

Moving Towards Outcomes-Based Financial Mechanisms for Waste Prevention

Introduction to Outcomes-Based Financing as an Innovative
Mechanism to Accelerate Plastic Pollution Mitigation

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The global systems that manage plastic waste and prevent pollution are unfortunately at an early stage of an urgent modernization process. While the changes driven by regulation slowly come online, we must embrace solutions that fill the gap with rapid catalyzation. What's most exciting about the OBWP framework is how new opportunities for plastic action are grounded in methodologies that have successfully scaled other climate solutions, such as renewable energy. This allows for instant adoption and high confidence for replicability of success.

GreenBlue uses a collaborative approach to build functional tools that change the system dynamics for a sustainable materials future. We designed the ARC program to expand new capacity in urgently needed recycling processing while allowing parties across supply chains to quantify their accountability for downstream plastic waste. This virtuous cycle, like the other outcome based finance programs, complements other drivers like regulation for an comprehensive toolkit of full lifecycle plastic waste action. We applaud Earth Action in preparing a compelling case for integrating these truly groundbreaking solutions

Ross Bergman

Director, Recycled Material Standard, GreenBlue



In the fight against plastic pollution, Outcomes-Based Financing emerges as a transformative mechanism, compellingly spotlighted in Earth Action's report. This modality, drawing success from other sectors, can help direct crucial financing towards interventions that yield measurable, tangible, and verifiable reductions in plastic waste.

At rePurpose Global, our journey over the past five years has been focused on bridging the financial divide and scaling grassroots and innovative solutions for a waste-free, ethical, and circular economy. The time is ripe to scale Outcomes-Based Financing to accelerate the pace and scale of solutions required to comprehensively address plastic pollution.

Svanika Balasubramanian

CEO & Co-founder, rePurpose Global



Funding for reuse infrastructure is acutely needed. However, accessing finance has been a challenge for reuse innovators for many reasons, such as due to perceived risks, higher initial costs, lack of incentives, and a focus on short-term financial returns.

There is currently no well-defined financial instrument specifically designed for reduction and reuse solutions. We believe that Outcomes-Based instruments for reuse will play a pivotal role in catalyzing investments in this space. We are hopeful that the frameworks developed by Earth Action through this report can help galvanize more financing towards scaling reuse solutions, as well as deploy them in an effective manner. This is crucial to accelerate the transition from our current throw-away economy to one that is regenerative, circular, and equitable.

Crystal Dreisbach

CEO, Upstream Solutions



This report underscores a pivotal challenge on the path to a zero plastic footprint: despite comprehensive efforts to overhaul business practices and minimize plastic use, a significant infrastructure gap remains, obstructing progress towards eliminating plastic pollution. A lack of robust systems for waste prevention and management underscores this gap. It highlights Outcomes-Based Financing (OBF) and unitization as key to unlocking corporate investments in the necessary infrastructure. The Corporate Accountability Framework for Target Setting and Mitigation, currently under development in the Plastic Footprint Network, is poised to play a crucial role in weaving the principles of OBF into the corporate sustainability journey. This approach not only targets waste management enhancements but also prioritizes investments in prevention and circularity solutions, setting the stage for a concerted push towards a future free from plastic pollution.

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EA – Earth Action is a mission-driven research consultancy and member of the European Network of Ecodesign Centres (ENEC). In addition to supporting organisations through a broad service offering, EA regularly works to identify and address critical sustainability knowledge gaps, developing the data and applying insights to create research trusted by scientists and actionable by all.



EA is particularly recognized for expertise and leadership in the field of plastic pollution, contributing novel research, perspectives, frameworks, and methodologies to help global organisations address the issue within their own realm and beyond.

Since 2017 EA has published 12 peer-reviewed reports on **plastic pollution topics**. An early report “Primary Microplastics in the Ocean” published in 2017 by IUCN, was one of the first studies to shed light on the impact of primary microplastic on the environment (mainly from tyres and textiles).

In 2022, EA presented another novel report on microplastics with the “Plastic Paints the Environment” report, highlighting the significant contribution of paint to microplastic leakage in the environment.

EA co-developed the first plastic footprint methodology in 2020 (The Marine Plastic Footprint, IUCN 2020) and The Plastic Leak Project (2020), which has enabled companies worldwide to assess the impact of plastic used in their products, services, and operations. Since 2020, governments have also been supported in their efforts to address plastic pollution by the EA-led

National Guidance for Plastic Pollution Hotspotting and Shaping Action (2020), released in partnership with UNEP and IUCN.

More recently EA has convened the **Plastic Footprint Network**, a broad stakeholder initiative working to harmonise the methodologies and frameworks for assessing, measuring, and mitigating plastic pollution globally.

Another important EA contribution to addressing plastic pollution is **Plasteax**, which was launched in 2021. Plasteax provides companies, NGOs, governments and other pollution stakeholders with polymer-specific waste management and leakage data for countries around the world. The valuable data within Plasteax regularly informs other plastic pollution research, including this study, and decision-making.

The EA team recognizes there is no single solution to plastic pollution and is committed to identifying and providing the data, ideas, insights, services, solutions and opportunities required for all stakeholders in the world of plastics to protect human health and global ecosystems from the ill effects of plastic pollution.

Foreword

The plastic crisis is getting worse, yet the solutions have never been clearer. This report brings forward unequivocal research in a world increasingly aware of the toll of plastic pollution: at this critical juncture, urgent action across the whole plastic life cycle through a wide range of interventions, with different priorities and in collaboration with a range of stakeholders, will spur efforts.

The scarcity of infrastructure due to insufficient funding is delaying a system change. Innovative financial mechanisms therefore become an imperative to bolster sustainable solutions across every stage of the plastic life cycle. These mechanisms must be tailored, catering to the maturity level and investment readiness of local, small-scale solutions that currently spearhead the plastic action solutions sector. As the UN Global Plastics Treaty discussions gain momentum, securing financing for the agreed-upon measures will emerge as a critical pillar of the agreement.

This groundbreaking work delves into the transformative potential of Outcomes-Based Waste Prevention (OBWP), a financial modality that incentivizes measurable reduction in plastic waste. It asserts the capacity of OBWP to strategically bridge the funding gap hindering progress on plastic pollution mitigation efforts. This report charts a course towards developing a promising tool within the financing landscape to address the plastic crisis by defining key terms, introducing pivotal concepts, and exploring existing applications.

The insights and recommendations in this report speak directly to stakeholders operating at the intersection of plastic pollution mitigation and innovative financial mechanisms. Development finance institutions and philanthropic funders, policymakers and regulators, as well as the private sector all stand to gain from integrating Outcomes-Based Financing mechanisms and galvanize crucial finance towards high performing and promising interventions. Meanwhile, OBWP

practitioners and standards are encouraged to leverage methodologies, guidelines and best practices in a holistic way to effectively tackle potential challenges while upholding robust environmental and social safeguards.

