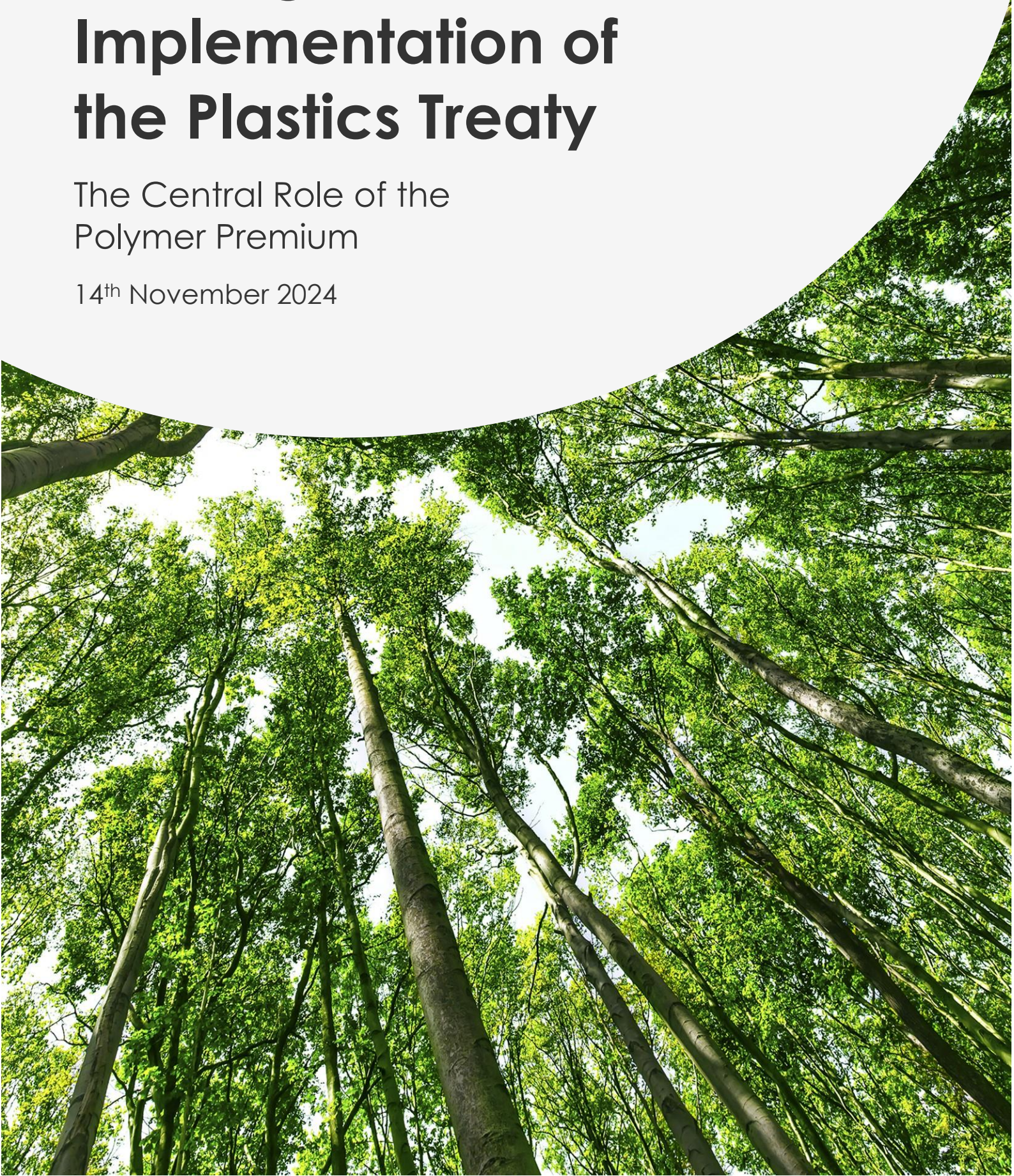


Funding the Implementation of the Plastics Treaty

The Central Role of the
Polymer Premium

14th November 2024



Report For

Minderoo Foundation



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Executive Summary

Eunomia Research & Consulting Ltd (Eunomia) was commissioned by Minderoo Foundation to develop a short report to clarify how the Polymer Premium (a fee on the production of plastic polymers – henceforth referred to as the Fee) could work alongside other sources of financing to ensure successful implementation of an ambitious treaty to end plastic pollution by 2040.

The Fee would be imposed on the producers of primary plastic polymers who would be required to pay US\$60 to 90 per tonne of polymer production. Countries collecting the Fee from their polymer producers could retain part of the revenues (retained share), while the remainder would be distributed among developing countries (redistributed share).

The Fee would complement – not replace – traditional sources of funding for treaty implementation (e.g., traditional official development assistance (ODA) and other public and private financing), to meet some of the large and unique costs of ending plastic pollution in developing countries (through funding waste management infrastructure, transformation to a circular plastic economy, cleaning up legacy pollution, ensuring a just transition and addressing human health impacts).

The cost of treaty implementation would, therefore, be shared between public and private financing. The Co-Chairs Report resulting from the intercessional expert meetings in Bangkok confirms that public and private sectors “both have important roles to play in addressing plastic pollution”, and that public financing can “only partially address the funding gap”, implying that private sector’s involvement is “vital” to achieving the treaty’s objectives.

The Fee has the opportunity to play a unique role in treaty implementation. Its breadth in terms of areas of action that it can support enables it to be targeted where it is most needed in different countries. This means it can get to work straight away on addressing the human health impacts of plastic pollution, cleaning up legacy plastic pollution, supporting upstream transformation to a circular economy, and ensuring a just transition. It can also serve to both lay the groundwork (in terms of capacity building) and help to establish waste collection and management.

However, in order for the Fee to be most effective, the treaty should also strongly encourage the establishment of extended producer responsibility (EPR) (or some other form of more basic cost recovery mechanism in the first instance). This cost recovery is essential to attract private investment in infrastructure and is itself key to ensure the ongoing operation of such systems.

In respect of sustainable waste management, the Fee should be considered a ‘temporary’ source of funding. While as an instrument it will be long-lived, and in respect of legacy clean-up, for example, it is difficult to conceive of alternative sources of funding at an appropriate scale, in most cases it should be working towards becoming unnecessary. In developing safe and environmentally sound waste management infrastructure, the Fee should perform the following functions:

- Helping to build technical and institutional capacity for waste management systems. Of particular importance is ensuring that the capacity is in place for the effective implementation and scaling up of EPR.
- Assisting in the establishment and scale up of collection, sorting and treatment, including:
 - Contributions to infrastructure capital expenditure (capex) – helping to secure additional funding but with a view to other forms of capex funding taking over as the system matures.
 - Taking a strategic view in helping to guide the development of infrastructure to help avoid the risk of stranded assets. This might mean, for smaller countries, taking a view on a regional rather than country-level scale.

- Providing support for operating expenditure (opex) where necessary but with the intention for this to be fully covered as soon as possible by EPR fees and national/local taxation as appropriate.

Going beyond sustainable waste management, the Fee can help in working towards ensuring a just transition, address health impacts and tackle upstream and downstream circularity (i.e. reuse systems and legacy clean up). For these thematic areas Fee revenues can be applied immediately, or indeed at a point that is considered most suitable for the country in question, as in contrast with sustainable waste management, there is less of a requirement for a sequential approach.

