as:¹⁷⁰ 'provide technical and other capability building assistance and support to the LGUs in the development and implementation of local solid waste management plans and programs', amongst other things.

Section 9 also gives the DENR, or its representative, powers of inspection in relation to enforcement of the Act (though this is not extended to private dwellings).

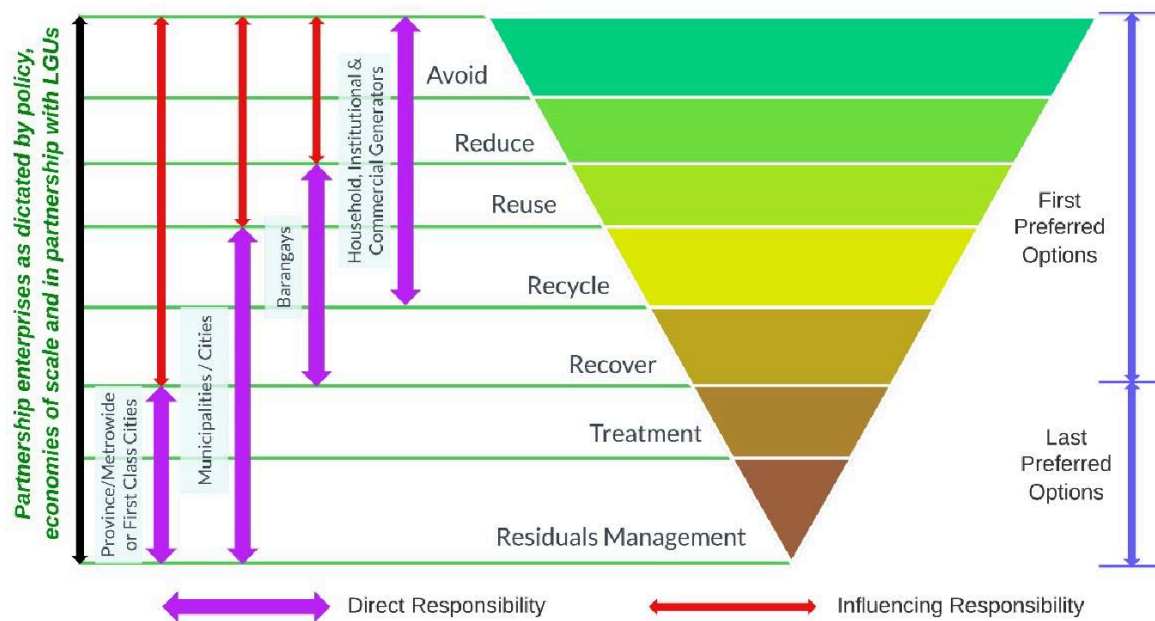
Section 10 set out the Role of Local Government Units (LGUs) in Solid Waste Management, the LGUs having responsibility for the implementation and enforcement of the provisions of this Act within their respective jurisdictions. The role of different tiers of local government was depicted graphically in the National Solid Waste Management Framework 2004 (see Figure 26).

¹⁶⁸ Ibid.

¹⁶⁹ Ibid.

¹⁷⁰ Republic Act 9003 (2001) An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes, January 26, 2001
<https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>

Figure 26: Solid Waste Management Hierarchy and Roles of LGUs



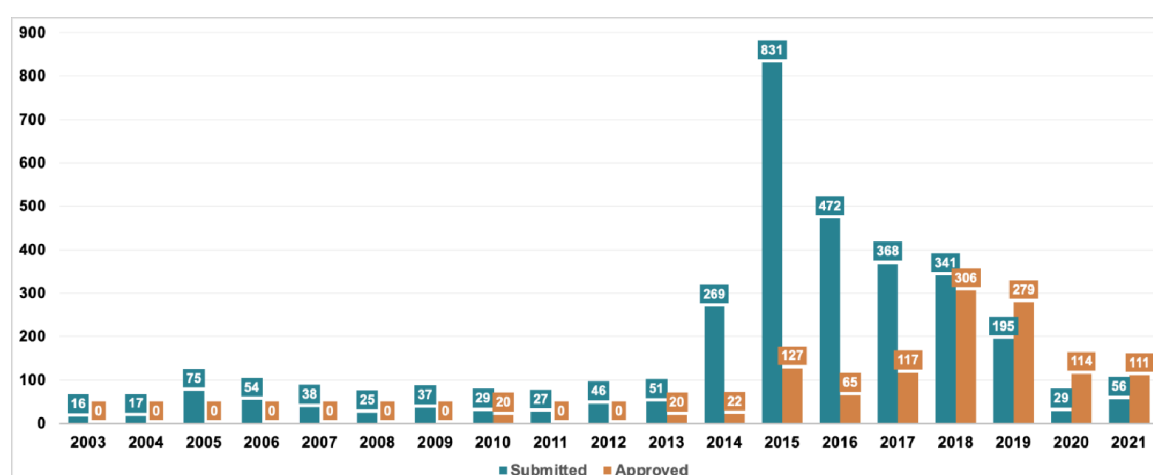
Source: National Solid Waste Management Commission (2004) *National Solid Waste Management Framework 2004*.

There is a degree of ambiguity in the ESWMA as regards the extent to which responsibility, among the tiers of local government, runs 'top down' or 'bottom up'. That having been said, Waste Boards were envisaged at the Provincial level and the city / municipal level, and the responsibility does seem to run from top to bottom tier. The above graphic supports that view - that upper tiers influence lower tiers, but not the reverse. Nonetheless, the overall performance of the system will be determined by the interaction with the lowest tier, at the interface with residents and other waste generators through waste collection services, and that responsibility rests at the barangay level. Consideration of what 'system' might work best has to involve collection: if decisions regarding how to treat / dispose waste are made without considering how waste is collected, then it would be expected that some assets will be poorly utilised (because the way waste is collected might not 'match' the treatment / disposal methods envisaged).

Sections 14, 15 and 16 provide for a national status report, a Framework based on the status, and consistent with the Act, and for Local Government Solid Waste Management Plans, to have a 10 year horizon, and to be developed by provinces, cities or municipalities via their Boards.¹⁷¹ The COA indicates that the development of SWM Plans has been slow, and remains incomplete (see Figure 18).

¹⁷¹ Ibid.

Figure 27: Submission and Approval of 10-yr SWM Plans from CYs 2003 to 2021



Source: Submission and Approval of 10-yr SWM Plans from CYs 2003 to 2021, in Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

It noted, amongst other things:¹⁷²

According to DENR-EMB, the NSWMC has only released an Annotated Outline to LGUs to guide them in developing their respective 10-yr SWM Plans. This was contrary to Section 5(f) of RA 9003, which mandates NSWMC to develop a model SWM Plan that provinces, cities, and municipalities can use to meet the 10-yr SWM Plan requirement. Accordingly, this resulted in the delay of submission to the NSWMC, with the bulk of submissions only occurring in CY 2014, 14 years after RA 9003 was enacted. This failure of NSWMC to provide a model SWM Plan highlighted the lack of national policy to guide the local governments in preparing the 10-yr SWM Plans as mandated under the law.

The lack of funding for NSMWC appears to have had knock-on effects on plan preparation. Also, many SWM Boards were never set up, and in many cases, those that were are now inactive. At province level, 67% remain active, but for cities/municipalities, the figure was 38%.¹⁷³

Section 17 sets out what each SWMP must include. This includes the following elements amongst many others:¹⁷⁴

¹⁷² Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

¹⁷³ Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

¹⁷⁴ Republic Act 9003 (2001) An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes, January 26, 2001 <https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>

The plan shall take into account the geographic subdivisions to define the coverage of the solid waste collection area in every barangay. The barangay shall be responsible for ensuring that a 100% collection efficiency from residential, commercial, industrial and agricultural sources, where necessary within its area of coverage, is achieved. Toward this end, the plan shall define and identify the specific strategies and activities to be undertaken by its component barangays, taking into account the following concerns:

- (1) Availability and provision of properly designed containers or receptacles in selected collection points for the temporary storage of solid waste while awaiting collection and transfer to processing sites or to final disposal sites;*
- (2) Segregation of different types of solid waste for reuse, recycling and composting;*
- (3) Hauling and transfer of solid waste from source or collection points to processing sites or final disposal sites;*
- (4) Issuance and enforcement of ordinances to effectively implement a collection system in the barangay; and*
- (5) Provision of properly trained officers and workers to handle solid waste disposal.*

The plan shall define and specify the methods and systems for the transfer of solid waste from specific collection points to solid waste management facilities. [...]

The LGU source reduction component shall include the evaluation and identification of rate structures and fees for the purpose of reducing the amount of waste generated, and other source reduction strategies, including but not limited to, programs and economic incentives provided under Sec. 45 of this Act to reduce the use of non-recyclable materials, replace disposable materials and products with reusable materials and products, reduce packaging, and increase the efficiency of the use of paper, cardboard, glass, metal, and other materials. The waste reduction activities of the community shall also take into account, among others, local capability, economic viability, technical requirements, social concerns, disposition of residual waste and environmental impact: Provided, That, projection of future facilities needed and estimated cost shall be incorporated in the plan. [...]

(f) Recycling — The recycling component shall include a program and implementation schedule which shows the methods by which the LGU shall, in combination with the source reduction and composting components, reduce a sufficient amount of solid waste disposed of in accordance with the diversion requirements set in Sec. 20. [...]

The LGU recycling component shall evaluate industrial, commercial, residential, agricultural, governmental, and other curbside, mobile, drop-off, and buy-back recycling programs, manual and automated materials recovery facilities, zoning, building code changes and rate structures which encourage recycling of materials. The Solid Waste Management Plan shall indicate the specific measures to be undertaken to meet the waste diversion specified under Sec. 20 of this Act. [...]

Open dump sites shall not be allowed as final disposal sites. If an open dump site is existing within the city or municipality, the plan shall make provisions for its closure or eventual phase out within the period specified under the framework and pursuant to the provisions under Sec. 37 of this Act. As an alternative, sanitary landfill sites shall be developed and operated as a final disposal site for solid and, eventually, residual

wastes of a municipality or city or a cluster of municipalities and/or cities. Sanitary landfills shall be designed and operated in accordance with the guidelines set under Secs. 40 and 41 of this Act. [...]

k) *Resource requirement and funding* — The funding component includes identification and description of project costs, revenues, and revenue sources the LGU will use to implement all components of the LGU solid waste management plan.

The plan shall likewise indicate specific projects, activities, equipment and technological requirements for which outside sourcing of funds or materials may be necessary to carry out the specific components of the plan. It shall define the specific uses for its resource requirements and indicate its costs. The plan shall likewise indicate how the province, city or municipality intends to generate the funds for the acquisition of its resource requirements. It shall also indicate if certain resource requirements are being or will be sourced from fees, grants, donations, local funding and other means. This will serve as the basis for the determination and assessment of incentives which may be extended to the province, city or municipality as provided for in Sec. 45 of this Act.

As regards these obligations, the 100% collection efficiency is of great interest where plastic pollution is concerned. A WWF Study noted:¹⁷⁵

The NSWMC reports the collection rate for MSW in the country to vary between 30 – 99%, where high collection rates mainly apply for urbanised areas. [...]

Differences in the collection efficiencies vary on the type of development of each area. Table 3 [presented as Table 4 in this document] below shows the range of collection efficiencies observed from the field activities and waste studies conducted by AMH from 2016 to present. [...] Other challenges in the collection of wastes include limitation on budget for waste management (collection and disposal) and accessibility. In heavily populated yet inaccessible areas where proper collection of wastes is not in place, communities would throw wastes in nearby bodies of water (e.g. rivers, esteros/tributaries).

¹⁷⁵ cyclos GmbH and AMH Philippines (2020) *EPR Scheme Assessment for Plastic Packaging Waste in the Philippines*, Report for WWF Philippines, October 2020.

Table 6: Collection Efficiencies of Study Sites

Classification code	Income classification	Collection efficiency [%]	Waste generation [tpd]
A	Metro cities	90% to 95%	>1,000
B	HUCs and 1st class municipalities	Above 80% to 89%	>500 to 999
C	Emerging cities/ municipalities (mid-tier generator)	Above 50% to 80% Special cases: 90+%	>150 to 499
D	Developmental areas (Low-tier generator)	Above 15% to 50%	>50 to 149
E	Remote areas	10% to 15%	<50
T	High tourist influx (special cases)	80% to 90%	Greatly dependent on tourist arrivals

Source: cyclos GmbH and AMH Philippines (2020) EPR Scheme Assessment for Plastic Packaging Waste in the Philippines, Report for WWF Philippines, October 2020.

The COA report does not comment specifically on collection coverage but highlights the patchy implementation of segregation ordinances, and alludes to the possibility of waste not being collected in various circumstances. The report notes:¹⁷⁶

According to RA 9003, segregation and collection of solid waste, specifically for biodegradable, compostable, and reusable wastes, shall be conducted at the barangay level. On the other hand, the collection of residual wastes shall be the responsibility of the municipality or city. However, during validation, we noted that collection assignments and responsibilities differed in actual due to either limitation at the barangay level or a lack of coordination with their local government. Thus, LGUs cover and collect all types of waste, or household wastes were not collected. [...] Out of the 45 barangays, only 11 collected all wastes from their households, while the remaining barangays varied from collecting only recyclable wastes to not collecting at all.

Our reading of RA 9003 is that it does not make clear the delineation of responsibility between barangays on the one hand, and cities and municipalities on the other. The

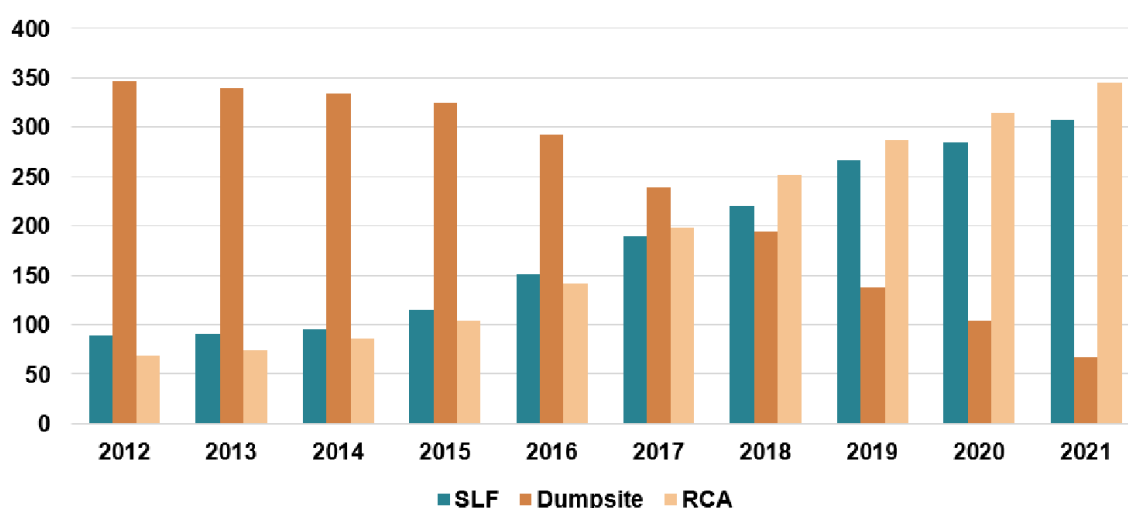
¹⁷⁶ Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

SWM-IRRs, on the other hand, do specify this under Rule VIII Section 2.¹⁷⁷ That there is some confusion in responsibilities is understandable, therefore. More importantly, in our view, if collection services are to be designed so that they encourage reduced waste generation, and help maximise recycling, then the service needs to be an integrated one. The wisdom of separating responsibilities for collection in the manner suggested by the SWM-IRRs is unclear.

The same report notes that progress in closing open dumps has been slow, but to the extent that this process is nearing completion, it notes that because sanitary landfills are not properly planned, some dumps are reopening, and there are a large number of Residual Containment Area (RCAs), which are supposed to be temporary disposal sites allowed by DENR (see Figure 19).

The criteria for RCAs have only been transmitted to LGUs verbally and the concern is that although they were intended to exist temporarily whilst sanitary landfills were developed, many are being operated for lengthy periods, some for more than a decade. There is a concern that RCAs are simply replacement dump sites.

Figure 28: Comparative Number of LGUs using Dumpsites, SLFs, and RCAs from CYs 2012 to 2021



Source: COA Analysis of LGU data, in Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

Section 20, referenced above, sets goals for ‘waste diversion’.¹⁷⁸

¹⁷⁷ DENR Administrative Order No. 2001-34 (2001) Implementing Rules and Regulations of Republic Act 9003, December 20, 2001.

¹⁷⁸ Republic Act 9003 (2001) An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes, January 26, 2001
<https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>

Each LGU plan shall include an implementation schedule which shows that within five (5) years after the effectivity of this Act, the LGU shall divert at least 25% of all solid waste from waste disposal facilities through re-use, recycling, and composting activities and other resource recovery activities: Provided, That the waste diversion goals shall be increased every three (3) years thereafter: Provided, further, That nothing in this Section prohibits a local government unit from implementing re-use, recycling, and composting activities designed to exceed the goal.

Note that waste diversion is defined (Section 3) as:¹⁷⁹ *‘activities which reduce or eliminate the amount of solid waste from waste disposal facilities’*, with ‘disposal’ defined as the *‘discharge, deposit, dumping, spilling, leaking or placing of any solid waste into or in any land.’*

The Philippine Development Plan (PDP) 2017-2022 has since set diversion rates at levels rising from 55 percent in 2017 to 80 percent in 2022 (see Table 5) (the previous PDP included a target of 50%).

Table 7: PDP Targets for Solid Waste Diversion

Year	2017	2018	2019	2020	2021	2022
Nationwide Percentage Targets	55%	60%	65%	70%	75%	80%

Source: PDP 2017-2022

The COA report highlights that these targets were set without consultation with LGUs, and also, that the means for measuring progress targets are not readily available, but also that to the extent that data are available, the targets are not being met.¹⁸⁰

Section 21 makes segregation of waste mandatory and requires segregation of wastes to be conducted at the source, to include household, institutional, industrial, commercial and agricultural sources. Minimum standards for segregation in Section 22, which requires separate containers, and labelling of these, for each waste type for all sources. The minimum standards lack, however, a meaningful minimum specification (it does not, for example, explicitly provide for a minimum extent of segregation).

Sections 26-33 concerns the Recycling Program. Section 28 requires the National Ecology Center to assist LGUs in establishing and implementing deposit or reclamation programs *‘in coordination with manufacturers, recyclers and generators to provide separate collection systems or convenient drop-off locations for recyclable materials and particularly for separated toxic components of the waste stream like dry cell batteries and tires to ensure that they are not incinerated or disposed of in a landfill.’*¹⁸¹ There is a hint of EPR about this, presumably as regards specific materials / products.

¹⁷⁹ Ibid.

¹⁸⁰ Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

¹⁸¹ *Republic Act 9003* (2001) An Act Providing for an Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes, January 26, 2001 <https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/>

There are important Sections - 29 and 30 - regarding non-environmentally acceptable products and packaging, respectively. 'Environmentally acceptable' is defined as *'the quality of being re-usable, biodegradable or compostable, recyclable and not toxic or hazardous to the environment'*.¹⁸²

S.29 requires that one year after Act enters into force, the NSWMC will:¹⁸³

"prepare a list of non-environmentally acceptable products as defined in this Act that shall be prohibited according to a schedule that shall be prepared by the Commission: Provided, however, That non-environmentally acceptable products shall not be prohibited unless the Commission first finds that there are alternatives available which are available to consumers at no more than ten percent (10%) greater cost than the disposable product."

Products excluded include (these should probably have been linked to S.30):¹⁸⁴

(b) Any packaging which is not environmentally acceptable, but for which there is no commercially available alternative as determined by the Commission.

Other than the above exclusions, Section 30 is also interesting:¹⁸⁵

No person owning, operating or conducting a commercial establishment in the country shall sell or convey at retail or possess with the intent to sell or convey at retail any products that are placed, wrapped or packaged in or on packaging which is not environmentally acceptable packaging: Provided, That the Commission shall determine a phaseout period after proper consultation and hearing with the stakeholders or with the sectors concerned. The presence in the commercial establishment of non-environmentally acceptable packaging shall constitute a rebuttable presumption of intent to sell or convey the same at retail to customers.

This ought to have implied that packaging that was not re-usable, biodegradable or compostable, or recyclable, or was hazardous, should have been phased out on a timeframe set by the NSWMC.

The COA is fairly scathing about the lack of progress in developing the relevant lists of products. It highlights the role played, in limiting progress, by DENR's SWM-IRRs, Rule XII Section 5 of which stipulates conditions for listing products or packages as

¹⁸² Ibid.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

¹⁸⁵ Ibid.

non-environmentally acceptable, and which the COA suggests are somewhat onerous, not least given the lack of funding for the NSWMC.¹⁸⁶ The COA report notes:¹⁸⁷

As reported by DENR, the consultation from affected industries was one of the challenges they encountered, resulting in the delay of the NEAP list. In addition, NSWMC also experienced financial constraints in complying with the requirement of producing a study supporting the prohibition of products listed as NEAP. As established earlier, the NSWMC had not received any funding, including the mandated initial operating expense, and thus, the Commission has been working on a budget from DENR-EMB.

NSWMC explained that [...] they are currently hindered in identifying alternatives unless the law is amended and the provision is removed, or a wonder product is developed. [...]

According to reports, several plastic products may be considered NEAP and, therefore, could have been avoided. Once listed in NEAP, the prohibition will ensure this waste will not add to the already occupied SLFs, RCAs, or dumpsites. These products may include plastic cups lower than 0.2 mm in thickness, plastic spoons, plastic forks, plastic knives, and plastic labo and thin-filmed sando bags lower than 15 microns.

Section 32 requires the establishment of a Materials Recovery Facility (MRF) in every barangay or cluster of barangays. The MRF:

'shall receive mixed waste for final sorting, segregation, composting, and recycling. The resulting residual wastes shall be transferred to a long-term storage or disposal facility or sanitary landfill.'

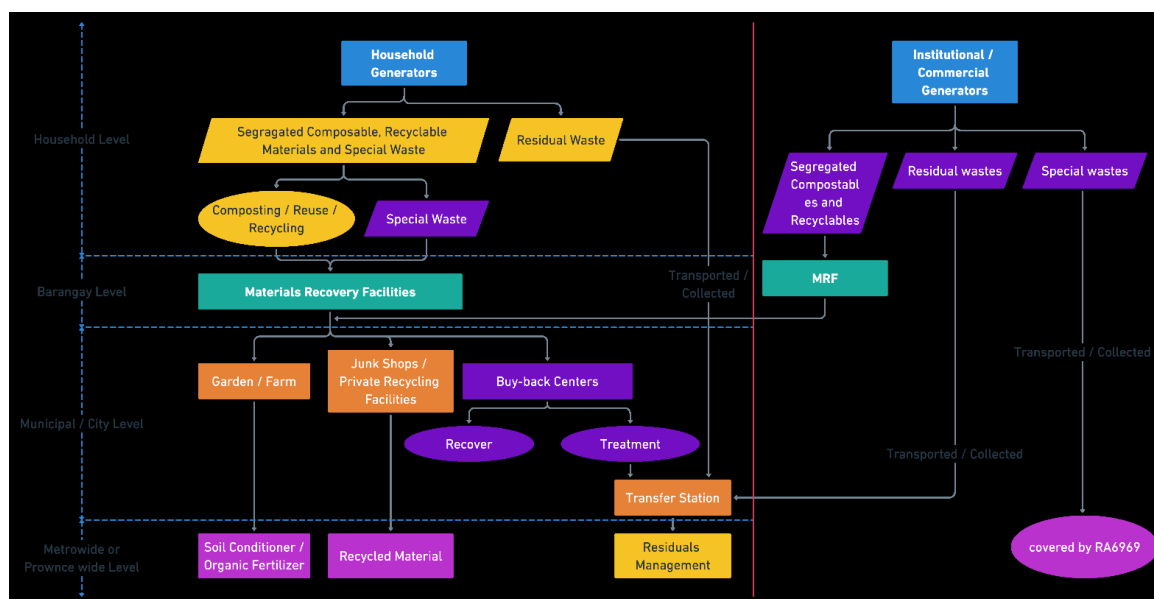
This is somewhat ambiguous when taken in conjunction with the requirements for segregation. The term 'mixed waste' is not defined (this is its only use in the Act), so it is unclear in the Act itself whether it is envisaged that the MRFs are to be used for co-collected mixed recyclables, or whether the recyclables are all to be collected 'pre-segregated', and the MRF deals with the 'leftover' mixed waste which has not been segregated for recycling or composting. As noted above, the SWM-IRRs highlight that barangays are not responsible for unsegregated waste collection, as per Rule VIII Section 2. The figure describing the SWM System in the NSWMC Framework 2004 also suggests that MRFs should receive wastes segregated as 'recyclables', not 'mixed wastes' (see Figure 20).

¹⁸⁶ The relevant text includes:

"any decision to prohibit certain packaging types and products must be supported by available scientific, environmental, technical and economic information and technical studies through, but not limited to, life cycle assessment and economic analysis. Provided that the Commission consults representatives from affected industries and subject to public notice and hearing. Further, in making such decisions, the Commission shall make every effort to reach agreement by consensus. If all efforts at consensus have been exhausted, and no agreement reached, such decisions shall, as a last resort, be adopted by a two-thirds majority vote of the Commission" – see DENR Administrative Order No. 2001-34 (2001) Implementing Rules and Regulations of Republic Act 9003, December 20, 2001.

¹⁸⁷ Commission on Audit (2023) *Solid Waste Management Program: Progress in the Achievement of the Goals of the Ecological Solid Waste Management Act Needs Stronger Support and the Cohesive Efforts and Strategies of All Stakeholders*, PAO-2023-01, April 2023.

Figure 29: SWM System



Source: National Solid Waste Management Commission (2004) National Solid Waste Management Framework 2004.

The degree to which barangays are all served by MRFs is far short of what the Act envisaged. The COA indicates that, as of August 2022, 41% of barangays had access to a MRF. The absolute number of barangays with access is around 19% lower than the target number established in the PDP 2017-20. The COA places a great deal of emphasis on MRFs as the principal means for recycling. It would be useful to understand the extent to which that really is the case (and hence, whether access to MRFs for each barangay ought necessarily to be a goal). The logistics involved, and the implications for the potential productivity of the MRFs is worthy of closer consideration.

Chapter V – Sections 46-47 – covers financing. The solid waste management fund which was to be administered by the NSWMC was due to be resourced through revenues from:

- (a) Fines and penalties imposed, proceeds of permits and licences issued by the Department under this Act, donations, endowments, grants and contributions from domestic and foreign sources; and
- (b) Amounts specifically appropriated for the Fund under the annual General Appropriations Act.

The Fund – which, as we highlighted above, has never actually come into existence - was to be used to finance the following:

- (1) products, facilities, technologies and processes to enhance proper solid waste management;
- (2) awards and incentives;
- (3) research programs;
- (4) information, education, communication and monitoring activities;
- (5) technical assistance; and

(6) capability building activities.

LGUs are entitled to avail of the Fund on the basis of their approved solid waste management plan. Specific criteria for the availment of the Fund shall be prepared by the Commission.

The failure to establish the fund renders Rule XV of the SWP-IRRs redundant.

Section 47 gives local government units authority to collect fees to pay the costs of preparing, adopting, and implementing a solid waste management plan. The fees are to be based: *'on the following minimum factors:*

(a) types of solid waste;

(b) amount/volume of waste; and

(c) distance of the transfer station to the waste management facility.'

The SWM-IRRs added the following 'minimum factors' at Rule XVII Section 2:

d) capacity or type of LGU constituency

e) cost of construction

f) cost of management

g) type of technology

The SWM-IRRs also elaborate that fees can be collected by a Barangay or a Municipality or Private Sector/Civil Society Group in connection with the activities for which they are, respectively, responsible (or undertaking under contract / MoU).

Chapter VI – Sections 48-50 – covers prohibited acts and linked sanctions. Prohibited Acts include:

Littering, throwing, dumping of waste matters in public places, such as roads, sidewalks, canals, esteros or parks, and establishment, or causing or permitting the same;

(3) The open burning of solid waste;

(4) Causing or permitting the collection of non-segregated or unsorted waste;

(8) The mixing of source-separated recyclable material with other solid waste in any vehicle, box, container or receptacle used in solid waste collection or disposal

(10) The manufacture, distribution or use of non-environmentally acceptable packaging materials;

(11) Importation of consumer products packaged in non-environmentally acceptable materials;

There is only one Section (57) specifically on the role of business. This is quite general and imposes no binding obligations on business: there is no requirement for producers to support financing of the SWM system, or any other EPR-related obligation.

The above assessment raises several significant questions regarding RA 9003. It is interesting to note that a recent World Bank report made a number of similar



Dominic Hogg

11:59 PM May 22

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(i) Natural polymers

(ii) Not chemically modified

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We have set out a comparative assessment in

observations on the Act (see Table 7).

Table 8: Issues Regarding RA 9003

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

Source: World Bank (2022) *Reducing Plastic Waste in the Philippines: An Assessment of Policies and Regulations to Guide Country Dialogue and Facilitate Action*, Washington DC.

6.2 EPR Act and EPR-IRRs

The EPR Act is accompanied by a set of EPR-IRRs. The former Act is clearly an amending Act (it amends the ESWMA). The IRRs, on the other hand, are a strange mix: on the one hand, they appear to be amendments to the SWM-IRRs, but on the other, they are presented as a standalone document. They are problematic in this respect since, for example, some definitions which are relevant to the ESWMA do not appear in the EPR-IRRs. Because they are presented as a standalone document, they are apt to confuse readers who are not familiar with the SWM-IRRs. So, for example, when the EPR-IRRs introduce, in Section 9, that ‘*there shall be established*’ a National Ecology Center, they seem to be referring to an institution that is to be formed after the EPR-IRRs are promulgated, even though this was the same NEC that was due to be established back in 2001. On the other hand, where the NSMWC is concerned, only the changes pursuant to the EPR Act are mentioned. The EPR-IRRs are not well drafted, and

sometimes confusing. Nonetheless, because they contain (a little) more detail regarding implementation than the Act, we choose to focus on these in most of the substantive discussion below.

The EPR Act is not a lengthy document. It introduces into the ESWMA a new paragraph in the Declaration of Policies:¹⁸⁸

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

The absence of any specific reference to financing is strange given that – as the COA report makes clear – financing has been a major obstacle to rational implementation of the ESWMA, including finance to which the ESWMA committed the Government to set aside for the NSWMC back in 2001.

It also introduces into the ESWMA number of new definitions of importance:¹⁸⁹

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

As per the above comment, it is odd not to see explicit mention of the financial dimension.

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

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

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

The definition of brand owner is a little confusing. The definition of product manufacturer or importer uses the term ‘general consumer’ which is not defined: does that imply that supplies from a manufacturer or importer to other businesses are excluded? Also, the definition may or may not include (it is not clear) distant sellers (on-line platforms).

The definition of plastic is as follows:¹⁹⁰

¹⁸⁸ Republic Act 11898 (2022) An Act Institutionalizing the Extended Producer Responsibility on Plastic Packaging Waste, amending for this Purpose Republic Act No. 9003, Otherwise Known as The “Ecological Solid Waste Management Act Of 2000”, July 2022.

¹⁸⁹ Ibid.

¹⁹⁰ Ibid.

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

The use of the terms ‘synthetic’ and ‘organic polymers’ raise further definitional questions. The matter of whether bio-derived polymers, or materials which meet specific standards for compostability or biodegradability, are to be included in this definition is not clear (and the terms are not defined elsewhere).

Plastic packaging is defined as:¹⁹¹

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

This is a somewhat loose definition, although it cross references Section 44-C which gives a similar definition, but articulated by examples. Some of the examples in the Act are not ‘packaging’ (*‘other necessities or promotional items, such as cutlery, plates, drinking straws, or sticks, tarps, signage, or labels’*)

The term ‘plastic neutrality’ is introduced:¹⁹²

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

The definition refers to two further terms – ‘plastic product footprint’ and ‘recovered’ - which require definition. The first of these is as follows:¹⁹³

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

The definition is imprecise, referring to ‘a measure of the amount’ rather than specifying what that measure is. It also begs the question as to which goods that are produced, imported, distributed or supplied are deemed to cause no damage to the environment (if there are none, why is the clause needed?).

Regarding the second term, there are no definitions in the Act for ‘recovery’, though there are definitions in the EPR-IRRs for both ‘resource recovery’ and ‘recovered material’, both of which are problematic in our view:¹⁹⁴

"Recovered material" shall refer to material and by-products that have been recovered and diverted from solid waste for the purpose of being processed and used

¹⁹¹ Ibid.

¹⁹² Ibid.

¹⁹³ Ibid.

¹⁹⁴ *Administrative Order No. 2023-02 (2022) Implementing Rules and Regulations of the EPR Act of 2022, January 2023.*

as a raw material in the manufacture of a recycled product or effectively processed or treated to ensure these are prevented from leaking into the environment. For purposes of the required compliances under the EPR Act of 2022, 'recovered material' shall also refer to the plastic packaging waste that an obliged enterprise, collective, or PRO recovers for reuse, recycle, offset, or proper disposal in accordance with its registered EPR Program.

The first clause is partly tautological, but the definition seems to cover recycling (where the recycling process leads to use of the material derived from waste as a raw material), and anything that qualifies as diversion, as long as it ensures materials are effectively processed or treated to ensure they are prevented from leaking into the environment. This might be considered to imply 'anything that is not disposal'. On the other hand, the definition then proceeds to include 'proper disposal' (which is not defined¹⁹⁵) within the definition of 'recovered material' *"for purposes of the required compliances under the EPR Act of 2022"*. The term "offset" is also included: this term is not defined, though we can guess what it may mean. Note also that offsetting itself would not be 'a recovery activity': it would refer to the purchase of certificates as a means of demonstrating a given activity had taken place.

Elsewhere, the EPR-IRRs define "resource recovery" as:¹⁹⁶

"resource recovery" shall refer to the collection, extraction, or recovery of recyclable materials from the waste stream for the purpose of recycling, generating energy or producing a product suitable for beneficial use: Provided, such resource recovery facilities exclude incineration.

Again, this is somewhat confusing: collection of recyclable materials is, according to the above, "resource recovery". Yet collection of recyclables does not guarantee recycling. The exclusion of incineration in the definition of 'resource recovery' is not replicated in the definition of 'recovered material'.

The EPR-IRRs add some other definitions which are significant, and not in the Act:

"Plastic Waste Diversion targets" shall refer to the volume or weight of plastic packaging waste that an Obligated Enterprise, Collective, or PRO commits to recover for reuse, recycling, treatment, or proper disposal in their EPR Program, the minimum of which is prescribed in Section 44-F of the Act, as amended by the EPR Act of 2022

This adds yet more confusion to the way in which the term 'recovery' is used. The above suggests that plastic packaging waste can be 'recovered' for 'proper disposal'. But the definition of 'recovered material' appears to exclude disposal. Note that "proper disposal" is not defined (or differentiated from "disposal". In the ESWMA, even as amended, only disposal is defined.

There is also a definition of "Plastic Waste Diversion Accomplishment", which:

¹⁹⁵ The only uses of the term 'proper disposal' in the EPR Act are in relation to labelling, suggesting that the term, as used there, intends to denote 'proper discard', rather than 'proper disposal'. The term 'diversion' in the ESWMA essentially means 'avoiding disposal'. To now include 'proper disposal' within the definition of 'recovery', or 'diversion', seems to suggest that the DENR EPR-IRRs have 'under-interpreted' the law as it was drafted. The definitions introduced have weakened the meaning that might otherwise have been given to the Act.

¹⁹⁶ Ibid.

shall refer to the volume or weight of plastic packaging waste that an Obligated Enterprise, Collective, or PRO actually recovers for reuse, recycling, offsetting, or proper disposal in accordance with its registered EPR Program, and as verified, validated, and certified by an independent third-party auditor through the ECAR submitted to the Bureau in accordance with Section 44-G of the Act, as amended by the EPR Act of 2022.

As before, this seems to be a rather permissive interpretation of what is to be assessed under EPR. The ESWMA defined “waste diversion” as ‘*activities which reduce or eliminate the amount of solid waste from waste disposal facilities*’. Here, the EPR-IRRs include ‘proper disposal’ within the term ‘Plastic Waste Diversion Accomplishment’: what are producers being required to divert waste from? Is it ‘improper disposal’? If so, then it should be considered that in 2001, when the ESWMA was promulgated, it was considered that forms of disposal other than sanitary landfills – which are probably what is in mind where the term ‘proper disposal’ is used – should be phased out. Is it really the case that producers are being tasked with doing what LGUs are already required to do, and have had more than twenty years to achieve (notwithstanding that they are failing to do this for well-understood reasons)?

The term “Plastic Waste Footprint Reduction” is defined as follows:¹⁹⁷

the consequent reduction in plastic packaging footprint and in plastic waste footprint diversion targets due to the adoption and implementation of waste avoidance and prevention activities and strategies, such as retail refilling stations or product or packaging redesign, under Section 44-A of the Act, as amended by the EPR Act of 2022 and Part V of the EPR IRR.

These definitions suggest either that there may be some problems of interpretation ahead, or that the EPR-IRRs are deliberately worded so as to dilute the intent of the EPR Act.

Perhaps ironically, the EPR Act took the opportunity to change the membership of the NSWMC, despite the fact that, as we noted above, the NSWMC has not been properly funded. The National Ecology Center was also given some additional functions through the Act in relation to EPR, among them being:¹⁹⁸

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

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

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

The IRRs add in that the NEC’s functions will include:¹⁹⁹

¹⁹⁷ Ibid.

¹⁹⁸ Administrative Order No. 2023-02 (2022) Implementing Rules and Regulations of the EPR Act of 2022, January 2023.

¹⁹⁹ Ibid.

Act as the hub for networking of LGUS, NGOS and industry on compliance with the pertinent provisions of the Act, as amended by the EPR Act of 2022;

The Act essentially amends the ESWMA by including a new Chapter III-A on 'Extended Producer Responsibility', this being given substance through Articles 44 A-H. It also makes changes to Section 45 (Incentives) and Section 49 (Fines and Penalties). Sec 9 of the EPR Act itself provides for a review of the Act's effectiveness within 5 years, and also:²⁰⁰

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

The Act took effect on August 13, 2022. The updated list of products and packages to be phased out should have been available by August 13 2023. Note that the EPR-IRRs include the following:²⁰¹

The NEC shall be guided by the provisions of Section 5, Rule XII, Part III, of the RA 9003 IRR in the conduct of its mandatory review of the list of non-environmentally acceptable products and plastic packaging materials and shall submit its report and recommendations thereon to the Commission as its oversight body

The provisions referred to above are the ones which the COA pointedly suggested were, when taken in conjunction with the failure to fund the NSWMC, blocking the listing of products and packaging.

The EPR-IRRs also task the NEC with the following:

Within one (1) year after the effectivity of the EPR Act of 2022, provide an assessment on the volume or footprint of other generated wastes, for priority inclusion in the EPR scheme

As regards the working of the EPR system, it is helpful to start by considering what obliged producers are required to do.

The obligated producers exclude micro, small and medium sized enterprises (MSMEs), unless the total value of assets of all enterprises carrying the same brand, label or trademark exceeds that of medium enterprises as prescribed by Republic Act No. 9501. Other MSMEs are not covered by the EPR Act of 2022, though the Act encourages them to practise EPR voluntarily (or join with others practising EPR). In the main, though, only large producers are covered by EPR.

These obliged enterprises (OEs) are required, as per Section 44-D of the Act, to establish or phase-in EPR programs for plastic packaging to “*achieve efficient management of plastic packaging waste, reduced production, importation, supply, or use of plastic packaging deemed low in reusability, recyclability or retrievability, and plastic neutrality through efficient recovery and diversion schemes.*” They were required to do so within six months of the Act entering into force (February 13, 2022). Here, it is of interest to examine some of the terms used:

²⁰⁰ Ibid.

²⁰¹ Ibid.

6.22. "High recyclability" shall refer to a condition wherein the value for recovery and reprocessing of a product is high, due to its design, composition, content, and density, among other things.

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

Given the way 'recovery' is defined (see above), these terms are rendered more or less meaningless. In particular, all plastics would be defined as at least one, probably both, of these by virtue of the definition of recovery, and the fact that they can be combusted with the release of energy.

We will come to the substance of the programs below, but the EPR programs referred to are meaningless if they have no target they are required to meet. The targets in Section 44-F of the Act are for "*the recovery of plastic product footprint*" generated during the immediately preceding year, and they are as follows:

- | | |
|--------------------------------|------------------------|
| • December 31, 2023 | twenty percent (20%); |
| • December 31, 2024 | forty percent (40%); |
| • December 31, 2025 | fifty percent (50%); |
| • December 31, 2026 | sixty percent (60%); |
| • December 31, 2027 | seventy percent (70%); |
| • December 31, 2028 and beyond | eighty percent (80%). |

The targets are to be met by OEs separately for their rigid and their flexible plastic packaging footprint.

There is no clear definition of what these targets mean within the Act itself. We analysed above various definitions in the EPR-IRRs: the one that specifically references Section 44-F targets is 'plastic waste diversion targets':²⁰²

6.43. "*Plastic Waste Diversion targets*" shall refer to the volume or weight of plastic packaging waste that an Obligated Enterprise, Collective, or PRO commits to recover for reuse, recycling, treatment, or proper disposal in their EPR Program, the minimum of which is prescribed in Section 44-F of the Act, as amended by the EPR Act of 2022.

The underlined part of the definition shows again that what OEs are actually being asked to do is incredibly limited. Large producers are, for example, required (in 2023) to demonstrate that their Program will deliver 20 percent of their material footprint into destinations other than open dumps / open burning / littering: the destination for their materials can include incineration and co-incineration, as well as 'proper disposal', which would appear to be sanitary landfill.

It is worth reflecting on what is meant to happen to waste as a result of the ESWMA. The PDP targets for waste diversion (which excludes 'proper disposal', however that may be defined) are 80% by 2022 (see Table 5 above). These targets are clearly not being applied to municipal waste only, but it is clear that activities already underway ought to enable EOs to demonstrate that they will meet targets without having to change much, if anything, that is already happening. That may change as the EPR targets increase over time, but even this is unclear. The matter is also influenced by the share of all plastic

²⁰² Ibid.

packaging which is accounted for by the OEs. The lower the share, the (even) more straightforward it may become to demonstrate that the target can be met without significant action.

Notwithstanding the targets, it could be the case that the OE's Programs require them to undertake specific actions. There are no clear indications that this will be the outcome. The OE's Program is required to include the following:²⁰³

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

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

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

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

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

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

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

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

“(i) Status of compliance.

The issues with the term ‘recovery’ (used in (e) above) loom large once again.

Elsewhere, the Act states:²⁰⁴

The programs may include the activities stated under paragraph (b) of Section 44-A.

These are:²⁰⁵

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

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

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

²⁰³ Ibid.

²⁰⁴ Republic Act 11898 (2022) An Act Institutionalizing the Extended Producer Responsibility on Plastic Packaging Waste, amending for this Purpose Republic Act No. 9003, Otherwise Known as The “Ecological Solid Waste Management Act Of 2000”, July 2022.

²⁰⁵ Ibid.

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

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

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

“(6) partnership with LGUs, communities, and the informal waste sectors.

The IRRs note:²⁰⁶

The EPR programs may include the activities and strategies stated under paragraphs (a) and (b) of Section 44-A of the Act, as amended by the EPR Act of 2022, and Sections 11.1 and 11.2 of the EPR IRR. Any of these activities and strategies may also be adopted and submitted to the NEC as an amendment or supplement to their NEC-registered EPR Program.

There is no clear requirement to achieve minimum rates of reuse, or of recycling: the targets include a whole range of end of life fates, all of which seem to be treated on an equivalent basis for the purposes of the targets, even though they clearly are not environmentally equivalent, and still less, equivalent in terms of the costs they would incur, or the social outcomes to which they might lead.

It is difficult to know on what basis the NEC would adjudicate on the EPR Programs. It appears that the Programs themselves are anticipated to be very clear plans of action as to how targets are to be met, and how other objectives might also be pursued.

As regards compliance, the EPR IRR's state that (Section 18):²⁰⁷ *'The manner for determining compliance with the targets set for recovery or offset, and diversion targets are already stated in Section 16.3(c), hereof.'* There is, actually, no Section 16.3(c): the intended reference is likely to have been 16.3.3.

In this respect, Section 12.2.2.4 states:²⁰⁸

The movement of collected EOL [end-of-life] products or wastes to the recycling, treatment, or disposal facilities shall be documented through a quantifiable, traceable, and auditable recording system that would reflect source to destination via recycling, treatment, or proper disposal. Once the wastes have been recycled, treated, or properly disposed, the recycler, treater, or disposal facility operator shall issue a Certificate to and in the name of the Obligated Enterprise, Collective, or PRO.

The certificates are mentioned in sub-sections of 16.3.3 as follows:²⁰⁹

16.3.3.5. The EPR Program shall clearly identify who in its process flow shall issue the plastic waste diversion certificate in the name of the Obligated Enterprise, the Collective, or the PRO. As a measure to ensure the integrity and veracity of the

²⁰⁶ Administrative Order No. 2023-02 (2022) Implementing Rules and Regulations of the EPR Act of 2022, January 2023.