OBWP should be integrated in a global corporate mitigation strategy that differentiates between *within* and *beyond* value chain actions. The corporate plastic accountability framework proposed by the **Plastic Footprint Network** offers a promising structure where OBWP could be safely deployed within the corporate action landscape and bolster the Plastic Treaty's measures.

On the brink of global decisions to tackle plastic pollution, may this report serve as a catalyst for change, unlocking finance for mitigating plastic pollution through an informed, science-based and conscientious approach to the use and management of plastics.

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Executive summary

This report explores how Outcomes-Based Waste Prevention (OBWP), an innovative financial modality that incentivizes measurable reduction in plastic waste, can be utilized strategically to bridge the funding gap hindering progress towards mitigating plastic pollution. The report sets the stage for developing a promising tool within the financing landscape to address the plastic crisis by defining key terms, introducing concepts, and exploring existing applications. The report aims to offer insights for policymakers, businesses member states, government officials, financing institutions and other stakeholders operating at the intersection of plastic pollution mitigation and financing.

The plastic crisis is getting worse, even though the solutions have never been clearer

Out of the 460 Mt of plastic produced each year, 110 Mt are mismanaged, and 28 Mt leak into the natural environment annually (Systemiq, 2023, OECD, 2023). Without global coordinated efforts, these numbers could escalate by 60% up to 85% in 2040 (Systemiq, 2023). Although businesses are increasingly willing to shift away from the “take-make-dispose” business model, current models in the plastic market are far from achieving circularity in practice.

Solutions exist and have the potential to virtually eliminate plastic pollution by 2040. There are numerous opportunities for impactful interventions in mitigating plastic pollution throughout the plastic life cycle, with most efforts required in systems that reduce plastic consumption and increase collection and recycling of waste. However, some obstacles currently hinder their widespread deployment owing to their early-stage nature and acute need for financing.

Chronically underfunded infrastructures are delaying a system change

The plastic pollution challenge is a scale and timing issue. Production is outpacing our ability to manage waste effectively, resulting in a rising cost of inaction. The lack of viable infrastructures and management systems represents an important barrier. Alleviating these hurdles presents important benefits in terms of reducing material extraction and its negative consequences, reducing the amount of waste and methane created, increasing waste management capacity, capturing mismanaged waste back into the regulated waste management system and repairing leakage. A total of USD 5.22 Trillion from both public and private sources should be mobilized in the next 15 years to scale up

interventions upstream and downstream of the plastic life cycle to reduce plastic pollution by 90% in 2040 (Systemiq, 2023).

Innovative financial mechanisms are therefore crucial to support sustainable solutions acting along the life cycle stages of plastic, catering to the maturity level and investment readiness of local, small-scale solutions that currently dominate the plastic action solutions sector. These financial mechanisms offer flexibility and are more adapted to support approaches that are at an early stage of development, compared to traditional financing instruments.

Outcomes-Based Waste Prevention presents a unique opportunity to unlock financial resources through the unitization of impact

OBWP is a concept emanating from Outcomes-Based Financing (OBF), a financial approach that links payments from different financial sources to specific outcomes and that incentivizes efficiency and effectiveness in achieving desired results. OBWP involves structuring financial incentives to reward initiatives and projects that demonstrate a measurable reduction in plastic waste and its environmental impact. This financial modality answers the need to provide both

technical capacity enhancement and financial backing simultaneously, thus addressing the challenges these initiatives face. It is a unique instrument within the financing landscape which promotes accountability, transparency, effectiveness, scalability, and innovation. **OBWP enables flexible financing and swift deployment of funding, which makes this instrument particularly suitable for solutions with lower levels of investment readiness and for which specific support and resources may be needed. This report explores OBWP mechanisms in the context of plastic waste given the need for urgent incentives to mitigate global plastic pollution.**

Through unitization of impact, OBF offers a paradigm shift, prioritizing outcomes over financial return on investment. It evaluates investments based on measurable environmental outcomes. In addition, unitization holds value in monitoring and evaluating investments, as those are integrated into the instrument.

An evaluation framework to establish a credible investment environment and to mitigate risks

This report lays out the foundation of an effective evaluation framework that acts as a key enabler and de-risker, creating a credible

investment environment. It is an essential tool for stakeholders seeking to invest in sustainable waste prevention solutions, offering a standardized and transparent approach to measure the impact of plastic pollution interventions and guide decision-making processes. The proposed approach explores monitoring and reporting concepts to track progress toward outcomes. This ensures transparency and accountability, making reporting on target achievements a prerequisite for accessing OBWP and reinforcing a culture of responsibility and continuous improvement.

Private, public and philanthropic sectors can collectively elevate Outcomes-Based Financing to the next level

Public and private sectors are called to work in a coordinated manner. Three stakeholder groups hold pivotal roles in implementing OBF.

- **Development finance institutions and philanthropic funders** can join efforts to invest resources in projects that yield tangible and meaningful results by leveraging OBF modalities.
- The **private sector** can go beyond their efforts to reduce plastic waste in their own value

chains as well as finance additional actions beyond their value chain, thereby supporting the creation of global circularity infrastructure through OBF.

- **Policymakers** and **regulators** can benefit from integrating OBF investment mechanisms in national plans and policies, fostering corporate accountability and galvanizing crucial finance towards high performing and promising interventions, to combat plastic waste in their nation.

Outcomes-Based Financing, a game changer to enable the Plastics Treaty's objectives

Recognizing the profound transformational change needed in how we produce and consume plastic, OBF stands out as a promising means of implementation to meet the Treaty's goals. By aligning financial incentives with measurable environmental outcomes, OBWP can guide the strategic allocation of resources where they are most needed, incentivizing nations and businesses to adopt and scale innovative plastic pollution mitigation strategies.

OBF not only fosters global collaboration by aligning the interests of nations, businesses,

and ecosystem services beneficiaries but also creates a shared commitment through financial incentives linked to measurable outcomes. This promotes the exchange of best practices, technology, and expertise on a global scale. In essence, the Treaty marks a pivotal moment to integrate OBF principles, ensuring effective deployment of financial resources for tangible environmental outcomes.

Most importantly, **member states and negotiators** are encouraged to:

- **Recognize** OBF programs, as innovative financial schemes that can catalyze the development of circular economy solutions, particularly in underserved regions.
- **Stimulate** various forms of innovative financial schemes, with strong environmental and social safeguards to enhance the pace, effectiveness, and scale of resource mobilization and use.
- **Leverage** OBF to unlock more financial resources from public and private sources towards capacity building in SIDS, LDCs, and other developing countries.