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1.0 Introduction

1.1 Treaty Financing Mechanisms

A recently published Expert Group 1 Co-Chairs report identifies potential sources of financing for implementation of the objectives of the treaty. These are categorised as follows:¹

- Public Finance, with potential sources including:
 - National, Sub-national and Local Government Associations (i.e. Government budgets)
 - Public agencies and funds (providing grants, subsidies and transfers)
 - Development Finance Institutions, Aid Agencies (national, bilateral and multinational), with financial mechanisms being debt instruments and investment guarantees
 - Multilateral Environmental Funds (providing co-financing and project finance)
- Private Finance, with potential sources including:
 - Corporate Social Responsibility (where part of profits is allocated towards sustainability projects)
 - Institutional investors and commercial banks (through equity/ debt financing, impact investment)
 - Philanthropic and corporate foundations (providing grants, impact investment and co-financing)
- Public-Private Partnerships (PPP), with potential sources including:
 - Blended finance (through concessional public funds, combined with private sector investment)
 - Social impact bonds (i.e. performance-based bonds)

Alongside this the Expert Group report also presents an overview of what it terms 'innovative' sources of financing. A fee levied on the production of plastic polymers is listed as an innovative finance source, alongside a number of other sources, including extended producer responsibility (EPR).

While the term 'conventional' is not used, in effect the sources that are *not* described as innovative are those that might more typically be used for financing the implementation of multilateral agreements. In respect of innovative finance sources, the Expert Group report notes that:

"They might not be easily accessible to developing countries, which often lack the necessary institutional capacity, financial markets and investor confidence to attract such private investments. Therefore, country-specific circumstances need to be considered."

¹ Report of the Co-Chairs, Ad hoc intersessional open-ended expert group to develop an analysis of potential sources, and means that could be mobilised, for implementation of the objectives of the instrument, including options for the establishment of a financial mechanism, alignment of financial flows, and catalysing finance, for the consideration by the committee at its fifth session (17 October 2024, UNEP/PP/INC.5/5)

Accordingly, this paper seeks to clarify the role that could be played by a Polymer Premium (a fee on the production of plastic polymers) and how it might work alongside other financing instruments. In particular the aim of the paper is to demonstrate that while it is indeed innovative, in contrast to the statement quoted above, it can be used to build the necessary institutional capacity, and act in other ways that will serve to attract further private investment.

1.2 Background

Recent analysis by Minderoo Foundation has highlighted a significant shortfall in the financing required to implement an ambitious treaty to end plastic pollution by 2040. It is estimated that costs will exceed available funding by at least \$350 to 500 billion, requiring governments to bridge the gap or risk undermining the treaty's objectives of protecting human health and the environment.²

This means that developing countries would need an additional US\$25 to 35 billion per year from 2026 to 2040 to implement an ambitious treaty and end plastic pollution. These additional costs are broken down as follows:

- Sustainable waste management – developing safe and environmentally sound waste management infrastructure (formal collection, sorting, recycling and disposal)
- Upstream transformation to a circular plastic economy – supporting elimination, substitution and reuse models
- Ensuring a just transition
- Cleaning up legacy plastic pollution
- Addressing the human health impacts of plastic pollution

Figure 1 shows the extent of this financing gap. For sustainable waste management and upstream transformation the gap is determined through modelling based on the 'Global Rules Scenario' in the Nordic Council of Ministers report.³ Due to data limitations, the financing gaps for just transition, legacy waste and human health impacts were estimated at a high-level, instead of modelled.

The study identifies that financial contributions from producers of primary polymers, in the form of a Polymer Premium (henceforth referred to as 'the Fee'), could provide a critical means of covering this gap, demonstrating that a Fee of US\$60 to 90 per tonne of primary polymer – or just ten cents per kilo – would fully close the financing gap.

The study notes that the Fee would complement and even strengthen, national Extended Producer Responsibility (EPR) schemes, imposing different costs of pollution on different actors in the plastics value chain (thereby avoiding charging twice for the same pollution costs).⁴ A key difference between the Fee and EPR schemes is that the former aims to channel financing to developing countries; whereas the latter provides financing domestically (where the EPR is put in place). EPR schemes and the Fee play a distinct, but complementary role.

² Charles D & Cumming P (2024), The Polymer Premium: A Fee on Plastic Pollution, Minderoo Foundation

³ Nordic Council of Ministers (2023) Towards Ending Plastic Pollution by 2040: 15 Global Policy Interventions for Systems Change

⁴ Charles D & Cumming P (2024), The Polymer Premium: A Fee on Plastic Pollution, Minderoo Foundation

The Co-Chairs Report resulting from the intercessional expert meetings in Bangkok (August 2024) identified the Fee and EPR schemes as innovative sources of financing.⁵ At this meeting, the technical resource person, Peter Borkey (OECD), explained the complementary role of EPR schemes and the Fee based on the following table.⁶

Table 1: OECD Summary of the Complementary Roles of EPR and a Fee

| | EPR | Plastic Pollution FEE |
|--------------------------------|---|---|
| Who pays | Brands/retailers | Primary plastic polymer producers |
| Scope | Domestic | International/domestic |
| Revenue used for | End of life costs of products put on market in country where implemented | Any of the obligations enshrined in the treaty, including international redistribution |
| Main aim | <ul style="list-style-type: none"> Pay for domestic waste management Behaviour change | <ul style="list-style-type: none"> Close financing gap in developing countries No behaviour change intended |
| Who bears the costs ultimately | Consumers of covered products | All users of primary plastic polymers |
| Who collects revenue | Producer responsibility organisations (private sector) | National governments |
| Implementation of PPP | Partial (EoL costs) | Partial (Finance gap in developing countries) |

Source: OECD

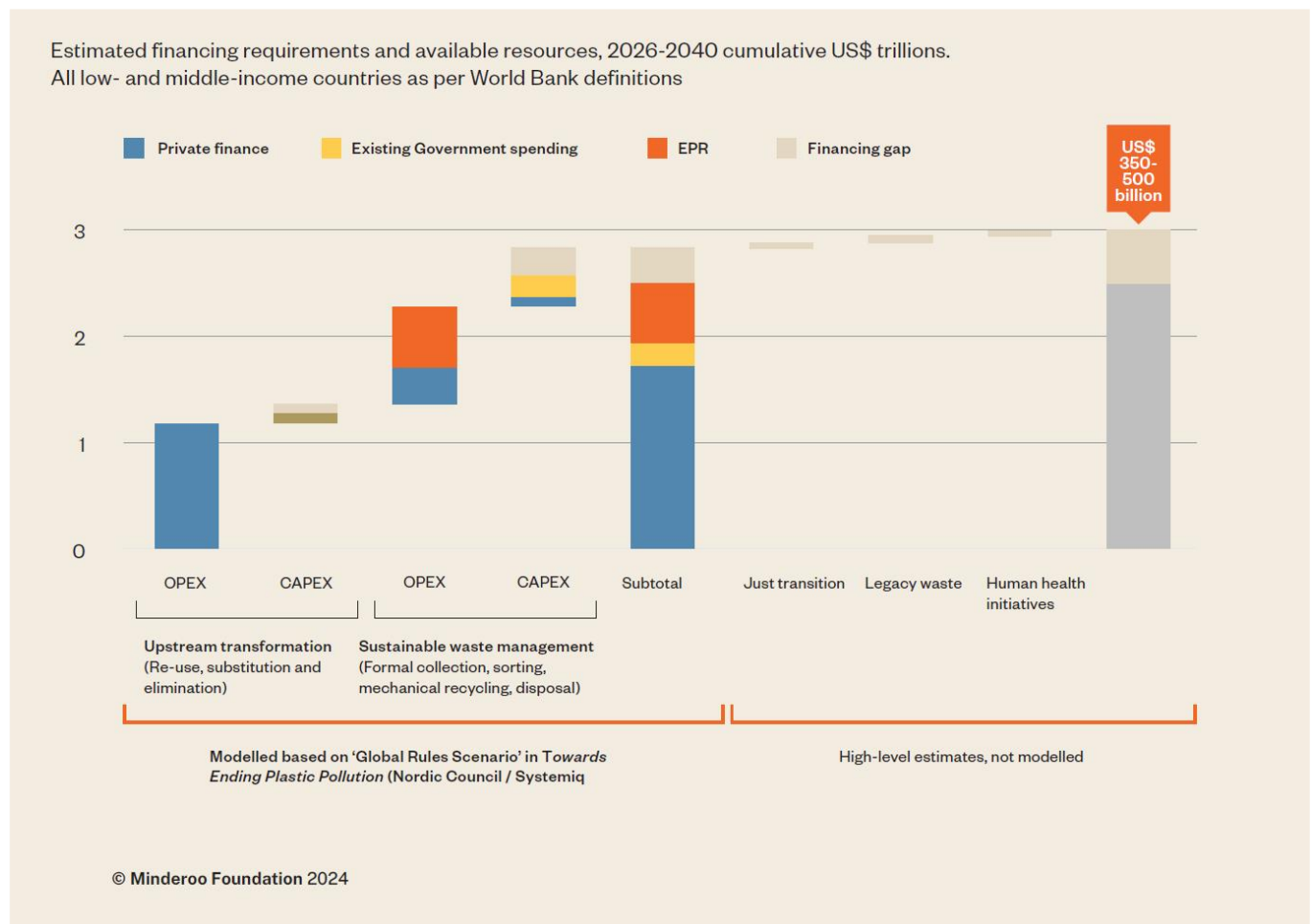
Against this background, it is worth reiterating this complementary way in which these two instruments operate in the context of meeting the goals of an ambitious treaty.