²⁰⁷ Ibid.

²⁰⁸ Ibid.

²⁰⁹ Ibid.

contents thereof, the plastic waste diversion certificate shall be notarized in accordance with the prevailing rules on notarization issued by the Supreme Court of the Philippines.

16.3.3.6. It is the aggregated total weight of these Sworn Plastic Waste Diversion Certificates, secured during the applicable compliance period, that shall serve as among the principal bases to determine compliance with the applicable minimum plastic packaging waste diversion targets set under Section 44-F of the Act, as amended by the EPR Act of 2022, and shall be the subject of verification, validation, compliance audit, and certification by the independent third-party auditor to be engaged by the Obligated Enterprise, Collective, or the PRO in accordance with Section 44-G of the Act, as amended by the EPR Act of 2022.

16.3.3.7. The Obligated Enterprise, the Collective, or the PRO shall ensure the accuracy, reliability, and integrity, of all information and reports from its network of plastic waste collectors, diverters, re-users, recyclers, converters to feedstock of legally allowed technological applications, or operators of SLFS as defined in the Act.

Later, in Section 16, the IRRs note:²¹⁰

16.3.6.1.2. Of particular importance is the identification of the partner or collaborator that will issue the in the name of the Obligated Enterprise, Collective, or PRO the Sworn Plastic Waste Diversion Certificate.

It is clear from the above that the basis for compliance is notarized certificates issued by various facility operators in the name of whoever submits the EPR Program. There is, though, relatively little oversight other than an independent third-party audit (Section 19 of the EPR-IRRs) arranged by the Obligated Enterprise, the Collective, or the PRO who submits the Program, to be conducted in line with uniform standards to be established by DENR. Flexibles and rigids are to be treated as separate categories for compliance purposes ('polystyrene' is included in both, presumably depending on the form in which it is used).

As regards sanctions, Section 49 of the EPR Act indicates that offences under the Act are likely to include:²¹¹

- failure to register;
- falsification of documents;
- misdeclaration of generated or recovered footprint;
- using a scheme to maliciously evade responsibility under the EPR Law;
- Falsifying reporting against targets.

Penalties are as follows:

1. First Offence: not less than Five million Pesos but not exceeding Ten million Pesos
2. Second Offence: not less than Ten million Pesos but not exceeding Fifteen million Pesos

²¹⁰ Ibid.

²¹¹ Republic Act 11898 (2022) An Act Institutionalizing the Extended Producer Responsibility on Plastic Packaging Waste, amending for this Purpose Republic Act No. 9003, Otherwise Known as The "Ecological Solid Waste Management Act Of 2000", July 2022.

3. Third Offence: not less than Fifteen million Pesos but not exceeding Twenty million Pesos and automatic suspension of business permit until the requirement of the Act is complied with

Where the offence relates to failure to meet targets, either the above fines are paid, or a fine twice the cost of recovery and diversion of the footprint or its shortfall is levied, whichever is higher.

6.3 Local Government Code 1991

Of considerable relevance to the discussion above is the Local Government Code of 1991. The Code paved the way for the devolution of select functions by defining the powers, responsibilities, and institutional arrangements of LGUs at various geographical scales in the Philippines; allocating additional resources to LGUs; and providing guidelines and safeguards for carrying out the provisions of the Code.

Section 17 outlined specific responsibilities at different levels of government (barangays are responsible for collection, municipalities for installing waste disposal systems, etc.). LGUs were given several waste-related responsibilities, including the following:

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

Article 3 (Sangguniang Bayan) also outlines the specific powers, duties, and functions of the municipality's Sangguniang Bayan (Section 447) which includes the approval of ordinances related to waste management. In principle, this seems to allow LGUs to craft waste management projects and programs that are specifically unique to their jurisdictions regardless of what the rest of the municipalities in the province are doing.²¹²

As indicated above, there has been considerable uncertainty regarding financing of waste management services. These have not been the only services which local government is expected to provide that have been short of funding. A Supreme Court Ruling on the Mandanas-Garcia Petition (Mandanas ruling), issued in 2018, mandated that LGUs are entitled to a share of all national taxes, not just the national internal revenue taxes.

In the wake of the Mandanas Ruling, Department of Budget and Management (DBM) Memorandum Order 138 states that:

“the functions, services, and facilities which shall be fully devolved from the NG (national government) to the LGUs (local government units) no later than the end of

²¹² Section 468 (Powers, Duties, Functions and Compensation) is also worthy of note in that it gives LGUs powers ‘to protect the environment and impose appropriate penalties for acts which endanger the environment [...] and such other activities which result in pollution, acceleration of eutrophication of rivers and lakes, or of ecological imbalance’. Some LGUs have used this as the basis for their ordinances banning specific single-use plastic items.

FY (fiscal year) 2024, shall include those indicated under Section 17 of RA No. 7160 and other existing laws which subsequently devolved functions of the NG to LGUs.”

The order requires national government agencies (NGAs) to fully transfer the task of delivering basic services to local governments by 2024. A committee of devolution was also created to oversee the transition and provide technical and capacity-development assistance to LGUs to implement the devolved functions stated in the Local Government Code (LGC), which took effect in 1991. Among the devolved functions are the SWM functions cited above. The order states that LGUs will have more funds starting 2022 because of the Mandanas ruling.

This could, potentially, have offered the fiscal space for LGUs to augment their budgets to effectively implement SWM activities. It remains to be seen whether this will indeed be the case.²¹³

6.4 Summary

As in India, the opportunity to ensure that the EPR scheme supports, financially, a significant improvement in waste management, whether of plastics or any other materials. The SWM Rules and IRRs have clearly not been implemented well: had they been, the EPR targets would imply doing nothing more than was already being done. Indeed, there are still reasons to believe this may still be the case, not least because of the terms which the EPR Act and IRRs introduce regarding qualifying activities in fulfilment of obligations. Fundamentally, the drive for compliance will be determined mostly by the extent of collection services, and the extent to which collected waste avoids ‘improper’ disposal.

As regards sachets specifically, fulfilment of obligations has to be demonstrated separately for flexibles and rigids. Flexible packaging would appear to include a range of packaging other than ‘sachets’ including film packaging used in transporting packaged products. As such, compliance is not required at the specified level specifically for ‘sachets’ (however defined) – compliance can be achieved through managing other flexible packaging. It would seem likely that OEs can fulfil obligations without paying too much attention to small format sachets, which might be expected to provide a relatively expensive route to compliance. That does not mean that some activity in respect of supporting collection activity might not take place (for example, under existing credit trading schemes). Indeed, the validity of such trading schemes might be called into question were the EPR Act and IRRs to be genuinely transformational (since the credits would struggle to demonstrate any form of additionality over and above what the law requires). It will be interesting, therefore, to see how existing credit exchanges, such as PCX, present their offering in the light of the EPR Act and IRRs: arguably, they morph into the basis for ‘offsets’. In this respect, however, the issue becomes one of whether the OEs really need to pay for anything that is already happening / required to happen under the ESWMA.

As in India, we are of the view that the uncertainty in respect of financing and responsibilities is likely to lead to under-investment, especially in the final stage recycling infrastructure. In contrast to India, though, recycling – as generally understood - is not

²¹³ See also World Bank (2022) Reducing Plastic Waste in the Philippines: An Assessment of Policies and Regulations to Guide Country Dialogue and Facilitate Action: Annex A: Main Policy and Regulatory Landscape on Plastic Waste Management in the Philippines, Washington DC.

mandated: what is required is 'diversion', including, for the purposes of fulfilment of obligations, co-incineration, incineration, and the undefined 'proper disposal'. This must be considered a missed opportunity.

In the short term, it may or may not be that more sachets are collected under a range of agreements between PIBOs / those acting on their behalf, and (most likely) informal collectors. The question will be 'where does this go?' The lax definition of 'diversion' for the purposes of obligations is facilities which are already there, such as co-processing facilities. This is not a long-term solution either for better management of plastics, and not for the decarbonisation of cement production.

The other missed opportunity has been the failure to make anything other than limited moves in respect of so-called 'non-environmentally acceptable products and plastic packaging material' that should be phased out. DENR appears to have kicked this into the long grass by establishing a process which is needlessly cumbersome in the face of a serious problem of single-use plastic pollution. Even the COA appears to have taken the view that the intent of the ESWMA has been undermined by the SWM-IRRs: the foot-dragging has been duplicated in the EPR-IRRs.

The term 'environmentally acceptable' was defined back in the ESWMA as:

the quality of being re-usable, biodegradable or compostable, recyclable and not toxic or hazardous to the environment'

The ESWMA-IRRs defined 'Non-environmentally acceptable products or packaging' as those that are 'unsafe in production, use, post-consumer use, or that produce or release harmful products.' However one chooses to define them, small format sachets are obviously not 'environmentally acceptable' and they could easily fall into the 'non-environmentally acceptable' category. Their elimination, therefore, should have been in the minds of the ESWMC from the outset – for the past 20 years. The idea that there should be alternatives available could, for example, have restricted their use to applications where alternatives were not available, but for most applications, alternatives exist, and the extent of these is, if anything, growing rather than shrinking. Existing law, therefore, could have provided the basis for the elimination, decades ago, of a problem that has become a key contributing factor in the scourge of plastic pollution.

7.0 Existing EPR Legislation in Indonesia

In Indonesia, the legislative framework for waste and in which extended producer responsibility sits is shown in. Most reviews have highlighted two parts of this framework as particularly important where EPR is concerned: the 2008 Law on Waste Management (which it is claimed introduced the concept, though as we shall see, that is to clutch at straws somewhat, both in terms of the drafting of law, and the empirically observed outcomes), and the MoEF Decree No. P.75/2019 on Roadmap to Waste Reduction by Producers, which is widely considered as an EPR law. Even this Law, however, leaves much to be desired. Relevant Regulations as of 2020 are shown in Figure 29.

Figure 30: Summary of National Waste Management Regulations in Indonesia (MoEF 2020)

	<div> <div>Ministry of Environmental and Forestry</div> <div>Ministry of Public Works</div> <div>Ministry of Trade</div> <div>Ministry of Industry</div> </div>			
National Law	UU No. 18 / 2008 Law on Solid Waste Management	UU No. 32/2009 Law on Environmental Protection and Management		
Government Regulation	PP No. 81/2012 Government Regulation on Management of Household and Household-like Waste	PP No. 101/2014 Government Regulation on Hazardous Waste Management	DRAFT Government Regulation on Excise on Plastic	DRAFT Government Regulation on Specific Waste Management
Presidential Regulation	Perpres No. 97/2017 Presidential Regulation on National Policy and Management Strategy of Household Waste and Household-like Waste	Perpres No. 83/2018 Presidential Regulation on Marine Debris Management	Perpres No. 18/2015 Presidential Regulation on Income Tax Facilities for Investment in Certain Business Fields and/or in Certain Regions	Perpres No. 15/2018 Presidential Regulation on Acceleration of Damage and Pollution Control on Citarum River Basin Perpres No. 35/2018 Presidential Regulation on Acceleration of Development of Waste-to-Energy Installation using Environmentally-sound Technology
Presidential Decree	Keppres No. 61/1993 and No. 47/2005 Presidential Decree on Ratification of the Basel Convention on the Control of the Transboundary Movement of Hazardous Waste and Their Disposal			
Ministerial Regulation	Ministry of Trade Regulation No. 31/2016 on Non-Hazardous Waste Import	Ministry of Public Works Regulation No. 3/2013 on Implementation of Solid Waste Infrastructure and Facilities	Ministry of Environment and Forestry Regulation No. P.75/2019 on Roadmap to Waste Reduction by Producers	DRAFT Ministerial Regulation (MoEF) on Shopping Plastic Bag Reduction
	Ministry of Trade Regulation No. 48/2015 on General Provisions in the Import Sector	Ministry of Trade Regulation No. 70/2015 on Importer Identification Number	Ministry of Industry Regulation No. 48/2015 on Requirements for Income Tax Facilities Implementation	
Regional/Local Regulation	Regional/Local Regulations on Single-use Plastics Ban: - Pergub Bali No. 97/2018	- Perwali Denpasar 38/2018 - Perwali Bogor 61/2018 - Perwali Banjarmasin 18/2016	- Perwali Balikpapan 8/2018 - Perwali Padang 38/2018 - Perda Purwakarta 37/2016	

(Source: SWI analysis, 2019)

Source: Yifan Wang and Rachel Karasik (2022) *Plastic Pollution Policy Country Profile: Indonesia, Policy Brief*, Duke University Nicholas Institute, February 2022.

Neither of these documents were available in an officially recognised English language version. Not being native speakers, we have been reliant on translations which are not of the highest quality, although we have sought to verify our views through reference to secondary sources: this, though, is less than ideal for our purposes (which are, broadly speaking, critical review of existing laws / regulations).

7.1 2008 Law on Waste Management

The Law on Waste Management differentiates between household waste, household-like waste and 'specific' wastes:²¹⁴

(2) Household waste, as provided for paragraph (1) point a, derives from household daily activities, excluding faeces and specific waste.

(3) Household-like waste, as provided for paragraph (1) point b, derives from commercial areas, industrial areas, special areas, social facilities, public facilities, and/or other facilities.

(4) Specific waste, as provided for paragraph (1) point c, includes:

- a. waste contains hazardous and toxic materials*
- b. waste contains hazardous and toxic waste*
- c. waste derives from disaster*
- d. construction and demolition waste*
- e. waste that cannot be processed due to there are no available technology existed.*
- f. waste that not periodically occurred*

Article 5 makes it the task of central and local government to ensure environmentally sound waste management. Article 6 elaborates on the associated tasks for government and local government, these being:²¹⁵

- a. developing and increasing the public awareness on waste management;*
- b. conducting research, developing technology for reducing and handling of waste;*
- c. facilitating, developing, and conducting efforts to reduce, handle, and utilise waste.*
- d. carrying out waste management and facilitating in providing the facility and infrastructure for waste management;*
- e. encouraging and facilitating the enhancement of the benefit of waste management outcome.*
- f. facilitating the application of specific local technology that developed in the local society in reducing and handling of waste; and*
- g. conducting coordination amongst government institutions, society, and industry towards an integrated waste management*

Articles 7, 8 and 9 delineate the respective responsibilities of central, provincial and local government, with Article 7 indicating that the central government focuses on national policy, strategy, norms and standards (and other matters) as well as monitoring local government performance.

²¹⁴ Act of the Republic of Indonesia Number 18 Year 2008 Regarding Waste Management.

²¹⁵ Ibid.

Article 8 suggests the provincial government has authority to stipulate policy and strategy for waste management in line with the government policy, and for encouraging coordination of regions within provinces (amongst other things).

Article 9 states that:²¹⁶

- 1) In conducting waste management, district/municipality's government has the authority to:*
 - a. stipulate policy and strategy for waste management based on national and provincial policy.*
 - b. carry out waste management at district/municipality level in line with the norm, standard, procedure and criteria stipulated by the government.*
 - c. carry out development and Monitoring of other agent performance in waste management; and*
 - d. determine location of the temporary collection site, integrated waste treatment site, and/or final waste processing site.*
 - e. carry out monitoring and evaluation periodically every 6 (six) months within 20 (twenty) years on open dumping system final waste processing site that has been closed.*
 - f. issue and carry out waste management emergency response systems in line with their authority.*
- (2) The designing of the location of the integrated waste treatment site and final waste processing site as stated at paragraph 1 point d shall be part of the district/municipality spatial planning in line with legislation*

Article 15 of the Waste Management Law 2008 states that producers are obliged to manage packaging and/or products which are not (easily) decomposed by natural processes. It does not refer to EPR per se, but this might be considered to be something loosely approximating to it. It should be noted that the 2008 Act does not define producers (though it does define 'waste producers').

Article 19 makes a somewhat confusing distinction between waste reduction and waste handling. The confusion arises because, as Article 20 makes clear, waste reduction includes, as well as reducing waste generation, both reuse and recycling. Article 20(2) commits government and regional government to:²¹⁷

- a. determine the waste reduction target gradually within the limitation of time;*
- b. facilitate the application of environmental sound technology;*
- c. facilitate the labelling of environmental sound products;*
- d. facilitate the activities of reusing and recycling; and*
- e. facilitate the market of recycled products.*

²¹⁶ Ibid.

²¹⁷ Ibid.

Article 23, somewhat confusingly, makes specific waste management the responsibility of the government: we doubt that it is intended that the Government takes full operational responsibility for this.

There is an important Article (24) on Financing:²¹⁸

(1) The Government and the local government are to finance the implementation of waste management.

(2) The finance, as mentioned in paragraph (1), shall derive from state revenue and expenditure budget and local revenue and expenditure budget.

(3) Stipulation of regulation regarding the finance as mentioned in paragraph (1) and paragraph (2), is regulated further by government regulation and/or local government regulation.

There is no provision here for producers to contribute to financing.

In passing, we note that the Sanctions set out in Article 32 do not seem especially well articulated.

It is of interest to note the Elucidation from the House of Representatives. This notes, amongst other things, that consumption patterns have given rise to increasing generation of various types of waste, such as waste with packaging that is hazardous and/or not readily decomposed by natural processes. This articulation is carried through to later legislation.

There are also comments on the meaning of terms in the Act, such as the principle of justice, which is:²¹⁹ *‘that in waste management, the government and local government provide equal opportunity to the community and to the business entity to play an active role in the waste management.’*

Regarding Incentives (Article 21), the elucidation also notes that incentives could be granted to producers using materials in production that readily decay by natural processes, and are environment friendly.

These are interesting ideas that were being considered in the process of development of the law.

7.2 Regulation 81/2012 on Household and Household Like Waste

The 2012 Regulation reiterates much of what is set out in the 2008 Act. It addresses:²²⁰

- household wastes, which are defined as being from household activities, but excludes faeces and specific wastes, and
- waste similar to household waste, which originates from commercial areas, industrial areas, special areas, social facilities, public facilities, and/or other facilities.

²¹⁸ Ibid.

²¹⁹ Ibid.

²²⁰ Government Regulations of The Republic of Indonesia, Number 81 of 2012 regarding Management of Household Waste and Waste Similar to Household Waste.

Producers are defined as business actors who produce goods who use packaging, distribute goods which use packaging and import, or sell goods using packaging that cannot be, or is difficult to be, decomposed by natural processes.

Articles 4 to 8 establish the hierarchical responsibility for policy and strategy development, this running from government, to provinces to districts / cities. Policies and strategies developed by these entities are required to include phased targets for waste reduction, and for management of waste.

Article 9 goes further in specifying what district / city governments should do. They must prepare a masterplan and supporting studies regarding management of household waste and waste similar to household waste. The Master Plan, to be relevant for a period of 10 or more years, has to cover, at least:²²¹

- a. limiting waste generation;*
- b. waste recycling;*
- c. waste reuse;*
- d. waste sorting;*
- e. waste collection;*
- f. waste transport;*
- g. waste processing;*
- h. final waste processing; and*
- i. funding.*

Chapter II of the Regulation covers Implementation of Waste Management. Article 10 identifies implementation as comprising waste reduction and waste handling, with waste reduction defined under Article 11 as including:²²²

- a. limiting waste generation;*
- b. waste recycling; and/or*
- c. reuse of waste.*

Articles 12 to 15 relate to the responsibility of producers. Article 12 obliges them to reduce waste generation through preparing plans / reduction programs as part of their business / business activities, and produce products using packaging which are easily decomposed by natural processes and which create as little waste as possible. Article 13 obliges producers to recycle waste, either themselves, or through others acting on their behalf. Article 14 obliges them also to make plans for reuse. Article 15 indicates a plan to increase use of raw materials in packaging and products that can be decomposed by natural processes, and create as little waste as possible, and which can be recycled and/or reused as intended in Article 12 to Article 14. The ten year plans envisaged are made the responsibility of the environment minister.

²²¹ Ibid.

²²² Ibid.

Article 18 states that waste collection is to be carried out by those responsible for residential areas, commercial areas, industrial areas, special areas, public facilities, social facilities and other facilities. It shall also be carried out by district/city government.

The Article also sets out what equipment is to be provided: district/city government is required to provide TPS and/or TPS 3R in residential areas.²²³ These have to meet the following requirements:

- a. facilities are available to classify waste into at least 5 (five) types of waste;
- b. location area and capacity according to needs;
- c. the location is easy to access;
- d. does not pollute the environment; and
- e. have a collection and transportation schedule.

The 5 types of waste into which waste should be sorted are listed in Article 17 and are:

- a. waste containing hazardous and toxic materials and waste of hazardous and toxic materials;
- b. biodegradable waste;
- c. reusable waste;
- d. recyclable waste; And
- e. other rubbish.

Article 21(4) states also what processing facilities are to be provided by the district / city government. These are:

- a. TPS 3R;
- b. intermediate switching stations;
- c. landfill; and/or
- d. TPST.

Article 22 concerns final processing of waste and makes this the responsibility of district/city government, Methods to be used are:

- a. controlled landfill;
- b. sanitary landfill; and/or
- c. environmentally friendly technology.

Article 26 states that district/city governments can (amongst other things), in carrying out waste transportation, processing and final processing activities, partner with business entities or the community. This is interesting in that it seems to exclude collection and sorting, which are identified as separate activities in the Act.

²²³ Note that in Article 1, TPS is defined as a place where waste is transferred and aggregated before it is transported onwards for recycling, processing, and/or integrated waste processing sites. TPS 3R are defined as places where sorting for recycling takes place at a regional scale and where the 3R principle (reduce, reuse, recycle) is followed. TPST are integrated waste processing sites where sorting for recycling and reuse occurs, as well as reprocessing, processing, or final processing are carried out.

Article 27 indicates that under special conditions, the provincial government can carry out the transportation, processing and final processing of waste.

Article 29 relates to local government financing of waste management. It states that in organising waste handling, district/city governments can implement levies on each person for the services provided. 29(2) states that levies shall be determined progressively based on the type, characteristics and volume of waste. The levies are to be used for:

- a. waste handling service activities;
- b. provision of waste collection facilities;
- c. emergency management;
- d. environmental restoration resulting from waste handling activities; and/or
- e. increasing the competence of waste management.

Procedures for calculating retribution rates are regulated ‘*by ministerial regulations that carry out government affairs in the field of waste.*’

The above Regulation was promulgated more than a decade ago, yet implementations have been extremely patchy to say the least.²²⁴ It is also worth noting that in the same year, MoEF issued Decree No.13/2012 on Guidelines for Implementation of Reduce, Reuse and Recycle through Waste Banks. The Guidelines defines Waste Banks, and states the requirements, mechanism, implementation, and implementation of the Waste Bank, which in the words of one review, ‘*is the main government tool to increase recycling of household and similar waste. The Waste Bank allows residents to be paid a pre-set amount for selected valuable waste types through local reception stations.*’²²⁵

7.3 Regulation 97/2017 on Household and Household Like Waste

Article 1 of the Regulation assigns terms for the National and Regional Policy and Strategy.²²⁶

6. National Policy and Strategy for the Management of Household Waste and Similar Waste to Households, hereinafter referred to as Jakstranas, is the policy direction and strategy for reducing and handling Household Waste and Similar Waste at the national level in a unified and sustainable manner.

7. Regional Policy and Strategy for the Management of Household Waste and Similar Types of Household Waste, hereinafter referred to as Jakstrada, is the policy direction and strategy in reducing and handling Household Waste and Types of Household Waste at the provincial and district/city levels in an integrated and sustainable manner .

²²⁴ See APKASI and APEKSI and Systemiq (2021) [Building Robust Governance and Securing Sufficient Funding to Achieve Indonesia’s Waste Management Targets](#), November 2021.

²²⁵ Yifan Wang and Rachel Karasik (2022) Plastic Pollution Policy Country Profile: Indonesia, Policy Brief, Duke University Nicholas Institute, February 2022.

²²⁶ Presidential Regulation No. 97/2017 National Policy & Strategy on Management of Household Waste and Household-like Waste.

The Regulation then proceeds with Jakstranas Directions; Implementation of Jakstranas; Provincial Jakstrada; Regency Jakstrada.

Article 4(1)(h) indicates that the national strategy will include:²²⁷

h. strengthening the commitment of the business world through implementing producer obligations in reducing household waste and household-like waste.

Article 5 introduces national level targets:²²⁸

a. reduction of Household Waste and Waste Similar to Household Waste by 30% (thirty percent) of the generation of Household Waste and Waste Similar to Household Waste before the existence of the national policy and strategy for reducing Household Waste and Waste Similar to Household Waste in 2025; and

b. The handling of household waste and similar waste is 70% (seventy percent) of the generation of household waste and similar waste before the existence of a national policy and strategy for handling household waste and similar waste in 2025.

Regarding the first of these, it should be recalled that ‘reduction’, as per Article 3(2) covers:²²⁹

a. limiting the generation of household waste and household-like waste;

b. recycling of household waste and household waste; and/or

c. reuse of household waste and household waste.

The wording of the target is somewhat ambiguous: does this represent a 30% reduction relative to the ‘pre-policy’ level in absolute terms, or a 30% reduction relative to some notional ‘without policy’ counterfactual? This (perhaps the translation?) is not clear. How would genuine reduction in waste be measured? It might have been better to indicate not a percentage reduction target, but an absolute target (tonnes) for the unrecycled / not reused waste.

Indicators proposed under Article 10 are:²³⁰

(2) The achievement of reducing household waste and similar types of household waste as referred to in paragraph (f) is measured by indicators:

a. the magnitude of the reduction in the amount of household waste and household waste-like waste per capita;

b. the magnitude of the increase in the amount of household waste and similar type of household waste that is recycled at the waste source; and

c. the amount of increase in the amount of household waste and similar types of household waste that is reused at waste sources.

As regards the second of the targets, it should be considered that “handling” includes sorting, collection, transportation, processing, and final processing. Final processing

²²⁷ Ibid.

²²⁸ Ibid.

²²⁹ Ibid.

²³⁰ Ibid.

includes controlled and sanitary landfill, so the second target appears to be about ensuring a) the development of collection services, and b) ensuring that what is collected is not burned / sent to unregulated dump sites / littered, etc. However, the target has also been interpreted by commentators as a target for keeping waste away from landfill.²³¹ This latter interpretation might be of greater concern given the first target: the gap between the two would be suggestive of what might be required to be managed via incineration / co-incineration. It should be noted that we were unable to find the Appendices cited in the Regulation, but one source indicates data as shown in Table 6.

Table 9: National Target on Household Waste Reduction and Handling 2018–2025 (in Million Tons and Percentage Change) (JAKSTRANAS 2017)

Indicator	2018	2019	2020	2021	2022	2023	2024	2025
Waste Generation	66.5	67.1	67.8	68.5	69.2	69.9	70.6	70.8
Waste Reduction Target	12 (18%)	13.4 (20%)	14 (22%)	16.4 (24%)	17.99 (26%)	18.9 (27%)	19.7 (28%)	20.9 (30%)
Waste Handling Target	48.5 (73%)	50.3 (75%)	50.8 (75%)	50.7 (74%)	50.5 (73%)	50.3 (72%)	50.1 (71%)	49.9 (70%)

Source: Presidential Regulation No. 97/2017 National Policy & Strategy on Management of Household Waste and Household-like Waste (as cited in Yifan Wang and Rachel Karasik (2022) Plastic Pollution Policy Country Profile: Indonesia, Policy Brief, Duke University Nicholas Institute, February 2022).

Matters are not made much clearer, regarding the second target, as a result of considering the indicators listed in Article 10:²³²

(3) Achievements in handling household waste and similar types of household waste as intended in paragraph (1) are measured by indicators:

- a. the magnitude of the increase in the amount of Household Waste and Waste Similar to Household Waste which is segregated at Waste Sources;*
- b. the amount of reduction in the amount of household waste and similar household waste transported to the final processing site;*
- c. the amount of increase in the amount of household waste and similar household waste transported to the processing centre for household waste and similar household waste to become raw materials and/or energy sources;*
- d. the amount of increase in the amount of Household Waste and Household-like Waste which is categorised as a standard level;*

²³¹ Yifan Wang and Rachel Karasik (2022) Plastic Pollution Policy Country Profile: Indonesia, Policy Brief, Duke University Nicholas Institute, February 2022.

²³² Presidential Regulation No. 97/2017 National Policy & Strategy on Management of Household Waste and Household-like Waste.

e. the magnitude of the increase in the amount of household waste and household waste that is utilised as an energy source; And

f. the amount of reduction in the amount of household waste and similar types of household waste processed at the final processing site.

Note that if the only interest was the amount not being landfilled, then in principle, that would not require the measurement of all the above.

The monitoring results as provided via the indicators are to be prepared in the form of a Jakstranas report, which forms the basis for performance review and revisions to the Jakstranas.

Article 7 indicates that Jakstranas is intended as a guideline for:

- a. ministers and/or heads of non-ministerial government institutions to determine sectoral policies related to the management of household waste and similar types of household waste;
- b. governors, when compiling and establishing provincial Jakstrada; and
- c. regents/mayors, when compiling and establishing district/city Jakstrada.

District / city Jakstradas are also to be guided by provincial Jakstrada.

Articles 8 and 9 seem to assign the same tasks to ministers and/or heads of non-ministerial government institutions according to their authority (Article 8) and to the Minister (Article 9). This seems likely to give rise to confusion in who has what roles and responsibilities.

In essence, the provincial and regency / city Jakstradas are to monitor performance using the same indicators as considered under Article 10, but applied at the provincial and regency / city levels, respectively.

Article 15 indicates that funding '*for the implementation of Jakstranas, provincial Jakstrada, and district/city Jakstrada*' can come from the State Revenue and Expenditure Budget, Regional Revenue and Expenditure Budget, and other legal funding sources in accordance with statutory provisions. This is not exactly clear, and is unlikely to place management of waste on a sustainable financial footing.

Note that in 2018, MoEF published drafting guidelines for the Regional Strategy Policy (Jakstrada) on the Management of Household Waste and Waste Similar to Household Waste (Indonesian Ministry of Environment & Forestry Regulation No. P.10/MENLHK/SETJEN/PLB.0/4/2018).

7.4 MoEF Decree No. P.75/2019 on Roadmap to Waste Reduction by Producers

This Decree effectively constitutes what most would consider to be an EPR Law. It might be considered to articulate the role of producers in supporting delivery of the 2017 targets in the 2017 regulation building on the wording in the 2008 Law on Waste Management.

Article 1(2) defines producers as:²³³

²³³ Minister of Environment and Forestry Decree No. P.75/2019 Concerning A Roadmap for Waste Reduction By Producers.

“business actors that produce goods that use packaging, imported goods distribution by using packaging, or selling goods by using containers that cannot or are difficult to decompose by natural process.”

This appears to be the same as in the 2012 Regulations.

Article 1(7) introduces the Amdal:²³⁴

7. Environmental Impact Analysis, hereinafter referred to as Amdal, is a study of the significant impacts of a planned Business and/or Activity on the environment which is necessary for the decision-making process regarding the implementation of the Business and/or Activity.

Article 2 indicates that the Decree pertains to the period 2020-29. It also states (Article 2(2)):²³⁵

(2) The road map [...] is carried out to achieve the waste reduction target by the producer by 30% (thirty percent) compared to the amount of waste generation in year 2029.

Article 3 adds further information regarding ‘producers’:²³⁶

(1) Producers as intended in Article 2 include business actors and/or activities in the fields of:

- a. manufacture;*
- b. food and beverage services; And*
- c. retail.*

(2) The manufacturing sector as intended in paragraph (1) letter a includes:

- a. food and beverage industry;*
- b. consumer goods industry; And*
- c. cosmetics and body care industry*

(3) The food and beverage services sector as referred to in paragraph (1) letter b includes:

- a. restaurant;*
- b. café;*
- c. restaurant;*
- d. catering services; And*
- e. hotel.*

(4) The retail sector as intended in paragraph (1) letter c includes:

- a. Shopping centre;*

²³⁴ Ibid.

²³⁵ Ibid.

²³⁶ Ibid.

b. Modern shop; And

c. Public market.

Article 5 indicates that the Roadmap intended by Articles 2 to 4 is set out in Appendix 1. It is unclear to us that all the activities in Appendix 1 are mandatory, or whether they might be a menu to be chosen from: in addition, notwithstanding that the Roadmap appears to be for a period to 2029, the date at which – if the requirements are mandatory – these would need to be achieved is unstated. Appendix I lists a range of activities under the headings R1 (Restrictions of waste generation), R2 (Recycling), R3 (Re-use) for each of a range of materials, with the list of actions being split by plastic polymer for the Manufacturing producers. For Food and Drink Services and Retail Producers, the actions are focussed on plastic bags, and on eating and drinking utensils (this is not a Roadmap related only to ‘packaging’) (see Table 7).

It seems to us that the Plans provided by producers, and the requirement to hit the 30% target mentioned in Article 2, are the key drivers. Indeed, if, for example, the 50% recycled content targets for manufacturers were mandatory, then if that target were met, the 30% reduction target would be met.

The actions listed do raise a host of questions as to how the claims that producers might make – regarding recycling and recycled content (not to mention lowering waste generation – see below) would be measured, monitored, and verified. There is little to be found in this regard.

Table 10: B. Types of Products, Packaging, and / or Containers and Linked Actions as Indicated in Appendix 1

Manufacturing

NO.	TYPES OF PRODUCTS, PACKAGING, AND / OR CONTAINERS		R1 (REDUCE)	R2 RECYCLING)	R3 (RE-USE)
1	PLASTICS				
	a.	Polyethylene (PE): 1) <i>High Density Polyethylene (HDPE)</i> ; dan 2) <i>Low Density Polyethylene (LDPE)</i>	1. The label on the bottle packaging uses embossed printing technology (emboss) as a substitute: a. plastic label; and b. label by printing ink on the bottle body, and / or 2. Bottle packaging for products: a. The Foods are made with a volume of at least 200 gram; b. The drink is made with the smallest volume of 1ltr; c. Consumer goods are made with the smallest volume of 500 ml; and / or d. Liquid soap and shampoo are made with a volume of 500 ml.	1. Using 100% recyclable materials; 2. Using 50% recycled content of recycled packaging produced; 3. Close loop (recycled into the same packaging); and / or 4. Open loop (recycled into raw materials for finished / downstream products).	Use HDPE packaging that can be reused. Example: reusing so / shampoo bottles.
	b.	Polyethylene terephthalate (PET)	1. The label on the bottle packaging uses embossed printing	1. Using colourless plastic for mineral water packaging;	Using PET packaging that can be reused.

			<p>technology (emboss) as a substitute:</p> <p>a. plastic label; and</p> <p>b. label by printing ink on the bottle body, and / or</p> <p>2. Bottle packaging for drinks is made with a volume at least 1 ltr.</p>	<p>2. Using 100% recyclable materials;</p> <p>3. Using 50% recycled content of recycled packaging produced;</p> <p>4. Close loop (recycled into the same packaging); and / or</p> <p>5. Open loop (recycled into raw materials for finished / downstream products).</p>	
	c.	Polyvinyl-chloride (PVC)	<p>Prohibition of the use of products, packaging, and / or containers, effective 1st January, 2030</p> <p>example:</p> <p>a. packaging of ceramic cleaning liquid;</p> <p>b. packaging of liquid for cleaning utensils eating and drinking.</p>	<p>1. Using 100% recyclable materials;</p> <p>2 Using 50% recycled content recycled packaging produced;</p> <p>3. Close loop (recycled into the same packaging); and / or</p> <p>4. Open loop (recycled into raw materials for finished / downstream products).</p>	Using packaging can be reused
	d.	Polypropylene (PP)	<p>1. Prohibition of the use of flexible plastic (sachets) as packaging products with sizes</p>	<p>1. Using monolayer for sachet packaging;</p>	Using packaging can be reused

			<p>less than 50 ml or 50 gr are effective 1st January, 2030</p> <p>example:</p> <p>a. food sachets;</p> <p>b. soap and shampoo sachets, and / or</p> <p>2. Prohibition of the use of plastic straws on beverage packaging, effective 1st January, 2030.</p>	<p>2. Using 100% recyclable materials;</p> <p>3. Using 50% recycled content recycled packaging produced;</p> <p>4. Close loop (recycled into the same packaging); and / or</p> <p>5. Open loop (recycled into raw materials for finished / downstream products).</p>	
	e.	Polystyrene (PS)	<p>Prohibition of the use of products, packaging, and / or containers, effective 1st January, 2030.</p>	<p>1. Using 100% recyclable materials;</p> <p>2. Using 50% recycled content recycled packaging produced;</p> <p>3. Close loop (recycled into the same packaging); and / or</p> <p>4. Open loop (recycled into raw materials for finished /</p>	Using p can be r

				downstream products).	
2	ALUMINIUM CANS	<ol style="list-style-type: none">Labels on bottle packaging using embossed printing technology (emboss) as a substitute:<ol style="list-style-type: none">plastic label; andlabel by printing ink on the bottle body, and / orAluminium packaging for:<ol style="list-style-type: none">liquid products are made with a minimum volume of 330 ml; andSolid products are made with a minimum weight of 200 gram	<ol style="list-style-type: none">Using 100% recyclable materials;Using 50% recycled content recycled packaging produced;Close loop (recycled into the same packaging); and / orOpen loop (recycled into raw materials for finished / downstream products).	Using al packagin reuse ex a. reuse b. reuse	
3	PAPER	<p>Paper packaging for</p> <ol style="list-style-type: none">liquid products are made with a minimum volume of 250 ml; and / orpowdered products are made with a minimum weight of 200 grams.	<ol style="list-style-type: none">Using 100% recyclable materials;Using 50% recycled content recycled packaging produced;Close loop (recycled into the same packaging); and / orOpen loop (recycled into raw	Use pap that can Example reuse ca	

Food and Drink Services

NO.	TYPES OF PRODUCTS, PACKAGING, AND / OR CONTAINERS		R1 (REDUCE)	R2 RECYCLING)	R3 (RE-USE)
1	PLASTICS				
	a	Disposable Plastic made from: 1) Polystyrene (PS); 2) Polypropylene (PP); and / or 3) Polyethylene (PE): a. High Density Polyethylene (HDPE); and b. Low Density Polyethylene (HDPE).	Prohibition of use: 1. Plastic Bags; and 2. Disposable Eating and Drinking Equipment, including Spoons, Forks and Straws, effective January 1, 2030.	1. Using non-recyclable plastic bags; 2. Using eating and drinking utensil that are 100% recyclable; and/or 3. Using eating and drinking utensil whose have 50% recycled materials.	1. Using non- plastic bags that can be recycled; and 2. Using eating and drinking utensil that can be re-used. Example: a. using plates / glasses from glass b. using stainless steel spoons and forks (stainless steel)
2	PAPER		Using eating and drinking utensil that are easily decomposed by the nature process. Example: Utensil of eat and drink whose can be eaten	1. Using eating and drinking utensil that are 100% recyclable; and / or 2. Using 50% recycled material.	Using eating and drinking utensil that can be re-used. example: a. using plates / glasses from glass b. using stainless steel spoons and forks (stainless steel)

Retail

NO.	TYPES OF PRODUCTS, PACKAGING, AND / OR CONTAINERS	R1 (REDUCE)	R2 RECYCLING)	R3
1	PLASTICS			
	Disposable Plastic Bags made from Polyethylene (PE): 1. High Density Polyethylene (HDPE); and 2. Low Density Polyethylene (LDPE).	1. Prohibition of using Disposable Plastic Bags, effective 1 st January, 2030; 2. Sell products without packaging and / or containers that can not or difficult to decomposed by nature process; and / or 3. Sell products with a bulk sales system.	1. Using non – recyclable plastic bags ; 2. Using plastic bags with 100% recyclable into raw materials; 3. Using plastic bags with 50% recycled materials; and / or 4. Selling products with packaging and / or containers that can be recycled.	Using p can be r Example Providin bags ma gunny s similar;

Source: Appendix I in Minister of Environment and Forestry Decree No. P.75/2019 Concerning A Roadmap For Waste Reduction By Producers (with thanks to translation from International Waste Platform <https://internationalwasteplatform.org/indonesia-3/>)

The explanation for the grouping of actions (R1, R2 and R3) is found in Article 6:²³⁷

(1) Waste Reduction as referred to in Article 4 is carried out through:

- a. limiting waste generation;*
- b. waste recycling; and*
- c. waste reuse.*

(2) Restrictions on waste generation as intended in paragraph (1) letter a are carried out by:

- a. use products, product packaging and/or containers that are easily decomposed by natural processes and that create as little waste as possible; and/or*
- b. do not use products, product packaging, and/or containers that are difficult to decompose by natural processes.*

(3) Recycling of waste as intended in paragraph (1) letter b is carried out by:

- a. using production raw materials that can be recycled; and/or*
- b. using recycled production raw materials.*

(4) Reusing waste as intended in paragraph (1) letter c is carried out by using production raw materials that can be reused.

Here it should be considered that the term ‘*easily decomposed by natural processes and that create as little waste as possible*’ is used frequently in the Law / Regulations. It is not, however, clearly defined in any objective way (for example, through reference to a test). It is difficult for producers to know what para 2 above really means, and indeed, this is an area where ‘greenwashing’ is rife.

Article 7 indicates that recycling and reuse:²³⁸

“must be accompanied by the provision of collection receptacles

(3) Collection receptacles as referred to in paragraph (2) must meet the following provisions:

- a. protected from rain and heat;*
- b. use closed containers with label or sign; and*
- c. differentiate material, shape and / or container colour.*

(4) In providing collection receptacles, producers can collaborate with:

- a. registered garbage bank at the Government and / or Local Government;*
- b. waste treatment plant respecting the principle of limiting waste generation (TPS3R); or*
- c. recycling centre.*

²³⁷ Ibid.

²³⁸ Ibid.

There is no obvious appreciation, in the above, of what infrastructure does, or should, already exist (as per the Act of 2008 and the Regulations of 2012 and 2017), and what producers would need to do (if anything) over and above what districts / cities already (are required to) do. To what extent do producers need to provide any additional infrastructure vis a vis the targets? Might it not have been better to clarify responsibilities and then have producers fund the proportion of the costs related to their products?

Articles 9 and 10 set out what producers need to do (there is nothing clear on financing – see below), and what is implied by planning, this being further elaborated in Appendix II. Part of the planning process includes establishing ‘a Waste Generation Baseline’. Some detail as regards this is given in Appendix II. It is not entirely clear, from Appendix II, exactly what producers are *required* to do, and what they can *choose* to do. The setting of the waste generation baseline, however, seems intensely problematic: if a producer projects – deliberately – a high level of growth in waste generation, then would that not make it easier to achieve a target through restrictions on waste generation (R1)? Similarly, to what extent might the future state of the economy allow a producer to indicate improved performance. The potential problem is that if the target of 30% waste reduction is measured against a forecast ‘business as usual’ projection (which is likely to be wrong, deliberately or otherwise), then there may be a contribution to waste reduction that comes from waste that was forecast to be generated, but which never was.

Articles 13 and 14 suggest a process of self-monitoring and reporting of the effectiveness of the Plan by the producers. They also point towards a process of self-evaluation and reflection by producers, intended to trigger updates to correct for instances where targets are not being met. Article 15 sets out that producers should carry out communication, information and education activities, these also being detailed in Appendix III.

Article 16 indicates that reports, in line with Appendix IV, have to be sent by producers to the Minister, governor and regent/mayor ‘*in accordance with their authority*’. Article 17 suggests a somewhat cumbersome (and potentially costly) exercise for verification, which is to be undertaken by:²³⁹

- a. Minister, through the Director General;*
- b. the governor, through the regional apparatus responsible for provincial waste management; And*
- c. regent/mayor, through regional apparatus responsible for district/city waste management.*

The reports are to be used as follows:

(3) The results of the verification as intended in paragraph (2) are prepared in the form of an official report containing information:

- a. suitability of waste reduction plan targets compared with achievements;*
- b. condition of product storage facilities and/or product packaging; and*
- c. obstacles faced by producers in implementing waste reduction.*

(4) The results of the verification as intended in paragraph (2) become the basis for Producers to improve the Waste reduction plan documents.

²³⁹ Ibid.

Article 21 mentions sanctions. It states:²⁴⁰

- 1. Ministers, governors and regents/mayors in accordance with their authority apply sanctions to producers who do not reduce waste as intended in this Ministerial Regulation.*
- 2. Sanctions as intended in paragraph (1) are implemented in accordance with the provisions of the Legislative Regulations.*

It may be clear to others what the Legislative Regulations set out, but in the absence of clarity as regards a credible sanction, then it seems possible that producers will be disinclined to comply (or equally, that they will claim compliance whilst doing very little to comply).

There are discussions about Incentives and Disincentives in Articles 22-25, though most of this relates to incentives: the only disincentive is publication of 'bad performance assessments' that producers have submitted. On Incentives, at Article 25:²⁴¹

- (1) The Minister may propose providing incentives to Regional Governments in the form of assistance in financing Waste Management through the minister who administers government affairs in the financial sector.*
- (2) The incentives as intended in paragraph (1) are given based on the results of an assessment of:*
 - a. Regional Government policies in reducing and handling waste; And*
 - b. Regional Government performance in reducing and handling waste.*
- (3) The performance assessment of the Regional Government as referred to in paragraph (2) is carried out in accordance with the provisions of the Legislative Regulations in the field of Adipura.*

Article 26 states that:²⁴²

- All costs arising from the implementation of the Ministerial Decree are charged to:*
- a. State Budget (ABPN), Provincial Government Revenue and Expenditure Budget (APBD) and Local Government Revenue and Expenditures Budget (APBD) of Regency/ city, and / or other legal sources in accordance with Legislation, for the implementation of duties and authorities of Minister and / or Local Government; and*
 - b. Producers, in reducing Waste.*

In our view, this represents an enormous missed opportunity. It does little to shift financial responsibility away from local government and towards producers in a manner that is coherent, and gives certainty to local government. Instead, it further clouds the issue as to who will fund what as regards waste management. Indeed, it could be argued that there is a progressive increase in the uncertain nature of the intended sources of financing as one moves from the 2012 Regulation, to the 2017 Regulation, and finally, to

²⁴⁰ Ibid.