1

The Plastic Pollution Status Quo

1.1 Consumption, Utilization and Fate of Plastics

Plastic, a ubiquitous part of our lives, has become both a symbol of progress and a significant environmental challenge. Its numerous applications and low production costs make it one of the most used materials in recent times. Since 2000, plastic consumption has quadrupled, and plastic waste generation has doubled in the last 30 years (OECD, 2022). Today, roughly 460 Million tons (Mt) (OECD, 2022) of plastic enter the global market annually, a vast majority of which is used in packaging (32%), industrial applications (29%) and textile (15%) (EA, 2023).

The global plastic market follows a linear “take-make-dispose” model. Most of the plastic

produced is fossil-based (430 Mt in 2019), with pollutive results in extraction, refinement, and manufacture, and shortly becomes waste (385 Mt in 2019), part of which is mismanaged (110 Mt in 2019) and eventually leaks into the environment (28 Mt in 2019) (Systemiq, 2023). Carrying on business as usual, by 2040, these numbers will increase between 60 and 85% (Figure 1, Systemiq, 2023) posing a real threat to the environment, ecosystem stability, social, economic, and environmental justice, and human health. 40% of plastic consumption is short-life plastics (Systemiq, 2023), including packaging and single-use plastics. With a lifespan shorter than a year, these materials quickly accumulate as waste. They also pose a unique challenge in terms of collection and recycling due to their very low economic value and their heterogeneous composition.



FIGURE 1 Plastic production and plastic waste in 2019 and 2040 under a business-as-usual scenario. Adapted from Systemiq (2023).

1.2 Unveiling Circularity Challenges: Broken Infrastructure & the Time Value of Plastic Action

The circularity approach is meant to shift away from such linear material flow by bridging the source and the fate of a product. In that respect, responsible practices such as proper collection, reuse and recycling have the potential to reduce the use of virgin sources and slow down the production of waste. The goals are ultimately to reduce the overall production of virgin plastic, and inherent greenhouse gas emissions, by avoiding waste, increasing proper waste treatment, and promoting reuse schemes.

The **Global Commitment**, recognized as the largest global voluntary initiative aimed at tackling plastic pollution, was initiated in 2018 by the Ellen MacArthur Foundation (EMF) and the United Nations Environment Programme (UNEP). With more than a thousand signatories aligned behind ambitious 2025 targets, its primary goal is to integrate plastic packaging into the circular economy model. After five years of implementation, notable advancements have

been achieved; however, further progress is hampered by key obstacles (EMF, 2023).

- First, reuse models, one of the most promising solutions to plastic pollution (The Pew Charitable Trusts and Systemiq, 2020), are particularly hard to scale up due to a chicken-and-egg phenomenon that is unique to reuse. If commitments to shift from single use to reuse are not made at scale, the volume necessary to achieve economic viability is not met. And without volume, the buildout of infrastructure cannot be justified, while at the same time, corporations can neither commit to transitioning to reuse or to agree to high-volume contracts without seeing that infrastructural capacity exists. Meanwhile, early pilots have experienced logistical challenges. Incentivizing reuse can therefore play a major role in mobilizing this transition.
- Second, flexible plastic packaging, an ever-growing market especially in high-leakage countries, holds very low value for recyclers and waste pickers once it becomes waste. It therefore represents a major source of plastics in the environment (Ahamed et al., 2021).
- Third, the lack of infrastructure is a major obstacle for the collection and recirculation

of single-use packaging. In addition to the necessity for innovation in materials and design, improving infrastructure development would be a game-changer in preventing plastic pollution. The Global Commitment efforts shed light on the tremendous lack of infrastructure to manage waste. Mobilizing financing and investments in this sector is urgently needed to accelerate progress in addressing plastic pollution.

Although the past decade has experienced a growing focus on the topic of sustainability as well as a growth of recycling initiatives, plastic production has still grown 20 times more rapidly than the capacity to collect and recycle it (Figure 2). A staggering 94% of plastic is virgin, with only a mere 6% sourced from recycled materials. This discrepancy is not due to a lack of demand for recycled content; on the contrary, the demand surpasses the supply. For example, signatories of the Global Commitment are striving to include altogether 30% of recycled content, but the scarcity of recycled plastic that is fit for use hampers progress. Starting from 4.7% of recycled content in their product at the beginning of the initiative, the Global Commitment signatories have more than doubled (11.7% in 2023) (EMF, 2023). However, they still face challenges in reaching the aggregated 26% target indicating difficulties

In the past 10 years, plastic production has increased 20 times more rapidly than the collection & recycling capacity.

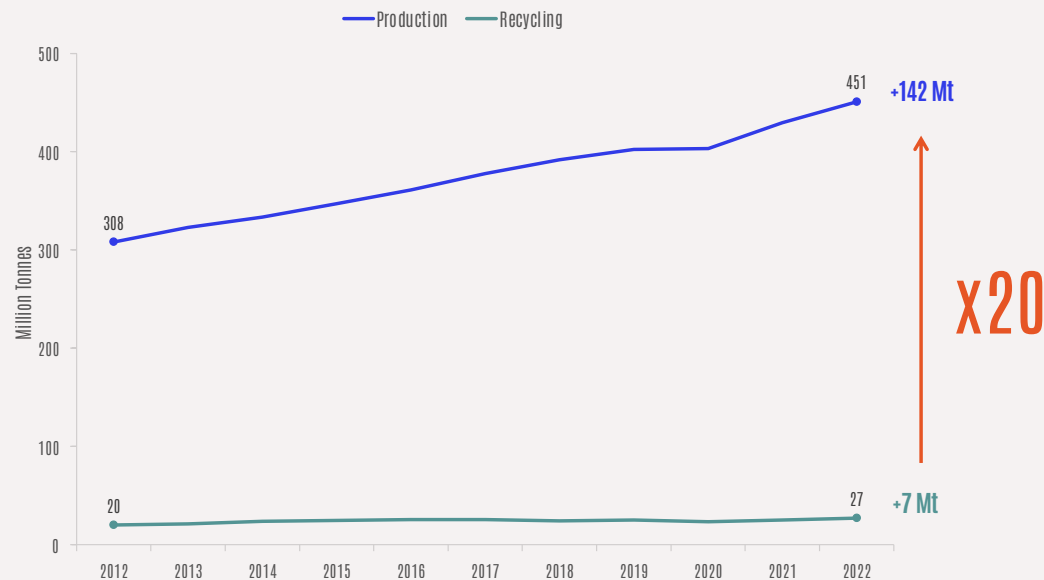


FIGURE 2 Global plastic production and recycling quantities between 2012 and 2022. Data from PLASTEAX.

leads to ineffective and unsafe plastic waste management. Finally, postponing decisive actions will amplify the financial burden of addressing the plastic crisis – a concept known as the “time value of plastic action”. Consequently, **a delay of five years in taking action could result in an additional 80 Mt of plastic leakage in the environment** (The Pew Charitable Trusts and Systemiq, 2020). This underscores the critical importance of acting promptly to mitigate the detrimental effects of plastic pollution, as timely intervention can significantly reduce both environmental harm and future costs.