The Fee could finance the capital costs of building waste management systems in low- and middle-income countries, so-called capex (capital expenditure); and, once the systems are up and running EPR could cover the costs of ongoing operations, so-called opex (operating expenditure). Looking at Figure 1, it is clear that, in a best case scenario, EPR could account for a significant element of the required opex. The successful roll-out of EPR is thus an essential component of addressing sustainable waste management. If EPR doesn't cover the operational costs as modelled, the financing gap grows. Second, the Fee also covers other unique costs to end plastic pollution in low- and middle-income countries, which are not covered by EPR; that is upstream transformation, just transition, legacy plastic pollution, and human health impacts.

⁵ Report of the Co-Chairs, Ad hoc intersessional open-ended expert group to develop an analysis of potential sources, and means that could be mobilised, for implementation of the objectives of the instrument, including options for the establishment of a financial mechanism, alignment of financial flows, and catalysing finance, for the consideration by the committee at its fifth session (17 October 2024, UNEP/PP/INC.5/5), paras. 10-13.

⁶ See Peter Borkey (2024), Operationalising the Polluter-Pays-Principle, Ad hoc intersessional open-ended expert group 1 – Finance (available [here](#)).

Figure 1: The Financing Gap: In developing countries, costs of implementing an ambitious treaty will exceed available funding by an estimated US\$350-500 billion



Accordingly, this short paper is intended to highlight to negotiators the key roles that can and should be played by EPR and the Fee, the ways in which they can work together to unlock other forms of finance, and, above all, to emphasise that the breadth of activities that can be covered by the Fee in its deployment of funds makes it a crucial element for successful treaty implementation.

The paper is set out as follows:

- Section 2.0 describes the Fee (Section 2.1) and EPR (Section 2.2), and sets out their respective roles in Treaty Implementation, explaining in Section 2.3 how the two are mutually reinforcing, and in Section 2.4 how the role of the Fee, thanks to its inherent flexibility, can and should evolve over time.
- Section 3.0 provides a more detailed breakdown of the combination of financing instruments that can be used for different activities – collection, sorting, treatment, the development of technical and regulatory capacity, and consumer behaviour – as countries build up their waste management infrastructure, using the conceptual framework of the 9 Development Bands.
- Section 4.0 **Error! Reference source not found.** presents recommendations.

2.0 The Respective Roles of the Fee and EPR in Funding Treaty Implementation

2.1 The Fee

The Fee would be imposed on the producers of primary plastic polymers.⁷ Primary polymer production is the ultimate source of all plastic pollution – there is no plastic pollution without primary plastic polymers. That said, the Fee would not impose all pollution costs on primary polymer producers. Producers would be required to pay a Fee of US\$60 to 90 per tonne of polymer production. Countries collecting the Fee from their polymer producers could retain part of the revenues (retained share), while the remainder would be distributed among developing countries (redistributed share). Minderoo assumes a 10 per cent retained share and a 90 per cent redistributed share – this division could also be different and differentiated (with a larger retained share for producer developing countries).⁸

The Fee would complement – not replace – traditional sources of funding for treaty implementation (e.g., traditional official development assistance (ODA) and other public and private financing), to meet some of the large and unique costs of ending plastic pollution in developing countries (through funding waste management infrastructure, transformation to a circular plastic economy, cleaning up legacy pollution, ensuring a just transition and addressing human health impacts). The cost of treaty implementation would, therefore, be shared between public and private financing. The Co-Chairs Report resulting from the intercessional expert meetings in Bangkok confirms that public and private sectors “both have important roles to play in addressing plastic pollution”, and that public financing can “only partially address the funding gap”, implying that private sector’s involvement is “vital” to achieving the treaty’s objectives.⁹

The negotiating countries would have different options for the design of the institutional mechanism to administer the redistributed funds among low- and middle-income countries. Among the issues, they would have to decide whether to pool redistributed Fee revenues with traditional sources of funding under the treaty, and to earmark Fee revenues to address certain pollution costs. They would also have to designate the entities responsible for administration, and ensure transparency and accountability.

As designed, the Fee revenues can be directed towards a broad range of activities.

2.2 EPR

By contrast with the revenues raised by the Fee, revenues raised through EPR will be allocated towards a narrower set of activities.

EPR is a policy tool which extends a producer’s responsibility to the post-consumer stage of a product’s life cycle. In practice, it requires producers to take financial and/or operational responsibility for collecting, sorting and treating end-of-life products. In many high income and emerging economies, EPR has been applied as a policy tool across a range of product categories, most notably packaging, waste electrical and electronic equipment (WEEE), batteries and tyres.

It is important to note that the obligated “producer” under EPR is typically the entity responsible for the final product that is sold to consumers, as these entities usually have the greatest impact on product

⁷ A Fee at this stage of the value chain would be relatively easy to administer because the number of affected entities is small: just 50 companies account for 90 per cent of primary polymers produced. See Charles D & Kimman L (2023), Plastic Waste Makers Index 2023, Minderoo Foundation.

⁸ Charles D & Cumming P (2024), The Polymer Premium: A Fee on Plastic Pollution, Minderoo Foundation

⁹ Co-Chairs Report, paras. 10-13.

design. In the case of packaging, this is best exemplified as the “brand owner”. This differs from the use of the term “producers” in context of the Fee, where it is applied to the upstream polymer producers.

EPR aims to shift the burden of end-of-life costs away from taxpayers/citizens toward producers/consumers, in accordance with the polluter pays principle, and to incentivise producers to take account of environmental impacts when designing products. It is also worth noting that while the obligation might be placed on individual producers, the obligation is usually discharged collectively, through a single organisation, often owned by the obligated producers and run on a not-for-profit basis.¹⁰

The way in which EPR has been applied in different places to date does, however, exhibit significant variation. Despite this a common thread is that where EPR is applied, it applies to products and packaging that are made from a range of materials.