²⁴¹ Ibid.

²⁴² Ibid.

the 2019 Ministerial Decree. None of these has been at all clear as to who has to pay for what, and in particular:

- a) how much support should cities expect from central government in implementing their Plans;
- b) what share of the costs of waste management should be raised from fees levied on households?);²⁴³ and
- c) what reliable sources of financial support would be made available from producers to support the development of packaging waste management as a result of EPR, and what would be the effect of these flows on a) and b) above.

In the Decree, with the opportunity presenting itself to implement a system where producers would cover a defined range of costs, and thereby help give some certainty to the financing of waste management, they are simply listed as one of the ways the costs of implementing the system will be met, hardly an illuminating observation since it would be odd if anyone else was to pay for the preparation of the producers' own plans. The closest the Decree comes to this is through the Appendix II Guidelines, where, under Part III c, the following is noted:²⁴⁴

If reducing waste through recycling and / or reuse, this must be accompanied with a recycling and / or reuse plan which details the content of the scheme by which waste from the product or product packaging are collected / returned. The scheme must include at least:

- 1) Procedure for taking back waste from products and packaging products to be recycled and / or reused*
- 2) Type of waste collection facility for products and product packaging*
- 3) Location of collection facilities for receiving waste from products and product packaging, for example at the Shopping Center, Retail, registered Waste Bank*
- 4) The scheme of taking back the waste for recycling and parties involved in the recycling scheme, which includes parties appointed as locations for collection facilities, parties appointed for transportation of waste from products and product packaging from the location of collection facilities to the appointed stakeholder that processes the waste products and product packaging.*
- 5) Mechanism of cooperation between Producers and parties who are appointed to do the recycling, regarding which it must include a contract letter of cooperation containing the right and the obligation of the parties appointed to do the recycling. This cooperation contract letter is expected to be the basis for implementing cooperation that enables measurable and verifiable results for both parties so that Producers can monitor and evaluate their activities.*

In principle, 5) above could imply a financial transaction, but equally, it might not. In any case, what the purposes of that transaction might be is not clear, and in principle,

²⁴³ Local politicians will seek to avoid raising the level of fees to be paid by those who vote. It follows that uncertainty in financing might at least as likely to lead to a dwindling in quality of services as it is to a decision to grasp the nettle and raise fees to fund improved services. Better still, the law could have ensured that a defined range of the costs of service provision were recovered by producers. That the Decree failed to take such an obvious step is disappointing.

²⁴⁴ Ibid.

payment might be, for example, in lieu of administrative activities in supplying the relevant data to enable the relevant data to be released.

In short, there is very little that obliges producers who are made responsible under this Decree to pay much to anyone for doing anything.

It should be noted that the Minister of Home Affairs issued a new Regulation in January 2021 intended to support local governments in raising funds through retribution fees by providing the basis for calculating the fees to be paid by households and businesses.²⁴⁵ This document runs to nearly 200 pages. It could have provided the detailed basis for calculating fees that producers should pay in lieu of discharging responsibilities under the 2019 EPR Decree. Instead, it might be considered overly lengthy and complex for many of those it was intended to help.

A recent study noted:²⁴⁶

However, under the regulation, revenues from retribution fees would be channelled to the APBD with the prioritisation for waste management, providing no guarantee for the full utilisation of the retribution fees collection for the waste system. In contrast, the BLUD governance system enables revenues to be channelled directly to the BLUD account, not the APBD, guaranteeing the full utilisation of the revenues from waste collection fees³⁸ for the waste system.

It is recommended that there is further socialisation of Permendagri No. 7/2021 to regency and city governments. Many of them are still not aware of the regulation, and if they have heard of it, they still do not understand how to calculate it.

It was recommended that a simpler Excel tool was provided for the purposes of supporting calculations. Equally, the authors could have indicated that such a tool could have been used as the basis for assigning a specified range of the costs of waste management to producers, identifying which activities would remain to be financed by other means, including retribution fees.

7.5 Regulation No. 83/2018 on Marine Debris Management

Presidential Regulation No. 83/2018 on Marine Debris Management (National Plan of Action on Marine Plastic Debris) is also worthy of mention in the context of this discussion. The Regulation involves 18 ministries, local governments, private sectors, and NGOs and the 2018–2025 action plan pledges to reduce plastic and other marine waste by 70% by 2025, which is strongly linked to overall 100% urban collection targets on land (current performance is very far below this).

²⁴⁵ Regulation of The Minister of Internal Affairs of The Republic of Indonesia Number 7 of 2021 Concerning Procedures for Calculation of Retribution Rates in The Organization Of Waste Management.

²⁴⁶ APKASI and APEKSI and Systemiq (2021) [Building Robust Governance and Securing Sufficient Funding to Achieve Indonesia's Waste Management Targets](#), November 2021.

7.6 Summary

It is worth presenting the initial summary of performance in a recent report from Systemiq, APKASI and APEKSI:²⁴⁷

The Government of Indonesia (GoI) has set major targets of 30% waste reduction and 70% waste handling by 2025, as well as 70% marine debris reduction by 2025. However, today, only between 39%¹-54%² of Indonesia's waste is properly managed. This results in around 30 and 40 million tonnes of waste (3-4 million of it plastic) going into the environment annually. In addition, between 40 and 45 percent of TPS3Rs and TPSTs (material recovery facilities) are either not active or status is unknown³ as local operators struggle to make waste system economics work. Similarly, more than half of sanitary and controlled landfills have backslided into becoming open dumpsites due primarily to insufficient funding. Inadequate waste system funding, along with inapt governance, and a lack of local technical capacity to sustainably set up and operate waste systems, are major underlying factors behind Indonesia's low waste handling levels.

This is a somewhat damning assessment of the state of affairs more than 15 years after the promulgation of the 2008 Act.

We have argued above that the main, and the most obvious, 'extension' of the responsibility of producers under EPR is to ensure that they pay for end-of-life management of the products and packages they generate. If this principle is not always adhered to, the failure to recognise it in a situation where the waste management system is crying out for financial support borders on being negligent.

We see little or no clarity in the short term regarding what is required of producers, and who will pay for what, given the confused responsibilities. One assessment noted:²⁴⁸

the precise boundaries between public and private responsibilities have not yet been drawn, in particular when it comes to the interface between producer responsibility and the formal collection system that collects most packaging waste. Finding a good working model there, respectful of relevant regulations, could be of great benefit to formal waste systems as well as the recycling industry. As the system develops, Indonesia will no doubt continue to define precisely where the responsibility of producers ends and that of the public sector begins?

This, however, misses the point: if it had done nothing else, the 2019 Decree should have defined the relevant responsibilities, not only in operational terms, but crucially, in financial terms also.

More generally, dating back to 2008, the Law and Regulations are not well drafted. The 2019 Decree is another example of this. Those drafting Law and regulations need to be precise in the terms being used, and so give clarity to the meaning imparted by what has been drafted.

²⁴⁷ APKASI and APEKSI and Systemiq (2021) [Building Robust Governance and Securing Sufficient Funding to Achieve Indonesia's Waste Management Targets](#), November 2021.

²⁴⁸ Systemiq, APEKSI and APKASI (2021) *Producer Responsibility in Indonesia: What to Know, What Stakeholders Think, and What Could Happen Next*, December 2021

Indonesia provides a good example of how difficult it is to implement 'EPR' independently of a well-functioning solid waste management system. The foundations have to be established in order for the overall system can work: this can be, and probably has to be, done in parallel with, and with the support of funds from producers as part of, the development of a an EPR scheme that focuses on addressing the most pressing problems which are being faced by Indonesia.

As regards sachets specifically, it is not clear that the Roadmap Decree will drive much by way of change. Although the Table above includes (for polypropylene) that sachets used for <50ml / 50g could be banned by 2030, as we have discussed above, it is not clear whether this is actually mandated, or whether these are actions that individual producers could take to meet their 30% reduction target. If the 30% reduction target is the key matter to be addressed, then producers have significant latitude in how they choose to meet their targets. Not only might this target be met relative to a counterfactual which presumes high growth, but it is also unclear as to whether the reduction targets are to be met at material/polymer specific level for a given producer, or in the aggregate. Where targets can be met at the aggregate level, then addressing the matter of sachets is likely to be a long way down most producers' list of activities: indeed, they might choose to switch to use more of them as a means to reduce packaging weight (contributing to reduction targets).

8.0 Existing EPR Legislation in Vietnam

A useful background to the development of legislation in relation to EPR is provided in the work for IUCN by Phuong.²⁴⁹ It notes that although EPR as a (weakly legislated for) concept has a reasonable history:

The Vietnam legal system has managed plastic waste like any other solid waste, with competences fragmented between many authorities. A holistic approach to solid waste management - including plastics, incorporation of the domestic issues and scrap imports – is needed, in which authority and responsibility are well demarcated. The leverage point comes from developing the new Law on Environmental Protection (LEP), passed on 17 November 2020. Therefore, solid waste management has been consolidated by the Ministry of Natural Resources and Environment, and a new Extended Producer Responsibility (EPR) policy was introduced.

The same study notes:²⁵⁰

The EPR concept was first introduced in the Law on Environment Protection in 2005, with take-back requirements for some post-consumer products. The main idea behind developing EPR in Vietnam was looking for a financial solution to address the pollution caused by informal recycling in the craft villages. The development of EPR regulations was a slow process surrounded by a lot of questions and debates that resulted in the lack of targets for take-back requirements. Until 2013, the list of products included was detailed in the Prime Minister's Decision No. 50/2013/QĐ-TTg but was soon revised in 2015 with a narrower scope of take-back products and without a target for collection and/ or recycling. While chemicals used in industry, agriculture, fisheries, and medicine for humans were repealed, batteries, WEEE, oils, and tyres started to apply from 1 July 2016 and end of life vehicles (ELV) were included from 1 January 2018.³⁵ Packaging was not listed despite the large portion of the total solid waste and leakages that it represents.

²⁴⁹ Phuong N. H. (2021). *Policy effectiveness assessment of selected tools for addressing marine plastic pollution. Extended Producer Responsibility in Vietnam*. Bonn, Germany: IUCN Environmental Law Centre.

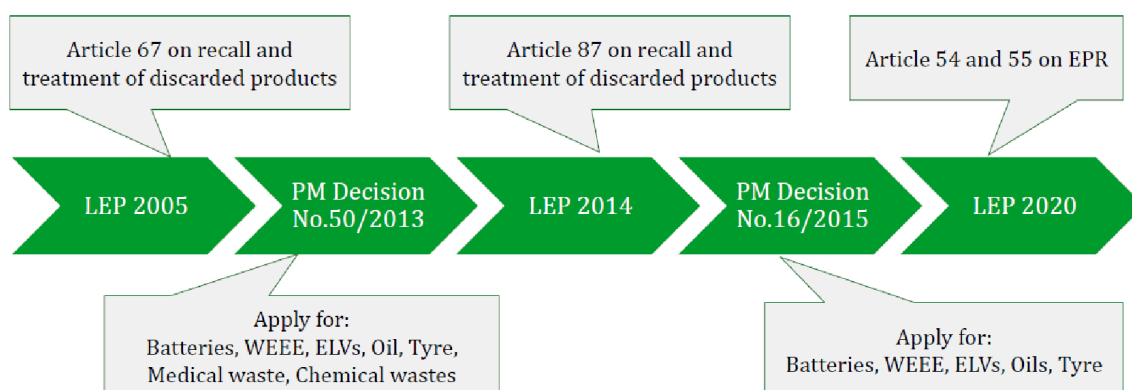
²⁵⁰ Ibid. The cited paragraphs reference the following documents: Luật Bảo Vệ Môi Trường (52/2005/QH11, 29 November 2005). Article 67; Nguyen Trung Thang (10 December 2009). Mở rộng trách nhiệm của nhà sản xuất trong bảo vệ môi trường và việc áp dụng ở Vietnam. Institute of Strategy and Policy on Natural Resources and Environment. Available at <https://isponre.gov.vn/home/dien-dan/446-mo-rong-trach-nhiem-cua-nha-san-xuat-trong-bao-ve-moi-truong-v-a-viec-ap-dung-o-viet-nam> (accessed on 10 Jan 2021); Duong Ha (17 July 2011). Thu hồi, xử lý sản phẩm thải bỏ: Muốn còn hơn không! Lao Dong Online. Available at <https://laodong.vn/archived/thu-hoi-xu-ly-san-pham-thai-bo-muon-con-hon-khong-690767.ldo> (Accessed on 10 Jan 2021). Thanh Tâm (25 November 2014). Thu hồi, xử lý sản phẩm thải bỏ: Còn nhiều băn khoăn. Bao Cong Thuong. Available at <https://conghuong.vn/thu-hoi-xu-ly-san-pham-thai-bo-con-nhieu-ban-khoan-42823.html> (accessed on 10 Jan 2021).

Quyết Định Quy Định Về Thu Hồi Và Xử Lý Sản Phẩm Thải Bỏ Do Thủ Tướng Chính Phủ Ban Hành (50/2013/QĐ-TTg; 09 August 2013); Quyết Định Quy Định Về Thu Hồi, Xử Lý Sản Phẩm Thải Bỏ Do Thủ Tướng Chính Phủ Ban Hành (16/2015/QĐ-TTg; 22 May 2015). Enclosed Appendix.

The current legal framework allows the producers to self-organise, form a partnership with other manufacturers, and also authorises manufacturers' associations to organise the take-back operations, but without the mandatory target for collection, recycling, and/ or treatment. Additionally, taking back discarded products with different trademarks but of the same types can be seen as an efficient result of such manufacturer. As such, the collective actions, or in other words the establishment of Producer Responsibility Organizations (PROs) for EPR implementation, are already recognised, but there is no motivation for producers to act. None of the PROs have formed in Vietnam, some waste streams such as ELVs reported no products were returned by customers.

The evolving legal situation is shown diagrammatically in Figure 31.

Figure 31: development of EPR in Vietnam



Source: Nguyen Hoang Phuong (2021) *Preparation for the EPR implementation in Vietnam: Proposed Master Plan for 2021-2024*.

We now consider the Law on Environmental Protection of 2020 and the associated Decree 08 of 2022.²⁵¹

8.1 Law on Environmental Protection

The Law of Environmental Protection (LEP) (2022 amendment) is foundational as regards waste management in general, and within that, extended producer responsibility (EPR).

Article 3 includes a number of definitions of relevance. Waste is defined as:²⁵²

18. “Waste” means any matter in a solid, liquid or gaseous form or other form which is discharged from production, business operation, service provision or living activities or from other activities.

The term ‘discharge’ presumably has a clear meaning, though it is usually associated with fluids as opposed to solids. The inclusion of gases in the definition of ‘waste’ is most obviously problematic in the LEP wherever it refers to (for example) ‘collection of waste’.

²⁵¹ Law on Environmental Protection and Decree No. 08/2022/ND-CP January 10, 2022, of Government Elaboration of Several Articles of the Law On Environmental Protection.

²⁵² Ibid.

The terminology used has the potential to be problematic in implementing the LEP: it reflects the ambitious breadth of the LEP.

Nonetheless, solid waste is defined as:²⁵³

19. *“solid waste” means any waste in a solid form or sludge.*

This carries over the term ‘discharge’, therefore, and is a different term to that used in international fora, where ‘discard’ is the term more often used. The inclusion of ‘sludge’ also raises questions as to when a sludge becomes a liquid, the latter being, presumably, not ‘solid waste’.

Hazardous waste is defined as:²⁵⁴

20. *“hazardous waste” means any waste that exhibits any one or more of the following characteristic properties: toxicity, radioactivity, infectivity, ignitability, reactivity or corrosivity or exhibits any other hazardous characteristic properties.*

This is a relatively loose definition.

Waste co-processing is defined as:²⁵⁵

21. *“Waste co-processing” means the utilisation of one available manufacturing process for the purpose of recycling, treating or recovering energy from waste in which waste is used as alternative raw material and fuel or is processed.*

This is an imprecise and ambiguous definition. It does not draw especially clear boundaries around the term: it appears to equate recycling and recovering of energy.

Technical infrastructure is defined as:²⁵⁶

24. *“technical infrastructure serving environmental protection” means a system of facilities used for collecting, storing, transporting and treating waste and monitoring the environment, and other environmental protection works.*

Scrap is defined as:²⁵⁷

27. *“scrap” means any material recovered, classified and selected from materials or products left over from production, business operation, service provision or consumption to be used as raw materials for another production process.*

This definition avoids the term ‘waste’. It uses the term ‘left over’ rather than discharge.

Article 6 prohibits:²⁵⁸

²⁵³ Ibid.

²⁵⁴ Ibid.

²⁵⁵ Ibid.

²⁵⁶ Ibid.

²⁵⁷ Ibid.

²⁵⁸ Ibid.

Failure to transport, bury, discharge and burn solid and hazardous waste in accordance with technical process and regulations of law on environmental protection.

The LEP then covers various non-waste matters related to a range of environmental media. Section 4 – regarding Environmental Licensing - is relevant, but Chapter V (Environmental Protection During Production, Business Operation and Service Provision; Urban and Rural Environmental Protection; Environmental Protection in Some Fields) is relevant for businesses.

Section 1 of Chapter V addresses ‘*Environmental Protection During Production, Business Operation and Service Provision*’. Article 50 requires all economic zones to have, inter alia, ‘*a solid waste collection and storage system*’, and management boards are required to have a department and personnel tasked with environmental protection. Article 53 sets out obligations for all businesses, including a requirement to ‘*c) collect, classify, store, reuse, recycle and treat waste as prescribed by this Law*’. Article 54 requires ‘*producers and importers of recyclable products and packages to recycle them according to the mandatory recycling rate and specifications*’, and exempts exports, and materials temporarily imported. It goes on to say:²⁵⁹

2. The producers and importers specified in Clause 1 of this Article are entitled to recycle products and packages adopting one of the following methods:

- a) Organise recycling of products and packages;*
- b) Make a financial contribution to the Vietnam Environment Protection Fund to support recycling of products and packages.*

3. The producers and importers specified in Clause 1 of this Article shall register their recycling plans and submit annual reports on recycling results to the Ministry of Natural Resources and Environment, except for the case in Point b Clause 2 of this Article.

4. The financial contribution and use of financial assistance in recycling of products and packages specified in Point b Clause 2 of this Article shall adhere to the following principles:

- a) The financial contributions and financial assistance in recycling are determined according to the quantity or unit of products/packages;*
- b) Financial contributions are used to support the recycling of products and packages specified in Clause 1 of this Article;*
- c) The receipt and use of financial contributions must be carried out in a public and transparent manner and for intended purposes in accordance with law.*

5. The Government shall elaborate and introduce a roadmap for implementation of this Article.

This clearly signals something akin to EPR, and signposts further Government activity to give substance to the Article. Note that there is no cross-referencing to specific targets in the Act itself (see below), that there are two different approaches to demonstrating targets have been met (arranging the recycling, or payment of fees) and that the scope of activities to be covered by costs is not made clear (though this seems to be recycling

²⁵⁹ Ibid.

only). It gives some comfort to producers that funds paid to the Vietnam Environment Protection Fund (VEPF) will be managed transparently, and be focussed on supporting recycling.

Article 55 relates to *‘Responsibility of producers and importers for waste collection and treatment’*, and applies to producers and importers of products and packages *‘which contain toxic substances, are difficult to recycle or cause a difficulty in collection and treatment.’* These producers / importers must make a financial contribution to support the activities mentioned in Clause 3 (exemptions apply as per Article 54).²⁶⁰

2. The producers and importers specified in Clause 1 of this Article shall make a financial contribution to the Vietnam Environment Protection Fund; the financial contributions shall be determined according to the quantity or unit of products/packages.

3. Activities supported by the Vietnam Environment Protection Fund include:

a) Collecting, transporting and treating domestic solid waste generated from households and individuals;

b) Researching and developing technologies, techniques and initiatives for domestic solid waste treatment;

c) Collecting, transporting and handling packages containing agrochemicals.

4. The receipt and use of financial contributions must be carried out in a public and transparent manner and for intended purposes in accordance with law.

5. The Government shall elaborate this Article

The Article gives rise to questions regarding the packages and products falling under the scope of this Article, and the interface with Article 54.

Article 56 relates to environmental protection in Craft Villages. These must have a plan, and associated infrastructure, including:²⁶¹

c) A solid waste aggregation point which satisfies technical requirements for environmental protection; a solid waste treatment facility (if any) which complies with regulations on solid waste management or a scheme to transport solid waste to a solid waste treatment facility outside the craft village.

2. Manufacturing establishments and households in a craft village must seek and implement environmental protection measures as prescribed by law; implement measures for noise, vibration, light, dusts, heat radiation, emissions and wastewater reduction and in situ pollution remediation; collect, classify, store and treat solid waste as prescribed by law.

People’s Committees at communal, district- and provincial-level are given responsibilities, including for providing funding, according to their competences.

²⁶⁰ Ibid.

²⁶¹ Ibid.

Section 2 of Chapter V relates to Urban and Rural Environmental Protection. Amongst other things, Article 57 (urban and residential areas) states:²⁶²

2. Urban areas and high density residential areas shall satisfy environmental protection requirements. To be specific: [...]

b) Equipment, vehicles and places for classifying solid waste at source, collecting and storing domestic solid waste must suit the quantity and type of waste generated from households and individuals in the urban areas and high density residential areas; [...]

4. Residential areas and residential clusters must designate a pollution-free place for temporary storage of domestic solid waste before being transported a designated place for treatment as prescribed

Article 58 (Rural environmental protection) states:²⁶³

a) Organizations, households and individuals involved in handicraft production, agricultural production and processing must adhere to the planning and regulations of law on environmental protection without affecting ambient environment quality; waste must be collected, reused and treated in accordance with environmental protection requirements;

c) Rural residential clusters must have water drainage systems and take appropriate measures for waste treatment; waste aggregation points must be properly located; domestic animals must not be pastured in public places; autonomy in environmental protection is encouraged;

c) Landscapes, trees, lakes, ponds and surface water ecosystems; water sources must be preserved, protected, remediated and improved;

d) Waste generated in rural areas must be managed in accordance with law; organic domestic waste, waste generated from livestock production and processing, and agricultural by-products must be recalled, reused or used as production materials;

As regards Responsibilities for rural environmental protection, these are as below, with our emphasis added:²⁶⁴

a) Communal People's Committees shall statistically report and manage types of domestic waste, agricultural waste and handicraft industry waste generated within their communes; organise activities aimed at maintaining environmental hygiene and improving rural landscape; promulgate regulations on autonomy in environmental protection in rural areas;

b) District-level People's Committees shall manage production, business operation and service provision in accordance with environmental protection regulations according to the approved planning; manage waste collection and treatment within their districts; invest in and upgrade systems for wastewater drainage and treatment systems, solid waste collection and treatment in rural areas; organise monitoring and

²⁶² Ibid.

²⁶³ Ibid.

²⁶⁴ Ibid.

assessment of changes in environmental quality; zone, deal with, improve, remediate and improve environment in pollution points and areas in rural areas;

c) Provincial People's Committees shall provide directions and resources for rural environmental protection; direct and organise treatment of waste generated in rural areas; promulgate and provide guidelines for application of policies on provision of incentive and assistance for waste treatment, landscaping and environmental protection in rural areas;

d) The Ministry of Natural Resources and Environment shall preside over and cooperate with the Ministry of Agriculture and Rural Development in providing guidelines for satisfying criteria for rural environmental protection, implementing measures for waste collection and treatment, monitoring changes in environmental quality, dealing with pollution and improving and remediating environment in rural areas;

dd) The Ministry of Agriculture and Rural Development shall provide guidelines for collecting and treating livestock waste and agriculture by-products to be reused for other purposes; preside over and cooperate with the Ministry of Natural Resources and Environment in formulating and organising the execution of rural development programs, projects, mechanisms and policies in association with the objectives for environmental protection and climate change adaptation;

e) The Prime Minister shall lay down criteria for environmental protection in rural development.

There appears to be no counterpart to this 'responsibilities' section as regards urban / residential areas other than in the general formulation in Article 168 (see below).

Article 59 concerns 'Environmental protection of public places' and sets out the following.²⁶⁵

1. Organisations, households and individuals shall implement regulations on environmental protection and maintain hygiene in public places; classify waste and put it into each type of public trash can or designated places; not let domestic animals spoil public hygiene.

2. Managers of parks, recreation areas, concentrations of businesses and service providers, markets, train stations, bus stations, ports, ferry terminals and other public areas shall:

a) assign personnel to collect waste and clean the environment in places under their management; have personnel or teams in charge of environmental protection for supervision purpose;

b) build and install public sanitation facilities and in situ waste treatment works in accordance with environmental protection; have vehicles and equipment for collecting, managing and treating waste in line with environmental protection requirements;

[...] dd) promptly discover violations against the law on environmental protection committed by entities and propose penalties therefore as prescribed by law.

²⁶⁵ Ibid.

Article 60 places some requirements on households and individuals:²⁶⁶

1. *Households and individuals shall:*

a) minimise and classify domestic solid waste at source, collect and transport classified domestic waste to designated places; [...]

d) pay the fees for waste collection, transport and treatment services as prescribed by law;

d) participate in environmental protection in residential community;

Section 3 is more specialised, but does include Article 69 regarding ‘*Environmental protection during management of persistent pollutants and raw materials, fuels, materials, products, goods and equipment containing persistent pollutants*’. This might be relevant given the use of POPs in various products and packages, and growing concerns regarding the range of chemicals that are not especially well-characterised. These rules seek to respect the Stockholm Convention, to which the Socialist Republic of Vietnam is a signatory. Article 71 relates to environmental protection during import of scrap from foreign countries, and allows this only in conformity with rules set out by the Government, including paying ‘deposits’ prior to unloading scrap imported via sea border checkpoints (as per Article 137 – see below).

Chapter VI of the LEP covers ‘Waste Management and Control of Other Pollutants’. Section 1 of Chapter VI sets out General Regulations on Waste Management. It should be considered that, strictly speaking, the broad definition of ‘waste’ in the Law makes it difficult to see how some of the general requirements can be applied (what does it mean to ‘collect’ waste, or ‘manage’ the transport of air pollutants, some of which will be transported mainly by air currents?). It might be reasonable to assume that this section applies to ‘solid waste’.

Article 72, on Waste management requirements, is limited, but includes some aspects that anticipate elaboration of standards and regulations:²⁶⁷

d) Waste that satisfies standards and technical regulations applicable to raw materials, fuels and materials in accordance with regulations of law on quality of products and goods must be managed as the products and goods and is permitted to be used as raw materials, fuels and materials in production activities;

d) Entities that transport domestic solid waste, hazardous waste and normal industrial solid waste subject to treatment shall transport waste to licensed facilities having appropriate environmental licences or transfer them to other transporters to be transported to licensed facilities having an appropriate environmental licence [...]

4. Every entity that generates waste shall adopt resource- and energy-efficient solutions: use environmentally-friendly raw materials, fuels and materials and renewable energy; apply cleaner production technologies and programs, control environment and other measures to minimise waste generation; update information to the national environmental database upon transfer of hazardous waste and normal

²⁶⁶ Ibid.

²⁶⁷ Ibid.

industrial solid waste subject to treatment to facilities having an appropriate environmental licence.

5. The State shall introduce a policy to encourage private sector involvement in collection, transport, reuse, recycling and treatment of waste and recovery of energy from the treatment of waste; apply advanced and environmentally-friendly technologies for waste management and best available techniques in order to minimise and control the generation of secondary waste, minimise solid waste ending up buried; encourage the co-processing of waste and use of waste as substitute materials, fuels and materials.

6. The Minister of Natural Resources and Environment shall promulgate a list of hazardous waste, controlled industrial waste and normal industrial solid waste; technical requirements for environmental protection for vehicles transporting domestic solid waste, normal industrial solid waste and hazardous waste.

Bullet d above suggests that no transport of waste should be to unlicensed facilities (or to others who will deliver the wastes to such). It is worthy of note that a report from 2020 suggested:²⁶⁸

More than half of the plastic waste generated in Vietnam remains uncollected (3.6 Mt/year). This is due to low collection rates outside city centres, high littering rates and open burning of waste prior to collection [...]

Because of the use of unsanitary landfills and dumpsites, a fourth of the waste collected is mismanaged; this together with the uncollected waste leads to a high MWI [mismanaged waste index], especially outside urban areas.

How this requirement will be phased in is unclear given the apparent lack of suitable facilities across the country. Para. 5 seems to suggest that private sector involvement in landfill operation will not be encouraged. It is unclear how the objectives under para 5 will be met simultaneously, and on an ongoing basis.

Article 73 is highly relevant in that it relates to ‘Reduction, reuse, recycling and treatment of plastic waste, prevention and control of ocean plastic waste pollution.’ It starts by stating:²⁶⁹

1. Entities shall reduce, classify and dispose of waste that is single-use plastic products and non-biodegradable plastic packaging according to regulations; not discharge plastic waste directly into the systems for drainage of water to rivers, ponds, lakes, channels and oceans.

This paragraph is the first time the term ‘non-biodegradable’ is mentioned – it is defined in the Decree (albeit somewhat imperfectly, and without clear reference to standards). The clause does not, apparently, prohibit dumping plastic directly to land.²⁷⁰

²⁶⁸ IUCN-EA-QUANTIS (2020) National Guidance for plastic pollution hotspotting and shaping action, Final report for Vietnam, October 2020.

²⁶⁹ Law on Environmental Protection and Decree No. 08/2022/ND-CP January 10, 2022, of Government Elaboration of Several Articles of the Law on Environmental Protection.

²⁷⁰ Note that Regulated Entities under the LEP are defined in Article 2 as:

The Article continues:²⁷¹

2. *Plastic waste generated from marine tourism and services, maritime economy, extraction of oil and gas and marine mineral resources, aquaculture and commercial fishing must be collected, stored and transferred to facilities licensed for recycling and treatment.*

3. *Environmentally-friendly products, single-use plastic alternatives and non-biodegradable plastic packaging alternatives that have been certified are entitled to incentives and assistance as prescribed by law.*

4. *Plastic waste must be collected and classified for reuse, recycling or treatment purposes as prescribed by law. Unrecyclable plastic waste must be transferred to licensed facilities for treatment as prescribed. Plastic waste generated from economic activities at sea must be collected for reuse, recycling or treatment and must not be discharged into the sea.*

5. *The State shall encourage the reuse and recycling of plastic waste in service of production of goods and building materials and construction of traffic works; encourage the research and development of systems for collecting and treating plastic waste floating at sea and in the ocean; introduce policies to promote reuse and recycling of plastic waste.*

6. *Provincial People's Committees shall organise the collection and treatment of plastic waste within their provinces; encourage the reduction of non-biodegradable plastic packaging and single-use plastic products; disseminate information about harmful effects of dumping of fishing gear into the sea and plastic waste on the ecosystem.*

7. *The Government shall introduce a roadmap for reducing production and import of single-use plastic products, non-biodegradable plastic packaging and products and goods containing microplastics.*

This is all well intended legislation, but much depends on the roadmap, and other matters of implementation. For example, regarding para 3 above, Article 145 defines 'Environmentally-friendly products and services', though in itself, this might not give great reassurance that 'incentives and assistance' might flow to products of dubious merit (for example, single-use non-plastic products whose use is unnecessary). Para 4 presumes collection and classification of plastic waste 'as prescribed by law', and para 6 makes the 'organisation' of collection and treatment the responsibility of Provincial People's Committees. This seems to be the case irrespective of the source of the plastics. It is also somewhat strange that this Article is not linked to later Articles regarding the management of solid wastes more generally (as opposed to the specific focus in this Article on plastics).

Article 74 is somewhat concerning in that it addresses environmental auditing, described as the '*systematic, comprehensive and effective consideration and assessment of*

'agencies, organisations, residential communities, households and individuals within the territory of the Socialist Republic of Vietnam, including mainland, islands, territorial waters, underground space and airspace.'

²⁷¹ Law on Environmental Protection and Decree No. 08/2022/ND-CP January 10, 2022, of Government Elaboration of Several Articles of the Law on Environmental Protection.

environmental management and pollution control by businesses, but leans towards businesses auditing themselves (with technical guidance to come from MoNRE).

Section 2 of Chapter VI addresses ‘domestic solid waste management’ – commercial waste similar to household waste is part of ‘normal industrial solid waste management’ in Section 3 of Chapter VI). Article 75 concerns how domestic waste is to be classified, segregated, contained and transferred. It essentially considers a split between

- a) Reusable and recyclable solid waste;
- b) Food waste; and
- c) Other domestic solid waste.

Although Para 2 also mentions classification of hazardous waste, unless the People’s Committees prescribe policies for doing so, the hazardous waste might be part of c) above. Note that as regards food waste, *‘households and individuals are encouraged to make the most of waste food to be used as organic fertilisers and animal feeds’*, but where this does not take place, food wastes are to be *‘transferred to or facilities licensed for collection and transport of domestic solid waste.’* The means of containment seems to be for households to choose (para 3 mentions ‘packages for transfer’). The transfer also seems to be for households to undertake, so that the nature of any collection scheme is not clear. That would, in our view, tend to have a bearing on how reasonable it might be to expect Article 73 to be respected and how well it is implemented. Article 75(7) notes:

The Vietnamese Fatherland Front Committee and socio-political organisations at all levels shall encourage residential communities, households and individuals to classify domestic solid waste at source. Internal residential communities and socio-political organisations shall supervise the classification of domestic solid waste by households and individuals.

Article 76 refers to ‘solid waste aggregation points and transfer stations,’ suggests that the onus is on households to ‘transfer’ waste to such points. Although there are requirements as regards the number of different waste types, there is no mention regarding measures of density of provision / convenience. Door-to-door collection does not seem to be given prominence, although Article 77 may suggest otherwise (77(5) states: *‘Households and individuals shall transport classified domestic solid waste to aggregation points as prescribed or transfer them to facilities collecting and transporting domestic solid waste’*).

Articles 77 and 78 relate to collection and transport of waste, and treatment of waste, respectively. It appears to be envisaged that both activities would be contracted out to successful bidders. Note that 77(2) allows the collector:²⁷² *‘to refuse to collect and transport households and individuals’ domestic solid waste that is not classified or contained in inappropriate packages and notify competent authorities as prescribed by law.’* There are no tolerances specified. This matter is relevant given Article 79 (see below). Article 78 states that:²⁷³ *‘The State shall encourage and provide incentives for entities involved in investment in and provision of domestic solid waste treatment services; encourage co-processing of domestic solid waste’*. It is not clear why the State

²⁷² Ibid.

²⁷³ Ibid.

would want, for example, to incentivise cement kilns to treat waste when it seems quite possible that such incentives would not be needed. Article 78 continues:²⁷⁴

2. People's Committees at all levels shall select domestic solid waste treatment facilities through bidding in accordance with regulations of law on bidding. In case of failure to make a selection through bidding, the method of order placement or task assignment shall be adopted as prescribed by law.

3. Domestic solid waste treatment providers must fulfil environmental protection requirements as prescribed by this Law. It is not recommended to make investment in domestic solid waste treatment providers that cover only one commune.

The underlined part of para 2 is unclear: who will ensure the law is followed? Also, taken together, then the number of treatment facilities (notwithstanding the underlined part of para. 3) may be considerable, and – albeit recognising the potential for decentralised solutions – often lacking the required scale for treatment.

The Article notes:²⁷⁵

4. Domestic solid waste must be treated using appropriate technologies and satisfying technical regulations on the environment. The Government shall provide for a roadmap for restricting treatment of domestic solid waste using direct landfill disposal technology.

The term 'direct landfill disposal' is of interest: does this, then, support forms of treatment (such as stabilisation) prior to landfilling, or is the intention to eliminate landfill through resort to incineration / co-processing of wastes not recycled? If the latter, then the fact that the minimum recycling rates as set out in the Decree (see below) are low might imply that the vast majority of waste is not recycled, so that the timing of implementation of this (which is not specified) could, depending on how it is achieved, be enormously problematic (locking in Vietnam to a low rate of recycling).

Article 79 is about Costs of collection, transport and treatment of domestic solid waste. The main source of cost recovery appears to be charges levied upon households as follows:²⁷⁶

1. Charges for domestic solid waste collection, transport and treatment services payable by households and individuals shall be calculated as follows:

a) The charges shall be calculated in accordance with regulations of law on prices;

b) The charges vary by quantity or volume of the classified waste;

c) If solid waste are reusable and recyclable and hazardous waste is classified, households and individuals are not required to pay charges for collection, transport and treatment services.

2. Any household or individual that fails to classify or correctly classify domestic solid waste as prescribed in Points a and b Clause 1 Article 75 of this Law must pay

²⁷⁴ Ibid.

²⁷⁵ Ibid.

²⁷⁶ Ibid.

charges for collection, transport and treatment services as other types of domestic solid waste.

There are some practical issues with this. First, unless it is assumed that households and individuals always are charged at the point of transferring waste, then presumably, it becomes difficult or impossible to understand who has failed to classify / correctly classify domestic solid waste. It would be more difficult to charge people bringing waste to points of aggregation unless these were permanently staffed or were suitably configured technologically. Second, a zero charge for collection, transport and treatment of reusable and recyclable and hazardous waste might lead to – if it could be given proper effect – contamination of the reusables / recyclables by non-recyclables. The two points are related through the form of waste collection envisaged. Third, the recycling or waste – let alone, the treatment of hazardous wastes - is not without cost (there may be some exceptions). So, in implementing a ‘zero charge’ for recyclables, in order to ‘balance the books’, other things being equal, the fee for unrecyclable waste would need to rise as the amount of recyclables being segregated increases. This might be planned for, but it is not clear that it has been.

The Article goes on to say:²⁷⁷

4. Organisations, businesses, dedicated areas for production, business operation and service provision and industrial clusters that generate waste from their daily and office activities in large quantities prescribed by the Government must transfer it to a facility licensed for waste recycling, reuse and treatment or to a facility collecting and treating waste with appropriate vehicles and equipment to be transported to the facility licensed for waste recycling, reuse and treatment.

It is far from clear why this clause appears here. The wastes would logically be ‘normal industrial solid waste’. The paragraph appears with no reference to charging of the entities concerned: it may be that it is intended to suggest that these wastes should not be managed as part of the domestic waste stream.

The Article continues:²⁷⁸

5. The Minister of Natural Resources and Environment shall provide guidance on methods for determining charges for domestic solid waste treatment services; provide for economic and technical norms for collection, transport and treatment of domestic solid waste; provide technical guidance on classification of domestic solid waste; provide guidelines for implementation of Clause 1 of this Article.

6. Provincial People’s Committees shall elaborate the management of domestic solid waste of households and individuals within their provinces; impose specific charges for domestic solid waste collection, transport and treatment services; promulgate specific provisions on method of payment of charges and charges for domestic solid waste collection, transport and treatment services payable by households and individuals according to the quantity or volume of the classified waste.

7. The regulation set out in Clause 1 of this Article and Clause 1 Article 75 of this Law must be implemented by December 31, 2024.

²⁷⁷ Ibid.

²⁷⁸ Ibid.

Clearly, there is expected to be Guidance coming from MoNRE. Thus far, however, and notwithstanding the Articles 53-58 above, under this Article, regarding costs (and charges), there is no mention of a role to be played by producers in covering costs within the Law. On the contrary: everything is to be funded through charges levied on households.

Article 80 envisages closure of closed and unsanitary landfills. Financial support for remediation is envisaged to come from Provincial People's Committees.

Section 3 – regarding Normal Industrial Solid Waste (NISW) – is of relevance since this appears to cover all non-hazardous non-domestic solid wastes. Interestingly, Article 81 suggests there is no classification – as there is for domestic solid waste – for food (or organic) waste. The three different classifications of waste are:²⁷⁹

- a) NISW reused and recycled as production materials;*
- b) NISW in compliance with standards, technical regulations and technical guidance used in production of building materials and levelling;*
- c) NISW subject to treatment.*

The classification tends to suggest a focus on construction and demolition type wastes. These classes of NISW must be transported separately. Article 82 requires that NISW is transferred to the following (or entities with contracts to transfer to these facilities):²⁸⁰

- a) Manufacturing establishments directly using NISW as production materials and for production of building materials or levelling, which is licensed to operate as prescribed by law;*
- b) Manufacturing establishments licensed for waste co-processing;*
- c) Facilities licensed for NISW treatment;*

Chapter VII relates to adaptation to climate change, though mitigation is also considered. Article 92 on Ozone layer protection indicates that protection of the ozone layer will include:²⁸¹

- b) collecting, recycling, reusing or disposing of controlled ozone-depleting substances and GHGs under the international treaty on the protection of the ozone layer to which the Socialist Republic of Vietnam is a signatory in equipment containing them when they are no longer used;*
- c) developing and applying technologies and equipment using non-ozone-depleting substances and climate-friendly substances.*

Article 99 covers formulation of environmental technical regulations on waste, waste management and management of scrap imported from foreign countries as production materials. These are not especially detailed.

Chapter IX concerns Environmental Monitoring, Environmental Information and Data and Environmental Reporting. These would be important for monitoring performance against

²⁷⁹ Ibid.

²⁸⁰ Ibid.

²⁸¹ Ibid.

targets, whether for the nation, provinces, cities or communes. Section 1, on environmental monitoring, does not focus much on waste (rather, the environmental media are to be monitored). Section 2 – environmental information – includes more about waste. Article 114 1 b) includes:²⁸² *‘Information about solid waste, hazardous waste, wastewater, exhaust gases and other types of waste prescribed by law’* under environmental information. This is extraordinarily vague: what information is required? 2 b) states:²⁸³ *‘Investment project/business owners shall regularly collect, store and manage the environmental information mentioned in Points a, b and c Clause 1 of this Article’*. Ministries and ministerial agencies, and People’s Committees at all levels, are also required to collect, store and manage environmental information within their areas and as assigned. Regarding the vagueness of what the LEP requires, that was due to be elaborated in the Decree (see below) and Section 3 – on Environmental Reporting – envisages indicators being developed by MoNRE. Article 119 does require that:²⁸⁴ *‘Every investment project/business owner shall prepare and submit an environmental protection report to the competent authority as prescribed by law’*, and the details of this could, in principle, be quite onerous, depending on the guidelines from MoNRE to be developed.

Chapter X covers environmental emergencies, their prevention and response, and compensation for damage. There could be some scope for compensation claims in some contexts given the phrasing used, but generally, there is a presumption in favour of those who are not breaking existing laws. For example, at Article 130 4, it is stated:²⁸⁵

4. The entities that comply with all regulations of law on environmental protection, build waste treatment systems that satisfy the requirements and prove that no environmental damage is caused are not required to provide compensation for environmental damage and incur the costs of assessing damage and following procedures for claiming compensation for damage

Chapter XI covers Economic Instruments, Policies and Resources for Environmental Protection. Article 136 on environmental protection taxes and fees states:²⁸⁶

1. Regarding environmental protection taxes:

a) Environmental protection taxes shall be imposed on products and goods of which the use adversely impacts the environment or substances that cause environmental pollution;

b) Environmental protection tax rates shall be determined according to the levels of adverse impacts on the environment;

It goes on:²⁸⁷

²⁸² Ibid.

²⁸³ Ibid.

²⁸⁴ Ibid.

²⁸⁵ Ibid.

²⁸⁶ Ibid.

²⁸⁷ Ibid.

3. The Ministry of Natural Resources and Environment shall preside over assessing the level of environmental pollution and greenhouse effect caused by waste or products or goods of which the use adversely impacts the environment to propose a list of objects subject to environmental protection taxes and fees, bracket and rates of taxes and fees on each object subject to environmental protection taxes and fees and methods for calculating environmental taxes and shall send them to the Ministry of Finance, which will request a competent authority for consideration and decision.

This suggests scope for taxing products which give rise to environmental problems. Single-use plastic items and / or unrecyclable packaging items might be suitable candidates.

Article 137 sets out the procedure for Payment of deposits on environmental protection to ensure that entities take responsibility for manage risks of / remediating environmental pollution caused by:

- a) Mineral mining;
- b) Waste burial;
- c) Import of scrap from foreign countries as production materials.

It indicates that deposits from activities a and b accrue either to the Vietnam Environment Protection Fund or provincial environment protection fund, whereas for activity c, as well as the aforementioned bodies, funds may accrue to a credit institution as prescribed by law. This is a useful measure and should help to support aftercare at landfills, and prevent rent-seeking behaviour from dumping of imported scrap.