Two primary reasons contribute to the shortage of recycled content (EMF 2023, OECD, 2018). First, the existing infrastructure for collecting, sorting, and recycling plastic is woefully inadequate to meet the soaring demand, necessitating significant investments. Second, due in part to technical challenges, the manufacturing of virgin plastic is currently more economical than collecting and treating recycled plastic, which is still facing difficulties that impact recycling efficiency.

in accessing a steady stream of usable post-consumer recycled plastic.

Various aspects are compounding the growing plastic pollution issue. Among them, rising plastic production, coupled with inadequate

efforts in scaling up circularity and infrastructure development, contributes to increasing plastic pollution. Furthermore, the tremendous lack of infrastructure, especially in low- and middle-income countries where technical, financial and operational means are limited (WWF, 2023)

1.3 Geographical Disparities

Plastic production, disposal, and the pollution it causes come with high social, environmental, and economic costs, borne primarily by communities and governments. Moreover, there are disparities in the distribution of these costs within and between countries. (WWF, 2023)

There are significant discrepancies across the world regarding the ability and capacity to responsibly manage waste. In the Global North, waste management, collection and recycling services funded by taxes are the norm. Municipalities are usually at the forefront of this complex organization. In contrast, over 3 billion people lack basic waste collection services and infrastructure, mostly in the Global South (UNEP, 2015). The scarcity of infrastructure due to lack of financial resources leads to open burning, dumping, and, consequently, to environmental pollution and health hazards. Effective and controlled waste management that forms the foundation for material collection, sorting, processing, and reuse is yet to be developed.

Addressing such issues in these regions requires context-appropriate financing. A combination

of private and public financing mechanisms, along with strategic policy instruments such as imposing a tax on virgin plastic, is essential for funding necessary investments. Nevertheless, traditional financing mechanisms are less well-suited for rapid deployment, particularly in regions where swift action is crucial. For instance, traditional financing instruments such as debt and private equity are often not fit for purpose for early-stage solutions with unproven track records, as they offer limited assurance of financial returns due to the inherently low profitability of such ventures. Furthermore, large-scale multilateral funds lack flexibility because of their high-ticket sizes and complex, bureaucratic processes. Innovative financing mechanisms are therefore needed to help bridge these gaps, catalyze circularity and enable systems change.

1.4 Scope of the Report

This report aims at making the case for the multifaceted challenges of plastic waste management and explores the role of leveraging Outcomes-Based Financing for Waste Prevention (OBWP) as a strategic solution addressing the lack of funding for interventions aiming to tackle plastic pollution. It conceptualizes a framework

for the evaluation of measurable outcomes in the context of OBWP. The intention of this report is to enhance understanding of OBWP as a financial instrument designed to mitigate plastic pollution and to lay the groundwork for developing a robust evaluation methodology. By examining solutions, obstacles, gap solvers, and enablers, the report aspires to provide actionable insights for policymakers, businesses, and stakeholders at the intersection of plastic pollution mitigation and innovative financial mechanisms.

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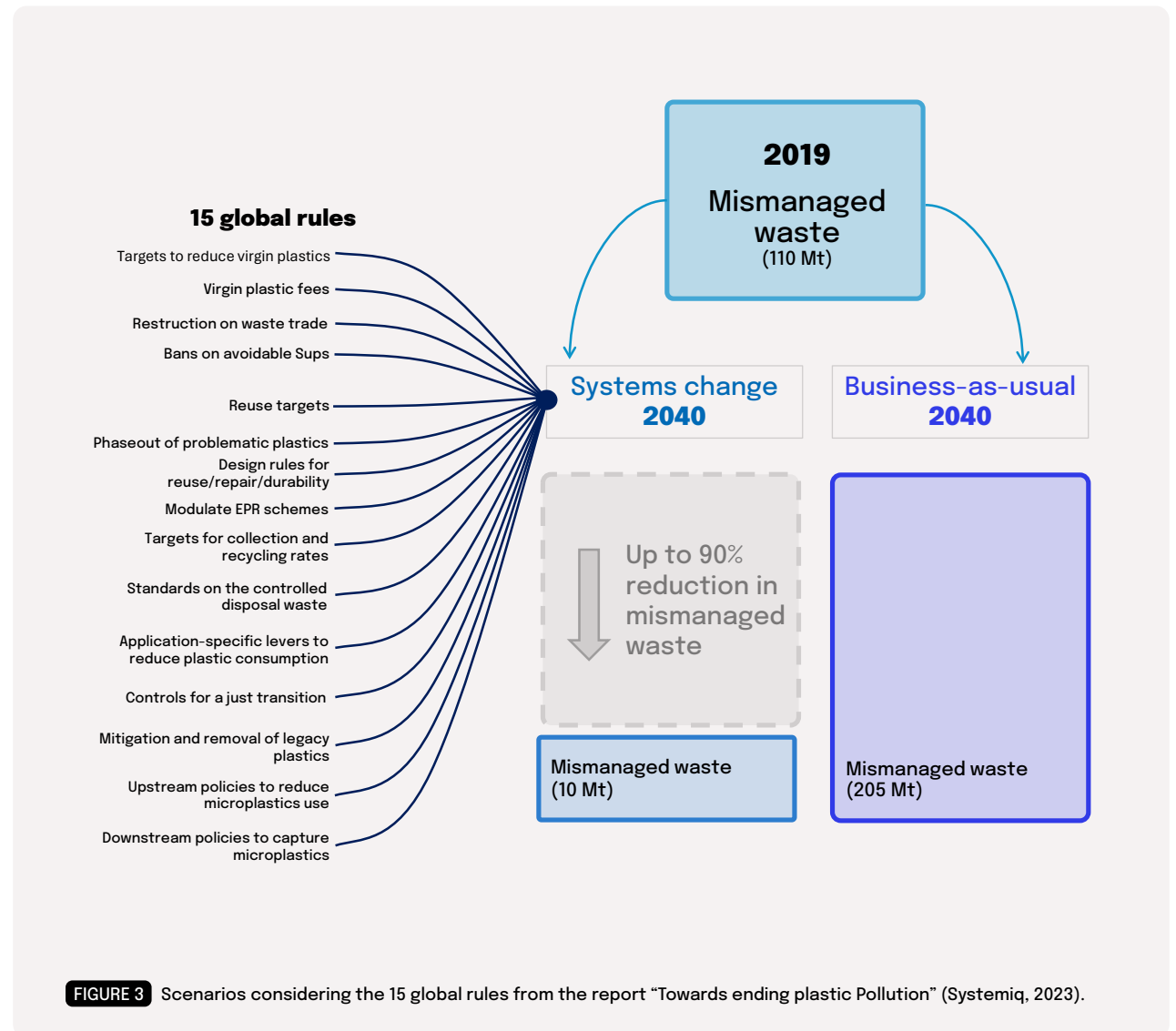
Combating the Plastic Crisis through Systems Change