Some of the more complex schemes use their fee structure, and the ‘modulation’ (varying) of fees, to seek to incentivise design changes. However, for many countries, the most immediately pressing requirement is simply for waste to be collected and managed in a sanitary way, and for this service to be adequately funded. This implies a far greater initial focus on producers covering the costs of end-of-life management, with incentives for better product design being a somewhat secondary concern. As outlined in a November 2023 paper from Reloop, the implication of this is that within the context of the treaty the focus should be on:¹¹

extending producers' responsibility to covering the costs of managing the waste resulting from their products and packaging. This includes the entire waste management process, covering collection, sorting, recycling, and management of products and packaging that are not recycled, including treatment and disposal, as well as cleaning streets and other public areas of littered items.

This may mean that for some countries, they may choose a cost recovery mechanism that is not in the form of legislated EPR. This could, for example, involve producers being required to contribute to a government-administered fund that is used to undertake collection and management of waste.

However, from the producer perspective they will want reassurance that they are paying no more than is needed in order to collect and manage waste. This is why extended producer responsibility is often discharged through the formation of a producer-owned, not-for-profit producer responsibility organisation (PRO). Through being producer-owned, the PRO has the incentive and opportunity to ensure the activities it is funding are being discharged efficiently.

While ultimately it would likely be desirable from the producer perspective - especially for those producers who operate across numerous countries - for EPR schemes to coalesce around a somewhat harmonised model, this is not something that will be a realisable prospect in the short term. Thus there will inevitably be numerous approaches to recovering waste management costs from producers.¹²

Given the above, in this document, when considering the role of different instruments in financing to meet the goals of the treaty, we will use the term EPR to cover both what might be conventionally understood as EPR, and also other forms of cost recovery where the funds are used to cover the costs of the waste management process associated with the products in scope.

¹⁰ Other approaches are also implemented – some systems have a number of competing schemes, some are run on a for-profit basis. However, there are a number of arguments that would suggest that a single scheme has distinct advantages.

¹¹ Reloop (2023) Simplifying Extended Producer Responsibility for an International Legally Binding Instrument on Plastic Pollution, available at <https://www.reloopplatform.org/resources/simplifying-epr/>

¹² ‘Recovery of Waste Management Costs from Producers’ is the term suggested by Reloop as an alternative way of discussing extended producer responsibility within treaty negotiations

2.3 Better Together

The Fee can independently be applied to addressing the human health impacts of plastic pollution, cleaning up legacy pollution, ensuring a just transition, and supporting upstream transformation to a circular plastic economy. Actions in these areas are not dependent on sustainable waste management being in place.

However, when it comes to developing safe and environmentally sound waste management, EPR and the Fee have specific features and strengths that mean they can work in complementary and mutually reinforcing ways.

The Fee could provide financing to support the development of appropriate infrastructure for managing plastics at end of life. While EPR fees would cover the costs of collection (once the facilities are up and running), as well as the costs of sorting and treatment of end-of-life plastics in such facilities (and those costs would themselves be set so as to cover both capital and ongoing costs, plus the costs of financing the facility), EPR schemes themselves are not always well placed to fund the development of such infrastructure.

More broadly, a weakness of EPR, especially in smaller countries, relates to the ability to co-ordinate the development of strategic infrastructure at the appropriate spatial scale. The Fee, through taking a strategic perspective, can play a coordinating role here. This would help to spur rapid development of appropriate infrastructure at the appropriate scale – which may be regional rather than national - while also reducing the risk of stranded assets.

With a reliable counter-party – in the form of a well-functioning EPR scheme – and investment from the Fee, the combined effect would be to de-risk infrastructure investments and increase the likelihood of attracting additional private finance. Leveraging additional finance will be particularly important given that some facilities may deal with multiple materials (beyond plastics).

However, the initial *establishment* of systems to collect and manage waste is a complex undertaking and many countries will have a prior requirement for significant technical and institutional capacity building. Such capacity building is not something that EPR is well-placed to address, but the Fee has the flexibility to provide such capacity building in order to prepare the ground for the subsequent roll-out of collection and management systems. In so doing the Fee can help initiate systems that can then be funded largely through EPR.

An important part of that capacity building would be to help countries ensure that EPR schemes are well-designed. Not all EPR is well-designed, and while 'the perfect scheme' is not something that can be implemented overnight, it's important for schemes to be designed in such a way that they maximise the potential for attracting investment in the required infrastructure. For example, investors in recycling facilities will be looking for counter-parties that can provide a guaranteed level of supply of material at a specific level of quality. If the EPR scheme design is such that it controls *all* of the material, that makes it a reliable counterparty and would thus de-risk investment.

An additional role of the Fee here could be to act as a 'carrot' to incentivise well-designed EPR. For example, in some cases, a condition of receipt of proceeds of the Fee could be that the EPR scheme has to meet certain minimum requirements.

2.4 The changing role of the Fee over time

From the outset the Fee can be applied to addressing the human health impacts of plastic pollution, cleaning up legacy pollution, ensuring a just transition, and supporting upstream transformation to a circular plastic economy - supporting elimination, substitution and reuse models. For each country, priorities will vary, and the decision as to where to place the immediate focus will differ.

The roles played by the Fee can and should evolve over time. Indeed, while the Fee is a means of filling the financing gap - and at one level that description feels rather passive - it will actually be an extremely dynamic instrument that is key to driving wider system change.

An example already provided above is of the proceeds of the Fee being used to rapidly mobilise EPR schemes through funding prior capacity building and the capital costs of associated infrastructure. Importantly, the quicker that EPR is established, the less need there is for other sources of funding and the quicker that the Fee proceeds can be redirected elsewhere.

Numerous aspects of EPR can themselves evolve over time:

- The scope of costs covered by producers
 - Collection, sorting and recycling are typical for many schemes, as are awareness raising activities. However, costs could also be extended to cover the management of relevant products/packaging that end up in the residual stream and go to landfill.
- The extent to which costs within scope are covered
 - The percentage of scheme costs covered by producers might be steadily increased over time, until they are paying all the relevant costs. The remainder of the costs would be covered by other sources, including the Fee.
- Scheme performance
 - For example, initially recycling targets may rather low, but these can be increased over time, necessitating investment in improved collection and sorting infrastructure.

In respect of sustainable waste management, it should therefore be a key aim for the Fee to be used strategically to get well-designed EPR schemes up and running as quickly as possible, and for those schemes to evolve rapidly to a state where they are high performing and with a wide range of costs fully covered by producers.

If through capacity building the Fee can help to ensure the development of a form of EPR that is a reliable counterparty, that will serve to de-risk investments. In so doing, private investors will be encouraged to step in.

EPR schemes do not operate in a vacuum, and a supportive national regulatory framework is also something that will encourage private investors to step in. Again, this is something that could be supported through the capacity building from Fee proceeds.