Section 2 of Chapter XI includes (Article 141):²⁸⁸

a) The State shall provide incentives and assistance regarding land and capital; exemption and reduction of environmental protection taxes and fees; provision of freight subsidies to environmentally-friendly products and other incentives and assistance for environmental protection activities as prescribed by law;

It considers eligibility of activities:²⁸⁹

2. Investment and business activities regarding environmental protection eligible for incentives and assistance include:

- a) Investment projects involving collection, treatment, recycling or reuse of waste;*
- b) Enterprises manufacturing and providing technologies, equipment, products and services in support of satisfying the environmental protection requirements, including combined waste treatment and waste-to-energy technology; [...] Vietnam Green Label certified environmentally-friendly products and services*

3. Environmental protection activities eligible for incentives and assistance other than investment and business activities include:

- a) Technology innovation and renovation and upgrading of waste treatment works according to the roadmap prescribed by the law on environmental protection;*

²⁸⁸ Ibid.

²⁸⁹ Ibid.

There is an interesting Article (142) regarding the Circular Economy. It includes the following:²⁹⁰

2. Ministries, ministerial agencies and provincial People's Committees shall incorporate circular economy immediately at the stage of formulating a development strategy, planning, plan, program or project; managing, reusing and recycling waste
3. *Every business shall establish a management system and take measures to reduce extraction of natural resources, reduce waste and increase waste recycling and reuse from setting up a project and designing a product or goods to production and distribution.*
4. *The Government shall elaborate on criteria, roadmap and mechanisms for encouraging the implementation of a circular economy in conformity with the national socio-economic conditions.*

Article 145 discusses Environmentally-friendly products and services, which other Articles indicate are eligible for various forms of incentive and / or support, as well as the Vietnam Green Label. Article 146, on green procurement, indicates that projects funded by the state budget will give priority to procuring environmentally friendly products and services.

Article XI Section 3 introduces a range of financial resources which are due to be elaborated in the envisaged Decree. Article 151 is of interest, introducing environment protection funds:²⁹¹

Vietnam Environment Protection Fund and provincial environment protection funds are state financial agencies established at the central level, in provinces and central-affiliated cities to grant concessional loans, receive deposits, donations, assistance and financial contributions for environmental protection.

Chapter XV Responsibility for State Management of Environmental Protection sets out key responsibilities. This is largely as one might expect, with the Government (inter alia) promulgating and implementing policy and law, and providing state funding for relevant tasks. MoNRE's responsibilities (Article 166) include:

1. *Preside over formulating, promulgate, propose the promulgation and organise the implementation of legislative documents on environmental protection; national environmental standards and technical regulations; strategies, planning and plans; programs, schemes and projects on environmental protection;*
3. *Direct, providing guidance on, inspect and organise the control of sources of pollution; management of waste and environmental quality; environmental improvement and remediation; protection of environment at natural heritage sites, nature and biodiversity conservation; environmental emergency prevention and response as prescribed by law;*
6. *Organise the statistical reporting, building, maintenance and operation of environmental information and reporting systems and database as prescribed by law;*

²⁹⁰ Ibid.

²⁹¹ Ibid.

8. *Propose policies on environmental protection taxes and fees, issuance of green bonds and other economic instruments to mobilise and use resources for environmental protection as prescribed by law;*

Two other Ministries have responsibilities (Article 167) to be elaborated, including the Ministry of Public Security, which has responsibility to:²⁹²

direct and organise the prevention of crimes and violations against the law in relation to environmental crimes; maintain security, social order and safety in the field of environment as prescribed by law; mobilise resources for response to environmental emergencies as prescribed by law.

Article 168 elaborates responsibilities for People's Committees at all levels for state management of environmental protection. At the Provincial level, these include:

Formulate, promulgate or request provincial People's Councils to promulgate and organise the implementation of legislative documents on environmental protection; local standards and technical regulations on environment; local strategies, planning and plans; programs, schemes and projects on environmental protection; environmental protection contents in provincial planning;

d) Organise the monitoring, supervision, warning and management of environmental quality, and waste management in their provinces within their power and under the guidance of the Ministry of Natural Resources and Environment; environmental improvement and remediation; protection of environment at natural heritage sites, nature and biodiversity conservation

At the District level, these include:

c) Direct, provide guidance on, inspect and organise the control of sources of pollution and environmental emergencies prevention and control within their districts as prescribed by law; organise the management of waste sources within their provinces as assigned; be responsible to the Government for environmental pollution occurring within their districts;

d) Organise the monitoring, supervision, warning and management of environmental quality, and waste management in their provinces within their power and under the guidance of the Ministry of Natural Resources and Environment; environmental improvement and remediation; nature and biodiversity conservation;

d)²⁹³ Carry out inspections and impose penalties for violations against the law on environmental protection within their power or transfer violation cases to competent persons as prescribed by law; handle environmental complaints, denunciations and propositions;

e) Communicate and disseminate knowledge and law relating to environmental protection; raise public awareness of environmental protection; [...]

g) Provide environmental information and carry out environmental reporting as prescribed by law;

²⁹² Ibid.

²⁹³ There are two instances of bullet point d).

- h) Mobilise and use resources for environmental protection as prescribed by law; request district-level People's Councils or competent authorities to provide funding for performing environmental protection tasks within the current budget;*
- i) Perform other environmental protection tasks assigned by provincial People's Committees.*

At the Communal level, these include:

- a) Formulate, promulgate and organise the implementation of legislative documents, regulations and conventions on environmental hygiene maintenance and environmental protection; set up and organise the execution of environmental protection projects and tasks;*
- b) Direct, provide guidance on, inspect and organise the control of sources of pollution; receipt of environmental registration forms; environmental emergencies prevention and control within their communes as prescribed by law; organise the management of waste sources within their communes as assigned; be responsible to district-level People's Committees for environmental pollution occurring within their communes;*
- c) Organise the monitoring, supervision, warning and management of environmental quality, and waste management in their communes within their power or as assigned by district-level People's Committees; environmental improvement and remediation; nature and biodiversity conservation; [...]*
- e) Mobilise and use resources for environmental protection as prescribed by law;*

These responsibilities are clear, and indicate a hierarchical approach with provinces leading the districts, who in turn, influence the communal level.

8.1.1 Summary

The Law as it is written makes no clear link between what producers are required to do and to fund, and what people's communes, at various levels, are required to do. The latter are clearly made the responsibility of local government, and the financial responsibility rests with – where household waste is concerned – households.

Producers are given two options for recycling products: they either organise recycling of products and packages themselves or they make a financial contribution to the Vietnam Environment Protection Fund to support recycling of products and packages. The way in which this feeds into the fees to be raised from households is not made clear. Given the need to develop the infrastructure for collecting and managing waste, including waste plastics, it might have been useful to make this link (if any is foreseen) more explicit. In the absence of this, however, then a producer or importer could 'organise' for the recycling of material to be reported as being associated with them even if only a limited share of the costs of the activity are being met by the producer or importer concerned.

8.2 Decree 08/2022

The Purpose of the Decree is:²⁹⁴

²⁹⁴ Decree No. 08/2022/ND-CP January 10, 2022, of Government: Elaboration of Several Articles of the Law on Environmental Protection.

'The Government hereby promulgates a Decree on elaboration of several Articles of the Law on Environmental Protection'

Article 1 therefore indicates the Articles in the LEP for which the Decree provides elaboration. This includes a number of the clauses in Articles in the LEP that were either discussed, or mentioned in passing, above.²⁹⁵ So, for example, the LEP, in Article 45, elaborates in more detail what is required of scrap importers, and Article 46 specifies the magnitude of deposits (these are akin to bonds) to be paid by importers. These can be released back to importers if customs clearance is received for all shipments, but where customs clearance is not granted, the costs of managing the material is taken from the deposit. If the costs exceed the deposit, the importer is liable, but if the costs of management are below the level of the deposit, the balance is refunded to the importer.

Article 3 introduces some additional definitions. There is a definition of 'reuse' which includes a definition of pre-processing.²⁹⁶

6. *"waste reuse" means the reuse of waste directly or after pre-processing.*

Waste pre-processing means the use of merely mechanical-physical technical measures to change physical properties such as size, humidity and temperature to facilitate the classification, storage, transport, reuse, recycling, and co-processing, treatment to blend or to separate the components of the waste in accordance with the different management processes.

Waste pre-processing can be juxtaposed with 'waste treatment', defined as follows:²⁹⁷

8. *"waste treatment" means a process of using technological and technical solutions (as opposed to pre-processing) to reduce, eliminate, isolate, burn, destroy and bury waste and harmful components in waste.*

Waste pre-processing is not a treatment. Treatment would appear to include landfilling, thermal treatment, co-incineration. The processes of so-called chemical recycling would probably be considered 'treatment', though they share some characteristics of pre-processing.

Waste recycling is defined as:²⁹⁸

7. *"Waste recycling" means a process of using technological solutions and techniques to recover valuable components from waste.*

This is extremely general: 'recover valuable components' might cover a range of subsequent destinations for waste. Does this include energy, for example? Or is 'component' intended to imply 'materials'?

²⁹⁵ The Articles mentioned above that are elaborated on in the Decree are: Article 53; Article 54; Article 55; Article 56; Article 59; Article 69; Article 71; Article 72; Article 73; Article 78; Article 79; Article 80; Article 114; Article 131; Article 137; Article 141; Article 142; Article 145; Article 151; Article 167. It is mainly the Waste and producer responsibility-type Articles that are of interest to us.

²⁹⁶ Decree No. 08/2022/ND-CP January 10, 2022, of Government: Elaboration of Several Articles of the Law on Environmental Protection.

²⁹⁷ Ibid.

²⁹⁸ Ibid.

Regarding types of waste, some of these were not well-defined in the LEP and the Decree seeks to address this. Hence:²⁹⁹

10. “Normal solid waste” means waste not included in the list of hazardous wastes and the list of controlled industrial waste of which hazardous elements exceed the hazardous waste thresholds.

Also, domestic waste and industrial waste are defined:³⁰⁰

11. “domestic solid waste” (also called “domestic waste”) means solid waste generated from daily activities of people.

12. “Industrial waste” means waste generated from production, business operations and services, including hazardous waste, controlled industrial waste and normal industrial solid waste.

These definitions are helpful, but in some respects, they cut across law already promulgated in the LEP. Between the Law and the Decree, the way in which ‘domestic-type’ waste which is generated outside households is considered does not seem to be consistent. The Decree allows for some waste generated by businesses to be considered ‘domestic waste’ (see below). The discussion regarding household waste in the LEP seems to refer largely to ‘Domestic waste generated by households and individuals’, though there is reference (e.g. Article 79) to ‘Organisations, businesses, dedicated areas for production, business operation and service provision and industrial clusters that generate waste from their daily and office activities in large quantities’ in the context of domestic waste: as we noted above, however, this reference could equally be interpreted as excluding such wastes from the definition of domestic waste.

There is a definition of microplastics:³⁰¹

13. “microplastics in products and goods” mean any solid and water-insoluble plastic particle which is less than 05 mm in size, primarily consists of synthetic or semi-synthetic polymers and is intentionally added to products and goods, including toothpaste, laundry detergents, soap, cosmetics, shampoo, shower gel, facial cleansers and other skin bleaching products.

There is also a definition of single-use plastic products:³⁰²

14. “single-use plastic products” mean products (other than non-replaceable attachments) including trays, food containers, bowls, chopsticks, glasses, cups, knives, spoons, forks, straws and other cutlery with plastic components which are designed and marketed with the intention to be used once before being discharged into the environment.

The definition’s final clause might lead many to claim they can avoid falling within the definition by arguing that they are not ‘designed and marketed’ to be ‘used once before

²⁹⁹ Ibid.

³⁰⁰ Ibid.

³⁰¹ Ibid.

³⁰² Ibid.

being discharged into the environment’: marketing, after all, is unlikely to suggest that plastics are ‘discharged into the environment’ (even if, in practice, the items might be).

There is a definition of non-biodegradable plastic packaging:³⁰³

15. “non-biodegradable plastic packaging” means packaging which is primarily composed of petroleum-based polymers such as polymers Ethylene (PE), Polypropylene (PP), Polymer Styrene (PS), Polymer Vinyl Chloride (PVC) and Polyethylene Terephthalate (PET) and is usually non-biodegradable or lasts for long periods of time in the environment (water environment, soil environment or at a solid waste landfill).

This might usefully be linked to one or more tests of degradability or similar since many polymers are not included here. Furthermore, what does this imply for any bio-derived polymers which are not petroleum-based, but which are not generally regarded as ‘biodegradable’? The definition might usefully have referenced one or more test methods.

There is a definition of ‘waste treatment services provider’:³⁰⁴

22. “Waste treatment service provider” means a provider that provides waste treatment services (including waste co-processing and recycling services) to households, individuals, agencies, organisations, businesses, dedicated areas for production, business operation and service provision and industrial clusters.

The inclusion of recycling services in the definition might be considered inconsistent with the definition of treatment (see above).

Chapter 5 covers Waste Management. Article 56 introduces a link between the management of waste and ‘circular economy criteria’:³⁰⁵

1. Discarded products and solid waste must be managed to minimise the exploitation and use of natural resources and adverse impacts on the environment according to the circular economy criteria specified in Article 138 of this Decree.

Article 138 indicates, in turn:³⁰⁶

1. General criteria for circular economy

a) Reduce the exploitation and use of non-renewable resources and water resources; increase efficiency in the use of resources, raw materials and materials; save energy;

b) Extend useful life of materials, equipment, products, goods, parts;

c) Reduce waste generated and minimise adverse impacts on the environment including reducing solid waste, wastewater and emissions; reducing the use of toxic chemicals; recycling waste, recovering energy; reducing disposable products; develop green purchasing habits

³⁰³ Ibid.

³⁰⁴ Ibid.

³⁰⁵ Ibid.

³⁰⁶ Ibid.

Although these criteria might seem to be forward thinking, some might be more applicable to stages prior to the point of discarding, and the trade-offs within them are not acknowledged. In any event, clause 3 then elaborates a hierarchical preference for *'discarded products and solid waste generated from production, business operation, service provision and consumption'* as follows:³⁰⁷

- a) *Recycle discarded products;*
- b) *Repair, maintain or upgrade defective and old products to extend their useful life;*
- c) *Make use of parts of discarded products;*
- d) *Recycle solid waste to recover raw materials, fuels and materials in service of manufacturing activities as prescribed by law;*
- dd) *Treat solid waste in combination with recovering energy as prescribed by law;*
- e) *Bury solid waste as prescribed by law.*

The upper tiers of this preference ordering seem somewhat questionable (might it not be better to repair an item and extend its life rather than recycling it?).

Article 58 relates to 'Management of domestic solid waste of authorities, organisations, businesses, dedicated areas for production, business operation and service provision and industrial clusters'. We indicated above that there seemed to be some confusion as regards how 'commercial type' waste would be managed. Article 58(1) allows non-domestic producers of domestic-type waste,³⁰⁸ where their total waste generation is less than 300 kg per day,³⁰⁹ to *'manage domestic solid waste as prescribed in Article 75 of this LEP or managed under clause 2 of this Article.'* Article 2 does not add a great deal though it indicates that waste could be transported to *'An establishment that produces animal and aqua feeds or produces fertilisers suitable for food waste.'* We noted that the management of food waste seemed not to be provided for NISW in the LEP. This Article partially rectifies this. The provision for payment is somewhat confused, and worryingly, as we anticipated above, exempts the waste producers from payment *'for the reusable and recyclable solid waste classified as prescribed in clause 1 Article 75 of the LEP.'* Who would then pay for the collection and recycling of such wastes? Is this not a recipe for people's communities running at a deficit (or those acting on their behalf discouraging separate collection)? Whatever the value of dry recyclables, such as metals, the separation of food waste would most likely lead to further costs.

Article 60, entitled 'Roadmap for restricting treatment of domestic solid waste using direct landfill disposal technology', offers little by way of clarification of what was already in the LEP. Article 61 is also of limited additional benefit, and Article 62 – in relation to domestic solid waste treatment facilities – includes the following clause which appears more likely to be an obligation upon communal authorities than the operators:³¹⁰

³⁰⁷ Ibid.

³⁰⁸ The Decree actually uses the term 'domestic waste'. However, the definition of domestic waste is linked to generation by households, and so strictly speaking, 'domestic waste' as defined in the LEP cannot be produced by businesses.

³⁰⁹ This is a non-trivial amount. It might also be asked how that would be checked / verified.

³¹⁰ Ibid.

Domestic solid waste treatment facilities shall be paid properly and sufficiently the domestic solid waste treatment service charges under the signed contracts.

Article 63 seems likely to lead to an overload of planning: each of the provincial, district-level and communal People's Committees is tasked with drafting / formulating plans, with the relative competences for these Plans rendered far from clear (the LEP did not suggest which responsibilities should be dealt with at different tiers of local government): if collection is the responsibility of the communal level, why does a provincial plan need to cover any details regarding collection? This looks like a recipe for overlapping plans, and somewhat worryingly, provincial People's Committees are required to do this annually. The suggestion is of 'top down' planning: good waste management systems (that respect the priority ordering in Article 56 of the Decree) are likely to be more 'bottom up', placing quality collection services at their heart, but allowing for collaboration in the procurement of facilities, where desirably, to benefit from economies of scale.

The LEP envisaged measures being taken vis a vis 'single-use plastic products, non-biodegradable plastic packaging and products and goods containing microplastics'. Article 64 provides for a ban (by 1st January 2026) on production and import of *'non-biodegradable plastic bags with dimensions less than 50 cm x 50 cm and a wall thickness of less than 50 µm, except where they are produced for export or produced or imported to package products and goods sold on the market.'* Clause 2 indicates that other than these bags, *'Producers and importers of single-use plastic products and non-biodegradable plastic packaging shall fulfil the responsibility for recycling and treatment as specified in this Decree'*: as we shall see, the recycling targets themselves are not especially onerous to meet.

Clauses 3 and 4, however, are somewhat more interesting:³¹¹

3. [...] *After December 31, 2030, terminate the production and import of single-use plastic products (except for the Vietnam Ecolabel certified products), non-biodegradable plastic packaging (including non-biodegradable plastic bags, styrofoam containers for packaging and containing food) and products and goods containing microplastics, except for production for import and production and import of non-biodegradable plastic bags for packaging of products and goods sold on the market.*

4. *Provincial People's Committees shall promulgate regulations on and organise management of plastic waste; make sure that after 2025, single-use plastic products and non-biodegradable plastic packaging (including non-biodegradable plastic bags, styrofoam containers for packaging and containing food) will not be sold and used at shopping malls, supermarkets, hotels and tourism areas, except for the products and goods containing non-biodegradable plastic packaging; organise inspections at establishments producing single-use plastic products and non-biodegradable plastic packaging within their provinces.*

One reading of Clause 3 is that it implies a comprehensive ban on import and production of non-biodegradable plastic packaging by 2030, though it may be that the clause in parentheses is intended to limit the scope of its application to plastic bags, and packaging of a type used in packaging food prepared on-site. Clause 4 might imply the

³¹¹ Ibid.

same, implying that what is being regulated are the bags, and packages (such as Styrofoam containers) used at quick-service food outlets. It might, in any case, be asked whether the relevant law in respect of clause 4 might have been possible to promulgate at national level, with the Provincial People's Committees responsible for enforcement of a law applied at the national level.

Articles 65 to 67 – related to NISW – do not add much to the LEP. They seem to reconfirm the oversight of food waste which we highlighted in the LEP, and much of the text reads as though the main concern is construction and demolition type waste (as we suggested was the case for NISW in the LEP).

Article 76 elaborates on the system of deposits to be paid by operators of landfills. The matter is not central to our inquiry, but we would have some concerns at the speed at which the deposits can be refunded. It is also not clear whether the fund would be capable of funding aftercare: on the one hand, the accumulated deposits are intended to be adequate to fund such if the operator declares bankruptcy. On the other, the deposits are to be refunded once an improvement plan has been inspected and signed off. It would be sensible, though, for funds built up in the operating life of the site to be made adequate for funding aftercare for many years after the site has ceased to receive waste. In short, there seems to be a confusion between the intended use of the fund and the way in which it is managed, though further Guidelines are expected from the Ministry of Finance.

Chapter VI concerns Responsibility for Recycling and Treating Products and Packaging of Producers and Importers. It is effectively the EPR part of the Decree. Article 77 requires manufacturers and importers (producers) of products and consumer packaging to fulfil their responsibility for recycling products and packaging in line with Article 78.

The Article indicates that both primary and secondary packaging are in scope, but neither term is defined in either the LEP or the Decree. Article 77 references Appendix XXII, the packaging aspect of which is shown in Table 11 below.

The Article states that packaging of the following products / goods is covered by the obligation:³¹²

- a) Food prescribed by regulations of law on food safety;*
- b) Cosmetics prescribed by regulations of law on conditions for cosmetics manufacturing;*
- c) Medicine prescribed by regulations of law on pharmacy;*
- d) Fertilisers, feeds and veterinary drugs prescribed by regulations of law on fertilisers, feeds and veterinary drugs;*
- dd) Detergents and preparations for domestic, agricultural and medical use;*
- e) Cement.*

As well as exemptions already highlighted in the LEP, the obligations do not have to be met by a) producers of packaging having a revenue from sale of goods and provision of services of the previous year not exceeding 30 billion dong (approximately US \$ 1.2 million), and b) importers of packaging having total value of imports (according to

³¹² Ibid.

customs value) of the previous year not exceeding 20 billion dong (US \$ 0.8 million). For packaging, producers have to fulfil their responsibilities as of January 01 2024.

Table 11: List of Products and Packaging Subject to Mandatory Recycling, and Mandatory Recycling Rates and Recycling Specifications

No. (1)	Categories of products and packaging (2)	List of products and packaging (3)	Mandatory recycling rates for the first 03 years (4)	Mandatory recycling specifications (Recover at least 40% of weight of products and packaging recycled at mandatory recycling rates) (5)
1	A.1. Paper packaging	A.1.1. Paper packaging and carton packaging	20%	Selected recycling solutions: 1. Produce commercial pulp. 2. Produce paper products such as toilet tissue paper, paperboard, paper boxes and other products.
2		A.1.2. Mixed paper packaging	15%	Selected recycling solutions: 1. Produce pulp, metal ingots and commercial sheet materials. 2. Produce paper products such as toilet tissue paper, paperboard, paper boxes; commercial sheet materials or other products.
3	A.2. Metal packaging	A.2.1. Aluminium packaging	22%	Selected recycling solutions: 1. Produce aluminium billets used as production raw materials for industrial 2. Produce other products.
4		A.2.2. Iron and other metal packaging	20%	Selected recycling solutions: 1. Produce into metal billets used as production raw materials for industrial 2. Produce other products.
5	A.3. Plastic packaging	A.3.1. Rigid PET packaging	22%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial 2. Produce other products (including PET fibres). 3. Produce chemicals (including oil).
6		A.3.2. Rigid HDPE, LDPE, PP and PS packaging	15%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial 2. Produce other products (including PET and PP fibres). 3. Produce chemicals (including oil).

No. (1)	Categories of products and packaging (2)	List of products and packaging (3)	Mandatory recycling rates for the first 03 years (4)	Mandatory recycling specifications (Recover at least 40% of weight of product and packaging recycled at mandatory recycling rates) (5)
7		A.3.3. Rigid EPS packaging	10%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial products. 2. Produce other products. 3. Produce chemicals (including oil).
8		A.3.4. Rigid PVC packaging	10%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial products. 2. Produce other products. 3. Produce chemicals (including oil).
9		A.3.5. Other rigid plastic packaging	10%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial products. 2. Produce other products. 3. Produce chemicals (including oil).
10		A.3.6. Mono-material flexible packaging	10%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial products. 2. Produce other products. 3. Produce chemicals (including oil).
11		A.3.7. Multi-material flexible packaging	10%	Selected recycling solutions: 1. Produce recycled plastic particles used as production raw materials for industrial products. 2. Produce other products. 3. Produce chemicals (including oil).
12	A.4. Glass packaging	A.4.1. Glass bottles, jars and containers	15%	Selected recycling solutions: 1. Clean and reuse in accordance with the manufacturer's standards. 2. Grind into cullet for glass production. 3. Grind into aggregates for construction.

Source: Article XXII in Law on Environmental Protection and Decree No. 08/2022/ND-CP January 10, 2022 of Government Elaboration of Several Articles of the Law On Environmental Protection.

Article 78 sets out minimum recycling rates for packaging items as shown in Table 10: these rates will apply for three years, and will be periodically adjusted. Producers must fulfil their obligations in relation to the packaging types they place on the market as per column (3) in Table 10. Over-achievement can be carried over from one year to the next (there is no provision for under-achievement in a given year to be compensated for in future years).

The final column of Table 10 indicates ‘mandatory recycling specifications’ – these are ‘*selected recycling solutions accompanied by minimum requirements for amount of materials and fuel recovered with respect to product and packaging recycling.*’ What this seems to imply (Article 78(6)) is that a minimum of 40% of the recycling rate has to be achieved through these selected measures: that does raise the question as to what other ‘recycling’ methods will be considered acceptable (given the fairly broad range of recycling solutions already specified therein).

Article 79 adds some details to what is in Article 54 of the LEP, including approaches that companies can use to comply, and some rules for ‘self-compliers’ (we define these as those who choose not to discharge their obligation through paying into the VEPF).

‘2. If the producer/importer selects the method “organising recycling” specified in point a clause 2 Article 54 of the LEP, such producer/importer shall decide to carry out recycling themselves by adopting one of the following methods:

a) Carry out recycling themselves;

b) Hire a recycling service provider to carry out recycling;

c) Authorise an intermediary organisation to organise the recycling (hereinafter referred to as “the authorised party”);

d) A combination of the methods specified in points a, b and c of this clause.

3. The producer/importer carrying out recycling themselves shall satisfy the environmental protection requirements as prescribed by law; shall not carry out recycling themselves in case of failure to satisfy the environmental protection requirements as prescribed by law.

4. The recycling service provider hired by the producer/importer to carry out recycling as prescribed in point b clause 2 of this Article shall satisfy the environmental protection requirements as prescribed by law.

5. The authorised party specified in point c clause 2 of this Article shall:

a) have legal status and be established according to regulations of law;

b) not directly carry out recycling and not have proprietorial relation with any recycling service provider in connection with the authorised scope;

c) be authorised by at least 03 producers or importers to organise recycling.

6. MONRE shall publish a list of the entities specified in clauses 4 and 5 of this Article in order for producers and importers to make their selection. Producers and importers shall not hire any recycling service provider or authorised party that fails to satisfy the requirements as prescribed by law.

7. The producer/importer that opts for making financial contributions to the VEPF as prescribed in point b clause 2 Article 54 of the LEP is not required to adopt the recycling methods specified in clause 2 of this Article.

It also established It does add, though, that:³¹³

8. People's Committees at all levels, organisations, individuals and consumers shall enable and assist producers, importers, recycling service providers and authorised parties to classify and collect post-consumer products and packaging within their areas.

This seems somewhat the reverse of what perhaps ought to apply in a system where it might be expected that producers would have a significant responsibility for outcomes: the LEP already makes the People's Committees responsible for managing waste.

Article 80 sets out requirements for recycling plans, these not being required from producers who opt to fulfil obligations through paying into the VEPF (see Art 79(7) above). Those who take the approach of discharging obligations through an authorised party are also entitled to have their obligation discharged by that party.

Article 81 sets out a formula for payments to be made to the VEPF. Part of this formula is a term which is to represent:³¹⁴

a reasonable and valid norm of recycling cost for a unit of weight of the product or packaging, including costs of classifying, collecting, transporting and recycling the product or packaging and administrative expenses in support of fulfilment of the recycling responsibility by the producer/importer

The Article notes that MONRE will request the Prime Minister to impose these and adjust them every 3 years. These were not set in the Decree, and although Drafts have been issued, the finally agreed rates have not yet been published at the time of drafting this document.

Article 82 sets out the means through which the VEPF will support recycling. This appears to be a bidding exercise for grants. One concern would be that these decisions might not always support system transformation. Furthermore, the means to ensure that VEPF funds generate additional activity to that which producers who 'self comply' generate is unclear.

Article 83 sets out the rules regarding contributions to the VEPF to support waste treatment. The relevant products are set out in Annex XXIII, the relevant parts of which are shown in Table 12 below. The choice of packaging items is limited and the reasons for the limited choice are not clear. The choice might reflect a view that these items are unlikely to be recycled. The fees are not especially onerous (for example, row 6.1 is a fee equivalent to €60 per tonne). Article 85 is the treatment equivalent of Article 82.

Table 12: List of Products and Packaging and Levels of Financial Contributions to Waste Treatment

No. (1)	Types of products and packaging (2)	Format (3)	Capacity/size (4)	Levels of financial contributions to waste treatment (5)
1	Agrochemical packaging	Plastic bottles and boxes	Less than 500 ml	50 dong/piece

³¹³ Ibid.

³¹⁴ Ibid.

No. (1)	Types of products and packaging (2)	Format (3)	Capacity/size (4)	Levels of financial contributions to waste treatment (5)
			500 ml or more	100 dong/piece
		Plastic bags and packages	Less than 100 g	20 dong/piece
			From 100 g to less than 500 g	50 dong/piece
			500 g or more	100 dong/piece
		Glass bottles and jars	Less than 500 ml	150 dong/piece
			500 ml or more	250 dong/piece
		Metal bottles, jars and boxes	Less than 500 ml	150 dong/piece
			500 ml or more	250 dong/piece
3	Disposable napkins, diapers, tampons and wet wipes	All	All	1% of revenue from product in case of production or 1% of import value of product in case of import
5	Tobacco	All	All	60 dong/20 cigarettes
6	Products with synthetic resins			
6.1	Disposable trays, bowls, chopsticks, glasses, cups, knives, scissors, chopsticks, spoons, forks, straws, stirrers, containers and food wraps	All	All	1,500 dong/kg of plastics used
6.2	Balloons, duct tapes, earbuds, toothpicks; disposable toothbrushes; disposable toothpastes; disposable shampoo and conditioner; disposable razors			
6.3	Clothes of all kinds and accessories			

No. (1)	Types of products and packaging (2)	Format (3)	Capacity/size (4)	Levels of financial contributions to waste treatment (5)
6.4	Leather goods, bags, shoes and sandals of all kinds			
6.5	Toys of all kinds			
6.6	Furniture of all kinds			
6.7	Building materials of all kinds			
6.8	Non-biodegradable plastic bags with dimensions less than 50 cm x 50 cm and a wall thickness of less than 50 µm			

Source: Appendix XXIII in Law on Environmental Protection and Decree No. 08/2022/ND-CP January 10, 2022 of Government Elaboration of Several Articles of the Law On Environmental Protection.

Article 136, on green public procurement, states:³¹⁵

1. It is required to prioritise the use of Vietnam Ecolabel certified eco-friendly products and services for public procurement items or public investment items in investment projects and tasks funded by the state budget according to the Government's regulations.
2. When preparing bidding documents for public procurement, the requests for procurement and use of Vietnam Ecolabel certified eco-friendly products and services shall be included in the contractor selection criteria.
3. Domestic and foreign organisations and individuals are encouraged to implement green procurement and use Vietnam Ecolabel certified eco-friendly products and services.
4. The Ministry of Planning and Investment shall elaborate or request a competent authority to prioritise procurement of eco-friendly products and services in bidding for implementation of projects and tasks by contractors and investors using Vietnam Ecolabel certified products and services.
5. The Ministry of Finance shall elaborate or request a competent authority to elaborate on green procurement with respect to projects and tasks funded by the state budget.

³¹⁵ Ibid.

The Decree has more to say on the circular economy than the LEP (and seems to go beyond simple elaboration of the LEP's content). As well as the general provisions already discussed, Article 138 requires businesses to '*take one or more measures*' from a priority list to meet the circular economy criteria. The terminology is loose, with reducing waste generated being deemed to include recycling waste (treat and process waste to convert it into useful raw materials, fuel and materials) and incineration of waste with energy recovery.

Article 139 articulates a view as to how a circular economy roadmap will be developed by MoNRE, other agencies and Provincial People's Committees.

Chapter XI covers Resources for Environmental Protection. Article 152 outlines Environmental protection activities within jurisdiction of local government: these include:³¹⁶

1. Manage waste and assist in treating waste, including:

a) Investigating, producing statistics on, assessing degree of environmental pollution, monitoring changes in environmental quality, making a list of pollutants, solid waste and pollution sources; assessing and predicting the generation, collection and treatment of domestic solid waste within the local government's jurisdiction;

b) Assisting in classifying at source, collecting, transporting and treating domestic solid waste and treating other types of waste generated in the localities within the local government's jurisdiction;

c) Constructing and assisting in the construction of public sanitation facilities, vehicles and equipment for collection, management and treatment of waste in public areas; in situ wastewater treatment works and equipment;

d) Building, repairing and renovating environmental protection infrastructure of craft villages within the local government's jurisdiction.

Article 153 indicates that these activities will be resourced, if not completely (other (for example, private) sources may be used), from the State budget for current expenditures (a) and b) above) and investment expenditures (c) and d) above). Articles 158 and 159 relate to the sources of operating capital for the VEPF and for provincial EPFs, though these make no special mention of what might be termed EPR-related funds. Indeed, these are not especially prominent in Chapter XI.

Article 160 sets out the responsibilities of Ministries and ministerial agencies for performance of tasks in state management of environmental protection. It covers a range of matters. Articles 162-164 are important for enforcement matters more broadly.

8.3 Summary

The short-term effect of the Law and Decree might not necessarily be very significant. The Law and Decree set out means of dealing with waste, but there appear to be some questions as to who will do what, and who will finance what (and how). In addition, whilst there is some clarity around how domestic waste should be dealt with, the approach to dealing with waste similar to domestic waste that is produced by businesses is not so clear. The Decree seeks to correct some of the problems that the Act potentially raises,

³¹⁶ Ibid.

but does not always do so successfully. Some of the so-called Roadmaps in the Decree lack a strategic outlook, and are short on detail.

The responsibilities for managing (domestic) waste – in both the law and the Decree – rest with the People's Committees, and yet the EPR aspect of both are suggestive of financial support from producers. The manner of the integration of that financial support, though, is unclear, not least because the Decree allows 4 (or more) different approaches by which producers may comply with their obligations, and it is almost certainly unclear as to how many producers and importers will choose which approach to compliance. As regards the People's Committees, at the different levels (province, district, etc.), responsibilities seem to be overlapping, risking both duplication of effort and / or responsibilities being 'missed'. In particular, there is a risk that a surfeit of plans are drafted when what is really needed is implementation of quality collection services, backed by suitable sorting and recycling infrastructure, means of treating separately collected biowastes, and environmentally responsible means of dealing with waste which is not recycled.

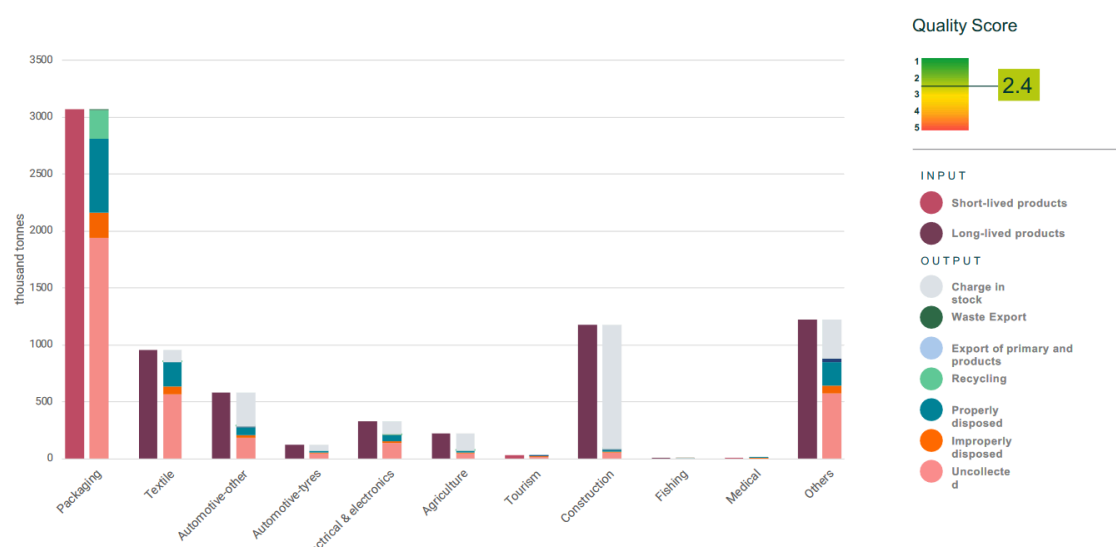
The EPR aspects of the Act, and as elaborated in the Decree, are a mix of relatively limited recycling targets in the short-term, but with the Decree's Article 60 including – in Clauses 3 and 4 – some objectives which might be transformative, depending on how they are implemented, and the details underpinning them. Clause 3 in particular will – if fully implemented – lead to a ban, as of December 31 2030, on

single-use plastic products (except for the Vietnam Ecolabel certified products), non-biodegradable plastic packaging (including non-biodegradable plastic bags, styrofoam containers for packaging and containing food) and products and goods containing microplastics, except for production for import and production and import of non-biodegradable plastic bags for packaging of products and goods sold on the market.

How the term 'including' in the above extract is interpreted is important: usually, this implies 'not limited to' the products mentioned, and if the above translation is correct, then all non-biodegradable plastic packaging would be banned by 2030. That seems unlikely to be the intent, but if it is, it is ambitious. There is also the matter of how the award of the Ecolabel proceeds (and how easy or difficult it might be to gain such an award).

In the short-term, though, the recycling targets seem not especially onerous. They may increase on a 3-yearly cycle, but for the time being, it seems unlikely that radical transformation will be required in order to meet the relevant targets, not least since a number of producers and importers will be exempt from the need to fulfil an obligation, and not all packaging is within scope of the EPR system. One report estimated the recycling rate of plastic packaging, for 2018, at around 8% (see Figure 31). This may have increased since then, and so it remains unclear whether additional recycling would be required given the quantity of packaging waste which obligated entities may be responsible for, and the scope of packaging included in the obligation.

Figure 32: Mass Balance by Sector for Plastic Wastes (2018)



Source: IUCN-EA-QUANTIS (2020) *National Guidance for plastic pollution hotspotting and shaping action, Final report for Vietnam, October 2020.*

The Law and Decree do not offer a clear means through which producers' compliance will lead to additional funding for waste management: indeed, there might not be any. This is of concern given the limited extent of formal waste collection, and the extent of mismanagement of waste, as reported in 2018.

There are four routes to demonstrate compliance, three being based on the business arranging the relevant activities itself or through approved intermediaries, the other based on paying fees to the VEPF. The level of these fees are being finalised, but if they are significant, then producers are likely to opt for one of the other three routes. In this case, they (or those acting on their behalf) will need to prepare plans for submission to the relevant authorities, but there will be no specified level of payment required. It should be noted that in some countries which have set firm-specific 'buy-out' fees for producers, these have often been set at deliberately punitive levels so as to encourage producers to join collective schemes: the choices here, however, seem somewhat different, and have the potential to give rise to a fragmented approach to the discharge of compliance.

In commenting on the 'old' (prior to implementation of the 2022 Decree) and the revised EPR approach, Phuong noted:³¹⁷

In Vietnam, the provincial People's Committees have a crucial role in implementing solid waste management. They are responsible for the collection, sorting and treatment of the waste generated in their local areas. In most cases, the solid waste management services providers, both for collection and treatment, often are state-owned enterprises (SOEs) that belong directly to the People's Committees. Regardless of which EPR responsibility model is selected, EPR policies generally place new and different responsibilities on local authorities – particularly with respect to the increased need to coordinate their activities with the industry, especially with

³¹⁷ Phuong N. H. (2021). *Policy effectiveness assessment of selected tools for addressing marine plastic pollution. Extended Producer Responsibility in Vietnam*. Bonn, Germany: IUCN Environmental Law Centre

PROs. As such, both People's Committees and PROs will play more or less a similar role in coordinating solid waste management; and this needs to be well defined under EPR schemes to avoid overlap and potential conflicts. The current [i.e. prior to the 2022 Decree] EPR system does not lead to PRO establishment, the industries self-organise their own collection system rather than collaborating with local authorities and local waste management companies. In the new EPR development, the EPR National Platform's members and related dialogues on EPR development mostly anchor at the national level that has not yet been transmitted to the local authorities. PRO Vietnam and PPC have started exploring the opportunities in collaborating with URENCO and CITENCO – two of the biggest SOEs of solid waste management in Ha Noi and Ho Chi Minh City – with communication and a pilot project on waste segregation.

This highlights a key issue: that EPR does not seem to have been conceived with the objective of supporting municipalities develop better waste management services. Instead, the focus has been on a somewhat liberal approach where producers and importers have considerable freedom as to how to discharge their obligation, and what they will pay for doing so. This is likely to have uncertain outcomes. Phuong also notes, as a potentially positive development:³¹⁸

To meet the recycling target under the EPR schemes, the producers have to pay for organising the collection, recycling, audit, awareness raising, etc. This would mean that implementation of EPR schemes would create the financial flow running into waste management services and recycling industries, and would further generate economic opportunities for the related actors.

That, though, is questionable. First of all, the law does not demand what Phuong suggests: actually, it does not require them to pay for anything unless they choose to comply via VEPF fees. Second, if what is required under the LEP and the Decree – regarding the management of waste, as it is required to be undertaken by the relevant People's Committees irrespective of EPR – actually happens, then there will likely be no need for any producer to pay for anything (it will happen anyway). This is especially true given that the recycling targets in the first phase are low, and that not all producers are obligated (so that the 10%-22% target recycling rates which producers of different plastic packages have to meet will translate to a lower national level recycling rate). The existing gulf which many observe – between urban and rural waste management systems – is unlikely to be closed to any meaningful extent by the suggested implementation.

On the negative side, Phuong also noted the potential for fraud:³¹⁹

Data insufficiency or the lack of reliable and comparable data available among authorities is one of the challenges to achieve an evidence-based holistic approach to solid waste management in Vietnam.101 This situation provides an environment for the development of fraud in EPR schemes. Strong databases are a key instrument to manage and monitor the producers' compliance with their obligations and can also help control the free-riders that weaken the EPR system and create unfair competition between the producers. Therefore, the success of EPR schemes in

³¹⁸ Ibid.

³¹⁹ Ibid.

Vietnam will be highly influenced by whether or not there is a proper database management in place

We agree with this. Especially if the contributions required to be made to the VEPF are viewed (genuinely, and not just in their lobbying efforts) by producers to be ‘too high’, so there will be efforts taken by producers to circumvent their obligation through creative presentation of plans, and minimal additionality as regards the incremental funding of the ‘low-hanging fruit’, which is the packaging that is already being recycled.

As regards sachets specifically, the low recycling rate might seem difficult to meet, though the ‘recycling’ routes deemed suitable include ‘producing chemicals (including oil)’. Where sachets are ‘mono-material’, they may be included alongside other flexible mono-material packages, so that the recycling target might be met without resort to collecting and recycling sachets. In any case, noting the points regarding fraud, and the need to meet recycling obligations on a like-for-like basis (column 3 in Appendix XXII), who will truly know (and be able to challenge) what the share of mono- or multi-material flexible packaging is in the amount of plastic waste ‘recycled’ in road surfaces (or used in cement kilns)? Who will properly audit this? We would expect producers to offer evidence of meeting their obligation that is, to put it mildly, of variable quality.

The LEP offered little by way of appreciation of the role that funds from producers could play in supporting the development of waste management services, notwithstanding this is urgently needed. The VEPF – contributions to which may yet prove to be limited (it remains to be seen) – might support some projects, but such approaches – where funds have been used to support, piecemeal, specific projects, or pieces of equipment – have rarely, in our experience, been free from problems. Such approaches often fail to support systemic interventions precisely because they seek to disburse funds for specific activities, or to favoured projects / suppliers.

In summary, unless Clause 3 in Article 60 implies a broad ban on non-biodegradable packaging, then the LEP and Decree might not impose too great a burden on producers beyond administrative ones associated with demonstrating what needs to be demonstrated in producers’ plans. Checking the plans for their quality, and auditing them, is likely to be a considerable task and quite onerous, relying upon high quality data capture systems. The real test of the system will also likely come only once the recycling targets present a meaningful challenge to the obligated producers.

As with other countries whose systems we have reviewed, the focus of many commentators has been on ‘EPR’ without adequately situating this within the law that drives the way in which waste is to be managed. EPR in Vietnam is all about extending the responsibility of producers to the end-of-life phase, and in particular, to recycling. Yet it does not mandate specific financial or operational responsibility. That is disappointing, and is unlikely to give a clear basis for significant additional investment in future, still less, to support people’s committees to implement the improved waste management services that so many parts of Vietnam clearly need.

Note at the time of drafting, fees to be paid to the VEPF were not known. Even if they are relatively high, producers may yet find that they can comply through their own efforts and through submitting a suitable plan.

9.0 Potential Changes to Existing EPR Schemes in India, Indonesia, Philippines and Vietnam

9.1 Overview

In this Section, we consider the issue of changes to existing EPR schemes in the countries we have examined. In doing so, we seek to show appreciation of the varied nature of the products sold in sachets, and the varying ease with which they could be substituted in different situations where they are sold.

Two of the systems we have looked at – in India and the Philippines – are based around demonstrating compliance using tradable certificates. Both these schemes apply only to plastics. In the Indian case, there are targets for recycling, recycled content and for end of life management. The targets in India are aligned with, but might ultimately take the country further than what is required by the solid waste management rules. These have not been fully implemented, and annual reports monitoring the performance of States against the requirements of the Rules could adopt a more inquisitive stance. If both sets of Rules (Plastic and Solid Waste) had been properly implemented, then it seems an open question as to whether the targets in the EPR Guidance take India beyond where it should be: the recycled content requirements might be considered genuinely additional, though given corporate commitments in this area, then as long as sufficient material had been made available for quality recycling, the recycled content targets might also have been met.