Adopting a circular economy approach involves a holistic transformation of the plastic value chain rooted in rethinking society's plastic consumption and disposal practices. Many opportunities exist for impactful interventions in mitigating plastic pollution throughout the plastic life cycle. Nonetheless, obstacles currently impede the thorough implementation of these measures. This section dives into the various interventions for plastic pollution mitigation highlighted in previous works and discusses the challenges hindering their widespread adoption.

Since 2022, 175 nations have been developing a legally binding agreement to be issued at the end of 2024, with the objective to end plastic pollution by 2040. With this Global Plastics Treaty in sight, coordinated and global action to curb plastic pollution is likely to accelerate, despite some uncertainty on how ambitious the global instrument will be. In that respect, the latest report by Systemiq (2023) "Towards Ending Plastic Pollution" is the most complete available scientific study to date to understand the potential consequences of implementing a [...]

[...] comprehensive set of policies aimed at addressing the plastic crisis. Considering the main plastic applications and economic regions, the report compares the plastic waste life cycle in 2040 under a business-as-usual scenario (~650 Mt of waste) as well as under a systems change scenario (~460 Mt of waste) that integrates 15 far-reaching rules adopted globally. The systems change scenario highlights that under an ambitious policy context (Figure 3), mismanaged waste can be reduced by 90% in 2040 compared to 2019.

Along with other works (The Pew Charitable Trusts and Systemiq, 2020; OECD, 2023; Lau et al., 2020), the report by Systemiq (2023) demonstrated that to drastically reduce mismanaged waste by 2040, a combination of diverse actions taking place at all stages of the plastic life cycle is needed. The model results imply however that interventions at the early stage of the plastic life cycle need to be significantly scaled up. In that respect, compared to current efforts, upstream interventions such as material substitution, reuse models, and eliminating the dependence on plastic, must accelerate in order to reduce plastic waste production by 28% (184 Mt) compared to the business-as-usual scenario in 2040. Collection and recycling efforts must double and increase seven-fold, respectively. Overall, in 2040, the



waste management sector should process an additional 170 Mt of plastic waste, from which more than 160 Mt should be recycled, compared to 2019 values. Even with such efforts, it is

estimated that 3% of waste (13 Mt) would remain mismanaged, requiring downstream diversion interventions and cleanup efforts (Figure 4).

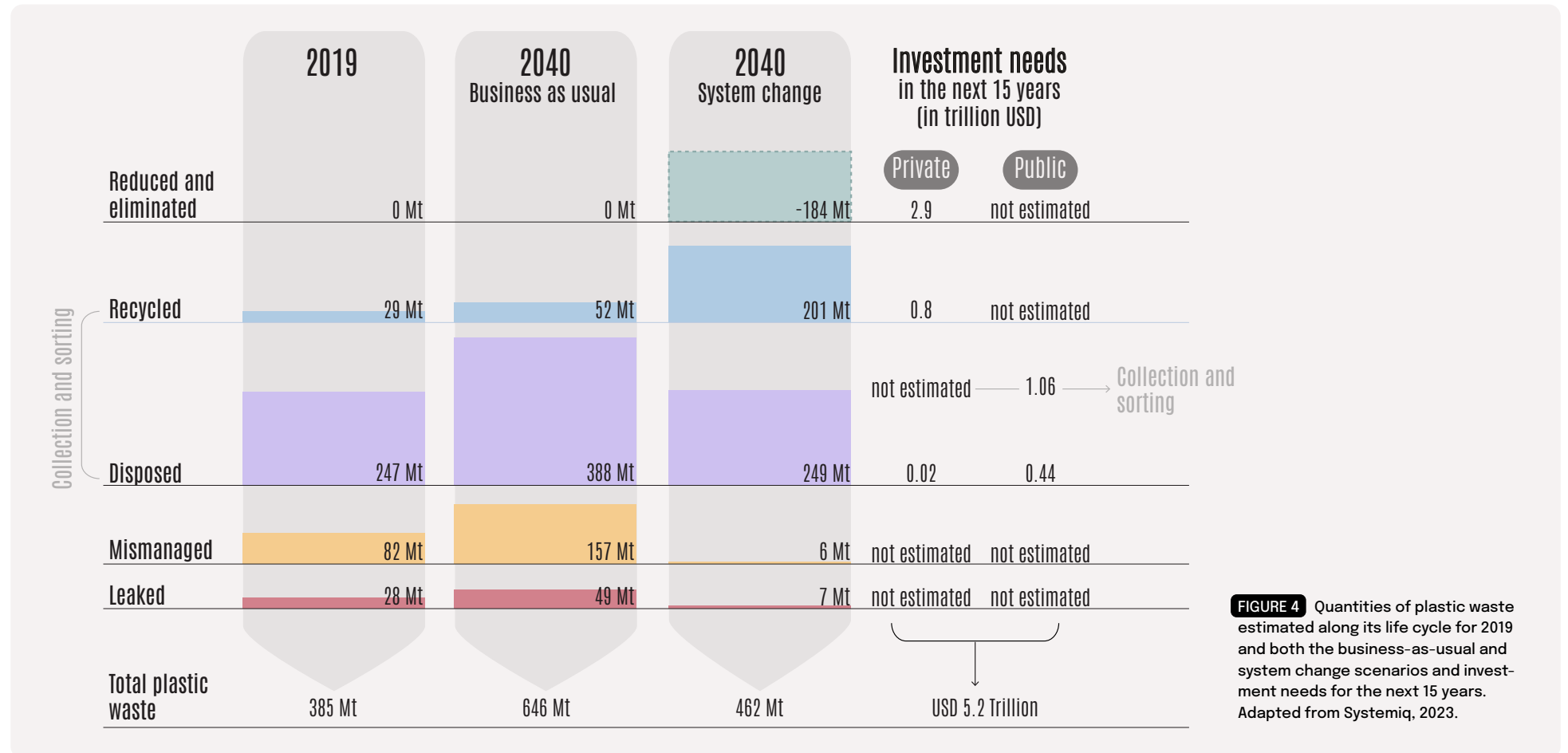


FIGURE 4 Quantities of plastic waste estimated along its life cycle for 2019 and both the business-as-usual and system change scenarios and investment needs for the next 15 years. Adapted from Systemiq, 2023.