3.0 The role of the Fee, EPR and other Financing Instruments as Countries move through Development Bands

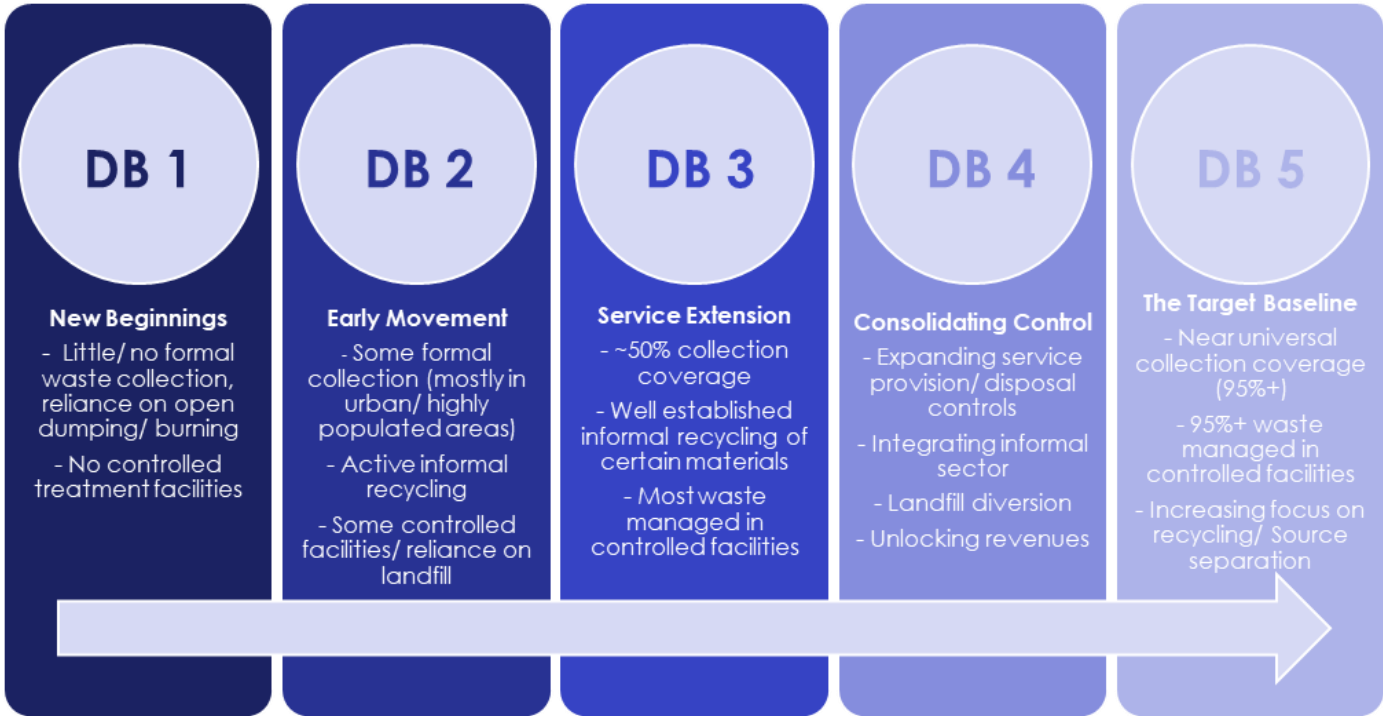
Noting that other areas of treaty implementation (addressing the human health impacts of plastic pollution, cleaning up legacy pollution, ensuring a just transition, and supporting upstream transformation to a circular plastic economy) can be addressed by the Fee at any point, in this section we focus on the example of achieving sustainable waste management.

It is important to consider how the various funding mechanisms can be applied independently and in combination to address the challenges associated with treaty implementation in different country contexts (noting that in reality it may take 10 years or more to move from a situation where a country has no, or very limited, formal waste collection to one where collection is near universal).

An improvement in plastic waste management is the cornerstone of the treaty, not only to reduce plastic leakage and pollution in countries where adequate waste management is lacking, but to improve the circularity of plastics where established waste systems do not currently preserve material value sufficiently. Both the Fee and EPR have significant potential to unlock the upfront finance and ongoing funding needed to support the relevant transition in waste systems over time.

In the sections that follow, we consider how EPR and the Fee could work alongside other instruments to achieve this, drawing on the conceptual framework of 9 development bands for waste management (see Figure 2) to illustrate the range of country contexts.¹³ The focus is on supporting a transition to better waste management in countries that are currently moving through the lower development bands (i.e., DB1-DB5) given that this will be where the bulk of investment and financial support to prevent global plastic pollution should be targeted.

Figure 2: Summary of development bands (DB) for waste management (1 to 5 of 9)



Source: Based on Whiteman A, Webster M, Wilson DC, The nine development bands: A conceptual framework and global theory for waste and development. Waste Management & Research. 2021;39(10):1218-1236. doi:10.1177/0734242X211035926
The DBs are briefly described below, using the descriptions provided by the authors:¹⁴

DB1 new beginnings

In DB1, most households receive no waste collection service, so have to self-manage their waste. Anything with a value will be reused or recycled at home. Residual waste is typically disposed in

¹³ Whiteman A, Webster M, Wilson DC. The nine development bands: A conceptual framework and global theory for waste and development. Waste Management & Research. 2021;39(10):1218-1236. doi:10.1177/0734242X211035926, available at <https://journals.sagepub.com/doi/full/10.1177/0734242X211035926>
¹⁴ Whiteman A, Webster M, Wilson DC. The nine development bands: A conceptual framework and global theory for waste and development. Waste Management & Research. 2021;39(10):1218-1236. doi:10.1177/0734242X211035926, available at <https://journals.sagepub.com/doi/full/10.1177/0734242X211035926>

neighbouring open spaces, drains, waterways or openly burnt. The priority is to protect public health by removing waste from populated areas. The key pressure point is to help establish operators, in particular collection service providers who also recover items with a market value; interventions often work best when they are driven by the community themselves.

- Example locations: Many towns and cities in the least developed countries; areas recently affected by conflict or natural disaster; refugee camps; peri-urban and slum areas in cities in many LMICs

DB2 early movement

DB2 is where some waste collection services have become established, often focused in the central business district and more prosperous residential areas of cities. The focus is on local government stepping in to coordinate or manage expansion of collection service coverage. Some capital budget is provided to purchase and replace vehicles and equipment, and operationally the units may hire labour for street cleaning services. Disposal sites have become established and may even have been officially designated; however, little if any budget is allocated and disposal operations remain largely uncontrolled. An active informal recycling sector (IRS) operates independently of the municipality. The priority is still to control the risks to public health from accumulating waste. The key pressure point is the formation, establishment and capacity building of local government waste/street cleaning/public health units, distinguishing the responsibility for ensuring service provision (an emerging client/employer function) from the task of service delivery (operator function).

- Example locations: Many cities in LMICs, which are growing rapidly due to influx from rural areas. Includes many secondary cities

DB3 service extension

The priority in DB3 is on further expanding collection services and introducing or improving control over disposal facilities. Collection service deficiencies continue to be evident in low-income and slum neighbourhoods. The IRS has become more established, operating in parallel to or even in co-operation with formal collection services. Operational standards of disposal begin to take hold as budget is made available for human resources to manage, and mechanical equipment to be in frequent use at disposal sites. The priority is to improve both the levels and standards of collection, recovery and disposal. The key pressure point is to strengthen the planner function; strategic planning is required at national, regional and city levels, covering both the physical infrastructure and the governance frameworks, including ensuring that the institutional functions are organisationally allocated.¹⁵

- Example locations: Many cities and megacities in LMICs

DB4 consolidating control

DB4 is represented by the trunk of the 9DB tree and can be conceptualised as two parallel 'tracks'. DB4a works towards meeting global waste target GW1 and SDG indicator 11.6.1, with 95+% coverage of collection services and 95+% controlled recovery and disposal. DB4 often sees costs rise sharply, as collection reaches more difficult to service urban, peri-urban and rural areas, and environmental standards of recovery and disposal increase; in this context, continuing to build on and integrate the services of the IRS is often important. The key pressure point is the revenue collector function, overcoming critical operational revenue bottlenecks by implementing the polluter pays principle and diversifying revenue sources.