In the Philippines, things are far more obvious regarding whether the EPR targets drive the system beyond where it should have been: the targets as set out require only collection, and avoidance of improper disposal. Had the different tiers of local government done what was required of them under the ESWMA, the performance outcomes for plastic packaging would already be being achieved.

In both countries, to the extent that the systems might not drive performance far beyond where it should have been under full implementation of waste law, one might have hoped that the system would have been designed to bring additional funding in to support further improvements, in line with extending producers' responsibility. Our experience with the UK's system for trading packaging recovery notes suggests that in a situation where local government is already engaged in providing waste collection, including for recycling, services (and this is required in India and the Philippines), the level of support that will be offered by a traded certificate system will rise and fall with the relative tightness in the market. Local governments, on the other hand, will generally not see a potentially temporary (the duration would not be clear) price uplift for traded certificates as justifying changes in collection services, let alone investment in new infrastructure. An econometric study in the UK found prices for traded certificates to be more volatile than for the primary commodities themselves: as recycling rates increase, and as more of the revenue from material sales accrues to local government, these price fluctuations are

likely to become a greater concern for local government (for which, budgetary certainty is likely to be valued).³²⁰ Trading certificates offer a form of support that is too volatile and uncertain to justify significant changes to services, but such a system also fails to address the exposure of local government to volatile commodity prices (a risk which well-designed EPR systems can be designed to shift away from local government and onto producers). Especially where plastics are concerned, where investment in improved collection, better sorting and additional reprocessing capacity is required, establishing conditions where would-be investors are given sufficient certainty to do so is a positive feature: opting for tradable certificates as a route to compliance achieves the opposite.³²¹

In Indonesia, our main concern is – and this may be an issue related to translation – that the laws are not sufficiently well drafted. Where EPR systems are concerned, it is as well to approach the law from the perspective of a producer who is seeking to argue the case, in a court of law, that they are not required to do anything. The Indonesian law would give such a producer cause for optimism. Indeed, our understanding is that the scheme is not really being implemented as intended, and that might reflect the failure of the law to adequately reflect that intent. In any event, the targets are set in ways that seem to make them a) easy to gainsay (by setting baselines in ways that make their achievement more likely), and b) more or less impossible to check / verify – measuring how much waste has been reduced is never going to be especially easy, and hence, the potential for gainsaying this in setting baseline waste generation at a higher level than is anticipated.³²² The link to actions in the Appendices seems to be weakly made, and in any event, their expression is somewhat ambiguous. There is also no requirement for producers to fund anything, but instead, various expressions of the possibility of cooperation between local government and producers. But with the waste law requiring local government to take actions which would likely come close to achieving (to the extent that one believes this to be amenable to assessment) what is required under the Waste Reduction Regulations, then why would any producer feel the need to pay local government to do what it has to do anyway (and which – as regards the responsibilities of local government – government has committed to fund anyway).

In Vietnam, similar issues to the above countries arise in respect of the extent to which the EPR aspect of the LEP and the 2022 Decree drive producers to do anything which is not already required in the waste law. There are no targets that we are aware of for local government as regards management of waste: on the other hand, there are actions that they are required to take, and which, if undertaken reasonably, would be expected to have consequences, including increasing separation of recyclable waste (and also, of food waste). Given, therefore, the relatively low recycling targets specified in the 2022 Decree (although these are set only for the first three years – for 2024-2026), it might

³²⁰ Eunomia (2015) *Evidence on the U.K. PRN / PERN System: Briefing Note 2: Year End Effects Associated with Fixed Level of Demand for PRNs / PERNs in a Given Year*, Report for Defra 30th June 2015.

³²¹ Eunomia (2015) *Evidence on the U.K. PRN / PERN System: Briefing Note 3: Constraints on the UK's Ability to Increase Packaging Recycling, and their Relationship to Prices in the PRN Market*, Report for Defra 30th June 2015.

³²² There are so many problems associated with using this form of target for specific producers that it is difficult to know where to start: do businesses that expand have any basis for adjusting their baseline? Are businesses which are contracting 'destined to succeed'? What is the effect on meeting targets of switching from a light package that is not recycled to a heavy one that is? Intensity measures (quantity of waste per unit sold) would improve matters, but even here, the measurement of 'waste reduction' against a baseline allows for producers to set baselines designed to deliver success without actually taking any (additional) action, not least because 'reduction' includes recycling and reuse as well as genuine resource efficiency – these contributing elements can be in conflict.

well be the case that what producers are required to do is little, if anything, more than is already happening (and if not already happening, then required to happen in future independently of the EPR aspect of the LEP). As regards any funding of service and infrastructure improvement, it remains to be seen how the situation will unfold in Vietnam pending, for example, finalising fees to be paid into the VEPF in lieu of compliance through this route. In this respect, the system has at its heart a conundrum. It offers two routes to compliance, the paying of fees, or the ‘self-compliance’ route (which might take place collectively) in which plans are submitted for meeting targets for sign-off by relevant authorities. In the short-term, the latter is likely to be cheaper. If recycling targets increase significantly, though, the costs of organising compliance (including search / transaction costs) might (depending on their level) exceed the fees payable to VEPF. In that case, it is possible that the rate of recycling actually achieved would stagnate. Once again, the lack of certainty of funding for service and infrastructure enhancement is the key issue of concern.

In what follows, we suggest possible improvements in the schemes as they stand, with progressively more significant proposals for change. There are some overlaps across the countries and the proposals made but we have written these as though they are read ‘in isolation’: that implies a degree of repetition which we felt justifiable in the circumstances. In all cases, we take the view – which we also consider to be axiomatic – that extended producer responsibility cannot be ‘delinked’ from, and is best considered part of, waste management. Unsurprisingly, therefore, the recommendations relate in part to how waste is managed, in the round.

On the basis of Steps 3, 4 and 5, we propose alternatives in respect of:

- a) performance objectives and how they are defined;
- b) how legislation specifies what producers have to do;
- c) whether and how the scope of cost recovery might be changed; and
- d) other aspects of the policy and law which might be considered to be ‘part of’ the EPR policy and law.

These recommendations will be made for the countries whose EPR schemes have been examined. They will be made with a view to driving a reduction in use (and improvement in the management of) single-use sachets.

9.2 Indonesia

The Waste Management Act of 2008 and the successor regulations of 2012 and 2017 on household waste and waste similar to household waste are Acts place the responsibility for managing waste in the hands of local government. Each of these pieces of law indicates that funding will be via central and regional government funding yet there is also provision for fees to be levied by local government, though as reported by a recent report, these are typically set at low levels, are open to corrupt uses, and may not be dedicated to the waste management service (though equally, though the report does not mention this, it seems quite possible that the general budget might need to make up for losses on the ‘waste’ account).³²³ The new 2021 Regulation covering retribution fees

³²³ APKASI and APEKSI and Systemiq (2021) [Building Robust Governance and Securing Sufficient Funding to Achieve Indonesia's Waste Management Targets](#), November 2021.

sought to clarify somewhat the optimal fees, taking into account the anticipated level of government support, though it has been noted that such fee revenue is still not necessarily 'ear-marked' for waste management, and that fee collection rates are often low.³²⁴ One suggested solution is to have fees collected along with other utility type fees, notably electricity, supply of which is largely the responsibility of the state-owned Perusahaan Listrik Negara (PLN). This approach has some merit – in theory, those who do not pay receive no service – but equally, that depends on the nature of the service supplied. Our experience in other countries suggests that it is not only ability to pay that affects the proportion of those who do not pay fees, but it is also the quality of the service itself. Where services are based on 'bring' / road-container type systems (where residents carry waste to the designated collection points), it is not so easy to restrict access to the service: equally, where such systems are poorly managed, with waste collected at insufficient frequency, so attitudes to paying for such services may be affected.

For all these reasons, a far clearer view of what is being sought – in respect of service delivery, and the means by which to recover the costs of its provision – is required. Whilst the study by APKASI et al has much to recommend it, and whilst it acknowledges 'PRO' systems (EPR) as a potential complementary source of revenue funding, a proper integration with a forward-looking perspective on EPR is missing. If a key problem of waste management lies, as the study clearly indicates, with the inadequacy of funding for waste management, and if existing fees are set too low (likely, for reasons of local political economy, as well as the multiplicity of governance structures), then that would seem to provide the logic for seeking to have producers fund, as far as possible, the services for which they can be reasonably be expected to be responsible. It is also not helpful to make comparisons between spending on waste management, and spending on education, or health. Government spending reflects not only its priorities, but also, presumably, the costs of delivering a service of adequate standards. One of the strange issues in relation to government spending on waste management is that, even though it is a service which can be delivered at very high quality at comparatively low cost (relative to other services), it clearly remains underfunded in many countries. That is all too frequently a reflection of a failure to understand the – typically small - difference in costs between a poorly designed service, which gives rise to significant negative externalities (including in relation to health, disamenity and pollution), and a well performing one where these externalities are minimised.

As per Section 5.2.1, therefore, we would suggest that:

1. The waste law clarifies what it is that the local government will be responsible for, and is more specific in these matters. We would suggest that amongst other things, this:
 - i. Makes it clear that local government will take responsibility for the implementation, either on its own, or with others acting on its behalf, for waste collection from households;
 - ii. Specifies a minimum service standard for collection in terms of the experience of the household (how many separate streams, how frequently collected, etc.). The service standard should be designed with the potential clearly in mind for delivering high levels of recycling of both dry recyclables (including plastics) and organic (mainly food) waste. The service standard should recognise the greater potential of food wastes to give rise to vector-borne diseases and other (odour)

³²⁴ Ibid.

- complaints, specifying collection frequencies accordingly. Part of the role of the standard is to prevent local governments from implementing systems of obviously low quality. The costs of delivering the dry recyclables collection service would be apportioned to producers, so packaging producers would pay for the proportion of the service costs linked to packaging (see below). The 2021 Regulation on retribution fees could be readily adapted to making this apportionment;
- iii. Requires local government entities with responsibility for waste collection to deliver collected wastes to designated transfer points;
 - iv. Makes the management of dry recyclables, following the collection of the materials and their delivery to transfer points, the responsibility of a single entity representing producers. Producers would cover these costs fully, and would take responsibility for sorting the collected wastes, and for selling the sorted materials, revenue from which would offset some of their costs. In this regard, the smaller the number of entities which are 'competing' for control of the same wastes, the better: too often, this is viewed through the lens of competition (multiple producers, or entities acting on their behalf) facilitating delivery of value for money. The discipline of the market, though, is likely to be best utilised by tendering out the operations such as sorting and reprocessing. Competition for control of the materials tends to undermine longer-term investment by introducing uncertainty in the ability of any entity to guarantee supply of feedstock beyond the short-term.
 - v. Specifies a standard for the cleanliness of public spaces, likely varying by type of location. Such a standard could be 'output-based', or 'input-based' (or both). The responsibility for delivering against the standard would rest with the relevant tier of local government. The costs of doing so in an efficient manner would be recovered from producers in proportion to their contribution to the problem of littering, and the effect on costs. note that producers would also fund the studies necessary to determine the composition of littered waste;
 - vi. Makes clear how the funding is expected to be generated for those functions undertaken by the different tiers of local government which are not funded by producers. This will include:
 - 1. Collection of biowaste
 - 2. Processing of biowaste
 - 3. Collection of that part of 'leftover waste' the costs of which cannot be recovered from producers;
 - 4. Treatment of the part of residual waste the costs of which cannot be recovered from producers;
 - 5. Costs of clean-up which are unrelated to an identifiable group of producers.

Retribution fees ought to support 1, 2 and 4. As regards 2, this is an area suitable for support from central or regional government funding, as well as donor support, although that support could come in the form of capital: the residual operational costs could be funded from retribution fees. As regards 4, there are good reasons why this should not be the target of any explicit or implicit subsidy (making disposal cheap has the effect of undermining the financial logic of seeking to implement a system more conducive to a circular economy). Hence, if delivered through PPP approaches, 'gate fees' payable to operators may be funded through retribution fees also;

- vii. The law on household and household-like waste should be absolutely clear who should provide the collection services for wastes which are similar to household waste, but produced by others (such as businesses, administration, etc.). In some countries, this is clearly made the responsibility of local government (or those acting on its behalf). In others, only household waste is required to be collected by (or on behalf of) local government, and in others, local government is effectively free to determine (within certain limits and restrictions) how it engages with the non-household waste market. There are good reasons to believe that it may make sense to make this a responsibility of local government (or those acting on their behalf): for a start, in principle, this offers an additional revenue source, and might facilitate a degree of cross subsidy between the commercial and household sectors, reducing burdens on lower income households;
 - viii. Revisits the targets in the waste law (in relation to 'waste reduction' and 'waste handling'). For targets to have meaning, they should be based on a clear understanding of what is to be measured, and how that performance measurement should be undertaken. Furthermore, to the extent that it makes sense for local governments to still have responsibility for waste collection, the targets need to cascade down through to the local government, and the local governments need to be able to take responsibility for the targets. So, consistent with the above, and recognising that the collection services are currently of low quality in much of the country, targets could be set in relation to:
 - a. Collection coverage, expressed as % households / citizens in the local government area (split, potentially, by local government units of higher and lower population density / different levels of rurality). This would need to link back to the specification of minimum service standards – for a household to be considered to be 'covered' by a collection service, they would need to be in receipt of a collection service of adequate quality. The target could be for 100% coverage within 5 years in urban situations, and 80% coverage for rural areas over the same period, rising to 95% coverage in 10 years;
 - b. The proportion of waste that is collected which has been collected separately for recycling, or for biowaste treatment. Ideally, this would be adjusted for quality by subtracting any loads that were too contaminated to be recycled, or the contamination from subsequent sorting would be 'added back' to this total. The target would rise to 70% or so over a period of 5-7 years;
 - c. The quantity, per inhabitant, that is sent for subsequent treatment / disposal / dumping as residual waste;
 - d. The proportion (%) of c) above which is managed via means designated to be acceptable from the environmental perspective (aim is to achieve 100% over a period of 7-10 years – shorter time horizon for cities);
 - e. The extent of 'area type' compliance with cleanliness standards (aim is to achieve 100% over a period of 7 years);
 - ix. Give very clear definitions of terms such as waste prevention, waste recycling, re-use;
 - x. Provide methodologies for measuring 'recycling': at what point can a material be deemed to have been recycled?
2. The EPR law clarifies (and cross references) what it is that local governments will be responsible for in operational terms, and what it is that producers are expected to take responsibility for. It should, amongst other things:

- i. Requires all producers to register under the scheme supplying data on the quantity of packaging they place on the market. The rules for doing so should be clear as to whether the figures are to include or exclude labels, closures etc.,
- ii. Ensure regular and random auditing of figures reported by producers;
- iii. Establish suitably large penalties for fraudulent reporting of data by producers;
- iv. Provide for the establishment of a single non-profit entity which is intended to fulfil (at least) two principal functions:
 - a. coordinate the collection of funds from producers in relation to:
 - i. their obligations to cover costs borne by others, and
 - ii. their share (to be determined by the entity itself) of the costs of activities for which producers have direct responsibility;
 - b. coordinate the efficient delivery of functions for which producers are directly responsible, such as collection from transfer points, development and operation of well-adapted sorting infrastructure, and marketing / sale / use of materials sorted for recycling;

This role is sometimes played by an organisation described as a 'producer responsibility organisation'. The exact nature and form of the entity, though, might be considered secondary to its ability to perform the above roles in an efficient manner, and to ensure that funds from producers are utilised efficiently, and only for the purposes intended;

- v. Identify the costs incurred by others (local government) which producers will be expected to cover. Consistent with seeking to reduce the requirement to set retribution fees at much higher levels, and consistent with principles of fairness (those responsible for generating most waste pay more), these should include the greatest possible share of the following:
 - a. The costs of collecting packaging (see above as regards waste law / financing of waste management);
 - b. The costs of clean-up insofar as they are apportioned to packaging;
 - c. The costs of treating the packaging waste which was not separated for recycling. Note that this should provide for the possibility of producers paying for the sorting of leftover mixed waste (the waste not separated for recycling) so as to enhance recycling performance, reduce the amount being sent for subsequent treatment, and reduce the potential emissions of fossil-derived CO₂ in cases where the residual waste might be treated through combustion;
 - d. The costs of undertaking periodic studies regarding the composition of leftover mixed waste (that is sent for treatment / disposal) and the composition of littered waste (as the basis for splitting out costs across producers);
 - e. From the central administrator's perspective:
 - i. The costs of acquiring and checking over the relevant data required for performance auditing (from local government, operators of sorting facilities, operators of reprocessing facilities);
 - ii. The costs of auditing (within reason) data submitted by specific producers regarding the packaging they place on the market;
 - iii. Other costs of overseeing compliance;
- vi. Provide for the development of a methodology to apportion costs of efficient collection / litter clean up to specific packaging fractions;

- vii. Replace the existing target for 'reduction' (relative to a baseline) with a clearly defined target for recycling (see footnote 255)
- viii. Set targets which are consistent with the service standard for collection services that is established in waste law (it makes no sense to have a target which is impossible to meet because the collection services are too poor). These should include targets for recycling of different materials, and for plastics, a further breakdown seems sensible. The existing Decree of 2019 includes some specific measures in the Appendices linked to plastic polymers. The polymer split might be replaced by targets according to the following split:
 - a. Rigid beverage containers 80% in 2030;
 - b. Rigid containers, liquid non-beverage food; 70% in 2030
 - c. Rigid containers for non-food liquid products; 70% in 2030
 - d. Other rigid food containers (e.g. trays); 70% in 2030
 - e. Other rigid non-food containers; 70% in 2030
 - f. Flexible packaging, transit 80% in 2030
 - g. Flexible packaging, secondary 60% in 2030
 - h. Flexible packaging, primary, food 50% in 2030
 - i. Flexible packaging, primary, non-food 50% in 2030
- ix. Ensure the methodology for measuring 'recycling' is clear, and neither rewards contamination, nor unduly penalises higher impact recycling where the secondary material replaces an equivalent amount of primary material;
- x. Require 'end-to-end' reporting from the producer entity of input and output (mass balance) data from the collection of waste at transfer stations through to reprocessing of materials (recycling) and treatment / disposal of non-target materials.
- xi. Ensure that the approach to collection, sorting and reprocessing facilitates integration – and forbids the exclusion (for example, in tender processes) – of informal sector actors. In particular, wastes might continue to be delivered directly to e.g., waste banks. The role of waste banks would need to be considered in the system. They could, for example, continue to operate, and producers could be required to make provision for purchasing the material collected and arranging for its onward recycling. Whatever decision was taken, a transition from the current situation to whatever future configuration is considered likely would need to be accommodated.

These suggested changes should not be considered as providing the entirety of what might be in revised legislation. There is, though, considerable room for interpretation of the existing law, and so we believe comprehensive changes are still required, notwithstanding the fact that the laws have been promulgated fairly recently.

9.2.1 Sachets

Even if all the above things are done, and even if they were implemented successfully, would they address the problem of sachets? What might be the expected outcome?

First of all, we would expect more sachets to be collected. Producers might be inclined to produce them in such a way that they were more likely to be recycled. So, the PET / polyolefin (PE/PP) combinations might be rendered less common, but that depends in part on the proportion – by weight – of the flexible primary packaging accounted for by sachets, and the relative ease with which the other flexible packages could be recycled. Those that continued to be littered might be more likely to be picked up as litter (the

clean-up being paid for by producers). The nature of their consumption, though, might make them prominent in littered items in those cases where they are consumed on the go (e.g. snack packages) or in quick-service food stalls / street stalls outdoor cafes, etc., or where they are used for washing in rivers / the sea (e.g., shampoos).

How, then, might additional progress be made? We explore some options below.

9.2.1.1 Fee Modulation

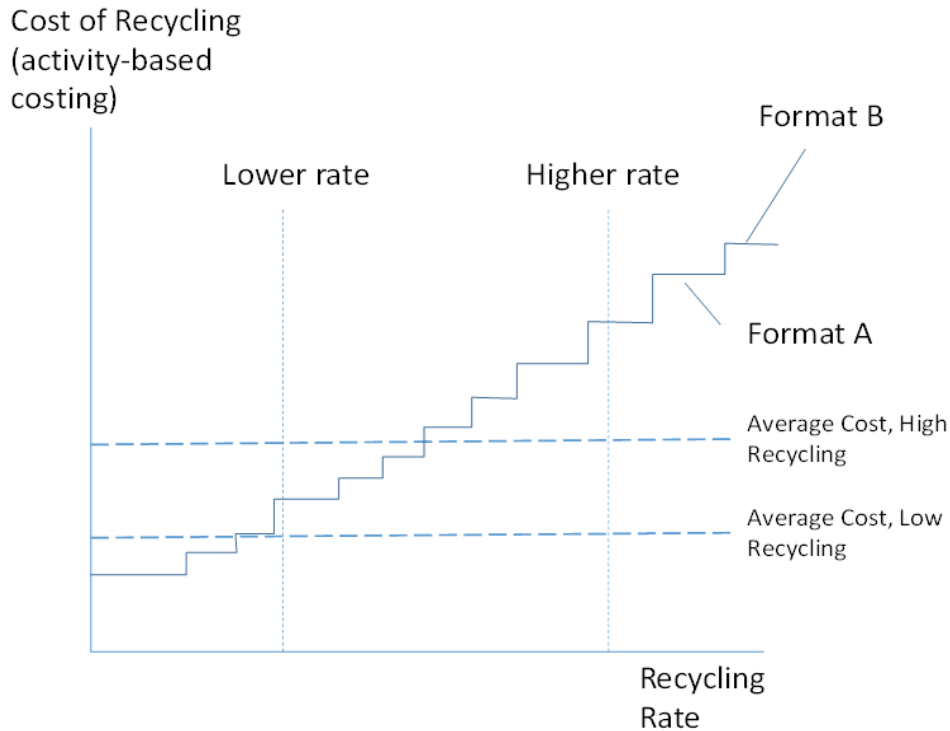
Most EPR policy is relatively weak in influencing choices regarding the use of packaging. There are some simple reasons for this: what producers have been required to pay has been small in comparison with the costs of switching between packaging types.

In seeking to meet a given recycling rate, it generally makes sense to target formats and circumstances where the costs are lowest. At low recycling rates, though strictly speaking, this depends upon the shape of the cost curve, it might be supposed that average costs are not so different from the costs of recycling each packaging format which is recycled at that low level. As the required recycling performance increases, then other things being equal, there is a need for new packaging formats to be recycled, and unless the cost curve is relatively flat (and empirical evidence suggests it is not), then the average costs of recycling increase, and the gap between the costs of recycling formats with the lowest cost and those with the highest cost increases. If fees are simply levied at 'the average rate', then all formats pay the same amount irrespective of the costs to recycle their packaging.

This raises the question of fairness. One basic principle of the modulation of fees, therefore, is that it should be fair, levying higher fees (at least when expressed on a per tonne basis) on those formats which cost more to recycle. Indeed, there is some intuitive appeal to leaving it at that: the fees which should be levied upon each packaging format should reflect the costs it imposes on the recycling system. These would be determined through activity-based costing, designed to link the nature of formats to the actual costs incurred by the system.

The stumbling block which this approach faces, however, is that there are some formats which, at a given recycling rate, might not be being recycled at all. Formats A and B in Figure 31 do not need to be recycled in order for the higher recycling target to be met. Although the cost curve depicts a known cost of recycling for each format, in practice, if formats are not recycled, or recycled only to a limited extent, the costs of recycling them might not be known with any certainty. This applies, more obviously, to materials which are deemed to be – for technical reasons – unrecyclable by any known commercially available technology.

Figure 33: Cost Curve for Recycling Different Packaging Formats



In some of the countries under consideration, the unrecycled formats might never be collected, and even where they are, they might be unlikely to be recycled: they may end up in unmanaged dumps. In these circumstances, the costs which these items visit on the waste management system might be low: indeed, items which are discarded directly into rivers and seas impose no costs on the waste management system at all.

The response to this problem in the EU – where most packages are collected, and where the costs of landfilling / incineration are typically relatively high, has been to introduce fee modulation for different packaging types. The principle is that if ‘less recyclable’ packages are assigned higher fees under EPR, the producers will switch to packages that are easier to recycle. The fees that would otherwise be raised only to cover costs are modulated in line with some measure of, or scale of, recyclability. On the other hand, because, in the EU, EPR fees are increasingly required to cover a defined set of costs, then increasing fees for some formats would lead to the level of revenue exceeding cost recovery levels. Modulation under EPR ought to respect the principle of cost recovery (and not become a revenue generating enterprise)

This issue can be managed by making the ‘modulating element’ revenue neutral overall. If ‘packaging format-specific’ recycling rates are known, for example, then a modulating element can be applied so that formats with recycling rates below the average recycling rate pay higher fees, and those with recycling rates above the average pay lower fees, with the revenues paid by those below the average compensating for the lower fees paid by those with above average performance. This approach can allow for more extreme forms of modulation to be applied: the incentive to switch packaging formats will be higher if the penalty for falling below the weighted average recycling rate is increased, but the revenue-neutral principle is still respected.

This would help overcome an issue which is especially obvious where sachets are considered: that fees are not modulated sufficiently to motivate switches away from some less recyclable formats. Sachets may weigh of the order 1g in small format. The packages may cost the order US\$0.01 per unit. If the cost of an alternative material is greater by, for example, US\$0.005 per unit, that additional cost per unit translates into an additional cost of US\$ 5,000 per tonne of the material currently used. Even in EU countries with full cost recovery for packaging recycling, costs to producers are of the order US\$700 per tonne, roughly one seventh the cost of our theoretical packaging switch. The fee modulation elements still tend to be relatively modest, so that including these does not send EPR-related costs above US\$1,000 in total, let alone specifically for modulating elements.

Whilst there could be a system of modulation of fees in Indonesia that deliberately seeks to achieve this outcome, it would affect all packages in the same way: it might be of greater interest to target small format sachets specifically through measures distinct from EPR.

9.2.1.2 Design for Recycling Criteria

We noted repeatedly in Section 4.0 that some formats of sachet used for some applications were less easy to recycle than others. We referenced design for recycling (DfR) guidance given by Ceflex at the EU level. These seek to improve recyclability of flexible packaging. These DfR principles can help to shape the market, and could be used as a basis for fee modulation (see above), but they will not necessarily prevent littering of sachets where they are used in circumstances where collection services are inadequate or not present. Design for recycling is effectively useless if materials are not collected in the first place.

9.2.1.3 Deposit and Refund Scheme

To the extent that an important objective may be to ensure that sachets are not discarded where they should not be, the principle of a deposit refund system is attractive. Deposit and refund schemes (DRSs) are being implemented in a growing number of jurisdictions, usually applied to beverage containers, and with the scope of beverages (and packaging materials) covered varying across jurisdictions.

The principle – that consumers purchase a product in a sachet that bears a deposit, and that the deposit is refunded when the package is returned - is particularly useful in a context where one is seeking to ensure that products are returned to specific locations, and are not mismanaged. The scope of application of DRSs, therefore, is being considered more widely, notably for plastic products. The UK Department for the Environment entertained the design of a scheme for plastic packaging where a deposit would have been introduced for all plastic packaging. The main obstacles to introducing such a scheme related to the pre-existing infrastructure and institutional architecture. Nonetheless, the application of such schemes may be appropriate beyond beverages, and especially in situations where collection systems are poorly developed. The State of Goa has recently passed a law which may also have a relatively broad scope.³²⁵ Some countries are applying the approach to single use cups, for example. Applications in respect of small WEEE items have been considered, and a trade body has considered their application to e-cigarettes.

³²⁵ Government of Goa (2024) Deposit Refund Scheme, LS-MISC/1915/96/Part-V/1808, 6th March 2024.

In principle, there is no reason why a DRS should not be applied to sachets, even those of small format. There are some obstacles which would need to be overcome, not least in relation to ensuring there are no fraudulent claims for refunds. This is typically achieved in a beverage container DRS through appropriate use of labels / barcodes on packages included in the scheme, indicating that a deposit is due / has been paid: these barcodes can then enable retailers to understand which containers should attract a refund. Some small format packages might only be barcoded on secondary packaging if they are being purchased in bulk for resale. Equally, in quick service food outlets, they might be made available free of charge, so that unless there was suitable labelling, there would be no obvious incentive to take-back. These issues are likely to be surmountable with sufficient consideration of appropriate strategies for labelling and 'scanning sachets back in' to avoid a situation where a refund is claimed more than once on a given package.

9.2.1.4 Selective Phase-outs

Following on from the above, it might be useful to consider phasing out the use of specific types of sachets in contexts where doing so is unnecessary. Using condiment sachets in cafes / restaurants may be a good example. The Vietnamese Decree of 2022 mentions banning sale of some items in malls and other locations by 2025: it might have been appropriate to consider some products packaged in sachets, seeking to encourage use of refillable containers, or readily recyclable large format containers. Such approaches are appropriate where the measure can be (and will be) meaningfully enforced.

9.2.1.5 Levies on Items in Specific Package Types

Bans might be considered, from one perspective, to have the effect of a levy set at an infinite level. In many instances, bans will not be appropriate, especially where some uses of the item have particularly high value. In these instances, a levy on sachets might lead to a reduction in their use, and a switch to alternatives (a demand effect, and a substitution effect, respectively). The strength of these two effects depends on:

- 1) The level of the levy applied; and
- 2) The availability of substitutes and their relative cost.

The higher the levy, the more demand will decline: the remaining users of sachets can be expected to be those who derive particularly high value from their use. In principle, this allows those wishing to continue using sachets to do so, but at a higher cost.

Given the discussion in Section 3.0 regarding the use of 'nature degradable' alternatives, there is a question to be asked as to whether a levy should be applied to all sachets, including those that might be defined as 'nature degradable', so as to encourage a reduction in small format flexibles of any type. An alternative would be to apply lower levy rates to such products, but still maintain an incentive to use, for example, refillable alternatives.

Where levies are concerned, the mechanism for revenue collection needs to be considered. Where indirect taxes such as VAT, are already applied, in principle, the application of what are in essence excise taxes could be straightforward. The appropriate lead-in times should be considered carefully, as well as the appropriate evolution in the levy rates to be applied (if no clear evolution is foreseen, levies should be set with built-in escalators, in line with a suitable price index, to ensure that their incentive effect is not eroded by inflation).

Revenue from Levies

A positive feature of levies is that they can generate revenue. The scale of use of sachets at present suggests that revenue generation from the application of levies to sachets could be significant, at least initially, with potential for it to fall over time as markets respond to the levy (depending on its rate).

Revenue from levies could be used to support the development of waste management services at the municipal level, further easing the pressure – if only for a period of a few years – on cost recovery through user fees. Otherwise, funds could be ‘earmarked’ for environmental causes – both to back up the positive change the levy will encourage, and to provide a clear message to consumers about the purpose of the levy.

An alternative use of revenue could be as a source of grant funding to which local authorities or community groups can apply for funding of projects which target waste minimisation and encourage reuse. A similar approach has been used in the Norwegian retailers fund through their voluntary plastic bag levy, and in the Ireland environmental fund (see case studies box).

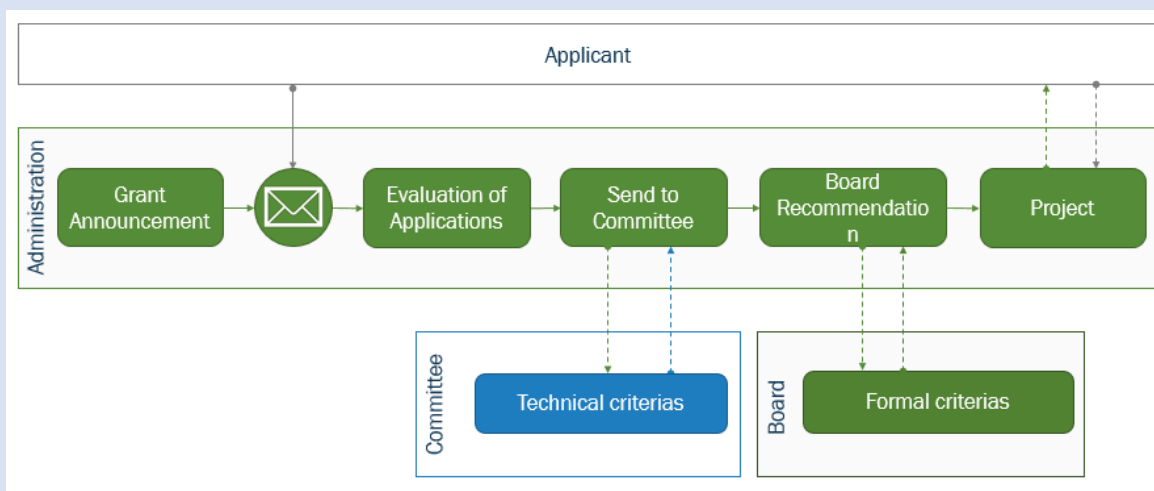
It is important that retailers should not influence what happens with revenue raised from levies, and neither should revenue be used to fund a significant, ongoing requirement. Funding an ongoing requirement has the potential to introduce a conflict of interest where the revenue generated from consumption is relied upon, but where environmentally, the best thing is to reduce consumption. As such, as the aim of the levy is to reduce consumption, investment should be understood as time-limited (i.e., not be used to provide an ongoing service) as the goal of reducing consumption if successful, should result in diminishing revenue as time goes on.

Case Studies – Use of Revenue from Levies

Norway Plastic Bag Levy

The Norwegian retailers Environmental Fund is a monetary fund in Norway, based on a voluntary commitment from retailers and retailers' organisations generating revenue from plastic bag sales. Plastic bag sales are charged at 5 Euro cents per bag, summing to around 45 million euros per year across Norway. The funds which are generated are earmarked for environmental purposes and may be used to: (1) support projects that reduce the consumption of plastic bags, (2) support projects that reduce both land and marine based littering- both national and international, and (3) support projects that lead to increased resource efficiency such as plastic recycling projects. An expert committee, independent of the retailers, evaluates the proposals for projects with a different committee for projects supporting each of the three outlined aims. Their decision-making process is shown in Figure 4-1. As such, this allows that the retailers' interests are not the prime determinants of the allocation of funds.

Figure 9-2 – Summary Diagram of Project Application and Approval Process³²⁶



Ireland Environmental Fund

Ireland introduced a plastic bag levy in March 2002. Initially, the levy was set at €0.15 per plastic bag, with exemptions for smaller plastic bags that meet specific conditions and were used to store non-packaged goods such as dairy products, fruit and vegetables, nuts, confectionery, hot or cold cooked food and ice. The levy is passed directly to consumers at the point of sale.

³²⁶ Oland, E (2017) Closing the Loop: Norwegian Retailers Environmental Fund

It has been reported that this policy has been very effective and has ‘proved so popular with the Irish public that it would be politically damaging to remove it’.³²⁷ The levy was implemented to ‘change consumers’ behaviour to reduce the presence of plastic bags in the rural landscape, and to increase public awareness of littering’. Revenues from the levy are paid into an Environmental Fund which is administered by the Department of Environment and Climate Change. The fund is used to cover administrative costs (3% of total revenues) and support a wide range of environmental programmes. The costs of implementation are reported to be very low because bookkeeping and reporting has been integrated with VAT returns.

9.2.1.6 Phase-outs / Bans

A ban on items is proposed where the items concerned are largely unnecessary, and where their negative impact is disproportionate to any benefits associated with their use (given the availability of alternatives). Sachets might, therefore, be considered candidates for phase-outs / bans.

For some of these items, nature-degradable, or non-plastic alternatives, although they could have lower impact when littered, might still be used in a wasteful manner and inappropriately discarded. It might be appropriate to implement a levy on the non-plastic and nature-degradable alternatives. The aim of this would be to reduce demand for sachets of any type, and encourage greater reliance on refillable alternatives.

The use of bans ought to consider the following prior to implementation:

- The nature of the mechanism through which the ban will be enforced;
- The most appropriate phase-out period required to allow industry/retailers/users to adapt, given the available alternatives.

Some bans can be introduced with relatively short lead-in times, especially where the item is unnecessary, problematic, and where alternatives already exist. Others might require longer lead-in times, once considered in the context of the currently available alternatives.

In cases where there really are no alternatives, then it may be appropriate to support research and development activity in the short-term. In addition, in countries where enforcement capacity is limited, some levy revenue can be ear-marked for enforcement activity. In this context, it should be considered that clarity of definitions (of what is to be banned / subject to levies), enabling ease of enforcement, is also important to consider.

Any policy looking to phase-out plastic packages needs to consider the effect of simply switching from plastic formats to non-plastic formats: in some cases, such switching may worsen some other environmental impacts (for example, in relation to the climate change impacts of production, or in respect of land take – see Section 3.3.2 above).

³²⁷ Convery, F., McDonnell, S. and Ferreira, S. (2007) The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy, *Environmental and Resource Economics*, September 2007, Vol. 38, No. 1, pp. 1-11

9.2.1.7 Using Levies to Support Phase-outs / Bans

In our view, a particularly promising approach is to set phase-out dates for problematic products, including sachets, and to 'back-up' those phase-out dates with an economic signal that can be provided by levies.

In cases where no clear product alternatives exist at a given point in time, the approach may be to announce a ban which will be enforced at some future date (for example, in 5 years). In these cases, announcing at the same time a schedule for a levy which starts at low levels, and then rises more quickly as the date for the ban to take-effect approaches, may be a useful approach. The levy incentivises innovation and a shift in demand in the period leading up to the ban's implementation.

In contexts where alternatives already exist, then the time period for phase-out can be shorter (of the order 2-3 years), and the schedule for the supporting levy might simply reinforce the ban in the year prior to it taking effect.

Therefore, we could consider the following approach (see Table 12) for the items we considered in Section 3.0.

Table 13: Possible Option for Phase-out Period and Levy on Different Products

Product	Period to Phase-out	Levy
Shampoo (small format, e.g., 10ml or less)	3 years	Year 3, \$US0.01 per package
Milk (small format, e.g., 20ml or less)	3 years	Year 3, \$US0.01 per package
Instant Coffee (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Ketchup (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Crisps (all pack sizes)	7 years	Year 3, \$US0.01 per package Year 4, \$US0.015 per package Year 5, \$US0.02 per package Year 6, \$US0.03 per package Year 7, \$US0.05 per package

This approach would, we believe, help to send a clear message to producers that these products are considered problematic, and the main message of the phase-out is supported by the incentive conveyed by the levy.

9.3 India

In India, we noted that the way the EPR rules for plastic packaging have been established do not give complete clarity regarding what producers have to do, either as regards operations, or as regards financing. Rather, they are required to acquire evidence in the form of certificates as evidence of compliance. This, we argued, was unlikely to give rise to stable financing of improved waste management in India. Given the apparent reliance on tradable certificates as a means to compliance, then it would seem important that trading in certificates is transparent (it does not seem what trades are happening on the CPCB portal, though this functionality might only be available to registered users). One newspaper stated that Indore has received a credit of Rs 8,100 (or around \$US100) for recycling 8 tonnes of single-use plastic that was seized as part of the City's enforcement of a ban on single-use plastic.³²⁸ This equates to a credit value of \$12.5 per tonne of plastic recycled. In the context of waste management in India, this might seem a reasonable sum of money, but it would be of interest to know how this compares with the actual costs (net of revenue from sales) of obtaining that plastic, and then arranging for its recycling. It would also be interesting to know what the value of traded certificates at present is, and what seems to be driving those prices.

Tradable certificates in respect of both recycling, and recycled content, will likely have a value – in a market which is not suffering from information failures – that reflect the perceived tightness of the balance between supply of certificates and demand for them. The demand for certificates will come from those obligated, and the supply of certificates will come from processors of plastic packaging. The certificates seem to be classified according to Category of packaging, and seem not to be interchangeable, so that will tend to segment the market, although canny processors may seek (other things being equal) to 'slant' their certificate generation towards those markets where demand is strong relative to supply (and where prices for certificates are expected to be higher). Similarly, there are potentially certificates for recycling, for use of recycled content, and for end-of-life disposal.

The supply / demand balance will be affected by (for each Category of packaging):

- a) The proportion of the market for each packaging type which is accounted for by the obligated producers. The obligated entities exclude micro or small enterprises, and potentially, as regards 'brand owners', fillers of packaging who place unbranded products on the market. The market share accounted for by obligated entities will, in all likelihood, not be known, but as regards sachets, it would seem that in India, the share of unbranded products, and of micro or small enterprises may be significant as regards mono-material flexible packaging in particular: the share might be lower for multi-material packages as this is typically more specialised, and used for products where the sought after shelf life is greater;
- b) The extent to which there is adequate collection and sorting of plastic packaging (even without the existence of EPR). Here, the data are of low quality. The CPCB's latest available report on implementing the PWM Rules (for 2020-21) suggests that 25 states reporting a full dataset generated 3.37 million tonnes of plastic waste, of which 0.60 million tonnes (18%) were recycled, 0.47 million

³²⁸ Economic Times of India (2023) [Indore Municipal Corporation 1st urban body in country to get EPR credit by recycling single-use plastic: Official](#), 5th July 2023; The Print (2023) [Indore Municipal Corporation 1st urban body in country to get EPR credit by recycling single-use plastic: Official](#), 5th July 2023.

tonnes (14%) were co-processed or used to prepare RDF, and 0.03 million tonnes (1%) was used in road making. Although we believe these figures warrant closer scrutiny, they do indicate that there is already significant recycling activity underway, so that achieving the near-term recycling rates might not require significant additional activity;³²⁹ and

- c) The extent to which processors are able to claim recycling of different classes of package to the ones that are actually being recycled.

The result of the interplay of these factors is being revealed somewhat slowly.

9.3.1 Suggested Changes to the Existing Law

Some measures that could be considered as amendments to the existing scheme are as follows:

1. The classification of packaging for the purposes of setting targets is worth closer inspection. It is notable that when the ban on multi-layered packages was rescinded in the 2018 Amendment, the Guidelines then issued by the CPCB largely equated the term ‘non-recyclable’ with the multi-layered packages (see the sources mentioned under para 3). Nonetheless, there are recycling targets for Category 2 and 3 packaging, with the latter being, by and large, the same type of package that had previously been considered by CPCB as ‘non-recyclable’: the target recycling rate for Category 3 packaging is 60% in 2027/28. It will be interesting to see how many certificates for the recycling of Category 3 packaging are traded, and the extent to which this represents ‘genuine’ recycling (or fraudulent declarations of such).
For the recycling targets, the breakdown could have focused on a subdivision of the rigid plastics (bottles, and non-bottle rigids, for example). On the other hand, the wisdom of subdividing flexible packages into three categories is less clear since this implies each class would need to be clearly tracked to the recycling process. We have doubts that this will be done accurately.
It should be considered also that if ‘recycling’ is measured as (arguably) it should be, then the recycling targets could be challenging to meet, though this depends also on the share of overall production that is accounted for by obligated entities. The CPCB Guidelines are not entirely clear as to what is to be counted as ‘recycled’ and the quality of the audit process is not entirely clear also. If the audit process is rigorous, then there is potential for the targets to be missed by some distance for Category II and Category III, especially for the latter, and especially for Brand Owners;
2. The CPCB portal should be fully transparent in respect of the value of trades for different compliance credits. It might be necessary to be more specific as to the specific act that would trigger the generation of a credit of one or other type (though we have doubts that trading credits is the most effective means through which to implement EPR);

³²⁹ See CPCB (2021) Annual Report 2020-21 on Implementation of Plastic Waste Management Rules, 2016. The reporting underlying these figures includes data for 25 states, of which 9 have the letters “NP” in the relevant Table: it does seem somewhat difficult to believe that states such as Uttar Pradesh and Gujarat have zero plastic recycling. The data clearly need critical review (and comparisons with the previous year’s report indicate very significant increases in reported plastic waste generation that also merit some explanation). The plastic waste recycling rates of 86%, 69% and 89% in Odisha, Tamil Nadu and Tripura, respectively, are extremely high, not least given the apparent prominence in Indian plastic waste of sachets.