3 Obstacles Hindering the Scale-up of Solutions

This section lays out the obstacles that currently stand in the way of implementing the solutions described above.

3.1 Obstacle #1: The Funding Gap

First, funding going to plastic pollution mitigation through direct and existing funding is insufficient. It is therefore essential to leverage critical funding towards interventions.

Scientific models (Systemiq, 2023) estimate that reducing mismanaged waste to 3% of total plastic waste by 2040 requires a global system investment (including production and conversion) of USD 17 Trillion between 2025 and 2040. While

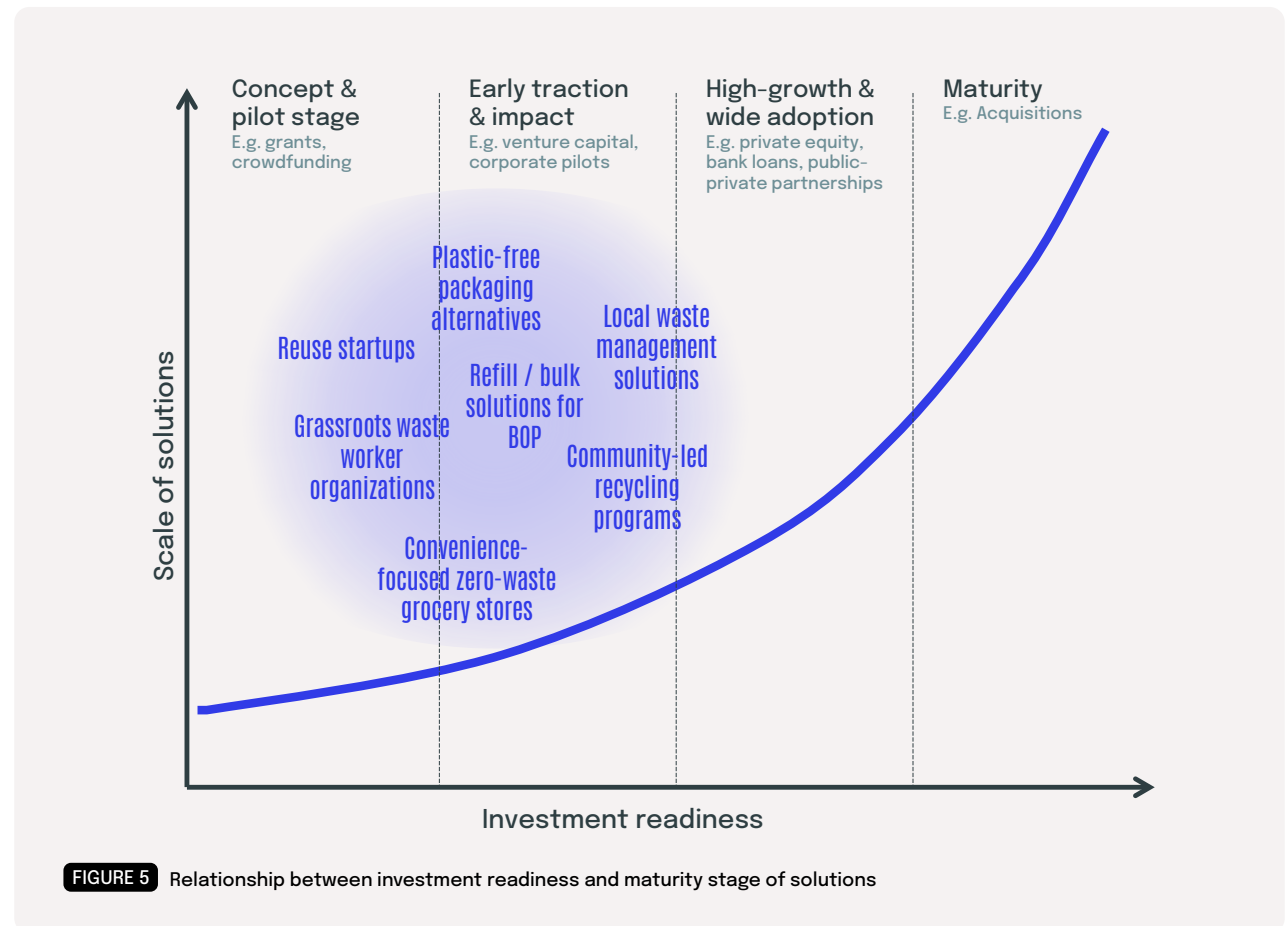
this might seem substantial, it presents an important cost-saving of USD 3 Trillion compared to business-as-usual. Interventions along the plastic life-cycle stages require substantial investments. The total intervention investments needed to reach this goal amounting to USD 5.2 Trillion is shared between the public (29%) and private (71%) sector (see Figure 4). Sorting and collection require USD 1.06 Trillion of funding from the public sector, and disposal requires USD 0.44 Trillion of spending from the public sector. The private sector will have to invest USD 2.9 Trillion in reduction and substitution interventions, USD 800 Billion in recycling and USD 20 Billion in plastic-to-fuel disposal.

3.2 Obstacle #2: The Early-Stage Nature of Solutions

A second obstacle involves the early-stage nature of most solutions in plastic pollution mitigation. Although solutions exist, many of them are low-maturity. Upstream solutions especially are often situated in this early-stage development. As a result, these early-stage solutions struggle to access institutional financing. Traditional financial sources often rely on track records and expectations of attractive financial returns on investment. However, waste management is a risky and unprofitable venture.

Looking at the relationship between investment readiness and maturity stage of solutions (Figure 5), it can be seen that there is a gap for local, small-scale solutions financing. Moreover, traditional financing mechanisms, such as private equity and loans or venture capital for instance, may not be suitable for this category of solutions as they are not adequately fit for purpose for meeting the financial needs and realities of early stage, local and grassroots solutions for waste reduction and management.