- Example locations: Diverse situations across the world, in cities of all different sizes, and in most continents. Includes many small islands. Residual pockets may persist for some time after a country progresses to the higher DBs

DB5: The target baseline

¹⁵ The functions identified by the authors are those of Policy, Planning, Client/Employer, Revenue Collector, Operator, Change Agent and Regulator (with three separate functions – environmental, technical and financial regulators).

Reaching DB5 represents the important milestone of 'universal' (95+%) collection and controlled disposal. For LMICs currently struggling through the lower DBs, DB5 represents a reachable target at least for urban areas; their primary aim must then be to ensure that this new baseline is financially sustainable in the medium- and long-term, while also consolidating their achievements by extending collection and controlled disposal to remaining pockets of service deficiency, including rural areas.

- Example locations: Most countries currently in higher DBs have spent a period in this transitional DB. Current incumbents include many of the newer Member States of the European Union (EU).

3.1 Relevant areas of waste management that will require financing

The type and sequencing of the specific actions necessary to move from one development band to another will vary depending on individual country contexts in reality. For illustrative purposes, we have distilled six broad areas of waste management across which progressive action is needed to transition through the development bands. These six areas relate to the development of both physical assets (infrastructure and technology), as well as the relevant systems, processes, and behaviours that underpin waste systems (service provision and performance, regulation and enforcement, consumer engagement, etc.). The six areas of waste management development, each with its own financing and funding need, are:

1. **Technical capacity**; i.e., the organisational knowledge, skills, competence, resources and leadership necessary to achieve waste management goals and to independently solve problems by acquiring and/or utilising technology or technical processes.
2. **Institutional capacity**; i.e., the ability of the state and other relevant institutions to identify, implement, monitor and enforce controls related to waste management to prevent harm to human health and safety and the environment, and for other actors (waste operators, waste generators, etc.) to comply with the relevant laws and regulations.
3. **Waste collection**, i.e., infrastructure, labour and processes to gather waste from the point of discard, and transport it for further processing and treatment. This incorporates collections in both formal and informal systems, and could include door-to-door or kerbside collections, collections at community bring sites, with different types of waste potentially segregated at source;
4. **Waste sorting**, i.e., infrastructure, labour and systems to separate collected waste into different fractions based on material type or end destination (recycling or disposal) using a range of manual and mechanical methods. This may also include steps to process the waste further (washing, shredding, baling etc.) to make it suitable for treatment;
5. **Waste treatment**; i.e., infrastructure whereby waste is treated by physical, mechanical (e.g., recycling), thermal (e.g., incineration), biological (e.g., composting) or other means to facilitate its handling or enable recovery or disposal (e.g., landfill);
6. **Upstream and downstream circularity**, i.e., addressing legacy plastic waste in the environment (downstream clean-up) and actions further upstream to help reduce the use of plastics (and indeed reduce the use of materials more generally) through activities such as reuse.

3.2 Potential Financing Instruments

To meet financing and funding needs, the following instruments are considered alongside EPR and the Fee as described above, some of which are presented in the Synthesis Paper on Finance and the overview of existing sources of financing for addressing plastic pollution through international funding arrangements prepared by the INC secretariat and the Expert Group 1 Co-Chairs report:^{16,17}

- **Fiscal instruments**
 - **National level taxes, levies, charges:** these include national-level fiscal instruments for achieving various policy objectives such as diverting waste from disposal towards recycling (e.g. landfill tax and incineration tax), reducing consumption (e.g. plastic tax), charges/penalties for non-compliance, etc. National taxes are usually not earmarked for spending on specific purposes and instead go to the general budget. However, part of the revenue could be 'ring-fenced' for waste management and encouraging circular economy.
 - **Local taxes and charges:** These include municipal charges for providing waste collection and management services, either in the form of fixed charges or variable fees based on waste generation. Local taxes and charges are usually earmarked for waste management purposes.
- **Debt financing**
 - **Bank loans:** these can be market rate loans as well as concessional rate loans for developing key infrastructure
 - **Government and private bonds:** these are traditional forms of debt financing instruments with fixed return rates and maturity.
 - **Sustainability-linked bonds:** more innovative debt financing mechanisms linked to sustainable impacts/outcomes.
- **International financing**
 - **Multilateral funding arrangements:** provided by national and international financial institutions, and multilateral development organisations, and includes grants, match funding, low-interest loans and various other financial instruments
 - **Official Development Assistance (ODA):** provided by high-income countries in the form of grants, low-interest loans, and other financial instruments
- **Private sector financing**
 - **Private equity funds:** the most common form of private sector financing that does not offer stock to the general public.
 - **Venture capital:** private capital investment in high-risk projects/startups.

¹⁶ UNEP (2024) Expert Group 1 Co-chairs' synthesis paper on Finance, 7th August 2024, available at https://wedocs.unep.org/bitstream/handle/20.500.11822/46049/EG1_Synthesis_Paper.pdf

¹⁷ Report of the Co-Chairs, Ad hoc intersessional open-ended expert group to develop an analysis of potential sources, and means that could be mobilised, for implementation of the objectives of the instrument, including options for the establishment of a financial mechanism, alignment of financial flows, and catalysing finance, for the consideration by the committee at its fifth session (17 October 2024, UNEP/PP/INC.5/5)

- **Impact investment funds:** private investment funds linked to specific impacts/outcomes.
- **Not-for-profit financing:** philanthropic funds provided in the form of grants, concessional and market rate finance.
- **Public-private partnerships**
 - **Blended finance:** use of public funds to leverage private finance by risk sharing

3.3 Financing Sources for each waste management area as progress is made through the Development Bands

In this section we focus in turn on each of the six areas of waste management that will require financing and describe the different types of actions that may take place under each, as countries move from one DB to the next, and how these might be funded.

It's important to note that the DBs are descriptive, not prescriptive. There is nothing to stop individual countries 'skipping' a DB, and as noted, different parts of the same country may at the same point in time be in different DBs. Furthermore, there will be country-specific reasons why approaches and financing requirements and solutions will vary. Accordingly, the suggestions below are illustrative in nature, showing how needs and funding sources change over time.

A key thread is that the Fee can be used strategically in all waste management areas to help get things up and running, and enable other sources of funding to then move in, so that the Fee can be freed-up to drive action elsewhere.

3.3.1 Technical Capacity

By technical capacity we mean the organisational knowledge, skills, competence, resources and leadership necessary to achieve waste management goals and to independently solve problems by acquiring and/or utilising technology or technical processes.

This is an area where support from the Fee at the earliest stage can make a big difference to subsequent success by laying the ground for the rollout of other measures.

(DB1-2) Initial activities might include:

- Gathering baseline data;
- Developing an initial strategy on plastics; and
- Supporting existing waste pickers and municipalities to initiate and/or strengthen, and better organise existing systems.

The Fee could add considerably to the more conventional sources of funding for such capacity building, such as multilateral funding arrangements and ODA (which might sometimes take the form of technology transfer).

(DB2-3) Subsequently, support could take the form of:

- Developing operating standards for sorting/disposal;
- Planning support for siting of facilities; and
- Procurement support.

Again, the Fee could provide additional support for these activities, adding to conventional sources such as multilateral funding arrangements and ODA.

(DB3-4) As systems further develop, there may be a need for:

- Pilot projects;
- Demonstration facilities; and
- Other related research & development activities.

The Fee can play a crucial role in funding these activities alongside ODAs as it would be difficult to get private investment in these high-risk initiatives, although some of these could potentially be funded by venture capital funds.