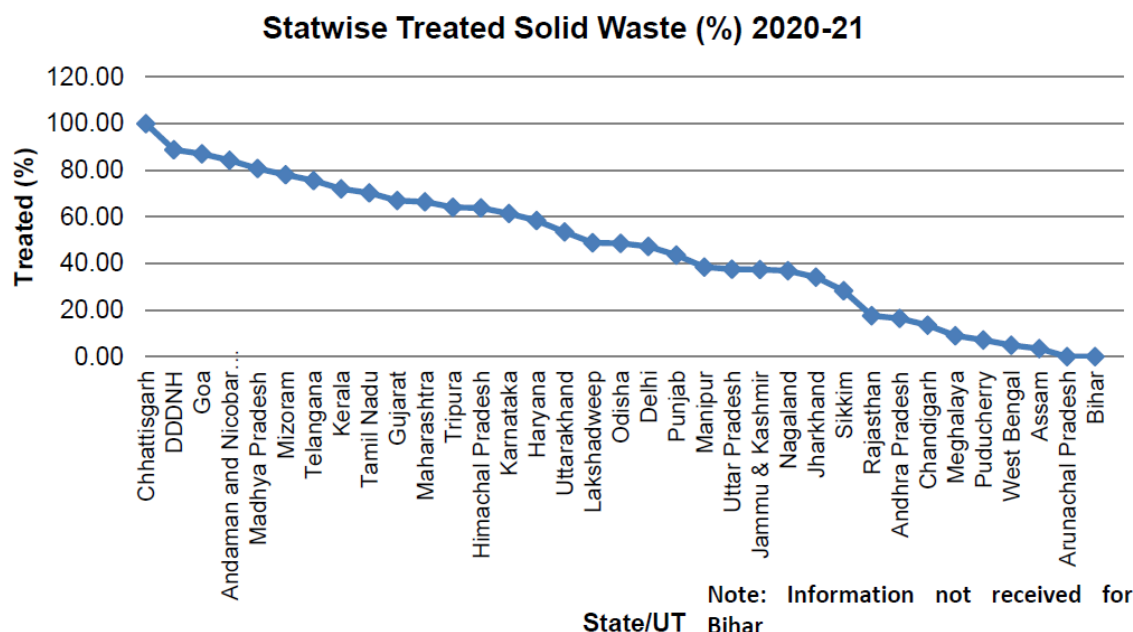
3. For the recycled content targets, we would argue that this is the area of compliance where tradable certificates have the potential to be most useful, though how the recycled content will be monitored and verified may be an issue.³³⁰ If a tradable certificate scheme is to be used, then we suspect that the specification of Category-specific targets is unnecessarily restrictive. The rationale for tradable certificates is, generally, that the costs of the activity are heterogeneous across those engaged in trading: sub-dividing by plastic package likely reduces the heterogeneity of these costs. Rather, a single recycled content target for plastic packaging could have been established for all plastic packaging. Furthermore, the interaction between recycled content targets for producers and for brand owners (the required levels are the same) is worthy of note: it might have been preferable to place the obligation on one part of the supply chain. This could either be ‘producers and importers’, or ‘importers and brand owners’. As it stands, all three – producers, importers and brand owners – have the same targets to meet. What should that mean for the market for trading certificates? This may have been resolved already in the many notes issued by the CPCB, but the CPCB Guidance suggests this is a risk.³³¹
4. It is interesting to have trading in certificates for end-of-life management. The rationale might be seen in terms of inadequate end-of-life management of waste more generally, but requiring all unrecycled waste to be covered by end-of-life certificates seems to require either separation of plastic waste for use in roads, or in plasma pyrolysis, or in co-incineration, or in waste to energy, or that – if there is a large amount of plastic in ‘mixed’ unrecycled waste - there would need to be capacity for all mixed waste at these facilities. The last of these seems unlikely. Furthermore, if the recycling targets are to be met, then the amount sent to these facilities would be declining significantly over time. In short, it is unclear what thought was given to the strategic context for a declining amount of plastic waste requiring end-of-life treatment. Furthermore, it would seem unlikely that a waste to energy facility (let alone, a cement kiln), for example, would be constructed based on the commercial prospect of revenue from end-of-life plastic credits: so, the question might be asked as to what this revenue stream actually supports. It likely offers an additional revenue stream to co-processors (cement kilns) and road construction projects, but in both cases, the commercial case for using alternative fuels / alternative materials might exist irrespective of credits (irrespective of its environmental impact). It would be worth considering, therefore, whether this approach offers the best means to support the development of infrastructure for managing waste, given that many States in India are barely treating any waste (see Figure 33).³³²

³³⁰ The first year in which the recycled content targets must be met is 2025/26. The CPCB Guidance on use of the EPR Portal has a section on auditing, which includes, for recycled content, suggests the following: ‘Check for requisite labelling on the product. Testing of a random sample of packaging material with recycled plastic content’ (see CPCB (2023) Guidance Document for Centralised EPR Portal for Plastic Packaging, February 2023). It is not clear what this test will be (or if one exists).

³³¹ Ibid.

³³² Note that the exact meaning of the graphic is unclear as the report from which it is drawn is not explicit what the percentage treated refers to.

Figure 34: Solid Waste Treated in Indian States, 2020-21



Source: CPCB (u.d.) Annual Report 2020-21 on Implementation of Solid Waste Management Rules, 2016.

An alternative approach would have been to levy a fee – a cess – on the quantity of waste which is unrecycled, and use this to support the development of appropriate treatment infrastructure. That having been said, the MSWM Rules suggest that this might be overly focused on thermal treatment, with questionable outcomes in terms of climate change.

5. We noted above the CPCB's Guidelines on end-of-life management of plastic waste, and that they seemed overly focused on thermal processes, along with the encouragement given to use plastics in road construction. Our concern is that the emphasis on thermal processing will create significant GHG emissions from plastic waste, though if the recycling targets are met (see above), this problem might be somewhat reduced by 2027/28 (although we also have no clear view as to the proportion of the market for plastic packaging that is accounted for by obligated entities). Note that the same issue arises with regard to the SWM Rules of 2016.

These are issues that relate, in the main, to the scheme as it currently stands. These changes, though, would not alter the fundamentals of the system

9.3.2 Other More Fundamental System Changes Proposed

As per Section 5.2.1, therefore, we would suggest the following changes:

1. India, like the Philippines, has EPR in place for plastic packaging but not packaging made from other materials: it is strange, given the responsibilities of LGUs, that the scheme does not cover all packaging materials, as opposed to 'only' plastics. This

has the potential to introduce inefficiencies to the system for collection and sorting of packaging. If the system does not influence what LGUs do as regards collection, then how is it contributing to the development of a holistic waste management system in India? If it does influence what LGUs do vis a vis collection, then to what extent will such influence affect plastics only? What, in those circumstances, would be the implications for what LGUs do vis a vis other packaging materials, for example, or indeed, non-packaging plastics, not to mention the unrecycled waste?

2. Remove, as the basis for PIBOs' demonstrating compliance with recycling targets, the avenue of securing compliance credits. Replace the scheme with a single nation-wide entity (which may or may not be producer led) that takes in fees from producers based on the quantities that they place on the market, and uses this to a) reimburse local bodies and gram panchayats so that the costs of them discharging their roles in collection, first stage sorting and clean-up of littered packages are fully covered where they are carried out efficiently; b) funds the requisite further sorting and reprocessing infrastructure necessary to manage the waste which are collected;
3. Remove the requirement to surrender 'end-of-life' certificates in favour of requiring producers to fund the management on the unrecycled share of what they place on the market. Revenue from producer fees would be used to cover the relevant share of costs born by local bodies, these costs set at a level designed to cover the costs of well-managed facilities for dealing with such wastes;
4. If the tradable certificate approach is to be maintained for plastic packaging, then there might be consideration given to how the scheme can be developed as a transparent credit trading platform. The current system is not so transparent in the pricing of credits (though targets for recycled content are not yet applicable). This would require very careful auditing and traceability of the fate of post-consumer recycled material, and clear specification of the point at which credits for the use of recycled content are generated (what is the activity to which the credit should apply, and what conditions should be met in order for the credit to be generated? How will imported packaging be assessed / audited for the purpose of the scheme?). It is unclear how much progress has been, or is being, made in this regard. We highlighted above that the heterogeneity of costs is, generally, a positive feature of trading schemes, and hence, that segmenting the market for trading certificates might not be necessary;
5. If a more holistic and efficient approach to managing waste is to be implemented, then it is likely to make sense to have LGUs clearly responsible for collecting waste, to make sure that collection services meet a minimum standard, and to require producers to fund their 'relevant share' of the costs of the efficient delivery of that service. This ought to bolster the waste management budgets of LGUs, many of whom are clearly struggling to implement what the MSWM Rules require of them, both as regards collection and treatment. For example, the annual MSW report notes:³³³

Only three states- Nagaland, Arunachal Pradesh & Himachal Pradesh have provided ULB wise information. Remaining States/UTs have provided consolidated information. As per the information provided 14 States /UTs (Andhra Pradesh, Chhattisgarh, Goa, Delhi, Chandigarh, A&N, J&K, Jharkhand, Maharashtra, Karnataka, Rajasthan, Sikkim, Telangana, Uttarakhand) practise 100% collection of Solid Waste [note there are 28 states and 8 Union Territories in

³³³ CPCB (u.d.) Annual Report 2020-21 on Implementation of Solid Waste Management Rules, 2016.

India]. *Only 2 States/UTs (Chhattisgarh & A&N) practise 100% segregation of waste.*

It also notes that:

- 1924 sites for landfill have been identified, 305 have been constructed, 126 are under construction, 341 are in operation, 17 are 'exhausted' and 11 have been capped
- there are 3,184 dumpsites in the country

It should be recalled that the Municipal Solid Wastes (Management and Handling) Rules, 2000 laid down that all of this should have been sorted by the end of 2003: the schedule for action to be taken was a hopelessly unrealistic one, but to be twenty years or so late in implementation ought to be of concern. The 2016 version of the Rules set similarly short timelines, so that (for example) door to door collection should have been implemented everywhere by 2018. No sanctions were provided for in the Rules: all that appears to happen is that annual reports review the progress made, with rather weak recommendations made as to how these might be rectified.

In rural areas, the Swachh Bharat Mission (SBM) set out Guidelines on Plastic Waste Management in 2021.³³⁴ It identified potential sources of funding for this, including the grants to local bodies made by the 15th Finance Commission for 2021-26, and support from the SBM itself. In principle, if this Guidance was expanded to cover all packaging, the financial assistance envisaged as coming from the SBM and the 15th FC grants ought to be covered by producers;

6. The MSWM Rules are quite clear that urban local bodies have responsibility for waste collection and management. The PWM Rules of 2016 also make clear that this is a responsibility of local bodies and gram panchayats. Yet Schedule II of the PWM Rules (the EPR Guidelines) muddles the picture by introducing, at Rule 14, all sorts of possibilities for PIBOs to become providers of collection services in various capacities (in other words, they might do things which local bodies and gram panchayats have already been tasked with doing). We would suggest that amongst other things, the MSWM Rules and PWM Rules make clear who does what, and who has to fund what. The PWM Rules (and Schedule II) should be consistent, and make absolutely clear (and they should cross reference the MSWM Rules / SBM Guidelines as relevant) what it is that local government (and gram panchayats) will be responsible for in operational terms, and what it is that producers are expected to take responsibility for. We would suggest that, amongst other things, as regards local bodies:
 - i. Make it clear that local bodies and gram panchayats (and the villages and blocks) will take responsibility for the implementation, either themselves, or through others acting on its behalf, for waste collection from households;
 - ii. Specify a minimum service standard for collection in terms of the experience of the household (how many separate streams, how frequently collected, etc.). The service standard should be designed with the potential clearly in mind for delivering high levels of recycling of both dry recyclables (including plastics) and organic (mainly food) waste. The service standard should recognise the greater potential of food wastes to give rise to vector-borne diseases and other (odour) complaints, specifying collection frequencies accordingly.

³³⁴ Swachh Bharat Mission (2021) Manual: Plastic Waste Management, July 2021.

Part of the role of the standard is to prevent local governments from implementing systems of obviously low quality (and doing ‘the wrong thing’). The costs of delivering the dry recyclables collection service should be clearly assigned to producers in the PWM Rules, so that (not just plastic) packaging producers would pay for the proportion of the service costs linked to packaging (see below). As noted above, this would enable the financial assistance envisaged as coming from the SBM and the 15th FC grants, as a means to support plastic waste management in rural areas, to be covered by producers;

- iii. Require local government entities with responsibility for waste collection to deliver collected (and preliminarily sorted) wastes to designated transfer points;
- iv. Make the management of dry recyclables, following the collection of the materials and their delivery to transfer points, the responsibility of a single entity representing producers. Producers would cover these costs fully, and would take responsibility for sorting the collected wastes, and for selling the sorted materials, revenue from which would offset some of their costs. In this regard, the smaller the number of entities which are ‘competing’ for control of the same wastes, the better: too often, this is viewed through the lens of competition (multiple producers, or entities acting on their behalf) facilitating delivery of value for money. The discipline of the market, though, is likely to be best utilised by tendering out operations such as sorting and reprocessing to the market. Competition for control of the materials tends to undermine longer-term investment by introducing uncertainty in the ability of any entity to guarantee supply of feedstock beyond the short-term.
- v. Specify a standard for the cleanliness of public spaces, likely varying by type of location. Such a standard could be ‘output-based’, or ‘input-based’ (or both – note this could be linked to the work being undertaken by the Swachh Bharat). The responsibility for delivering against the standard would rest with the relevant tier of local government. The costs of doing so in an efficient manner would be recovered from producers in proportion to their contribution to the problem of littering, and the effect on costs. Note that producer fees should also cover the cost of the studies necessary to determine the composition of littered waste;
- vi. The MSWM Rules make clear how the funding is expected to be generated for those functions undertaken by the different tiers of local government which are not funded by producers. This will include:³³⁵
 - a) Collection of biowaste;
 - b) Processing of biowaste;
 - c) Collection of that part of ‘leftover waste’ the costs of which cannot be recovered from producers;
 - d) Treatment of the part of residual waste the costs of which cannot be recovered from producers; and
 - e) Costs of clean-up which are unrelated to an identifiable group of producers.

Retribution fees ought to support (a), (b) and (d). As regards (b), this is an area suitable for support from central or regional government funding, as well as donor

³³⁵ Note that the SBM also outlined how separate collection and management of biodegradable waste might be financed in rural areas, mainly through 15th FC grants, SBM funding and the Mahatma Gandhi National Rural Employment Guarantee Scheme, as well as ‘exploring user fee collection through Gram Sabha if applicable’ (which some gram panchayat are clearly levying at suitably low rates) (Swachh Bharat Mission (2021) Manual: Biodegradable Waste Management, July 2021). Whether this is adequate, or whether sufficient funds are available without fees becoming unaffordable, is not clear to us.

support, although that support could come in the form of capital: the residual operational costs could be funded from retribution fees. As regards (d), there are good reasons why this should not be the target of any explicit or implicit subsidy (making disposal cheap has the effect of undermining the financial logic of seeking to implement a system more conducive to a circular economy). Hence, if delivered through PPP approaches, 'gate fees' payable to operators ought to be funded through retribution fees also (and central government should not offer implicit subsidies in the form of elevated feed-in tariffs for e.g. energy from waste facilities);

7. The EPR Guidelines should also make absolutely clear (and it should cross reference the MSWM Rules / SBM Guidelines as relevant) what it is that producers will be responsible for in operational terms, and what it is that producers are expected to take responsibility for. It should, amongst other things:
 - i. Require all producers to register under the scheme supplying data on the quantity of packaging they place on the market, as seems to be happening in the case of the CPCB portal. The rules for doing so should be clear as to whether the figures are to include or exclude labels, closures etc.,
 - ii. Ensure regular and random auditing of figures reported by producers;
 - iii. Establish suitably large penalties for fraudulent reporting of data by producers;
 - iv. Provide for the establishment of a single non-profit entity which is intended to fulfil (at least) two principal functions:
 - a. coordinate the collection of funds from producers in relation to:
 - i. their obligations to cover costs borne by others, and
 - ii. their share (to be determined by the entity itself) of the costs of activities for which producers have direct responsibility;
 - b. coordinate the efficient delivery of functions for which producers are directly responsible, such as collection from transfer points, development and operation of well-adapted sorting infrastructure, and marketing / sale / use of materials sorted for recycling;

This role is sometimes played by an organisation described as a 'producer responsibility organisation'. The exact nature and form of the entity, though, might be considered secondary to its ability to perform the above roles in an efficient manner, and to ensure that funds from producers are utilised efficiently, and only for the purposes intended;

8. Establish the methodology to be used to identify the costs incurred by others (local bodies / gram panchayats) which producers will be expected to cover. Consistent with seeking to reduce the requirement to set retribution fees at much higher levels, and consistent with principles of fairness (those responsible for generating most waste pay more), these should include the greatest possible share of the following:
 - a. The costs of collecting packaging (see above as regards waste law / financing of waste management);
 - b. The costs of clean-up insofar as they are apportioned to packaging;
 - c. The costs of treating the packaging waste which was not separated for recycling. Note that this should provide for the possibility of producers paying for the sorting of leftover mixed waste (the waste not separated for recycling) so as to enhance recycling performance, reduce the amount being sent for subsequent treatment, and reduce the potential emissions of fossil-derived CO₂ in cases where the residual waste might be treated through combustion;

- d. The costs of undertaking periodic studies regarding the composition of leftover mixed waste (that is sent for treatment / disposal) and the composition of littered waste (as the basis for splitting out costs across producers);
- e. From the central administrator's perspective:
 - i. The costs of acquiring and checking over the relevant data required for performance auditing (from local government, operators of sorting facilities, operators of reprocessing facilities);
 - ii. The costs of auditing (within reason) data submitted by specific producers regarding the packaging they place on the market;
 - iii. Other costs of overseeing compliance;
- 9. Provide for the development of a methodology to apportion costs of efficient collection / litter clean up to specific packaging fractions;
- 10. Set targets which are consistent with the service standard for collection services that is established in waste law (it makes no sense to have a target which is impossible to meet because the collection services are too poor). These should include targets for recycling of different materials, and for plastics, a further breakdown seems sensible.
- 11. Ensure the methodology for measuring 'recycling' is clear, and neither rewards contamination, nor unduly penalises higher impact recycling where the secondary material replaces an equivalent amount of primary material;
- 12. Require 'end-to-end' reporting from the producer entity of input and output (mass balance) data from the collection of waste at transfer stations through to reprocessing of materials (recycling) and treatment / disposal of non-target materials.
- 13. Ensure that the approach to collection, sorting and reprocessing facilitates integration – and forbids the exclusion (for example, in tender processes) – of informal sector actors.
- 14. There are multiple entities with varying responsibilities identified in the MSWM Rules 2016. Implementation of the Rules is the responsibility of each of the following:
 - a. Central Monitoring Committee of the Ministry of Environment, Forest and Climate Change (*'monitor and review the implementation of these rules'* – there is no indication as to what might happen if they are not implemented);
 - b. The Ministry of Urban Development, in coordination (?) with State Governments and Union territory Administrations (*'take periodic review of the measures taken by the states and local bodies for improving solid waste management practices and execution of solid waste management projects funded by the Ministry and external agencies at least once in a year and give advice on taking corrective measures'*);
 - c. Secretary-in-charge, Urban Development in the States and Union territories (*'ensure implementation of provisions of these rules by all local authorities'* – the Secretary in charge has powers to direct town planning departments to undertake actions, but not much else);
 - d. District Magistrate or District Collector or Deputy Commissioner (*'review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development'*);
 - e. Secretary-in-charge of Village Panchayats or Rural Development Department in the State and Union territory (responsibilities as for the previous, *'for the areas which are covered under these rules and are under their jurisdictions'*);

- f. Central Pollution Control Board (*'coordinate with the State Pollution Control Boards and the Pollution Control Committees for implementation of these rules and adherence to the prescribed standards by local authorities'; 'monitor through State Pollution Control Boards or Pollution Control Committees the implementation of these rules by local bodies'; and 'prepare an annual report on implementation of these rules on the basis of reports received from State Pollution Control Boards and Committees and submit to the Ministry of Environment, Forest and Climate Change and the report shall also be put in public domain'*).
- g. State Pollution Control Board or Pollution Control Committee (*'enforce these rules in their State through local bodies in their respective jurisdiction and review implementation of these rules at least twice a year in close coordination with concerned Directorate of Municipal Administration or Secretary-in-charge of State Urban Development Department'* – this begs the question as to what that enforcement power looks like, not least since it seems not to be especially effective in practice).

There appears to be no shortage of bodies with a duty to monitor (it might be a separate matter as to how well that duty is being discharged), but there seems to be virtually nothing that would compel local bodies to implement the Rules. (It would also be useful to define 'local authority' if it has a meaning distinct from 'local bodies', which is defined in the Rules.) There is a need for the implementation plan to cascade down to the operational side, rather than simply to regulatory functions, and the 'plan writing' functions. That necessitates a need for a clear pathway for financing of waste management services provided by local bodies, unfortunately, the MSWM Rules are not clear on this (the PWM Rules and EPR Guidelines do nothing to make that way clear: on the contrary, they introduce confusion);

These suggested changes should not be considered as providing the entirety of what might be in revised legislation. Our concern is that the existing system will be open to fraudulent generation of certificates, and declaration of quantities placed on the market.

9.3.3 Sachets

Even if all the above things are done, and even if they were implemented successfully, would they address the problem of sachets? What might be the expected outcome? It is worth reflecting that, in India, the situation in the initial PWM Rules was one where sachets seemed set to be banned. This clearly reflected appreciation that these items were problematic, but the problematic nature of these items seems to have been turned on its head following consultation, as we noted above.

Under the existing system, the extent to which small format sachets will be affected by the scheme depends in part on the proportion of packaging in Categories II and III which is accounted for by small format sachets produced / used by obligated producers. Categories II and III face targets for recycling and for recycled content (and for end-of-life disposal) but they cover all non-rigid plastic packaging that is not '*plastic sheet or like used for packaging as well as carry bags made of compostable plastic*' (category IV). This covers a range of packages and pouches, of which the small format packages produced / imported / sold by obligated entities may be only a fraction. It seems likely that those seeking to achieve least cost compliance might first target the larger format packages, and also, reflecting the recycled content targets, there might be some inclination to focus more on non-food items.

To the extent that, at higher target levels, there is a need to collect and recycle sachets, then there might be some tendency to shift to 'easier to recycle' formats, so the PET / polyolefin (PE/PP) combinations might be rendered less common. This, though, also depends on the proportion – by weight – of the flexible primary packaging accounted for by sachets, and the relative ease with which the other flexible packages could be recycled.

Those that continued to be littered might be more likely to be picked up as litter (the clean-up being paid for by producers in some cases). The nature of their consumption, though, might make them prominent in littered items in those cases where they are consumed on the go (e.g. snack packages) or in quick-service food stalls / street stalls outdoor cafes, etc., or where they are used for washing in rivers / the sea (e.g., shampoos).

How, then, might additional progress be made? We explore some options below.

9.3.3.1 Fee Modulation

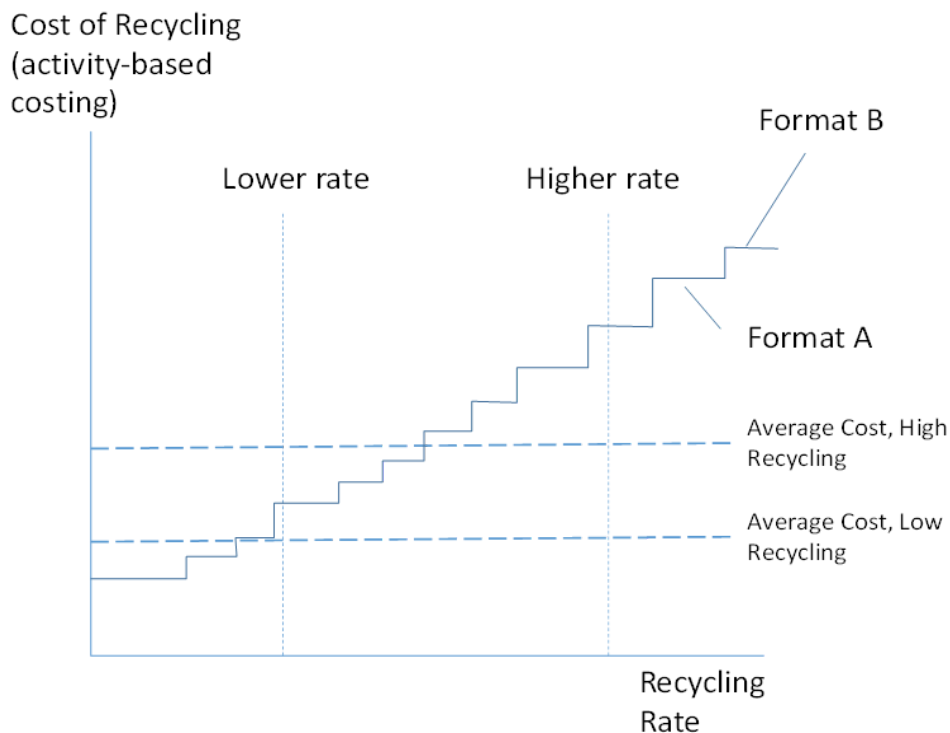
Most EPR policy is relatively weak in influencing choices regarding the use of packaging. There are some simple reasons for this: what producers have been required to pay has been small in comparison with the costs of switching between packaging formats / types.

In seeking to meet a given recycling rate, it generally makes sense to target formats and circumstances where the costs are lowest. At low recycling rates, though strictly speaking, this depends upon the shape of the cost curve, it might be supposed that average costs are not so different from the costs of recycling each packaging format which is recycled at that low level. As the required recycling performance increases, then other things being equal, there is a need for new packaging formats to be recycled, and unless the cost curve is relatively flat (and empirical evidence suggests it is not), then the average costs of recycling increase, and the gap between the costs of recycling formats with the lowest cost and those with the highest cost increases. If fees are simply levied at 'the average rate', then all formats pay the same amount irrespective of the costs to recycle their packaging.

This raises the question of fairness. One basic principle of the modulation of fees, therefore, is that it should be fair, levying higher fees (at least when expressed on a per tonne basis) on those formats which cost more to recycle. Indeed, there is some intuitive appeal to leaving it at that: the fees which should be levied upon each packaging format should reflect the costs it imposes on the recycling system. These would be determined through activity-based costing, designed to link the nature of formats to the actual costs incurred by the system.

The stumbling block which this approach faces, however, is that there are some formats which, at a given recycling rate, might not be being recycled at all. Formats A and B in Figure 31 do not need to be recycled in order for the higher recycling target to be met. Although the cost curve depicts a known cost of recycling for each format, in practice, if formats are not recycled, or recycled only to a limited extent, the costs of recycling them might not be known with any certainty. This applies, more obviously, to materials which are deemed to be – for technical reasons – unrecyclable by any known commercially available technology.

Figure 35: Cost Curve for Recycling Different Packaging Formats



In parts of India, the less recyclable formats might never be collected, and even where they are, they might be unlikely to be recycled: they may end up in unmanaged dumps. In these circumstances, the costs which these items visit on the waste management system might be low: indeed, items which are discarded directly into rivers and seas impose no financial costs on the waste management system at all (the costs are environmental ones).

The response to this problem in the EU – where most packages are collected, and where the costs of landfilling / incineration are typically relatively high - has been to introduce fee modulation for different packaging types. The principle is that if ‘less recyclable’ packages are assigned higher fees under EPR, the producers will switch to packages that are easier to recycle. The fees that would otherwise be raised only to cover costs are modulated in line with some measure of, or scale of, recyclability. On the other hand, because, in the EU, EPR fees are increasingly required to cover a defined set of costs, then increasing fees for some formats would lead to the level of revenue exceeding cost recovery levels. Modulation under EPR ought to respect the principle of cost recovery (and not become a revenue generating enterprise)

This issue can be managed by making the ‘modulating element’ revenue neutral overall. If ‘packaging format-specific’ recycling rates are known, for example, then a modulating element can be applied so that formats with recycling rates below the average recycling rate pay higher fees, and those with recycling rates above the average pay lower fees, with the revenues paid by those below the average compensating for the lower fees paid by those with above average performance. This approach can allow for more extreme forms of modulation to be applied: the incentive to switch packaging formats will be

higher if the penalty for falling below the weighted average recycling rate is increased, but the revenue-neutral principle is still respected.

This would help overcome an issue which is especially obvious where sachets are considered: that fees are not modulated sufficiently to motivate switches away from some less recyclable formats. Sachets may weigh of the order 1g in small format. The packages may cost the order US\$0.01 per unit. If the cost of an alternative material is greater by, for example, US\$0.005 per unit, that additional cost per unit translates into an additional cost of US\$ 5,000 per tonne of the material currently used. Even in EU countries with full cost recovery for recycling plastic packaging, costs to producers are of the order US\$800 per tonne, roughly one sixth the cost of our theoretical packaging switch. The extent of fee modulation in EU countries still tends to be relatively modest, so that including these rarely sends modulated EPR-related fees above US\$1,000 in total.

Whilst there could – under the revised system described above - be a system of modulation of fees in India that deliberately seeks to shift use of packaging formats away from small format sachets, it might be of greater interest to target small format sachets specifically through measures distinct from EPR (see below). Under the current EPR system, it would seem unlikely that there could be a system of modulation implemented. There may be higher acquisition costs / traded values for credits for small format packages, whether in respect of recycling, or for recycled content, but this remains to be seen, and might also depend on the scope of packaging included under, for example, Category III, or the range of activities that qualify as ‘recycling’, not to mention, how well audited are the credit generating entities.

9.3.3.2 Design for Recycling Criteria

We noted repeatedly in Section 4.0 that some formats of sachet used for some applications were less easy to recycle than others. We referenced design for recycling (DfR) guidance given by Ceflex at the EU level. These seek to improve recyclability of flexible packaging. These DfR principles can help to shape the market, and could be used as a basis for fee modulation (see above), but they will not necessarily prevent littering of sachets where they are used in circumstances where collection services are inadequate or not present. Design for recycling is effectively useless if materials are not collected in the first place.

9.3.3.3 Deposit and Refund Scheme

To the extent that an important objective may be to ensure that sachets are not discarded where they should not be, the principle of a deposit refund system is attractive. Deposit and refund schemes (DRSs) are being implemented in a growing number of jurisdictions, usually applied to beverage containers, and with the scope of beverages (and packaging materials) covered varying across jurisdictions. Their relevance is recognised in Rule 10.5 of Schedule II of the PWM Rules:³³⁶

In order to develop a separate waste stream for collection of plastic packaging waste for directly fulfilling Extended Producer Responsibility obligations, the Producers, Importers & Brand-Owners may operate schemes such as deposit refund system or buy back or any other model. This will prevent mixing of plastic packaging waste with solid waste

³³⁶ PWM Rules, Fourth Amendment, 2022.

The principle – that consumers purchase a product in a sachet that bears a deposit, and that the deposit is refunded when the package is returned - is particularly useful in a context where one is seeking to ensure that products are returned to specific locations, and are not mismanaged. The scope of application of DRSs, therefore, is being considered more widely, notably for plastic products. The UK Department for the Environment entertained the design of a scheme for plastic packaging where a deposit would have been introduced for all plastic packaging. The main obstacles to introducing such a scheme related to the pre-existing infrastructure and institutional architecture. Nonetheless, the application of such schemes may be appropriate beyond beverages, and especially in situations where collection systems are poorly developed. The State of Goa has recently passed a law which may also have a relatively broad scope.³³⁷ Some countries are applying the approach to single use cups, for example. Applications in respect of small WEEE items have been considered, and a trade body has considered their application to e-cigarettes.

In principle, there is no reason why a DRS should not be applied to small format sachets. There are some obstacles which would need to be overcome, not least in relation to ensuring there are no fraudulent claims for refunds. This is typically achieved in a beverage container DRS through appropriate use of labels / barcodes on packages included in the scope of the scheme, indicating that a deposit is due / has been paid: these barcodes can then enable retailers to understand which containers should attract a refund. Some small format packages might only be barcoded on secondary packaging if they are being purchased in bulk for resale. Equally, in quick service food outlets, they might be made available free of charge, so that unless there was suitable labelling, there would be no obvious incentive to take-back. These issues are likely to be surmountable with sufficient consideration of appropriate strategies for labelling and '*scanning sachets back in*' to avoid a situation where a refund is claimed more than once on a given package.

9.3.3.4 Selective Phase-outs

Following on from the above, it might be useful to consider phasing out the use of specific types of sachets in contexts where doing so is unnecessary. Using condiment sachets in cafes / restaurants may be a good example. The Vietnamese Decree of 2022 mentions banning sale of some items in malls and other locations by 2025: it might have been appropriate to consider some products packaged in sachets, seeking to encourage use of refillable containers, or readily recyclable large format containers. Such approaches are appropriate where the measure can be (and will be) meaningfully enforced.

9.3.3.5 Levies on Items in Specific Package Types

Bans might be considered, from one perspective, to have the effect of a levy set at an infinite level. In many instances, bans will not be appropriate, especially where some uses of the item have particularly high value. In these instances, a levy on sachets might lead to a reduction in their use, and a switch to alternatives (a demand effect, and a substitution effect, respectively). The strength of these two effects depends on:

- 1) The level of the levy applied; and
- 3) The availability of substitutes and their relative cost.

³³⁷ Government of Goa (2024) Deposit Refund Scheme, LS-MISC/1915/96/Part-V/1808, 6th March 2024.

The higher the levy, the more demand will decline: the remaining users of sachets can be expected to be those who derive particularly high value from their use. In principle, this allows those wishing to continue using sachets to do so, but at a higher cost.

Given the discussion in Section 3.0 regarding the use of 'nature degradable' alternatives, there is a question to be asked as to whether a levy should be applied to all sachets, including those that might be defined as 'nature degradable', so as to encourage a reduction in small format flexibles of any type. An alternative would be to apply lower levy rates to such products, but still maintain an incentive to use, for example, refillable alternatives.

Where levies are concerned, the mechanism for revenue collection needs to be considered. Where indirect taxes such as VAT, are already applied, in principle, the application of what are in essence excise taxes could be straightforward. The appropriate lead-in times should be considered carefully, as well as the appropriate evolution in the levy rates to be applied (if no clear evolution is foreseen, levies should be set with built-in escalators, in line with a suitable price index, to ensure that their incentive effect is not eroded by inflation).

Revenue from Levies

A positive feature of levies is that they can generate revenue. The scale of use of sachets at present suggests that revenue generation from the application of levies to sachets could be significant, at least initially, with potential for it to fall over time as markets respond to the levy (depending on its rate).

Revenue from levies could be used to support the development of waste management services at the municipal level, further easing the pressure – if only for a period of a few years – on cost recovery through user fees. Otherwise, funds could be 'earmarked' for environmental causes – both to back up the positive change the levy will encourage, and to provide a clear message to consumers about the purpose of the levy.

An alternative use of revenue could be as a source of grant funding to which local authorities or community groups can apply for funding of projects which target waste minimisation and encourage reuse. A similar approach has been used in the Norwegian retailers fund through their voluntary plastic bag levy, and in the Ireland environmental fund (see case studies box).

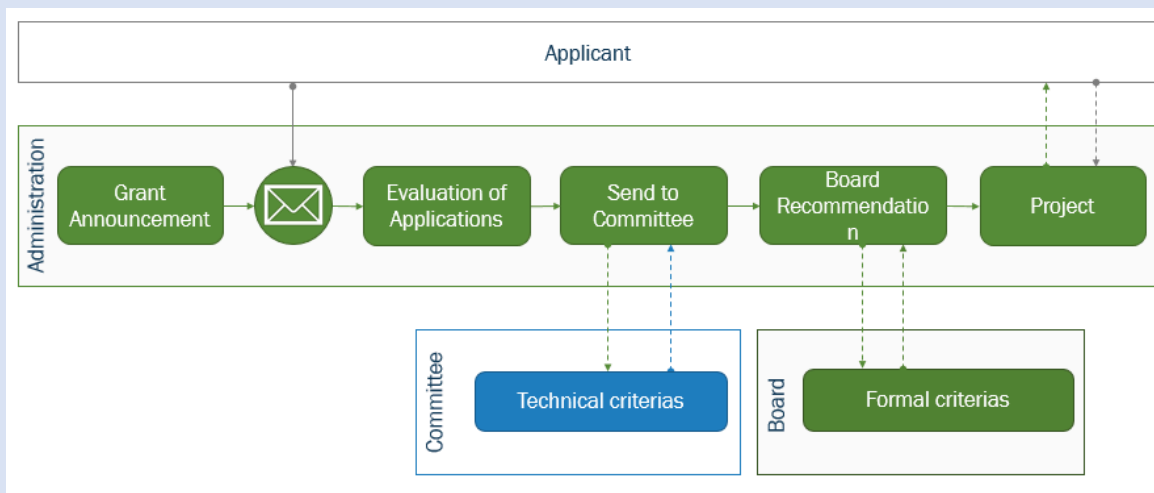
It is important that retailers should not influence what happens with revenue raised from levies, and neither should revenue be used to fund a significant, ongoing requirement. Funding an ongoing requirement has the potential to introduce a conflict of interest where the revenue generated from consumption is relied upon, but where environmentally, the best thing is to reduce consumption. As such, as the aim of the levy is to reduce consumption, investment should be understood as time-limited (i.e., not be used to provide an ongoing service) as the goal of reducing consumption if successful, should result in diminishing revenue as time goes on.

Case Studies – Use of Revenue from Levies

Norway Plastic Bag Levy

The Norwegian retailers Environmental Fund is a monetary fund in Norway, based on a voluntary commitment from retailers and retailers' organisations generating revenue from plastic bag sales. Plastic bag sales are charged at 5 Euro cents per bag, summing to around 45 million euros per year across Norway. The funds which are generated are earmarked for environmental purposes and may be used to: (1) support projects that reduce the consumption of plastic bags, (2) support projects that reduce both land and marine based littering- both national and international, and (3) support projects that lead to increased resource efficiency such as plastic recycling projects. An expert committee, independent of the retailers, evaluates the proposals for projects with a different committee for projects supporting each of the three outlined aims. Their decision-making process is shown in Figure 4-1. As such, this allows that the retailers' interests are not the prime determinants of the allocation of funds.

Figure 9-5 – Summary Diagram of Project Application and Approval Process³³⁸



Ireland Environmental Fund

Ireland introduced a plastic bag levy in March 2002. Initially, the levy was set at €0.15 per plastic bag, with exemptions for smaller plastic bags that meet specific conditions and were used to store non-packaged goods such as dairy products, fruit and vegetables, nuts, confectionery, hot or cold cooked food and ice. The levy is passed directly to consumers at the point of sale.

³³⁸ Oland, E (2017) Closing the Loop: Norwegian Retailers Environmental Fund

It has been reported that this policy has been very effective and has ‘proved so popular with the Irish public that it would be politically damaging to remove it’.³³⁹ The levy was implemented to ‘change consumers’ behaviour to reduce the presence of plastic bags in the rural landscape, and to increase public awareness of littering’. Revenues from the levy are paid into an Environmental Fund which is administered by the Department of Environment and Climate Change. The fund is used to cover administrative costs (3% of total revenues) and support a wide range of environmental programmes. The costs of implementation are reported to be very low because bookkeeping and reporting has been integrated with VAT returns.

9.3.3.6 Phase-outs / Bans

A ban on items is proposed where the items concerned are largely unnecessary, and where their negative impact is disproportionate to any benefits associated with their use (given the availability of alternatives). Sachets might, therefore, be considered candidates for phase-outs / bans.

For some of these items, nature-degradable, or non-plastic alternatives, although they could have lower impact when littered, might still be used in a wasteful manner and inappropriately discarded. It might be appropriate to implement a levy on the non-plastic and nature-degradable alternatives. The aim of this would be to reduce demand for sachets of any type, and encourage greater reliance on refillable alternatives.

The use of bans ought to consider the following prior to implementation:

- The nature of the mechanism through which the ban will be enforced;
- The most appropriate phase-out period required to allow industry/retailers/users to adapt, given the available alternatives.

Some bans can be introduced with relatively short lead-in times, especially where the item is unnecessary, problematic, and where alternatives already exist. Others might require longer lead-in times, once considered in the context of the currently available alternatives.

In cases where there really are no alternatives, then it may be appropriate to support research and development activity in the short-term. In addition, in countries where enforcement capacity is limited, some levy revenue can be ear-marked for enforcement activity. In this context, it should be considered that clarity of definitions (of what is to be banned / subject to levies), enabling ease of enforcement, is also important to consider.

Any policy looking to phase-out plastic packages needs to consider the effect of simply switching from plastic formats to non-plastic formats: in some cases, such switching may worsen some other environmental impacts (for example, in relation to the climate change impacts of production, or in respect of land take – see Section 3.3.2 above).

³³⁹ Convery, F., McDonnell, S. and Ferreira, S. (2007) The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy, *Environmental and Resource Economics*, September 2007, Vol. 38, No. 1, pp. 1-11

9.3.3.7 Using Levies to Support Phase-outs / Bans

In our view, a particularly promising approach is to set phase-out dates for problematic products, including sachets, and to 'back-up' those phase-out dates with an economic signal that can be provided by levies.

In cases where no clear product alternatives exist at a given point in time, the approach may be to announce a ban which will be enforced at some future date (for example, in 5 years). In these cases, announcing at the same time a schedule for a levy which starts at low levels, and then rises more quickly as the date for the ban to take-effect approaches, may be a useful approach. The levy incentivises innovation and a shift in demand in the period leading up to the ban's implementation.

In contexts where alternatives already exist, then the time period for phase-out can be shorter (of the order 2-3 years), and the schedule for the supporting levy might simply reinforce the ban in the year prior to it taking effect.

Therefore, we could consider the following approach (see Table 12) for the items we considered in Section 3.0.

Table 14: Possible Option for Phase-out Period and Levy on Different Products

Product	Period to Phase-out	Levy
Shampoo (small format, e.g., 10ml or less)	3 years	Year 3, \$US0.01 per package
Milk (small format, e.g., 20ml or less)	3 years	Year 3, \$US0.01 per package
Instant Coffee (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Ketchup (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Crisps (all pack sizes)	7 years	Year 3, \$US0.01 per package Year 4, \$US0.015 per package Year 5, \$US0.02 per package Year 6, \$US0.03 per package Year 7, \$US0.05 per package

This approach would, we believe, help to send a clear message to producers that these products are considered problematic, and the main message of the phase-out is supported by the incentive conveyed by the levy.

9.4 Philippines

In the Philippines, the ESWMA has been in place for more than twenty years, yet the law and the associated Implementing Rules and Regulations are some distance from having been fully adhered to. This is a classic case of an implementation gap which, in waste management, often reflects the lack of adequate mechanisms for ‘cascading down’ to local levels what is written in national level policy and law. It does not matter greatly that policy and law may be relatively well intended, and drafted, with positive objectives: what matters is how that law translates into action on the ground. This implementation gap, for which there may be several reasons, was hardly helped by the fact that funding for the NSWMC was never released, and that the SWM Fund that it was envisaged that the NSWMC would administer was also never established. Whether or not that would have been the right approach to adopt, the fact that the national government simply never followed through on its promises was hardly conducive to the conveying of a message that this – waste management – was a matter that the Government was taking seriously. Policy makers quickly lose credibility when they don’t do what they say they will: that credibility can be difficult to regain.

Regarding waste collection, we noted above that the ESWMA was somewhat unclear about who had responsibility for what, and the IRRs, though making clear who had responsibility for what, assigned this responsibility in a manner that cannot be considered entirely helpful.³⁴⁰ This immediately introduces a coordination problem, as well as raising potential conflicts in the financial interests of each party, assuming they were to take financial responsibility for these different components of the collection service.³⁴¹

Another matter for which the NSWMC was given responsibility was to prepare a list of ‘non-environmentally acceptable products’, something which the lack of funds for the NSWMC have undermined.

The EPR law for plastic packaging, and the associated IRRs, came at a time when it must have been clear that funding of waste management was a major obstacle to implementing law which had been in place for (at the time they were published) twenty years. It cannot be considered anything other than a missed opportunity that the EPR law – which effectively amends the ESWMA – did not take the opportunity to both re-visit the responsibilities for collection at local government level, and also, use the EPR mechanism to help support the implementation of sustainable waste management by channelling funds from producers directly to those – the LGUs – who have failed, thus far, to do what the ESWMA tasked them with doing.

³⁴⁰ ‘Waste segregation and collection shall be conducted at the barangay level specifically for biodegradable/compostable and reusable/recyclable wastes. The collection and disposal of nonrecyclable/non-recoverable materials and special wastes shall be the responsibility of the city or municipality’ (Rule VIII, Section 2, *DENR Administrative Order No. 2001-34* (2001) Implementing Rules and Regulations of Republic Act 9003, December 20, 2001). It should be noted that this ‘clarity’ somewhat disappears later in the IRRs in Sections regarding (for example) MRFs, and composting. The term MRF is used such that it seems to include composting facilities. Furthermore, it does not appear to be consistent with what is set out in Section 17 of the Local Government Code.

³⁴¹ Why, for example, would a barangay offer a high quality, high capture service for biodegradable / compostable wastes if that increases its own costs (collection and composting of the waste), and reduces the costs incurred by the city or municipality (lower amounts of residual waste to be managed)?

In addition to this, what the obligated producers in the EPR law are responsible for is incredibly unclear, but notwithstanding the lack of clarity, also rather rudimentary. The meaning of the terms ‘recovery’, and ‘recovered material’, pass through contortions of meaning, but the net result is fairly clear: that what producers have to do is ensure anything other than *improper* disposal occurs. The targets set are for ‘*the recovery of plastic footprint*’: the definitions tend to support that this requires ‘proper disposal’ (or better) of waste. Given that the ESWMA of 2002 made it a requirement of LGUs to do this (and more), the responsibility of producers is effectively also the responsibility that already rested with LGUs. Indeed, if it transpires that obligated producers do not meet their own responsibilities, might this not be a consequence of LGUs not discharging theirs? The marginal cost – to producers – of evidencing that they have discharged their obligations is likely to be fractional.

Nor did the EPR Act give much additional impetus to the NEC’s task of ‘identifying, reviewing, and updating the list of non-environmentally acceptable products and plastic packaging material that shall be phased out’ (rather, the constraints remain as regards financing and the approach that has to be adopted in undertaking this review, as per the IRRs).