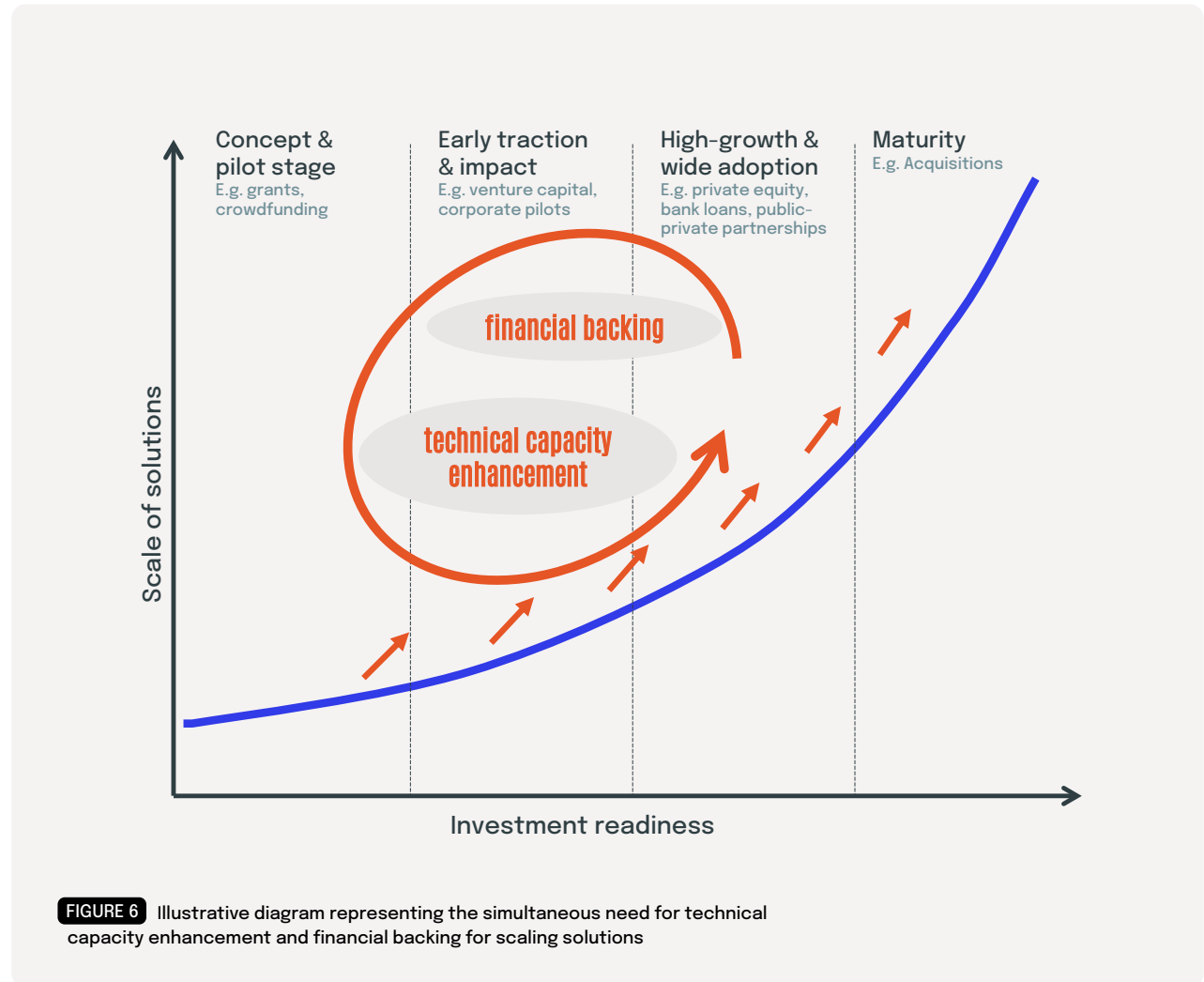
Innovative financial mechanisms are therefore crucial to support solutions in their current maturity stage catering to the investment readiness of local and small-scale initiatives.



3.3 Obstacle #3: The Disconnection Between Technical Assistance and Financial Resource Deployment for Scaling Solutions

This third obstacle uncovers a chicken and egg dilemma: in order to scale, solutions need both technical capacity enhancement and financial backing (Figure 6). However, securing finance often hinges on a proven ability to scale meaning that solutions need to demonstrate both technical capacity and operational readiness.

This is especially true in countries of the Global South, where investment to improve post-consumer infrastructure is critically needed due to high leakage rates (UNEP, 2014). In these geographies, chronic underfunding of waste management infrastructures has led to high shares of mismanaged plastic waste, which results in a considerable fraction of it reaching the environment. According to a case study of Indonesia's waste system, investment in collection and sortation systems often



face difficulties attracting commercial and development finance because their perceived risks most likely outweigh potential returns (Blended Finance Taskforce and Systemiq, 2023). Low returns are due to weak economic fundamentals and investment size. While waste collection and sorting are tied to high upfront costs, their profit margins are typically low to negative. Additionally, small-scale, decentralized, or community-based waste systems may not meet the investment thresholds of commercial and development finance institutions' capital investors. In terms of high perceived risks, the lack of technical knowledge in setting up and operating economically sustainable waste systems is one of the factors at play. Furthermore, there is a counterparty risk involved where projects often do not meet creditworthiness or governance criteria of investors.

Technical support for solutions can come in several forms. First, solely considering the creditworthiness of solutions might overlook important aspects. Combined incubation models coupling a financial instrument and capacity building are needed to ensure that investments

are complemented with processes leading to the growth and scale-up of solutions. In line with this, sound project management is required in terms of supporting the solution's growth. Additionally, end-products of collection and recycling initiatives, in particular when downcycling and reprocessing are used as solutions, may often encounter an unsuitable product-market fit, uncovering a gap between technical and financial sustainability. Furthermore, the lack of policy-driven solutions, notable in the Global South, can discard important opportunities in terms of unlocking the full potential of systemic, collaborative solutions which would fully enable circularity. Finally, the environmental and social effectiveness of solutions often lacks clear identification. These impacts entail for instance social, economic, and environmental justice, creating dignified jobs and fair pay, workers' safety and staff training, and need to be given attention as part of an investment strategy in order to be maximized.

4

Outcomes-Based Financing as a Promising Gap Solver

This section presents the concepts of Outcomes-Based Financing and Outcomes-Based Waste Prevention and their different features as a gap solver addressing the lack of funding for interventions aiming to reduce plastic pollution. First, the concepts are defined and situated among the financial landscape (subsection 4.1) and examples of OBF applied in other development sectors are showcased (subsection 4.2). An

evaluation framework specifically tailored to OBWP is proposed (subsection 4.3), the benefits of unitizing impacts are explained (subsection 4.4) and OBF best practices are suggested (subsection 4.5). Additionally, applications of existing OBF arrangements in achieving waste prevention outcomes are presented (subsection 4.6).

4.1 Definitions

Outcomes-Based financing (OBF) is a financial approach and modality that ties payments to the achievement of specific, measurable outcomes or results, rather than traditional input-based models. It can incentivize efficiency, effectiveness, and enhances the actual impact of interventions by shifting the focus from the quantity of services delivered to the tangible results obtained.

This approach can be applied in the field of plastic, leading to the concept of **Outcomes-Based Waste Prevention (OBWP)**.