(DB4-5) At this stage there should be less need for such external technical support to be funded from outside sources. The systems of collection, sorting and treatment should be well established, and funded through EPR and national level taxes and charges.

3.3.2 Institutional Capacity

Institutional capacity refers to the ability of the state and other relevant institutions to identify, implement, monitor and enforce controls related to waste management to prevent harm to human health and safety and the environment, and for other actors (waste operators, waste generators, etc.) to comply with the relevant laws and regulations.

This is also an area where support from the Fee at the earliest stage can make a big difference to subsequent success by laying the ground for the rollout of other measures. In particular establishing a solid institutional understanding of the role that can be played by EPR, the different forms it can take, and how it can evolve over time is key. Importantly, the key message to be conveyed is the central role of establishing some form of mechanism for recovering waste management costs from producers at the earliest possible opportunities – ideally with this paving the way for a more developed form of EPR in due course.

(DB1-2) Initial activities might include:

- Building up the legislative framework, and developing:
 - Standards;
 - Permitting guidance; and
 - Clarity on roles and responsibilities.

As is the case for technical support, the more conventional sources of funding for such capacity building are multilateral funding arrangements and ODA. However, the Fee could add considerably to the early action on institutional capacity building, with a particular focus on ensuring that EPR is set up and rolled out at the earliest opportunity.

(DB2-3) Subsequently, support could take the form of:

- Developing a clear delineation of institutional roles and responsibilities;
- Ensuring budget allocations are firmed up (with an associated need for operating standards as noted in Section 3.3.1 on Technical Capacity); and
- Meeting the need for better data management and monitoring of performance.

While EPR/cost recovery from producers (where established) should go some way to funding data management and performance monitoring, there will still be a need for external support, and this could be through conventional means such as multilateral funding arrangements and ODA, but with the Fee also playing a role – particularly where this will facilitate the subsequent development of systems and infrastructure that will address plastics.

(DB3-4) As systems further develop, there may be a need for:

- Enforcement activities, inspections and potential issuing of penalties

Funding for this would potentially come through national or local taxation or revenue from permit charges. However, the Fee could also provide funds towards the establishment and running of enforcement activities where needed.

(DB4-5) At this stage there should be less need for institutional capacity building, as most processes should be well-developed and the focus will be more on sharing/keeping up to date with best practices in other municipalities, and in other countries. Any such activities are likely to be funded from national taxation.

3.3.3 Collection

Actually getting plastic waste (indeed any waste) collected is fundamental to being able to subsequently ensure appropriate treatment. However, funding the upfront investment in collection systems can be difficult. Many investors are often more interested in providing financing for a single large capital-intensive facility, such as an incinerator, rather than the many vehicles, containers, depots, transfer stations and crew that are needed for an effective collection system. Also, revenue funding is a more important component than the capital funding and this is often less attractive to private investors.

(DB1-2) Initial activities might include:

- Supporting informal sector activities; and
- Starting to roll out bring/kerbside systems, but potentially only in urban centres.

This will require a lot of upfront capex, which could be provided by the Fee. However, the Fee alone should not necessarily be expected to cover the entire capex required for collection infrastructure, as this will cover a wide range of different materials beyond just plastic. That being said, the flexible nature of the Fee means that, given it may be necessary to tackle waste collection as a whole in order to tackle plastic pollution, it could go beyond a narrow focus on plastics when helping to establish the required collection systems. However, other funding sources are available, such as multilateral funding arrangements and ODA, and these can be combined with the Fee to ensure appropriate capital investment. To this, innovative debt financing mechanisms such as sustainability linked bonds could be added.

The opex could be financed through local taxation (municipal charges) although the ability to raise such revenue might be limited in many cases. Cost recovery from producers through EPR, or perhaps a more basic form of cost recovery could also be another source, along with debt financing mechanisms. In addition, the Fee could make a contribution to the operational costs as collection systems are evolving. From the perspective of citizens, seeing a waste collection system working, and having confidence that

it is being run effectively, can act as an encouragement to pay waste management fees (for the fractions not covered under EPR where relevant) if that is the form of payment. That being said, in the early stages, it may be easier for such contributions to come from national-level funds. So the role of the Fee here, as in most applications, is to help get systems up and running and then for other forms of funding to take on the costs of their continued operation and improvement.

(DB2-3) Subsequently, there will be a need for:

- Increased collection coverage;
- Further separation of recyclables;
- Moves towards formalising elements of the informal sector.

Again capex requirements here could be provided by the Fee, in combination with ODA. Opex will increasingly be funded by national and/or municipal taxes and charges, and also by EPR (or some other form of cost coverage from producers of products and packaging).

(DB3-4) As systems further develop, there may be a need for:

- Driving a further expansion of collection coverage, into trickier rural areas; and
- Bringing the informal sector more clearly within the scope of the formal system.

At this point overall system costs are likely to increase by a fair amount. Again, the Fee can help to finance some of the high capex for expanding the collection system to remote areas, alongside other international financing mechanisms like multilateral funding arrangements and ODA.

The Fee can also support some of the opex, especially related to just transition of the informal sector. Other sources of opex funding could be national and local taxes/charges and EPR.

(DB4-5) At this stage, the focus should be on:

- Further optimisation of collection services with the focus shifting to source segregation / door to door collection to improve performance.

The Fee can provide upfront capex for new source segregation collection infrastructure, while opex should be fully funded through the cost recovery provided by waste collection charges and EPR fees as relevant.

3.3.4 Sorting

Sorting waste helps to reduce waste, conserve resources and improve recycling rates. This is a key step towards generating revenue from potentially valuable waste materials that can be meaningfully recycled, diverting them from landfill and incineration and reducing dependence on virgin material extraction and production.

The need for and nature of sorting is co-dependent with the nature of collection systems – the more source segregation you do, the less subsequent sorting you need – there are trade offs in terms of costs and quality of materials

(DB1-2) Initial activities might include:

- Supporting the informal sector (which is already likely doing some manual sorting alongside collection activities for the most valuable fractions (metals, PET bottles, cardboard) – making sure

they're realising the value of the sorted materials (better organisation, use of digital apps etc.), providing some safety equipment

- Ensuring unsafe sorting practices (scavenging on landfill sites, etc.) are controlled, moving towards formalising informal sorters, permitting, etc.
- Establishing basic infrastructure – land plus sorting hall

Upfront capex could be provided by the Fee, although other funding such as multilateral funding arrangements and ODA would be appropriate as sorting will cover a wide range of materials.

The Fee may also be an appropriate source of opex while systems are being established if funding is not available from other sources such as local/national taxation.

(DB2-3) Subsequently, there will be a need for:

- Manual sorting facilities with basic equipment (conveyors, tippers, baler, etc.), safety equipment for staff, reasonable pay for staff, etc. Maybe some basic automation (magnets, etc.)
- Ensuring all waste undergoing sorting – with consistent set of valuable materials targeted (to build feedstock stream + start to identify end markets) – helping to achieve higher recycling rates

Capex requirements could again be provided by the Fee, in combination with ODA. Opex will increasingly be funded by national and/or municipal taxes and charges, and also by EPR (or some other form of cost coverage from producers of products and packaging).

(DB3-4) As systems further develop, there may be a need for:

- Starting to automate/ invest in new infrastructure – moving towards MRFs/ PRFS etc. with more materials targeted with more accuracy (improving quality and quantity of sorted waste – particularly relevant for types of plastic that can be targeted/ valorised).

In line with what is occurring with collection, at this stage overall system costs are likely to increase quite dramatically. Again, the Fee can help to finance some of the high capex for expanding the sorting infrastructure to remote areas, alongside other international financing mechanisms like multilateral funding arrangements and ODA.