9.4.1 Suggested Changes to Existing Law

The following changes are proposed:

1. The existing EPR Guidelines would be enhanced by clarifying exactly what producers have to do. The wording of Chapter III-A is imprecise, and reads like a wish-list of ‘nice to haves’ rather than a clear direction as to what producers are required to do. As a legal text, it is too loosely phrased. Section 44-D in particular, regarding EPR mandates, speaks about the need to ‘establish or phase-in EPR programs for plastic packaging’, and it references what the Programs ‘may include’ (referring to Section 44-A which relates to a ‘National Framework’ for EPR (covering not only packaging)).
2. The approach to determining compliance (and auditing) is insufficiently rigorous. The DENR is supposed to monitor compliance with these programs: the idea that perhaps over 1,000 different programs from individual businesses would be monitored in this way seems faintly ridiculous (and unnecessarily burdensome). When Section 44-F speaks about phasing in ‘recovery programs that will achieve plastic neutrality’ and ‘offsetting their respective plastic packaging footprint’, one is entitled to ask what does ‘offsetting’ imply? And if the targets for ‘recovery of plastic product footprint’ (note the term product is used, as opposed to packaging) are already met at a national level (because recovery is defined so loosely), then does any producer really have to do anything more than what already happens? This is the key problem with the law. The EPR-IRRs further highlight that measures to achieve plastic neutrality include use of recycled content, use of refill systems, and reduction in use of plastic relative to a baseline (*‘the year before the implementation of this EPR activity or strategy’*): there is no clear indication as to how these are to be accounted for (this might be covered in audit guidance), suggesting that some manipulation of obligation might occur. Auditing recycled content is not straightforward and would be a relatively easy way in which an obligated entity could dispute the system. There is provision for ‘plastic waste diversion’ certificates, these being the principal source of evidence to be checked under the scheme:

It is the aggregated total weight of these Sworn Plastic Waste Diversion Certificates, secured during the applicable compliance period, that shall serve as among the principal bases to determine compliance with the applicable minimum plastic packaging waste diversion targets set under Section 44-F of the Act, as amended by the EPR Act of 2022, and shall be the subject of verification, validation, compliance audit, and certification by the independent third-party auditor to be engaged by the Obligated Enterprise, Collective, or the PRO in accordance with Section 44-G of the Act, as amended by the EPR Act of 2022.

These certificates can be issued, apparently, by anyone (the obligated entity makes the choice) as long as the certificates are notarized. It should be noted that the activities of reduction, refill and recycled content are not reflected in this way, but are to be 'verified' through a third party audit undertaken by someone of the obligated entity's own choosing.

3. Related to the above, when credits are being used to demonstrate compliance, they essentially acquire a value. The problem with the approach identified is that there are credits being issued for multiple different activities, not all of which are equivalent. There is no clear point at which a credit is generated, nor a specific actor / type of actors who are entitled to create credits. This has the potential to lead to fraudulent creation of credits, and credits of varying quantity: for example, should a credit be generated at the point where plastic packaging is collected for recycling, or when it is delivered to a recycler, or at the point where material is actually recycled? How should exports of materials be dealt with? Are credits for 'recycling' treated equally as a credit for proper disposal / co-incineration? Can credits be traded, and if so, what are the trading rules, and is there a register of trades established? Is the pricing of credit creation a transparent process? The process of credit creation seems rather haphazard, and lacking oversight, given that it is identified as the principal basis for determining compliance.
4. The existing definitions of terms such as 'recovery', as well as being poorly aligned with other definitions, essentially undermine the potential impact of the EPR law. The lack of differentiation, in terms of the value of the activity as regards different forms of 'plastic waste diversion', or waste prevention, or use of recycled content, means the system gives no incentive for moving waste management up the hierarchy: all activities seem to be considered equally in contributing to the offset of the plastic packaging waste footprint. The early iterations of the EU's packaging and packaging waste Directive made a similar error in setting targets both for 'recovery' (which included incineration) and recycling, with the latter being much lower for plastics, and requiring that plastic packaging be 'recoverable' (akin to ensuring that it could be combusted with the release of energy – hardly a tough challenge in the case of most plastics). Arguably, this set back the pattern in which plastic packaging was designed and used, with recyclability given limited attention. It is possible that the same happens in the Philippines since other than the most easily recyclable polymers and formats, such as PET bottles, then the remainder seems likely to be sent to sanitary landfills, or for co-processing in cement kilns.
5. The NEC's task of identifying non-environmentally acceptable products and plastic packaging for phase-out should be undertaken, and the strictures placed around this in the SWM-IRRs should be made more accommodating, and less precautionary (and difficult to meet in practice);

9.4.2 Other More Fundamental System Changes Proposed

Some measures that could be considered as more fundamental changes to the existing scheme are as set out below. They stem from a view that in the wake of the Mandanas Ruling, a clear pathway for LGUs to place funding of sustainable waste management needs to be in place: funds raised via EPR could form a central component of that pathway;

1. First of all, the Philippines has EPR in place for *plastic* packaging only: it is strange, given the responsibilities of LGUs, that the scheme does not cover all packaging materials, as opposed to 'only' plastics. This has the potential to introduce inefficiencies to the system for collection and sorting of packaging. If the system does not influence what LGUs do as regards collection, then how is it contributing to the development of a holistic waste management system in the Philippines? If it does influence what LGUs do vis a vis collection, then to what extent will such influence affect plastics only? What, in those circumstances, would be the implications for what LGUs do vis a vis other packaging materials, for example, or indeed, non-packaging plastics, not to mention the plastic packaging waste which is not separately collected? And if those currently using plastics switch to other materials, how will these be managed?
2. Establish recycling targets for all packaging materials, with recycling clearly defined as being the point at which the materials derived from waste are included in the production of new products. The targets for (not just plastic) packaging recycling (and the associated funding from producers) need to support the development of sustainable waste management aligned with the need to address the climate crisis. The current targets are likely to lead to a patchwork of plastic-focussed mechanisms to collect plastics and send them to any one of a variety of outlets, not least of which are likely to be cement kilns, but also including 'proper disposal';
3. Abandon the use of compliance certificates as the means to demonstrate compliance. A system of tradable compliance certificates offers no stable or reliable form of funding for LGUs to discharge their (amended) responsibilities (even if they are participants in such a system). The likelihood is that interest groups will become established around the mechanism, and the longer the mechanism continues, and embeds itself in the system of how plastic waste is managed, the more difficult it will become to introduce an alternative system more conducive to producers covering the costs of specified activities.³⁴²
The current scheme should be replaced with one in which a single nation-wide entity (which should probably be producer led, given that Government has a poor track record of doing what it has stated that it will) takes in fees from producers based on the quantities that they place on the market. These fees would be: a) required to reimburse local government units so that the costs of them discharging their roles in collection, first stage sorting and clean-up of littered packages are fully covered where they are carried out efficiently; and b) used to fund the requisite further sorting and reprocessing infrastructure necessary to

³⁴² Depending on the actions which are assigned to local government, and those made the responsibility of producers to arrange and fund, those functions still undertaken by local government would be covered by transfers paid from producers to local government.

manage the wastes which are collected so as to meet the relevant recycling targets;

4. The responsibilities of different levels of local government should be revisited, and consistency with the Local Government Code ensured. It appears to make little sense to split responsibility for different aspects of the waste collection service across the barangays and the municipalities. Furthermore, if it is deemed sensible to require all barangays to 'operate a MRF' (including / and a composting facility), then the nature and form of this needs to be clear so that the extent to which further sorting (not least of plastics) is likely to be necessary (to achieve recycling targets) is clear.

The removal of the compliance certificates approach should help in this regard, but the nature and form of the collaborations foreseen at 12.2.6 in the EPR-IRRs suggest a chaotic implementation, whilst 12.2.5 suggests that government is willing to step in to subsidise facilities which producers ought reasonably to be expected to fund themselves. Without a single compliance entity, however, the business case for new investment is likely to be difficult for any given entity in the existing scheme to make for the simple reason that they cannot guarantee feedstock availability over the long term.;

5. The ESWMA is clear that the local government has responsibility for waste collection and management. Yet the amending EPR Law and IRRs muddle the picture. We would suggest that, amongst other things, as regards LGUs, the ESWMA (including the amending parts related to EPR) do the following:
 - a. Make it clear that LGUs will take responsibility for the implementation, either themselves, or through others acting on their behalf, for waste collection from households. In addition, it may make sense to require some preliminary sorting at MRFs but only 'up to a point' such that the requirement for additional assorting is relatively clearly known (so that producers can arrange for its funding and implementation with minimal loss in efficiency);
 - b. Specify a minimum service standard for collection in terms of the experience of the household (how many separate streams, how frequently collected, etc.). Consistent with 2 and 3 above, the setting of meaningful recycling targets should be linked to the elaboration, and then, implementation of such a minimum standard, considered in terms of 'the household experience'. It should be convenient for households to use, be specified consistent with efficient and practical service delivery, and be capable of ensuring that the recycling targets being established can be met. The service standard should be designed with the potential clearly in mind for delivering high levels of recycling of both dry recyclables (including plastics) and organic (mainly food) waste. The service standard should recognise the greater potential of food wastes to give rise to vector-borne diseases and other (odour) complaints, specifying collection frequencies accordingly.

Part of the role of the standard is to prevent local governments from implementing systems of obviously low quality (and doing 'the wrong thing'). The costs of delivering the dry recyclables collection service should be clearly assigned to producers in the ESWMA, so that (not just plastic) packaging producers would pay for the proportion of the service costs linked to packaging (see below);

- c. Require local government entities with responsibility for waste collection to deliver collected (and preliminarily sorted) wastes to designated transfer points;
- d. Make the management of the relevant collected fractions (dependent on the service standard), following the collection of the materials and their delivery to transfer points, the responsibility of the single entity representing producers. Producers would cover these costs fully, and would take responsibility for sorting the collected wastes, and for selling the sorted materials, revenue from which would offset some of their costs. In this regard, the smaller the number of entities which are 'competing' for control of the same wastes, the better: too often, this is viewed through the lens of competition (multiple producers, or entities acting on their behalf) facilitating delivery of value for money. The discipline of the market, though, is likely to be best utilised by tendering out operations such as sorting and reprocessing to the market. Competition for control of the materials tends to undermine longer-term investment by introducing uncertainty in the ability of any entity to guarantee supply of feedstock beyond the short-term.
- e. Specify a standard for the cleanliness of public spaces, likely varying by type of location. Such a standard could be 'output-based', or 'input-based' (or both). The responsibility for delivering against the standard would rest with the relevant tier of local government. The costs of doing so in an efficient manner would be recovered from producers in proportion to their contribution to the problem of littering, and the effect on costs. Note that producer fees should also cover the cost of the studies necessary to determine the composition of littered waste;
- f. The ESWMA should make clear how the funding is expected to be generated for those functions undertaken by the different tiers of local government which are not funded by producers. This will include:
 - (a) Collection of biowaste;
 - (b) Processing of biowaste;
 - (c) Collection of that part of 'leftover waste' the costs of which cannot be recovered from producers;
 - (d) Treatment of the part of residual waste the costs of which cannot be recovered from producers; and
 - (e) Costs of clean-up which are unrelated to an identifiable group of producers.

Fees from households ought to support (a), (b) and (d). As regards (b), this is an area suitable for capital support from central or regional government (or donor) funding: the residual operational costs could be funded from retribution fees. As regards (d), there are good reasons why this should not be the target of any explicit or implicit subsidy (making disposal cheap has the effect of undermining the financial logic of seeking to implement a system more conducive to a circular economy). Hence, if delivered through PPP approaches, 'gate fees' payable to operators ought to be funded through retribution fees also (and central government should not offer implicit subsidies in the form of elevated feed-in tariffs for e.g. energy from waste facilities);

6. The Sections of the ESWMA related to EPR (and the associated IRRs) should be consistent in their perspective of what LGUs should do, and should make clear what it is that producers will be responsible for in purely financial terms (see point d. below), and what it is that producers are expected to take responsibility for on both operational and financial terms (further sorting and reprocessing). It should, amongst other things:
 - a. Require all producers to register under the scheme supplying data on the quantity of packaging they place on the market. The rules for doing so should be clear as to whether the figures are to include or exclude labels, closures etc.,
 - b. Provide for regular and random auditing of figures reported by producers;
 - c. Establish suitably large penalties for fraudulent reporting of data by producers: whilst it is noted that there are fines in Section 49 of the ESWMA, as amended, it has been commented that these are too low. It is also unclear to what extent these fines have been levied even though the level of registration is reported to be far below what the Law requires.³⁴³ It might not help that the fines appear to be for the Pollution Adjudication Board of the DENR to levy: the DENR does not appear to have been especially well resourced for its tasks vis a vis waste management. Both the body with responsibility for implementing fines, and the level and nature of the fines themselves (it is 'the enterprise' that is considered to be the target for the sanction rather than any representative thereof, which might allow for specific persons to be made subject of penalties of a custodial nature). Evidently, the non-application of fines undermines the case for adherence to the law;
 - d. Provide for the establishment of a single non-profit entity which is intended to fulfil (at least) two principal functions:
 - i. coordinate the collection of funds from producers in relation to:
 1. their obligations to cover costs borne by others, and
 2. their share (to be determined by the entity itself) of the costs of activities for which producers have direct responsibility;
 - ii. coordinate, and / or provide for, the efficient delivery of functions for which producers are directly responsible, such as collection from transfer points, development and operation of well-adapted sorting infrastructure, and marketing / sale / use of materials sorted for recycling;

³⁴³ One newspaper report noted: 'As of July [2023], only 662 of around 4,000 enterprises registered with the Department of Trade and Industry had submitted to the National Solid Waste Management Commission their programs for the proper management of their plastic wastes' (see Elyssa Lopez (2023) The Philippines is finally going after plastic producers but some companies are not cooperating, Philippine Center for Investigative Journalism, September 7, 2023). Another report noted: 'As of mid-October, however, only 745 out of around 4,000 Trade Department-registered large enterprises have submitted their EPR schemes with the country's environment and natural resources department (DENR)' (see EcoBusiness (2023) A year after EPR implementation, plastics still end up in landfills, creeks in Philippines' major islands, December 5, 2023). A presentation in April 2024 – after the first compliance year ended (at end 2023) noted that the figure for registered companies was 864 out of an estimated 2,130 obligated enterprises (see PCX (2024) A Case Study: Plastic Credits in Philippine EPR, Presentation at Fairmont Hotel, Ottawa, April 2024). In principle, at the lowest level of fines for the first offence, this could have led to revenue from fines of more than 6 billion pesos (or over US\$ 100 million).

This role is sometimes played by an organisation described as a ‘producer responsibility organisation’. The exact nature and form of the entity, though, might be considered secondary to its ability to perform the above roles in an efficient manner, and to ensure that funds from producers are utilised efficiently, and only for the purposes intended;

7. Establish the methodology to be used to identify the costs incurred by LGUs which producers will be expected to cover. Consistent with seeking to reduce the requirement to set retribution fees at much higher levels, and consistent with principles of fairness (those responsible for generating most waste pay more), these should include the greatest possible share of the following:
 - a. The costs of collecting packaging (see above as regards waste law / financing of waste management);
 - b. The costs of clean-up of litter, insofar as they are apportioned to packaging, to a desired standard, as per 5(e) above);
 - c. The costs of treating the packaging waste which was not separated for recycling. Note that this should provide for the possibility of producers paying for the sorting of leftover mixed waste (the waste not separated for recycling) so as to enhance recycling performance, reduce the amount being sent for subsequent treatment, and reduce the potential emissions of fossil-derived CO₂ in cases where the residual waste might be treated through combustion;
 - d. The costs of undertaking periodic studies regarding the composition of leftover mixed waste (that is sent for treatment / disposal) and the composition of littered waste (as the basis for splitting out costs across producers);
 - e. From the central administrator’s perspective:
 - i. The costs of acquiring and checking over the relevant data required for performance auditing (from local government, operators of sorting facilities, operators of reprocessing facilities);
 - ii. The costs of auditing (within reason) data submitted by specific producers regarding the packaging they place on the market;
 - iii. Other costs of overseeing compliance;
8. Provide for the development of a methodology to apportion costs of efficient collection / litter clean up to specific packaging fractions;
9. Ensure the methodology for measuring ‘recycling’ is clear, and neither rewards contamination, nor unduly penalises higher impact recycling where the secondary material replaces an equivalent amount of primary material;
10. Require ‘end-to-end’ reporting from the producer entity of input and output (mass balance) data from the collection of waste at transfer stations through to reprocessing of materials (recycling) and treatment / disposal of non-target materials.
11. Ensure that the approach to collection, sorting and reprocessing facilitates integration – and forbids the exclusion (for example, in tender processes) – of informal sector actors.

These suggested changes should not be considered as providing the entirety of what might be in revised legislation. Our concerns with the existing approach are:

1. That the approach to demonstrating compliance is at the same time cumbersome and unclear;

2. that enforcement is inadequate;
3. that the system is wide open to fraudulent generation of certificates in lieu of demonstrating compliance;
4. that the loose definitions of 'recovery' and 'reducing plastic packaging footprint', mitigate against significant improvement in managing plastic packaging waste (all levels of the waste hierarchy are considered equivalent);
5. that the funds in the system will not flow to LGUs, and fail to provide a stable basis for supporting sustainable waste management;
6. that 'certificates' will be obtained at marginal cost to those who need them; and
7. As a result, there is limited likelihood of significant new investment in recycling infrastructure over and above what might have occurred without EPR.

9.4.3 Sachets

Under the existing system, the extent to which small format sachets is likely to be limited. Other than in instances where obligated entities make a special request for credits that support collection of sachets, then their separate collection seems unlikely to be strongly motivated by the existing Law. Although there are separate credits that must be used to offset footprints in respect of flexibles and rigids, the category of flexibles includes packages other than small format sachets.³⁴⁴ Whether any obligated entity needs to be greatly concerned by the quantity of mismanaged small format sachets depends on the proportion of flexibles in the total waste stream accounted for by small format sachets produced / used by obligated entities. Furthermore, even if they did need to be collected, there would be no need to recycle them because of the definition of recovery: they could simply be sent to cement kilns, or even, landfilled in sanitary landfills. It seems likely that those seeking to achieve least cost compliance might first target the larger format flexible packages and plastic bags.

To the extent that the existing law is indifferent to whether such waste is recycled, or landfilled or sent for thermal treatment (either incineration, or co-incineration), then there would not be expected to be any incentive to shift to 'easier to recycle' formats, given that the cost of recycling processes would likely be non-zero.

Were the changes suggested above to be made, then producers would at least have to pay for the collection and management of littered items. Also, if recycling rates were set sufficiently high, then there might also be some impetus to shift towards more recyclable flexible packages.

9.4.3.1 Fee Modulation

Most EPR policy is relatively weak in influencing choices regarding the use of packaging. There are some simple reasons for this: what producers have been required to pay has been small in comparison with the costs of switching between packaging formats / types.

In seeking to meet a given recycling rate, it generally makes sense to target formats and circumstances where the costs are lowest. At low recycling rates, though strictly

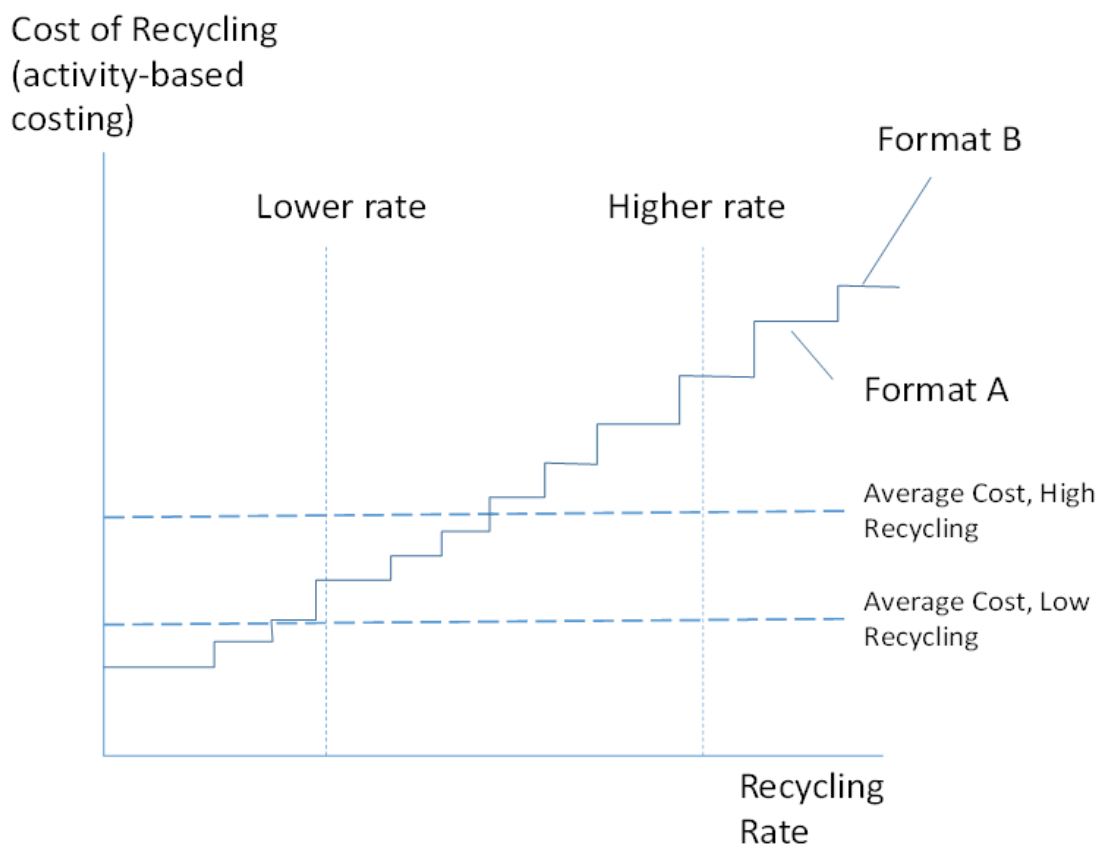
³⁴⁴ Neither the EPR Law nor the EPR-IRRs are entirely clear as to what constitutes 'rigids' and 'flexibles' since Section 44C in the Act (referenced by the EPR-IRRs) mentions four categories of packaging, including rigids, with polystyrene as a separate category: if polystyrene is not included as a 'rigid', then is it a 'flexible'? If it is a 'rigid', why does it justify a separate classification?).

speaking, this depends upon the shape of the cost curve, it might be supposed that average costs are not so different from the costs of recycling each packaging format which is recycled at that low level. As the required recycling performance increases, then other things being equal, there is a need for new packaging formats to be recycled, and unless the cost curve is relatively flat (and empirical evidence suggests it is not), then the average costs of recycling increase, and the gap between the costs of recycling formats with the lowest cost and those with the highest cost increases. If fees are simply levied at 'the average rate', then all formats pay the same amount irrespective of the costs to recycle their packaging.

This raises the question of fairness. One basic principle of the modulation of fees, therefore, is that it should be fair, levying higher fees (at least when expressed on a per tonne basis) on those formats which cost more to recycle. Indeed, there is some intuitive appeal to leaving it at that: the fees which should be levied upon each packaging format should reflect the costs it imposes on the recycling system. These would be determined through activity-based costing, designed to link the nature of formats to the actual costs incurred by the system.

The stumbling block which this approach faces, however, is that there are some formats which, at a given recycling rate, might not be being recycled at all. Formats A and B in Figure 31 do not need to be recycled in order for the higher recycling target to be met. Although the cost curve depicts a known cost of recycling for each format, in practice, if formats are not recycled, or recycled only to a limited extent, the costs of recycling them might not be known with any certainty. This applies, more obviously, to materials which are deemed to be – for technical reasons – unrecyclable by any known commercially available technology.

Figure 37: Cost Curve for Recycling Different Packaging Formats



In the Philippines, formats which are more expensive (or equivalently, less valuable) to collect are less likely to be collected, and even where they are, they are unlikely to be recycled (understood as being used to replace raw materials in manufacturing new products or packages): they may end up in unmanaged dumps, or in sanitary landfills, or in cop[rocessing facilities. In these circumstances, the costs which these items visit on the waste management system might be low: indeed, items which are discarded directly into rivers and seas impose no financial costs on the waste management system at all (the costs are environmental ones).

The response to this problem in the EU – where most packages are collected, and where the costs of landfilling / incineration are typically relatively high - has been to introduce fee modulation for different packaging types. The principle is that if ‘less recyclable’ packages are assigned higher fees under EPR, the producers will switch to packages that are easier to recycle. The fees that would otherwise be raised only to cover costs are modulated in line with some measure of, or scale of, recyclability. On the other hand, because, in the EU, EPR fees are increasingly required to cover a defined set of costs, then increasing fees for some formats would lead to the level of revenue exceeding cost recovery levels. Modulation under EPR ought to respect the principle of cost recovery (and not become a revenue generating enterprise)

This issue can be managed by making the ‘modulating element’ revenue neutral overall. If ‘packaging format-specific’ recycling rates are known, for example, then a modulating

element can be applied so that formats with recycling rates below the average recycling rate pay higher fees, and those with recycling rates above the average pay lower fees, with the revenues paid by those below the average compensating for the lower fees paid by those with above average performance. This approach can allow for more extreme forms of modulation to be applied: the incentive to switch packaging formats will be higher if the penalty for falling below the weighted average recycling rate is increased, but the revenue-neutral principle is still respected.

This would help overcome an issue which is especially obvious where sachets are considered: that fees are not modulated sufficiently to motivate switches away from some less recyclable formats. Sachets may weigh of the order 1g in small format. The packages may cost the order US\$0.01 per unit. If the cost of an alternative material is greater by, for example, US\$0.005 per unit, that additional cost per unit translates into an additional cost of US\$ 5,000 per tonne of the material currently used. Even in EU countries with full cost recovery for recycling plastic packaging, costs to producers are of the order US\$800 per tonne, roughly one sixth the cost of our theoretical packaging switch. The extent of fee modulation in EU countries still tends to be relatively modest, so that including these rarely sends modulated EPR-related fees above US\$1,000 in total.

Whilst there could – under the revised system described above - be a system of modulation of fees in the Philippines that deliberately seeks to shift use of packaging formats away from small format sachets, it might be of greater interest to target small format sachets specifically through measures distinct from EPR (see below). Under the current EPR system, it would seem unlikely that there could be a system of modulation implemented. On the contrary, obligated entities may simply seek least cost compliance by paying the marginal costs for demonstrating that the appropriate quantity of material has been collected and sent somewhere other than an unmanaged landfill / dump.

9.4.3.2 Design for Recycling Criteria

We noted repeatedly in Section 4.0 that some formats of sachet used for some applications were less easy to recycle than others. We referenced design for recycling (DfR) guidance given by Ceflex at the EU level. These seek to improve recyclability of flexible packaging. These DfR principles can help to shape the market, and could be used as a basis for fee modulation (see above), but they will not necessarily prevent littering of sachets where they are used in circumstances where collection services are inadequate or not present. Design for recycling is effectively useless if materials are not collected in the first place.

9.4.3.3 Deposit and Refund Scheme

To the extent that an important objective may be to ensure that sachets are not discarded where they should not be, the principle of a deposit refund system is attractive. Deposit and refund schemes (DRSs) are being implemented in a growing number of jurisdictions, usually applied to beverage containers, and with the scope of beverages (and packaging materials) covered varying across jurisdictions. The EPR-IRRs mention ‘buy-back’ centres, these being defined rather generally as, *‘a recycling centre that purchases or otherwise accepts recyclable materials from the public for the purpose of recycling such materials.’* This is not a deposit refund scheme per se, but could be a location where waste pickers are paid for materials delivered to the centre.

The principle – that consumers purchase a product in a sachet that bears a deposit, and that the deposit is refunded when the package is returned - is particularly useful in a

context where one is seeking to ensure that products are returned to specific locations, and are not mismanaged. The scope of application of DRSs, therefore, is being considered more widely, notably for plastic products. The UK Department for the Environment entertained the design of a scheme for plastic packaging where a deposit would have been introduced for all plastic packaging. The main obstacles to introducing such a scheme related to the pre-existing infrastructure and institutional architecture. Nonetheless, the application of such schemes may be appropriate beyond beverages, and especially in situations where collection systems are poorly developed. The State of Goa has recently passed a law which may also have a relatively broad scope.³⁴⁵ Some countries are applying the approach to single use cups, for example. Applications in respect of small WEEE items have been considered, and a trade body has considered their application to e-cigarettes.

In principle, there is no reason why a DRS should not be applied to small format sachets. There are some obstacles which would need to be overcome, not least in relation to ensuring there are no fraudulent claims for refunds. This is typically achieved in a beverage container DRS through appropriate use of labels / barcodes on packages included in the scope of the scheme, indicating that a deposit is due / has been paid: these barcodes can then enable retailers to understand which containers should attract a refund. Some small format packages might only be barcoded on secondary packaging if they are being purchased in bulk for resale. Equally, in quick service food outlets, they might be made available free of charge, so that unless there was suitable labelling, there would be no obvious incentive to take-back. These issues are likely to be surmountable with sufficient consideration of appropriate strategies for labelling and '*scanning sachets back in*' to avoid a situation where a refund is claimed more than once on a given package.

9.4.3.4 Selective Phase-outs

Following on from the above, it might be useful to consider phasing out the use of specific types of sachets in contexts where their use is unnecessary. Using condiment sachets in cafes / restaurants may be a good example. The Vietnamese Decree of 2022 mentions banning sale of some items in malls and other locations by 2025: it might have been appropriate to consider some products packaged in sachets, seeking to encourage use of refillable containers, or readily recyclable large format containers. Such approaches are appropriate where the measure can be (and will be) meaningfully enforced.

9.4.3.5 Levies on Items in Specific Package Types

Bans might be considered, from one perspective, to have the effect of a levy set at an infinite level. In many instances, bans will not be appropriate, especially where some uses of the item have particularly high value. In these instances, a levy on sachets might lead to a reduction in their use, and a switch to alternatives (a demand effect, and a substitution effect, respectively). The strength of these two effects depends on:

- 1) The level of the levy applied; and
- 4) The availability of substitutes and their relative cost.

³⁴⁵ Government of Goa (2024) Deposit Refund Scheme, LS-MISC/1915/96/Part-V/1808, 6th March 2024.

The higher the levy, the more demand will decline: the remaining users of sachets can be expected to be those who derive particularly high value from their use. In principle, this allows those wishing to continue using sachets to do so, but at a higher cost.

Given the discussion in Section 3.0 regarding the use of 'nature degradable' alternatives, there is a question to be asked as to whether a levy should be applied to all sachets, including those that might be defined as 'nature degradable', so as to encourage a reduction in small format flexibles of any type. An alternative would be to apply lower levy rates to such products, but still maintain an incentive to use, for example, refillable alternatives.

Where levies are concerned, the mechanism for revenue collection needs to be considered. Where indirect taxes such as VAT, are already applied, in principle, the application of what are in essence excise taxes could be straightforward. The appropriate lead-in times should be considered carefully, as well as the appropriate evolution in the levy rates to be applied (if no clear evolution is foreseen, levies should be set with built-in escalators, in line with a suitable price index, to ensure that their incentive effect is not eroded by inflation).

Revenue from Levies

A positive feature of levies is that they can generate revenue. The scale of use of sachets at present suggests that revenue generation from the application of levies to sachets could be significant, at least initially, with potential for it to fall over time as markets respond to the levy (depending on its rate).

Revenue from levies could be used to support the development of waste management services at the municipal level, further easing the pressure – if only for a period of a few years – on cost recovery through user fees. Otherwise, funds could be 'earmarked' for environmental causes – both to back up the positive change the levy will encourage, and to provide a clear message to consumers about the purpose of the levy.

An alternative use of revenue could be as a source of grant funding to which local authorities or community groups can apply for funding of projects which target waste minimisation and encourage reuse. A similar approach has been used in the Norwegian retailers fund through their voluntary plastic bag levy, and in the Ireland environmental fund (see case studies box).

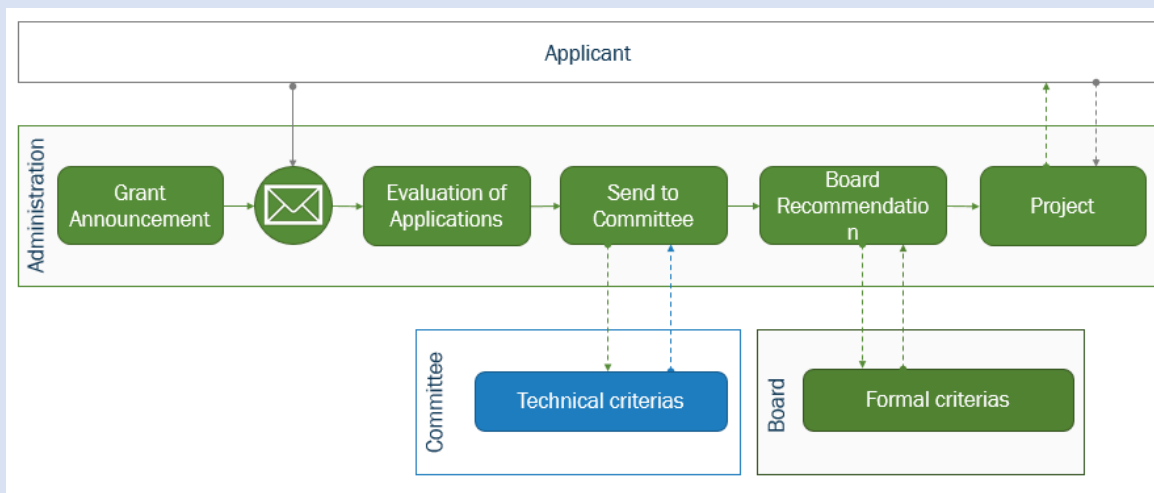
It is important that retailers should not influence what happens with revenue raised from levies, and neither should revenue be used to fund a significant, ongoing requirement. Funding an ongoing requirement has the potential to introduce a conflict of interest where the revenue generated from consumption is relied upon, but where environmentally, the best thing is to reduce consumption. As such, as the aim of the levy is to reduce consumption, investment should be understood as time-limited (i.e., not be used to provide an ongoing service) as the goal of reducing consumption if successful, should result in diminishing revenue as time goes on.

Case Studies – Use of Revenue from Levies

Norway Plastic Bag Levy

The Norwegian retailers Environmental Fund is a monetary fund in Norway, based on a voluntary commitment from retailers and retailers' organisations generating revenue from plastic bag sales. Plastic bag sales are charged at 5 Euro cents per bag, summing to around 45 million euros per year across Norway. The funds which are generated are earmarked for environmental purposes and may be used to: (1) support projects that reduce the consumption of plastic bags, (2) support projects that reduce both land and marine based littering- both national and international, and (3) support projects that lead to increased resource efficiency such as plastic recycling projects. An expert committee, independent of the retailers, evaluates the proposals for projects with a different committee for projects supporting each of the three outlined aims. Their decision-making process is shown in Figure 4-1. As such, this allows that the retailers' interests are not the prime determinants of the allocation of funds.

Figure 9-7 – Summary Diagram of Project Application and Approval Process³⁴⁶



Ireland Environmental Fund

Ireland introduced a plastic bag levy in March 2002. Initially, the levy was set at €0.15 per plastic bag, with exemptions for smaller plastic bags that meet specific conditions and were used to store non-packaged goods such as dairy products, fruit and vegetables, nuts, confectionery, hot or cold cooked food and ice. The levy is passed directly to consumers at the point of sale.

³⁴⁶ Oland, E (2017) Closing the Loop: Norwegian Retailers Environmental Fund

It has been reported that this policy has been very effective and has ‘proved so popular with the Irish public that it would be politically damaging to remove it’.³⁴⁷ The levy was implemented to ‘change consumers’ behaviour to reduce the presence of plastic bags in the rural landscape, and to increase public awareness of littering’. Revenues from the levy are paid into an Environmental Fund which is administered by the Department of Environment and Climate Change. The fund is used to cover administrative costs (3% of total revenues) and support a wide range of environmental programmes. The costs of implementation are reported to be very low because bookkeeping and reporting has been integrated with VAT returns.

9.4.3.6 Phase-outs / Bans

A ban on items is proposed where the items concerned are largely unnecessary, and where their negative impact is disproportionate to any benefits associated with their use (given the availability of alternatives). Sachets might, therefore, be considered candidates for phase-outs / bans.

For some of these items, nature-degradable, or non-plastic alternatives, although they could have lower impact when littered, might still be used in a wasteful manner and inappropriately discarded. It might be appropriate to implement a levy on the non-plastic and nature-degradable alternatives. The aim of this would be to reduce demand for sachets of any type, and encourage greater reliance on refillable alternatives.

The use of bans ought to consider the following prior to implementation:

- The nature of the mechanism through which the ban will be enforced;
- The most appropriate phase-out period required to allow industry/retailers/users to adapt, given the available alternatives.

Some bans can be introduced with relatively short lead-in times, especially where the item is unnecessary, problematic, and where alternatives already exist. Others might require longer lead-in times, once considered in the context of the currently available alternatives.

In cases where there really are no alternatives, then it may be appropriate to support research and development activity in the short-term. In addition, in countries where enforcement capacity is limited, some levy revenue can be ear-marked for enforcement activity. In this context, it should be considered that clarity of definitions (of what is to be banned / subject to levies), enabling ease of enforcement, is also important to consider.

Any policy looking to phase-out plastic packages needs to consider the effect of simply switching from plastic formats to non-plastic formats: in some cases, such switching may worsen some other environmental impacts (for example, in relation to the climate change impacts of production, or in respect of land take – see Section 3.3.2 above).

³⁴⁷ Convery, F., McDonnell, S. and Ferreira, S. (2007) The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy, *Environmental and Resource Economics*, September 2007, Vol. 38, No. 1, pp. 1-11

9.4.3.7 Using Levies to Support Phase-outs / Bans

In our view, a particularly promising approach is to set phase-out dates for problematic products, including sachets, and to ‘back-up’ those phase-out dates with an economic signal that can be provided by levies.

In cases where no clear product alternatives exist at a given point in time, the approach may be to announce a ban which will be enforced at some future date (for example, in 5 years). In these cases, announcing at the same time a schedule for a levy which starts at low levels, and then rises more quickly as the date for the ban to take-effect approaches, may be a useful approach. The levy incentivises innovation and a shift in demand in the period leading up to the ban’s implementation.

In contexts where alternatives already exist, then the time period for phase-out can be shorter (of the order 2-3 years), and the schedule for the supporting levy might simply reinforce the ban in the year prior to it taking effect.

Therefore, we could consider the following approach (see Table 12) for the items we considered in Section 3.0.

Table 15: Possible Option for Phase-out Period and Levy on Different Products

Product	Period to Phase-out	Levy
Shampoo (small format, e.g., 10ml or less)	3 years	Year 3, \$US0.01 per package
Milk (small format, e.g., 20ml or less)	3 years	Year 3, \$US0.01 per package
Instant Coffee (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Ketchup (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Crisps (all pack sizes)	7 years	Year 3, \$US0.01 per package Year 4, \$US0.015 per package Year 5, \$US0.02 per package Year 6, \$US0.03 per package Year 7, \$US0.05 per package

This approach would, we believe, help to send a clear message to producers that these products are considered problematic, and the main message of the phase-out is supported by the incentive conveyed by the levy.

9.5 Vietnam

We noted, in Section 8.3, some of our concerns regarding the LEP and Decree as regards waste management and EPR in Vietnam. The following Sections indicate potential areas for change to existing law, and thoughts as to how to change matters so as to enhance the level of support given to collection and management of packaging in Vietnam.

9.5.1 Suggested Changes to Existing Law

Within the waste management parts of the LEP, the following would be helpful:

- The responsibilities of the People's Committees at different levels of local government need to be made clearer. At the moment, too much latitude rests with the People's Committees to decide what happens at what level of local government. It seems likely to help the Committees to know what should happen at what level. In the absence of greater clarity as to who does what, there is considerable potential for inefficiency in planning, and confusion as regards roles. The guiding heuristic should not be 'top down', but rather, 'bottom up': only do at greater scale that which cannot be done cost effectively at smaller scale. It should be said that it would be helpful for there to be an overarching waste management strategy (not just 'a law'): our understanding is that this does not exist. It would help to have such a strategy so that the responsibilities of People's Committees and other relevant entities in urban areas can be clearly situated within that strategy.
- The Law gives a very cursory description of what needs to be offered by those providing household waste collection services. That is simply not good enough. There needs to be far more detail as regards setting a minimum service specification for collection services to be provided by whoever provides them. In a situation where officials in People's Committees may never have done this before, setting such a specification constitutes guidance, and if the specification is sensibly articulated, prevents officials from making serious mistakes;
- The LEP sets out a form of hierarchy for managing waste, and seeks to minimise landfilling. The merit of a strategy, as indicated above, is that it can set out a clearer path towards the more formal management of waste, post-collection, over time, and to make provision for the relevant sites. The Law sets out no timetable for what it proposes, so that waste collectors, for example, would be left with little option but to fall foul of the law in some instances. A strategy is about how one gets from where one is to where one wishes to be: simply writing down what is desired in law is insufficient to bring about that desired state of affairs.
- There is a need to clarify how waste from businesses, which is similar to that generated by households, is to be collected and managed, who has responsibility for this, and how the costs for doing this are to be recovered. There are inconsistencies as regards the situation as portrayed in the LEP and in the Decree. Especially as regards food waste, one could be forgiven that as long as businesses sort out food waste, that the service will be provided free of charge. In that case, how is the service to be funded (and who will provide it)? Some realism is necessary. How this service will be provided, and by whom (is it to be provided exclusively by People's Committees, or is it to be provided by private sector actors in competition with each other?).

- Chapter XIV of the LEP sets out quite generic rules and approaches to inspection and to imposition of penalties for violations. There is very little by way of detail here (so, for example, despite the enormous breadth of scope of the LEP, there is no differentiation regarding transgressions as regards specific Articles / actions / infringements. Chapter IX of the LEP does discuss environmental damage, and the potential for compensation claims, but there is little to deal with matters of fraudulent declarations of compliance, or lack of registration of producers, for example. The nature and form of EPR is likely to give rise to specific incentives for non-compliance: it would be useful if the LEP and/or Decree contained Articles that clarified the nature of the applicable sanctions. These should be sufficiently punitive relative to compliance costs, and should be set out sufficiently clearly as to be readily enforceable.

As regards the EPR part of the LEP and the linked Decree:

- The reason(s) for the Article 77 (in the Decree) sectoral delimitation of packaging within the scope of EPR is (are) unclear. The chosen sectors are varied but they exclude an unknown proportion of packaging (for example, of toys). Why is such packaging deemed to fall out of scope?
- The Decree indicates that the scope is 'primary and secondary packaging, but we could see no definition of these terms in the LEP or the Decree (definitions may exist elsewhere, but if so, it might be useful to cross-reference those definitions).
- The recycling rates as currently set are low. These apply for three years, and although rates might be revised upwards during that period, clarity as to what targets will apply is needed years as much as possible in advance of their having to be met. Some consideration needs to be made as to the investment cycle: it would be worrying if a system was effectively implemented which required almost immediate revision. Early announcement of targets that will apply going forward enables obligated entities to plan accordingly on the basis of a clear trajectory for the future.
- The inclusion, within the certified approaches to recycling which included 'produce chemicals, including oil' is of concern. It is difficult to see how converting plastics into oil, which presumably might simply be used to generate energy, qualifies as recycling of *materials* at all, let alone as one of the prioritised approaches to meeting targets. We suggest that this is changed so that only recycling into materials qualifies. That might still include chemical recycling, but clarity would be needed as to how the qualifying proportion is calculated.
- Exactly what qualifies, and at what point, as 'recycling' ought to be clarified in the Law or the Decree;
- The number of routes – four - that companies can choose through which to comply are probably too many (see below). This has the potential to create an administrative headache. Each of these poses different challenges as to how compliance with the law will be demonstrated. What will be accepted as evidence of recycling having taken place? How will it be ensured that fraudulent claims / double counting does not occur? How many plans will MoNRE have to review (and with what purpose? Is it assumed that 'Plans' translate into action?)? The intent to offer 'options' to obligated companies might be considered laudable, but the consequences of doing so might have not been properly thought through. At the very least, the nature of the evidence being required to demonstrate compliance should have been made absolutely clear;

- The fact that one of the routes to compliance – and one which requires no plan to be offered up to MoNRE – has an as yet unknown price tag attached to it simply deepens the concern regarding the range of options for compliance. The ‘F_s’ factor in the calculation of payments to the VEPF by those who (might) choose this compliance route has still not been finalised more than a third of the way through the first compliance year. This risks undermining the scheme’s credibility (and MoNRE’s competence in overseeing it). This schedule of fee rates should have been announced well in advance. Part of the problem appears to be that the role of the fee option in the context of the whole scheme has not been clearly and consistently conceived. Is the fee option:
 - designed to push businesses to one of the other compliance routes or as a sort of ‘buy-out’ price for compliance (in which case, the fees should be set at relatively high levels)? or
 - intended to provide a genuine ‘option’ (in the sense of an alternative compliance route) in which case, fees would need to be cost competitive, yet also capable – presumably – of funding the activity concerned? These two objectives might not be mutually compatible.

Only once the F_s values are finalised will we properly have any insight into this.