The Fee can also support some of the opex, albeit other sources of opex funding such as EPR (in particular) and national and local taxes/charges should be making a significant contribution.

(DB4-5) At this stage, the focus should be on:

- Consolidation – all waste now going through MRFs/ PRFs, greater automation, even more granularity in types of plastic targeted (NIR, etc.)

The Fee can provide upfront capex for new and more advance sorting infrastructure and can also be playing a strategic role in considering where sorting facilities need to be located to help make the system as a whole more efficient. By this point opex should be fully funded through the cost recovery provided by waste collection charges and EPR fees as relevant.

3.3.5 Treatment

Ensuring appropriate management of collected (and sorted) waste is essential to tackling plastic pollution, as well as addressing a wide range of other issues associated with different waste types. While the priority focus will be on avoiding mis-managed or indeed unmanaged waste, attention should quickly turn to making the most of opportunities to recycle collected materials.

(DB1-2) Initial activities might include:

- Introducing managed landfills
- Some formal reprocessing for high value fractions (likely small scale and reliant on manual operation)

Similar to the financing mechanisms for collection, the Fee in combination with multilateral funding arrangements could be used for funding the capex costs of treatment infrastructure. However, the Fee can also be used as a seed capital to attract private sector financing options, such as private equity funds. Another potential funding option could be to use public-private partnership arrangements using some blended finance mechanism, where the public funds can be used to de-risk the private investments.

For funding the opex for treatment, the Fee could be a significant source where others are not available, but ideally at least some contribution would come from EPR fees (or a basic form of cost recovery from producers) alongside national or local level taxation.

(DB2-3) Subsequently, the aim will be for:

- Most waste to be going to managed landfill; and
- Larger scale recycling solutions emerging alongside improved/ automated sorting.

With increased collection, a steady supply of feedstocks to treatment facilities can start to attract private finance for capex. However, part of the capex may well need to come from the Fee and ODA.

For opex an increasing proportion should be covered by EPR fees and national and/or local level taxation.

(DB3-4) As systems further develop, the emphasis will be on:

- Landfill diversion;
- Increasing recycling capacity;
- Waste management as a service (with contractual performance requirements etc.); and
- More automation in facilities.

Capex for more advanced recycling is likely to be financed by private investment, as these will be revenue generating operations. However, the Fee can still be useful for providing initial seed funding and/or de-risking some of the private investments. The Fee can also serve to re-risk investments by taking a co-ordinating role in considering what facilities are needed where, potentially at the regional scale.

Opex for these operations will be mainly covered by EPR and local taxes/charges as appropriate.

(DB4-5) At this stage, the focus should be on:

- Further developing recycling infrastructure

Capex is mainly funded by private sector investment. Where needed the Fee can be used to attract private finance through the provision of seed capital. The co-ordination role played by the Fee in considering the choice and appropriate location of more advanced facilities becomes even more important as further specialisation occurs.

3.3.6 Upstream and Downstream Circularity

There may be cases where legacy cleanup is an urgent matter from a public health perspective, deserving of early intervention funded by the Fee. However, for each specific situation, it's worth bearing in mind that applying Fee revenues to this task will mean those revenues cannot be spent elsewhere. The broad approach recommended in this paper is that the Fee be used not only to fill gaps, but to help establish systems that can then attract other sources of upfront and ongoing funding.

An argument could be made that the sooner waste management systems can be set up the better, and the Fee should then switch focus in order to address legacy plastic pollution. This would also mean that the flow of waste plastics into the environment is addressed first, which should ensure the task of legacy cleanup is not Sisyphean. However, in certain circumstances this may not be the preferred approach.

The same point could apply to the use of the Fee for upstream circularity initiatives such as helping to establish reuse systems. While in principle this could be done at any point, it may well be more appropriate for this to be done once the systems for waste collection and management are well established. This is not because good waste management is essential for reuse systems – far from it – the existence of reuse systems should act to prevent waste. Rather it is a question of what is more immediately important from the perspective of tackling plastic pollution and addressing more immediate issues that relate to sanitation and public health.

There will of course be exceptions to this, and again the ability of the Fee to direct resources to a broad range of activities means it is well-placed to respond when opportunities arise.

4.0 Recommendations

The Fee has the opportunity to play a unique role in treaty implementation. Its breadth in terms of areas of action that it can support enables it to be targeted where it is most needed in different countries. This means it can get to work straight away on addressing the human health impacts of plastic pollution, cleaning up legacy plastic pollution, supporting upstream transformation to a circular economy, and ensuring a just transition. It can also serve to both lay the groundwork (in terms of capacity building) and help to establish waste collection and management.

However, in order for the Fee to be most effective, the treaty should also strongly encourage the establishment of EPR (or some other form of more basic cost recovery mechanism in the first instance). This cost recovery is essential to attract private investment in infrastructure and is itself key to ensure the ongoing operation of such systems.

In respect of sustainable waste management, the Fee should be considered a 'temporary' source of funding. While as an instrument it will be long-lived, and in respect of legacy clean-up, for example, it is difficult to conceive of alternative sources of funding at an appropriate scale, in most cases it should be working towards becoming unnecessary. In developing safe and environmentally sound waste management infrastructure, the Fee should perform the following functions:

- Helping to build technical and institutional capacity for waste management systems. Of particular importance is ensuring that the capacity is in place for the effective implementation and scaling up of EPR.
- Assisting in the establishment and scale up of collection, sorting and treatment, including:
 - Contributions to infrastructure capex – helping to secure additional funding but with a view to other forms of capex funding taking over as the system matures.

- Taking a strategic view in helping to guide the development of infrastructure to help avoid the risk of stranded assets. This might mean, for smaller countries, taking a view on a regional rather than country-level scale.
- Providing support for opex where necessary but with the intention for this to be fully covered as soon as possible by EPR fees and national/local taxation as appropriate.

Going beyond sustainable waste management, the Fee can help in working towards ensuring a just transition, address health impacts and tackle upstream and downstream circularity (i.e. reuse systems and legacy clean up). For these thematic areas Fee revenues can be applied immediately, or indeed at a point that is considered most suitable for the country in question, as in contrast with sustainable waste management, there is less of a requirement for a sequential approach.

Figure 3 provides an illustration of the different thematic areas to which Fee revenues might be allocated, and how the emphasis might shift both within themes and between themes as countries make progress in improving their waste management systems and tackling plastic pollution. The thickness of the horizontal bands for each of the areas indicates the significance of revenues from the Fee relative to funding from other sources.

Moving from the left to the right represents progress in respect of the 9 development bands, the conceptual framework used as the basis for discussion in Section 3.0, with the primary focus being on the first five of the development bands (DB1 to DB5).

The first four of the thematic areas relate to those described in Section 3.3, namely:

- Technical and institutional capacity (covered in Sections 3.3.1 and 3.3.2 respectively);
- Waste collection and sorting (covered in Sections 3.3.3 and 3.3.4 respectively);
- Waste treatment (covered in Section 3.3.5); and
- Upstream and downstream circularity, relating to reuse systems and legacy clean up (covered in Section 3.3.6).

To these have been added the thematic areas of just transition and health impacts. As can be seen, it is important to use Fee revenues to build technical and institutional capacity at the earliest possible stage, which will help to secure the success of subsequent Fee investments in waste collection and sorting, and waste treatment. For upstream and downstream circularity, just transition and health impacts, as noted above, these can be addressed at the outset, or at any point deemed suitable.

Figure 3: Relative thematic allocation of Fee revenues as countries make progress in tackling plastic pollution