- Related to the above, the way in which the VEPF revenue (the extent of which is as yet unknown) will be used is not entirely clear, particularly insofar as it relates to funding waste collection and management at the local level.

9.5.2 Other More Fundamental System Changes Proposed

Broader system changes are proposed so that Vietnam can maximise the potential support generated from, and impact of, producer funding:

1. As per the above, extend the scope to all primary and secondary packaging, potentially tertiary as well, and clearly define what is meant by these terms;
2. Establish progressive recycling targets for all packaging materials out to 2035, and clearly define what is meant by recycling (with conversion to oil / use as a source of energy being ruled out of the definition). The quantity recycled should be defined as being the point at which the materials derived from waste are included in the production of new products.
3. Narrow down the choice of compliance routes and provide for the establishment of a single nation-wide entity (which could be producer-led) which charges producers fees based on the quantities of packaging that they place on the market. These fees would be:
 - a. required to reimburse local government units so that the costs of them discharging their roles in collection, first stage sorting and clean-up of littered packages are fully covered where they are carried out efficiently; and
 - b. used to fund the requisite further sorting and reprocessing infrastructure necessary to manage the wastes which are collected so as to meet the relevant recycling targets;
4. Specify a minimum service standard for collection in terms of the experience of the household (how many separate streams, how frequently collected, etc.). Consistent with 2 and 3 above, the setting of meaningful recycling targets should be linked to the elaboration, and then, implementation of such a minimum standard, considered in terms of ‘the household experience’. It should be

convenient for households to use, be specified consistent with efficient and practical service delivery, and be capable of ensuring that the recycling targets being established can be met. The service standard should be designed with the potential clearly in mind for delivering high levels of recycling of both dry recyclables (including plastics) and organic (mainly food) waste. The service standard should recognise the greater potential of food wastes to give rise to vector-borne diseases and other (odour) complaints, specifying collection frequencies accordingly.

Part of the role of the standard is to prevent local governments from implementing systems of obviously low quality (and doing 'the wrong thing'). The costs of delivering the dry recyclables collection service should be clearly assigned to producers in the ESWMA, so that (not just plastic) packaging producers would pay for the proportion of the service costs linked to packaging (see below);

5. Make it clear which entities will take responsibility for the implementation, either themselves, or through others acting on their behalf, for waste collection from households. It may also make sense to require some preliminary sorting by the same entities, but only 'up to a point' such that the requirement for additional assorting is relatively clearly known (so that producers can arrange for its funding and implementation with minimal loss in efficiency);
6. Require those local government entities with responsibility for waste collection to deliver collected (and preliminarily sorted) wastes to designated transfer points;
7. Make the management of the relevant collected fractions (dependent on the service standard), following the collection of the materials and their delivery to transfer points, the responsibility of the single entity representing producers. Producers would cover these costs fully, and would take responsibility for sorting the collected wastes, and for selling the sorted materials, revenue from which would offset some of their costs. The smaller the number of entities which are 'competing' for control of these wastes, the better the prospects for investment in sorting and reprocessing: too often, this is viewed through the lens of competition (multiple producers, or entities acting on their behalf) facilitating delivery of value for money. The discipline of the market, though, is likely to be best utilised by tendering out operations such as sorting and reprocessing to the market;
8. Specify a standard for the cleanliness of public spaces, likely varying by type of location. Such a standard could be 'output-based', or 'input-based' (or both). The responsibility for delivering against the standard would rest with the relevant tier of local government. The costs of doing so in an efficient manner would be recovered from producers in proportion to their contribution to the problem of littering, and the effect on costs. Note that producer fees should also cover the cost of the studies necessary to determine the composition of littered waste;
9. The LEP and Decree should make clear how the funding is expected to be generated for those functions undertaken by the different tiers of local government which are not funded by producers. This will include:
 - a) Collection of biowaste;
 - b) Processing of biowaste;
 - c) Collection of that part of 'leftover waste' the costs of which cannot be recovered from producers;
 - d) Treatment of the part of residual waste the costs of which cannot be recovered from producers; and
 - e) Costs of clean-up which are unrelated to an identifiable group of producers.

Fees from households ought to support (a), (b) and (d). As regards (b), this is an area suitable for capital support from central or regional government (or donor) funding: the residual operational costs could be funded from retribution fees. As regards (d), there are good reasons why this should not be the target of any explicit or implicit subsidy (making disposal cheap has the effect of undermining the financial logic of seeking to implement a system more conducive to a circular economy). Hence, if delivered through PPP approaches, 'gate fees' payable to operators ought to be funded through retribution fees also (and central government should not offer implicit subsidies in the form of elevated feed-in tariffs for e.g. energy from waste facilities);

10. The Sections of the LEP and Decree related to EPR should not only clarify what different tiers of local government will do, but also, what it is that producers will be responsible for in purely financial terms (see point d. below), and what it is that producers are expected to have both operational and financial responsibility for (for example, further sorting and reprocessing of packaging waste). It should, amongst other things:
 - a. Require all producers to register under the scheme supplying data on the quantity of packaging they place on the market. The rules for doing so should be clear as to whether the figures are to include or exclude labels, closures etc.,
 - b. Provide for regular and random auditing of figures reported by producers;
 - c. Establish suitably large penalties for fraudulent reporting of data by producers. Both the body with responsibility for implementing fines, and the level and nature of the fines should be made clear. Evidently, the non-application of fines undermines the case for adherence to the law;
 - d. Provide for the establishment of a single non-profit entity which is intended to fulfil (at least) two principal functions:
 - i. coordinate the collection of funds from producers in relation to:
 1. their obligations to cover costs borne by others (see 11 below), and
 2. their share (to be determined by the entity itself) of the costs of activities for which producers have direct responsibility;
 - ii. coordinate, and / or provide for, the efficient delivery of functions for which producers are directly responsible, such as collection from transfer points, development and operation of well-adapted sorting infrastructure, and marketing / sale / use of materials sorted for recycling;

This role is sometimes played by an organisation described as a 'producer responsibility organisation'. The exact nature and form of the entity, though, might be considered secondary to its ability to perform the above roles in an efficient manner, and to ensure that funds from producers are utilised efficiently, and only for the purposes intended;

11. Establish the methodology to be used to establish the costs incurred by the local government that producers will be expected to cover. Consistent with seeking to reduce the requirement to set retribution fees at much higher levels, and consistent with principles of fairness (those responsible for generating most waste pay more), these should include the greatest possible share of the following:

- a) The costs of collecting packaging (see above as regards waste law / financing of waste management);
 - b) The costs of clean-up of litter, insofar as they are apportioned to packaging, to a desired standard, as per point 8 above);
 - c) The costs of treating the packaging waste which was not separated for recycling. Note that this should provide for the possibility of producers paying for the sorting of leftover mixed waste (the waste not separated for recycling) so as to enhance recycling performance, reduce the amount being sent for subsequent treatment, and reduce the potential emissions of fossil-derived CO₂ in cases where the residual waste might be treated through combustion. The need for this, though, depends on the nature of the collection system chosen;
 - d) The costs of undertaking periodic studies regarding the composition of leftover mixed waste (that is sent for treatment / disposal) and the composition of littered waste (as the basis for splitting out costs across producers);
 - e) From the central administrator's perspective:
 - i. The costs of acquiring and checking over the relevant data required for performance auditing (from local government, operators of sorting facilities, operators of reprocessing facilities);
 - ii. The costs of auditing (within reason) data submitted by specific producers regarding the packaging they place on the market;
 - iii. Other costs of overseeing compliance;
12. Require 'end-to-end' reporting from the producer entity of input and output (mass balance) data from the collection of waste at transfer stations through to reprocessing of materials (recycling) and treatment / disposal of non-target materials.
13. Ensure that the approach to collection, sorting and reprocessing facilitates integration – and forbids the exclusion (for example, in tender processes) – of informal sector actors.

These suggested changes should not be considered as providing the entirety of what might be in revised legislation.

9.5.3 Sachets

Under the existing system, the extent to which small format sachets is likely to be limited. Other than in instances where obligated entities make a special request for credits that support collection of sachets, then their separate collection seems unlikely to be strongly motivated by the existing Law. Although there are separate credits that must be used to offset footprints in respect of flexibles and rigids, the category of flexibles includes packages other than small format sachets.³⁴⁸ Whether any obligated entity needs to be greatly concerned by the quantity of mismanaged small format sachets depends on the proportion of flexibles in the total waste stream accounted for by small format sachets produced / used by obligated entities. Furthermore, even if they did need to be collected, there would be no need to recycle them because of the definition of recovery: they could

³⁴⁸ Neither the EPR Law nor the EPR-IRRs are entirely clear as to what constitutes 'rigids' and 'flexibles' since Section 44C in the Act (referenced by the EPR-IRRs) mentions four categories of packaging, including rigids, with polystyrene as a separate category: if polystyrene is not included as a 'rigid', then is it a 'flexible'? If it is a 'rigid', why does it justify a separate classification?).

simply be sent to cement kilns, or even, landfilled in sanitary landfills. It seems likely that those seeking to achieve least cost compliance might first target the larger format flexible packages and plastic bags.

To the extent that the existing law is indifferent to whether such waste is recycled, or landfilled or sent for thermal treatment (either incineration, or co-incineration), then there would not be expected to be any incentive to shift to 'easier to recycle' formats, given that the cost of recycling processes would likely be non-zero.

Were the changes suggested above to be made, then producers would at least have to pay for the collection and management of littered items. Also, if recycling rates were set sufficiently high, then there might also be some impetus to shift towards more recyclable flexible packages.

9.5.3.1 Fee Modulation

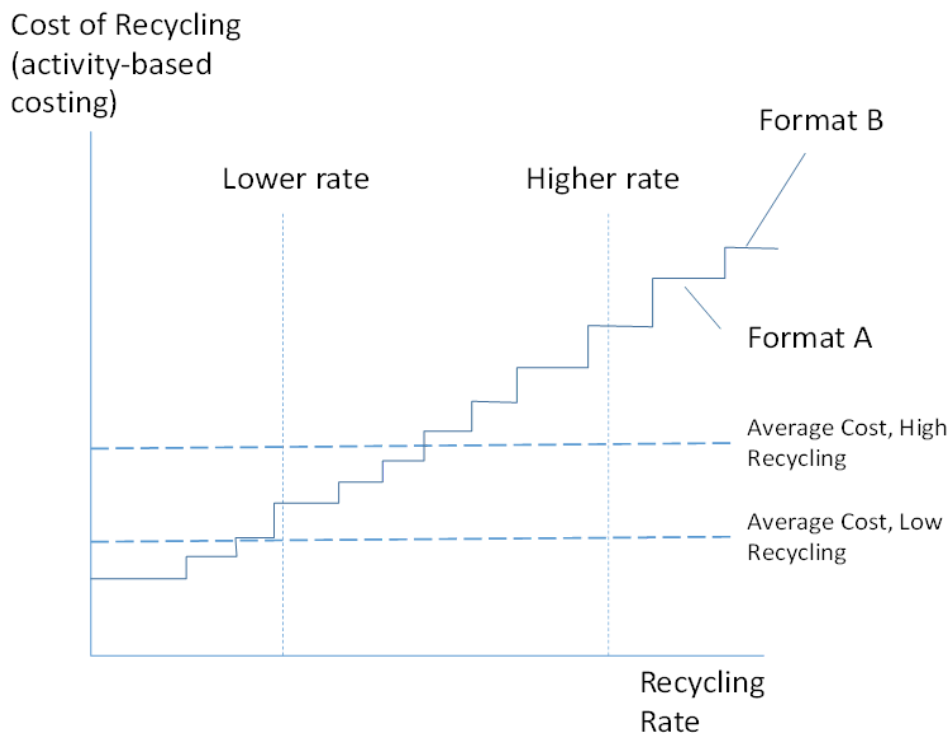
Most EPR policy is relatively weak in influencing choices regarding the use of packaging. There are some simple reasons for this: what producers have been required to pay has been small in comparison with the costs of switching between packaging formats / types.

In seeking to meet a given recycling rate, it generally makes sense to target formats and circumstances where the costs are lowest. At low recycling rates, though strictly speaking, this depends upon the shape of the cost curve, it might be supposed that average costs are not so different from the costs of recycling each packaging format which is recycled at that low level. As the required recycling performance increases, then other things being equal, there is a need for new packaging formats to be recycled, and unless the cost curve is relatively flat (and empirical evidence suggests it is not), then the average costs of recycling increase, and the gap between the costs of recycling formats with the lowest cost and those with the highest cost increases. If fees are simply levied at 'the average rate', then all formats pay the same amount irrespective of the costs to recycle their packaging.

This raises the question of fairness. One basic principle of the modulation of fees, therefore, is that it should be fair, levying higher fees (at least when expressed on a per tonne basis) on those formats which cost more to recycle. Indeed, there is some intuitive appeal to leaving it at that: the fees which should be levied upon each packaging format should reflect the costs it imposes on the recycling system. These would be determined through activity-based costing, designed to link the nature of formats to the actual costs incurred by the system.

The stumbling block which this approach faces, however, is that there are some formats which, at a given recycling rate, might not be being recycled at all. Formats A and B in Figure 31 do not need to be recycled in order for the higher recycling target to be met. Although the cost curve depicts a known cost of recycling for each format, in practice, if formats are not recycled, or recycled only to a limited extent, the costs of recycling them might not be known with any certainty. This applies, more obviously, to materials which are deemed to be – for technical reasons – unrecyclable by any known commercially available technology.

Figure 36: Cost Curve for Recycling Different Packaging Formats



In the Philippines, formats which are more expensive (or equivalently, less valuable) to collect are less likely to be collected, and even where they are, they are unlikely to be recycled (understood as being used to replace raw materials in manufacturing new products or packages): they may end up in unmanaged dumps, or in sanitary landfills, or in cop[rocessing facilities. In these circumstances, the costs which these items visit on the waste management system might be low: indeed, items which are discarded directly into rivers and seas impose no financial costs on the waste management system at all (the costs are environmental ones).

The response to this problem in the EU – where most packages are collected, and where the costs of landfilling / incineration are typically relatively high - has been to introduce fee modulation for different packaging types. The principle is that if ‘less recyclable’ packages are assigned higher fees under EPR, the producers will switch to packages that are easier to recycle. The fees that would otherwise be raised only to cover costs are modulated in line with some measure of, or scale of, recyclability. On the other hand, because, in the EU, EPR fees are increasingly required to cover a defined set of costs, then increasing fees for some formats would lead to the level of revenue exceeding cost recovery levels. Modulation under EPR ought to respect the principle of cost recovery (and not become a revenue generating enterprise)

This issue can be managed by making the ‘modulating element’ revenue neutral overall. If ‘packaging format-specific’ recycling rates are known, for example, then a modulating element can be applied so that formats with recycling rates below the average recycling rate pay higher fees, and those with recycling rates above the average pay lower fees, with the revenues paid by those below the average compensating for the lower fees paid by those with above average performance. This approach can allow for more extreme forms of modulation to be applied: the incentive to switch packaging formats will be

higher if the penalty for falling below the weighted average recycling rate is increased, but the revenue-neutral principle is still respected.

This would help overcome an issue which is especially obvious where sachets are considered: that fees are not modulated sufficiently to motivate switches away from some less recyclable formats. Sachets may weigh of the order 1g in small format. The packages may cost the order US\$0.01 per unit. If the cost of an alternative material is greater by, for example, US\$0.005 per unit, that additional cost per unit translates into an additional cost of US\$ 5,000 per tonne of the material currently used. Even in EU countries with full cost recovery for recycling plastic packaging, costs to producers are of the order US\$800 per tonne, roughly one sixth the cost of our theoretical packaging switch. The extent of fee modulation in EU countries still tends to be relatively modest, so that including these rarely sends modulated EPR-related fees above US\$1,000 in total.

Whilst there could – under the revised system described above - be a system of modulation of fees in the Philippines that deliberately seeks to shift use of packaging formats away from small format sachets, it might be of greater interest to target small format sachets specifically through measures distinct from EPR (see below). Under the current EPR system, it would seem unlikely that there could be a system of modulation implemented. On the contrary, obligated entities may simply seek least cost compliance by paying the marginal costs for demonstrating that the appropriate quantity of material has been collected and sent somewhere other than an unmanaged landfill / dump.

9.5.3.2 Design for Recycling Criteria

We noted repeatedly in Section 4.0 that some formats of sachet used for some applications were less easy to recycle than others. We referenced design for recycling (DfR) guidance given by Ceflex at the EU level. These seek to improve recyclability of flexible packaging. These DfR principles can help to shape the market, and could be used as a basis for fee modulation (see above), but they will not necessarily prevent littering of sachets where they are used in circumstances where collection services are inadequate or not present. Design for recycling is effectively useless if materials are not collected in the first place.

9.5.3.3 Deposit and Refund Scheme

To the extent that an important objective may be to ensure that sachets are not discarded where they should not be, the principle of a deposit refund system is attractive. Deposit and refund schemes (DRSs) are being implemented in a growing number of jurisdictions, usually applied to beverage containers, and with the scope of beverages (and packaging materials) covered varying across jurisdictions. The EPR-IRRs mention ‘buy-back’ centres, these being defined rather generally as, *‘a recycling centre that purchases or otherwise accepts recyclable materials from the public for the purpose of recycling such materials.’* This is not a deposit refund scheme per se, but could be a location where waste pickers are paid for materials delivered to the centre.

The principle – that consumers purchase a product in a sachet that bears a deposit, and that the deposit is refunded when the package is returned - is particularly useful in a context where one is seeking to ensure that products are returned to specific locations, and are not mismanaged. The scope of application of DRSs, therefore, is being considered more widely, notably for plastic products. The UK Department for the Environment entertained the design of a scheme for plastic packaging where a deposit would have been introduced for all plastic packaging. The main obstacles to introducing

such a scheme related to the pre-existing infrastructure and institutional architecture. Nonetheless, the application of such schemes may be appropriate beyond beverages, and especially in situations where collection systems are poorly developed. The State of Goa has recently passed a law which may also have a relatively broad scope.³⁴⁹ Some countries are applying the approach to single use cups, for example. Applications in respect of small WEEE items have been considered, and a trade body has considered their application to e-cigarettes.

In principle, there is no reason why a DRS should not be applied to small format sachets. There are some obstacles which would need to be overcome, not least in relation to ensuring there are no fraudulent claims for refunds. This is typically achieved in a beverage container DRS through appropriate use of labels / barcodes on packages included in the scope of the scheme, indicating that a deposit is due / has been paid: these barcodes can then enable retailers to understand which containers should attract a refund. Some small format packages might only be barcoded on secondary packaging if they are being purchased in bulk for resale. Equally, in quick service food outlets, they might be made available free of charge, so that unless there was suitable labelling, there would be no obvious incentive to take-back. These issues are likely to be surmountable with sufficient consideration of appropriate strategies for labelling and '*scanning sachets back in*' to avoid a situation where a refund is claimed more than once on a given package.

9.5.3.4 Selective Phase-outs

Following on from the above, it might be useful to consider phasing out the use of specific types of sachets in contexts where their use is unnecessary. Using condiment sachets in cafes / restaurants may be a good example. The Vietnamese Decree of 2022 mentions banning sale of some items in malls and other locations by 2025: it might have been appropriate to consider some products packaged in sachets, seeking to encourage use of refillable containers, or readily recyclable large format containers. Such approaches are appropriate where the measure can be (and will be) meaningfully enforced.

9.5.3.5 Levies on Items in Specific Package Types

Bans might be considered, from one perspective, to have the effect of a levy set at an infinite level. In many instances, bans will not be appropriate, especially where some uses of the item have particularly high value. In these instances, a levy on sachets might lead to a reduction in their use, and a switch to alternatives (a demand effect, and a substitution effect, respectively). The strength of these two effects depends on:

- 2) The level of the levy applied; and
- 5) The availability of substitutes and their relative cost.

The higher the levy, the more demand will decline: the remaining users of sachets can be expected to be those who derive particularly high value from their use. In principle, this allows those wishing to continue using sachets to do so, but at a higher cost.

Given the discussion in Section 3.0 regarding the use of 'nature degradable' alternatives, there is a question to be asked as to whether a levy should be applied to all sachets, including those that might be defined as 'nature degradable', so as to encourage a

³⁴⁹ Government of Goa (2024) Deposit Refund Scheme, LS-MISC/1915/96/Part-V/1808, 6th March 2024.

reduction in small format flexibles of any type. An alternative would be to apply lower levy rates to such products, but still maintain an incentive to use, for example, refillable alternatives.

Where levies are concerned, the mechanism for revenue collection needs to be considered. Where indirect taxes such as VAT, are already applied, in principle, the application of what are in essence excise taxes could be straightforward. The appropriate lead-in times should be considered carefully, as well as the appropriate evolution in the levy rates to be applied (if no clear evolution is foreseen, levies should be set with built-in escalators, in line with a suitable price index, to ensure that their incentive effect is not eroded by inflation).

Revenue from Levies

A positive feature of levies is that they can generate revenue. The scale of use of sachets at present suggests that revenue generation from the application of levies to sachets could be significant, at least initially, with potential for it to fall over time as markets respond to the levy (depending on its rate).

Revenue from levies could be used to support the development of waste management services at the municipal level, further easing the pressure – if only for a period of a few years – on cost recovery through user fees. Otherwise, funds could be ‘earmarked’ for environmental causes – both to back up the positive change the levy will encourage, and to provide a clear message to consumers about the purpose of the levy.

An alternative use of revenue could be as a source of grant funding to which local authorities or community groups can apply for funding of projects which target waste minimisation and encourage reuse. A similar approach has been used in the Norwegian retailers fund through their voluntary plastic bag levy, and in the Ireland environmental fund (see case studies box).

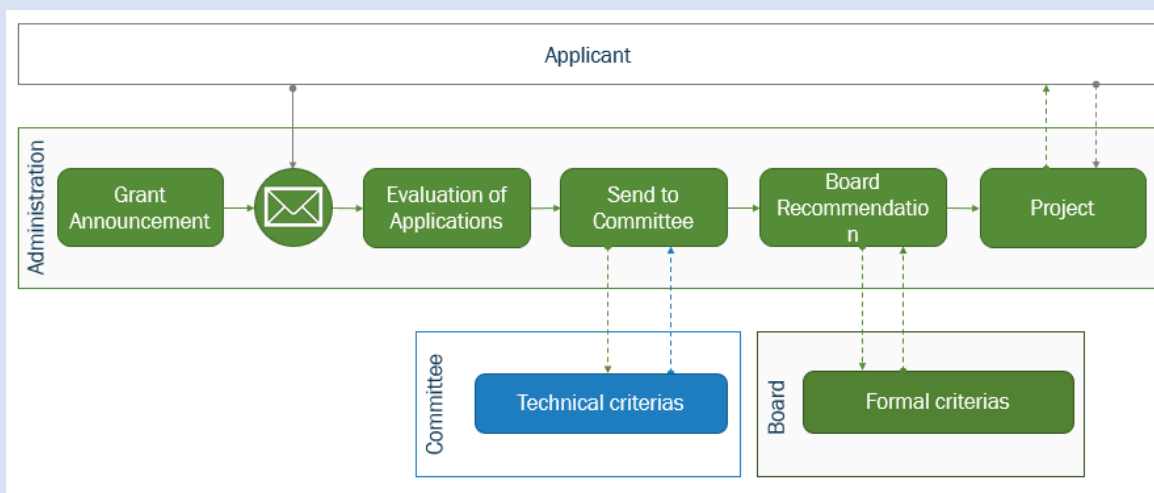
It is important that retailers should not influence what happens with revenue raised from levies, and neither should revenue be used to fund a significant, ongoing requirement. Funding an ongoing requirement has the potential to introduce a conflict of interest where the revenue generated from consumption is relied upon, but where environmentally, the best thing is to reduce consumption. As such, as the aim of the levy is to reduce consumption, investment should be understood as time-limited (i.e., not be used to provide an ongoing service) as the goal of reducing consumption if successful, should result in diminishing revenue as time goes on.

Case Studies – Use of Revenue from Levies

Norway Plastic Bag Levy

The Norwegian retailers Environmental Fund is a monetary fund in Norway, based on a voluntary commitment from retailers and retailers' organisations generating revenue from plastic bag sales. Plastic bag sales are charged at 5 Euro cents per bag, summing to around 45 million euros per year across Norway. The funds which are generated are earmarked for environmental purposes and may be used to: (1) support projects that reduce the consumption of plastic bags, (2) support projects that reduce both land and marine based littering- both national and international, and (3) support projects that lead to increased resource efficiency such as plastic recycling projects. An expert committee, independent of the retailers, evaluates the proposals for projects with a different committee for projects supporting each of the three outlined aims. Their decision-making process is shown in Figure 4-1. As such, this allows that the retailers' interests are not the prime determinants of the allocation of funds.

Figure 9-7 – Summary Diagram of Project Application and Approval Process³⁵⁰



Ireland Environmental Fund

Ireland introduced a plastic bag levy in March 2002. Initially, the levy was set at €0.15 per plastic bag, with exemptions for smaller plastic bags that meet specific conditions and were used to store non-packaged goods such as dairy products, fruit and vegetables, nuts, confectionery, hot or cold cooked food and ice. The levy is passed directly to consumers at the point of sale.

³⁵⁰ Oland, E (2017) Closing the Loop: Norwegian Retailers Environmental Fund

It has been reported that this policy has been very effective and has ‘proved so popular with the Irish public that it would be politically damaging to remove it’.³⁵¹ The levy was implemented to ‘change consumers’ behaviour to reduce the presence of plastic bags in the rural landscape, and to increase public awareness of littering’. Revenues from the levy are paid into an Environmental Fund which is administered by the Department of Environment and Climate Change. The fund is used to cover administrative costs (3% of total revenues) and support a wide range of environmental programmes. The costs of implementation are reported to be very low because bookkeeping and reporting has been integrated with VAT returns.

9.5.3.6 Phase-outs / Bans

A ban on items is proposed where the items concerned are largely unnecessary, and where their negative impact is disproportionate to any benefits associated with their use (given the availability of alternatives). Sachets might, therefore, be considered candidates for phase-outs / bans.

For some of these items, nature-degradable, or non-plastic alternatives, although they could have lower impact when littered, might still be used in a wasteful manner and inappropriately discarded. It might be appropriate to implement a levy on the non-plastic and nature-degradable alternatives. The aim of this would be to reduce demand for sachets of any type, and encourage greater reliance on refillable alternatives.

The use of bans ought to consider the following prior to implementation:

- The nature of the mechanism through which the ban will be enforced;
- The most appropriate phase-out period required to allow industry/retailers/users to adapt, given the available alternatives.

Some bans can be introduced with relatively short lead-in times, especially where the item is unnecessary, problematic, and where alternatives already exist. Others might require longer lead-in times, once considered in the context of the currently available alternatives.

In cases where there really are no alternatives, then it may be appropriate to support research and development activity in the short-term. In addition, in countries where enforcement capacity is limited, some levy revenue can be ear-marked for enforcement activity. In this context, it should be considered that clarity of definitions (of what is to be banned / subject to levies), enabling ease of enforcement, is also important to consider.

Any policy looking to phase-out plastic packages needs to consider the effect of simply switching from plastic formats to non-plastic formats: in some cases, such switching may worsen some other environmental impacts (for example, in relation to the climate change impacts of production, or in respect of land take – see Section 3.3.2 above).

³⁵¹ Convery, F., McDonnell, S. and Ferreira, S. (2007) The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy, *Environmental and Resource Economics*, September 2007, Vol. 38, No. 1, pp. 1-11

9.5.3.7 Using Levies to Support Phase-outs / Bans

In our view, a particularly promising approach is to set phase-out dates for problematic products, including sachets, and to 'back-up' those phase-out dates with an economic signal that can be provided by levies.

In cases where no clear product alternatives exist at a given point in time, the approach may be to announce a ban which will be enforced at some future date (for example, in 5 years). In these cases, announcing at the same time a schedule for a levy which starts at low levels, and then rises more quickly as the date for the ban to take-effect approaches, may be a useful approach. The levy incentivises innovation and a shift in demand in the period leading up to the ban's implementation.

In contexts where alternatives already exist, then the time period for phase-out can be shorter (of the order 2-3 years), and the schedule for the supporting levy might simply reinforce the ban in the year prior to it taking effect.

Therefore, we could consider the following approach (see Table 12) for the items we considered in Section 3.0.

Table 16: Possible Option for Phase-out Period and Levy on Different Products

Product	Period to Phase-out	Levy
Shampoo (small format, e.g., 10ml or less)	3 years	Year 3, \$US0.01 per package
Milk (small format, e.g., 20ml or less)	3 years	Year 3, \$US0.01 per package
Instant Coffee (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Ketchup (small format, e.g., 20mg or less)	3 years	Year 3, \$US0.01 per package
Crisps (all pack sizes)	7 years	Year 3, \$US0.01 per package Year 4, \$US0.015 per package Year 5, \$US0.02 per package Year 6, \$US0.03 per package Year 7, \$US0.05 per package

This approach would, we believe, help to send a clear message to producers that these products are considered problematic, and the main message of the phase-out is supported by the incentive conveyed by the levy.

10.0 Lessons for Countries Considering EPR

The four countries we have examined in this study highlight a number of issues as regards implementation of EPR. The lessons which might be learned from their implementation can be considered alongside some of the issues being considered in the context of the ongoing work of the Intergovernmental Negotiating Committee regarding an Internationally Binding Legal Instrument (ILBI) aimed at addressing plastic pollution.

The Zero Draft of the ILBI included EPR as a specific measure. It included, separately, a measure regarding 'waste management'. One of the key lessons of this study is that there is little point in considering 'EPR' independently from 'waste management'.

Reasons for this include:

- particularly as regards the ILBI, unless the intent is to eliminate, rapidly, use of all plastics, it will be impossible to address pollution of land, rivers and seas by plastic without ensuring that all (or as much as possible) plastic waste is collected. This would minimise the chances of it being discarded into the environment. The alternative, where it is not collected, is likely to be that plastic waste is burned, itself a poor option, and giving rise to air pollution, and contributing to climate change;
- given that it is clear that not all plastics are being recycled today, and recognising that they will not be recycled in their entirety even once collected, then the question arises as to where the unrecycled plastic will go. That raises more general questions regarding how waste should be managed. Even if an excellent EPR scheme managed to collect all plastics, and even if it recycled a significant share of these, where, in the absence of a well-functioning waste management system, would the unrecycled plastics go? What policies and legislation would determine how best those plastics should be managed?

There is, and will be, no 'well-functioning EPR system' in the absence of a 'well-functioning system of waste management'.

On the other hand, it is possible to have a well-functioning system of waste management without EPR. The question, though, is why would a country not consider introducing EPR as a means to have businesses fund 'their share' of the costs of waste management? This question looms especially large in contexts where countries are struggling to provide citizens (and businesses) with a waste management service which meets basic environmental standards, let alone those needed to achieve the objectives which we may wish to set for the management of waste.

In the context of the ILBI discussions, a fairly EU-centric view of what EPR 'should be' has often been proposed. What might be considered appropriate for the EU, however, need not necessarily be appropriate for other countries. Indeed, some of the terminology may be alienating for some jurisdictions:

- 1) The term 'producer' might not be helpful where small island states are considering extended producer responsibility: what if there are no (or very few) 'producers' on an island: does that mean that *EPR* has no relevance? The quick answer is 'no': rather, it highlights that the term itself – extended producer responsibility – might not be the cleverest term to use. Even the countries covered have not only addressed EPR to 'producers': importers and brand

owners have been included. Perhaps with hindsight, the term ‘businesses’ might have been a better term to use than ‘producer’;

- 2) The range of things that it is suggested EPR could, or sometimes, even, should do is often quite broad. Even though EU countries are required to modulate EPR fees under their schemes, the variety of approaches being considered would tend to suggest that such considerations ought not to pre-occupy countries taking a first look at EPR;
- 3) Especially those entities that represent businesses have tended to argue the case for EPR systems where there is a single ‘producer responsibility organisation’ (or PRO) that is given responsibility for the system and for overseeing how funds are derived, and how they are spent. That is understandable from the perspective of businesses who will feel that they want to see value for money for whatever they pay for. Yet whilst a single PRO model has much to recommend it (and we would tend to support the view that it is the most sensible approach in the European context) it is not the only organisational model that exists. Some countries might find it makes sense to levy fees on producers, and set fees to cover defined costs of waste management, with the revenue being disbursed to local government actors, for example, to pay for the services linked to the wastes those businesses placed on the market. Two issues would follow from that type of model: a) businesses would have a reasonable expectation that they should not ‘overpay, so the system should be designed such that funds are spent on efficient service delivery; and b) businesses themselves could not be held responsible for the outcomes of the system: the onus would be on the design of the law regarding how local government (and others, as relevant) implement the service;
- 4) We have argued that especially in countries where funding of waste management is a problem, that it makes sense to take an expansive view of the end-of-life phases that businesses should be expected to pay for, including collection and management of unrecycled wastes, and the cleaning up of littered items. Businesses tend to take a more restrictive view of the scope of activities that they should fund, for example, arguing against funding the costs of cleaning up litter. This looks very odd in the context of the ILBI where the negotiations have had, as a key starting point, the flow of mismanaged plastics into rivers and oceans.

In summary, what has been discussed as EPR, usually independently from ‘waste management’, might best be considered as part of waste management, and re-titled as ‘recovering end-of-life costs from businesses’ (RELCoB). This might help de-mystify the thrust of EPR as we defined it in Section 4.0. It also helps clarify why it might be a central concept in making the ILBI a success, and why, independently of the ILBI, countries ought at least to consider the role that RELCoB / EPR could play, suitably designed, in helping support the provision of sustainable waste management services to their citizens. The point regarding RELCoB as part of, rather than independent from, waste management ought also to be considered. Where local government has, or seems best placed to be given, responsibility for providing waste collection services for citizens, then local government should likely continue to have responsibility for providing waste collection services, and government should establish a framework through which to ensure that these services can deliver high performance whilst embracing waste pickers in their provision.

Beyond waste collection, who takes what operational responsibility is the main question for countries to consider: in some, it may be more straightforward to maintain a ‘financing only’ role for businesses. In others, it may make sense for a business-led entity to take

responsibility for subsequent sorting and recycling infrastructure, and in still others, it might be sensible to deploy a hybrid (for example, smaller businesses paying simplified levies, with larger businesses taking both financial and operational responsibility). Countries should make their choices according to what is most likely to work in their specific political and economic structures, but in all cases, ensuring transparency and value for money from the spend linked to the funds derived from businesses.

As regards small-format sachets, however, for reasons we have indicated in Section 9.0, RELCoB / EPR is unlikely to be the best tool through which to address such packages, although it may help ensure that more of them are collected. Depending on the contexts in which they are used, however, they may well persist as a problem without additional action to reduce their use. Our preferred approach is to use a system of levies that increase over time to convey an economic signal which then leads to most sachets being banned.

Appendix 1: When is a Package a Plastic Package?

A.1.0 Plastic

As regards the term ‘plastic’, the discussion below draws in part on the experience in the EU with the so-called Single-use Plastics Directive (SUPD). This sought to give meaning, in law, to the terms ‘plastic’ and ‘single-use’, though not to ‘sachet’.³⁵² In seeking to define these terms, it became clear that Guidelines would be required on how these terms should be interpreted and applied in giving force to the SUPD’s requirements.³⁵³ We also refer to these Guidelines below.

The definition of plastic was provided in point (1) of Article 3 of the SUPD:

*“plastic” means a material consisting of a **polymer as defined in point (5) of Article 3 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council**,³⁵⁴ to which additives or other substances may have been added, and which **can function as a main structural component of final products, with the exception of natural polymers that have not been chemically modified**’ [Emphasis added]*

Recital 11, point (1) of Article 3 of the Directive referred to the definition laid out in Regulation (EC) No 1907/2006 (hereafter the ‘REACH Regulation’)³⁵⁵ and adds further elements to introduce an adapted and thereby separate definition.

Recital 11 explicitly points to *paints, inks and adhesives as polymeric materials, which are excluded from the scope of the Directive* and not considered to fall under the definition of plastic in point (1) of Article 3. Consequently, a final (otherwise) non-plastic product to which they are applied is not a single-use plastic product under this Directive.

The Guidelines suggested that several terms and concepts required further clarification. A summary follows below.

A.1.1 Polymer

Point (1) of Article 3 of the Directive refers to the definition of polymer in point (5) of Article 3 of the REACH Regulation, which reads as follows:

‘polymer: means a substance consisting of molecules characterised by the sequence of one or more types of monomer units. Such molecules must be distributed over a range of molecular weights wherein differences in the molecular weight are primarily

³⁵² Directive (EU) 2019/904 of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, (hereafter referred to as ‘the Directive’ or ‘the Single-use plastics Directive’, or SUPD)

³⁵³ Commission guidelines on single-use plastic products in accordance with Directive (EU) 2019/904 of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment

³⁵⁴ Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1)

³⁵⁵ REACH = **R**egistration, **E**valuation, **A**uthorisation and Restriction of **C**hemicals.

attributable to differences in the number of monomer units. A polymer comprises the following:

(a) a simple weight majority of molecules containing at least three monomer units which are covalently bound to at least one other monomer unit or other reactant;

(b) less than a simple weight majority of molecules of the same molecular weight

In the context of this definition a “monomer unit” means the reacted form of a monomer substance in a polymer.’

To complement the definition of polymer in the REACH Regulation, additional guidance is given in the European Chemicals Agency (ECHA) Guidance for polymers and monomers (hereafter referred to as ‘the ECHA Guidance’):

‘A polymer, as any other substance defined in Article 3(1) [of REACH], can also contain additives necessary to preserve the stability of the polymer and impurities deriving from the manufacturing process. These stabilisers and impurities are considered to be part of the substance.’

A.1.2 Can function as a main structural component of final products

Point (1) of Article 3 of the Directive defines plastic as ‘*a material (...) which can function as a main structural component of final products*’. The aspect of the capability to function as a main structural component of final products concerns the definition of plastic and not the definition of a single-use plastic product. Therefore, in the context of the definition of plastic, this criterion is to be understood as a generic one. As point (1) of Article 3 does not specify or restrict in any way the type of final product, nor the amount of the polymer, in principle, a wide range of polymers can function as a main structural component of final products.

A.1.3 Natural polymers that have not been chemically modified

Polymers that meet the following two conditions laid down in point (1) of Article 3 are exempt from the Directive: (i) they qualify as natural polymers and (ii) they meet the requirement of having not been chemically modified. These terms are further clarified in Recital 11:

‘Unmodified natural polymers, within the meaning of the definition of “not chemically modified substances” in point 40 of Article 3 of Regulation (EC) No 1907/2006..., should not be covered by this Directive as they occur naturally in the environment. Therefore, for the purposes of this Directive, the definition of polymer in point 5 of Article 3 of Regulation (EC) No 1907/2006 should be adapted and a separate definition should be introduced’ [Emphasis added]

*‘Plastics manufactured with **modified natural polymers**, or plastics manufactured from **bio-based, fossil or synthetic starting substances** are not naturally*

*occurring and should therefore be addressed by this Directive. The adapted definition of plastics should therefore cover **polymer-based rubber items and bio-based and biodegradable plastics** regardless of whether they are derived from biomass or are intended to biodegrade over time'* [Emphasis added]

(i) Natural polymers

The term natural polymer is defined in the ECHA Guidance as follows:

*'Natural polymers are understood as polymers which are the result of a polymerisation process that **has taken place in nature, independently of the extraction process** with which they have been extracted. This means that **natural polymers are not necessarily "substances which occur in nature"** when assessed according to the criteria set out in Article 3(39) of the REACH Regulation.'* [Emphasis added]

Point (39) of Article 3 of the REACH Regulation defines substances which occur in nature as follows:

'Substances which occur in nature: means a naturally occurring substance as such, unprocessed or processed only by manual, mechanical or gravitational means, by dissolution in water, by flotation, by extraction with water, by steam distillation or by heating solely to remove water, or which is extracted from air by other means.' [Emphasis added]

In view of the above, the terms natural polymer and naturally occurring substance are two distinct terms and should not be confused. A key distinction relates to the extraction methods allowed. The scope of the natural polymer refers to a broader group that is independent of the method used to extract the substance from nature. Furthermore, point (39) of Article 3 of the REACH Regulation is not directly referred to in the Directive. A consequence of this distinction and applying the definition from the ECHA Guidance is, for example, that cellulose and lignin extracted from wood and corn starch obtained via wet milling meet the definition of natural polymer.

Another key distinction is whether the polymerisation process has taken place in nature or is the result of an industrial process involving living organisms. Based on the REACH Regulation and the related ECHA Guidance, polymers produced via an industrial fermentation process are not considered natural polymers since polymerisation has not taken place in nature. Therefore, polymers resulting from biosynthesis through man-made cultivation and fermentation processes in industrial settings, e.g. polyhydroxyalkanoates (PHA), are not considered natural polymers as not being the result of a polymerisation process that has taken place in nature. In general, if a polymer is obtained from an industrial process and the same type of polymer happens to exist in nature, the manufactured polymer does not qualify as a natural polymer.

(ii) Not chemically modified

Recital 11 of the Directive explains that the term not chemically modified substances should be read in accordance with point (40) of Article 3 of the REACH Regulation, which states:

*'not chemically modified substance: means a substance whose **chemical structure remains unchanged**, even if it has undergone a chemical process or treatment, or a physical mineralogical transformation, for instance to remove impurities.'* [Emphasis added]

The terms have not been chemically modified in point (1) of Article 3 of the Directive, with regard to natural polymers, are to be interpreted as follows: the decision whether a polymer has been chemically modified in its production or not should take into account only the difference between the ingoing and the resulting polymer, disregarding any modifications which might have taken place during production processes, as those are not relevant for the properties and the behaviour of the polymer used and eventually potentially released into the environment.

This means that, for example, regenerated cellulose, e.g. in form of viscose, lyocell and cellulosic film, is not considered to be chemically modified, as the resulting polymers are not chemically modified compared to the ingoing polymer. Cellulose acetate is considered to be chemically modified given that, compared to the ingoing natural polymer, the chemical modifications of cellulose during the production process remain present at the end of the production process.

Where changes in the chemical structure of a polymer result from reactions that are only taking place during the extraction process of a natural polymer (e.g. wood pulping process to extract cellulose and lignin), these are not considered to result in a chemical modification of the natural polymer in the meaning of point (1) of Article 3 and Recital 11 of the Directive. Therefore, paper material resulting from the wood pulping process is not considered to be made of chemically modified natural polymers. This interpretation is also in line with the Impact Assessment accompanying the European Commission's proposal for this Directive (hereafter, 'the Impact Assessment'), in which paper-based products without plastic lining or coating have been identified as available, more sustainable, alternatives to single-use plastic products.

A.1.4 Are Products with Plastic Linings Considered to be made from Plastic?

Point (2) of Article 3 of the SUPD provided the following definition for a single-use plastic product:

*'a product that is made **wholly or partly from plastic** and that is not conceived, designed or placed on the market to accomplish, within its life span, multiple trips or rotations by being returned to a producer for refill or re-used for the same purpose for which it was conceived'* [emphasis added]

In addition, Recital 7 and Recital 12 stated that the Directive should cover only those single-use plastic products that are found the most on beaches in the Union – as well as fishing gear containing plastics and products from oxo-degradable plastic – and that, for this reason, glass and metal beverage containers should not be covered by the Directive (including glass and metal beverage containers that have caps and lids made from plastic), whilst *including* composite beverage packaging. This is in line with the objectives of the Directive to focus efforts where they are most needed.

Following on from the matter of defining plastic itself, there is a question regarding the extent to which products are to be considered 'plastic' or not, depending on the extent to which plastic constitutes part of the product.

Single-use plastic products listed in the Annex to the Directive were considered within its scope if they are wholly or only partly made from plastic as defined in points (1) and (2) of

Article 3. The Guidelines suggest that because the Directive does not envisage any *de minimis* threshold for the plastic content in a single-use product to determine whether or not that product is covered by the definition of single-use plastic product, that ‘a *qualitative assessment is to be applied*’.

The Guidelines noted that many materials, including non-plastic materials, include in their production polymers that would meet the above definition of plastic. They are often used to achieve specific material properties as well as higher production process efficiencies. Those polymeric materials are often synthetic chemical additives. The use of such polymeric materials, e.g., as retention agents or binders and processing aids in the production of a material, which in itself is not plastic, does not result in the single-use product made only of that material to be considered as being made partly of plastic.

Consequently, paper- and board-based single-use products made only from paper- and board-based material, and without a plastic lining or coating, are not, in light of the considerations above, to be considered as single-use plastic products in the meaning of the Directive.

It is a different matter if a plastic coating or lining is applied to the surface of a paper- or board-based or other material to provide protection against (for example) water or fat. In this case, the final product is considered a composite product, being composed of more than one material, one of which is plastic. In this case, the final product is seen as being made partly of plastic. Hence, single-use paper- or board-based products with plastic coating or lining are ‘plastic products’ for the purposes of the Directive.³⁵⁶

Another illustration is beverage cartons that generally consist of several layers of paper, plastic and in some cases aluminium. These are considered, under Article 3(2b) of Directive 94/62/EC on packaging and packaging waste, to be composite beverage packaging, which is expressly included in the scope of the SUPD.

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³⁵⁶ During negotiations over the SUPD text prior to it entering into force, it became clear that the intention was that products made from non-plastic materials with plastic coatings and plastic linings should not be excluded from the scope of the Directive.

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