OBWP involves structuring financial incentives to reward initiatives and projects that demonstrate a measurable reduction in plastic waste. Such initiatives can include a broad spectrum of interventions across the lifecycle of the waste value chain such as reduction, waste management and recovery. Through unitization of outcomes in kg or tonnes of avoided plastic leakage, the impact per dollar invested into projects can be leveraged to ensure the efficient deployment of finance. The reference metric proposed to represent this outcome

is the amount of avoided plastic leakage. This suggestion stems from the most up-to-date methodology for measuring organizations' plastic footprint (Plastic Footprint Network, 2023).

OBF encapsulates a variety of types of instruments. As such, OBF belongs to a class of more innovative financial instruments aiming to reconcile sustainable impact and investment and to enable a multitude of actors of the plastics value chain, considering their particular needs (Ocean Conservancy, 2021). For example, Outcomes-Based mechanisms include variations of debt instruments. Debt-for-nature swaps (see Resor, n.d.) imply reducing a debtor country's debt burden in exchange for the debtor's investment in environmental conservation projects (Greenfield, 2023). Impact-based bonds are designed for the financing of social or environmental programs through public-private partnerships (see for instance Social Finance, n.d.). Outcome bonds such as the ones proposed by the World Bank aim to direct finance to specific projects or activities while making part of the return contingent on the success of the project or activity financed (World Bank, 2023). In January 2024, the World Bank launched an outcome bond linked to plastic pollution reduction (World Bank, 2023), the most

recent of a series of outcome bonds. Additionally, as part of environmental finance instruments, payments for ecosystem services designate arrangements through which landowners and local communities are rewarded for the environmental services they provide (WWF, 2023).

Besides the World Bank outcome bond, other initiatives in the space of plastic pollution reduction have taken place. These precedents in OBWP include but are not limited to, for instance, rePurpose Global's Outcomes-Based Financing for Local Waste Management programs, plastic credits as well as Book and Claim systems (see for example **Recycled Material Standard**, n.d.). These modalities allow the impact and benefits of pollution mitigation actions to be transferred to end buyers.

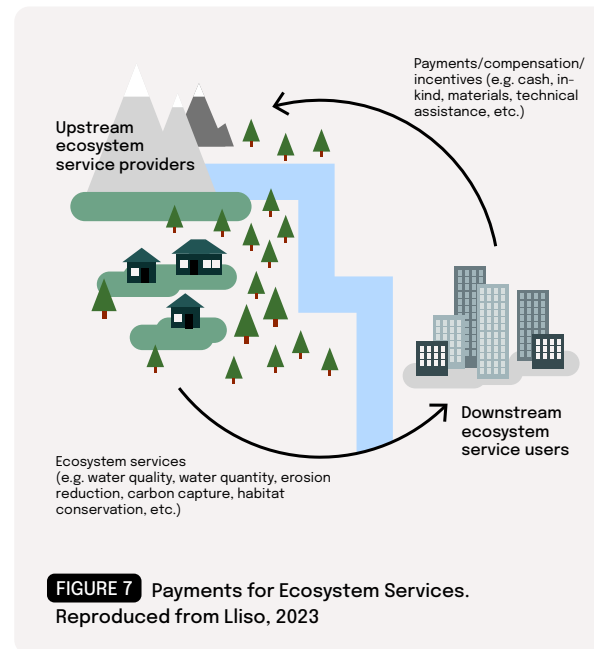
4.2 Examples of successful Outcomes-Based Financing and System Change in other Development Sectors

Drawing from successful applications in other sectors and social causes, OBF emerges as a credible and impactful tool driving systemic transformation. The three following examples showcase the varying forms that OBF can take.

1. Biodiversity & Ecosystem Restoration: Payments for Ecosystem Services

In the biodiversity & ecosystem restoration sector, payments can be linked to effective management of protected areas and wildlife reserves, specific conservation or restoration outcomes. Notably, the [Kunming-Montreal Global Diversity Framework](#) references the concept of OBF as "payments for ecosystem services" (UNEP, 2022).

The concept of payments for ecosystem services emphasizes the recognition of the inherent



value of ecosystems and the services they provide (WWF, 2023). OBF serves as an important component of the framework, framing these payments as tangible and measurable outcomes.

The Kunming-Montreal Global Diversity Framework (UNEP, 2022) underscores the importance of acknowledging and valuing the critical role that ecosystems play in sustaining life on Earth. By integrating the concept of OBF as "payments for ecosystem services", the framework promotes a results-oriented approach. This entails rewarding

and incentivizing initiatives that demonstrate effective management of protected areas, successful conservation efforts, and tangible progress in ecosystem restoration.

In practical terms, OBF within the biodiversity and ecosystem restoration sector involves the disbursement of financial resources contingent upon the achievement of predefined outcomes. These outcomes encompass protecting endangered species, restoring degraded ecosystems, and sustainably managing biodiversity hotspots. By linking financial incentives to such outcomes, the framework aims to drive targeted and impactful actions, fostering a balanced relationship between human activities and biodiversity preservation.

Furthermore, OBF addresses the economic dimensions of conservation and restoration efforts by acknowledging that investing in ecosystem protection and restoration benefits both the environment and local communities' well-being and economies. This integrated approach recognizes the interdependence of ecological health and human prosperity, advocating for holistic biodiversity and ecosystem management.

2. Sustainable Agriculture: Incentivizing Positive Practices through Outcomes-Based Financing

Within the realm of sustainable agriculture, financial mechanisms using OBF involve making payments dependent on verified improvements in various aspects of sustainable farming practices. These payments serve as incentives for farmers to adopt and sustain environmentally friendly and socially responsible methods. Key criteria for such payments often include verified enhancements in soil quality (e.g. organic farming, cover cropping, and reduced tillage), reduced pesticide use (e.g. through integrated pest management strategies, agroecological approaches, and organic farming methods), and increased yields achieved through sustainable agricultural practices.

The financial mechanisms in sustainable agriculture extend beyond conservation goals to address the economic viability of farming practices. Payments are structured to reward farmers for adopting sustainable methods that not only preserve the environment but also enhance productivity. This includes agroforestry,

precision farming, and other innovative techniques that optimize resource use and contribute to increased yields over the long term.

3. Outcomes-Based Financing for Women's Education: Empowering Change through Measurable Outcomes

OBF can benefit social causes such as women's education where payments are tied to meeting specified educational outcomes that directly contribute to the empowerment of women. These outcomes often encompass key metrics such as increased enrollment of pupils in educational institutions and demonstrable improvements in learning outcomes. Financial incentives are structured to reward initiatives that successfully attract and retain female students, weakening financial barriers that may hinder access to education. Payments may also be tied to initiatives focused on enhancing the quality of education, measured for example through standardized test scores, literacy and numeracy proficiency, or graduation rates.

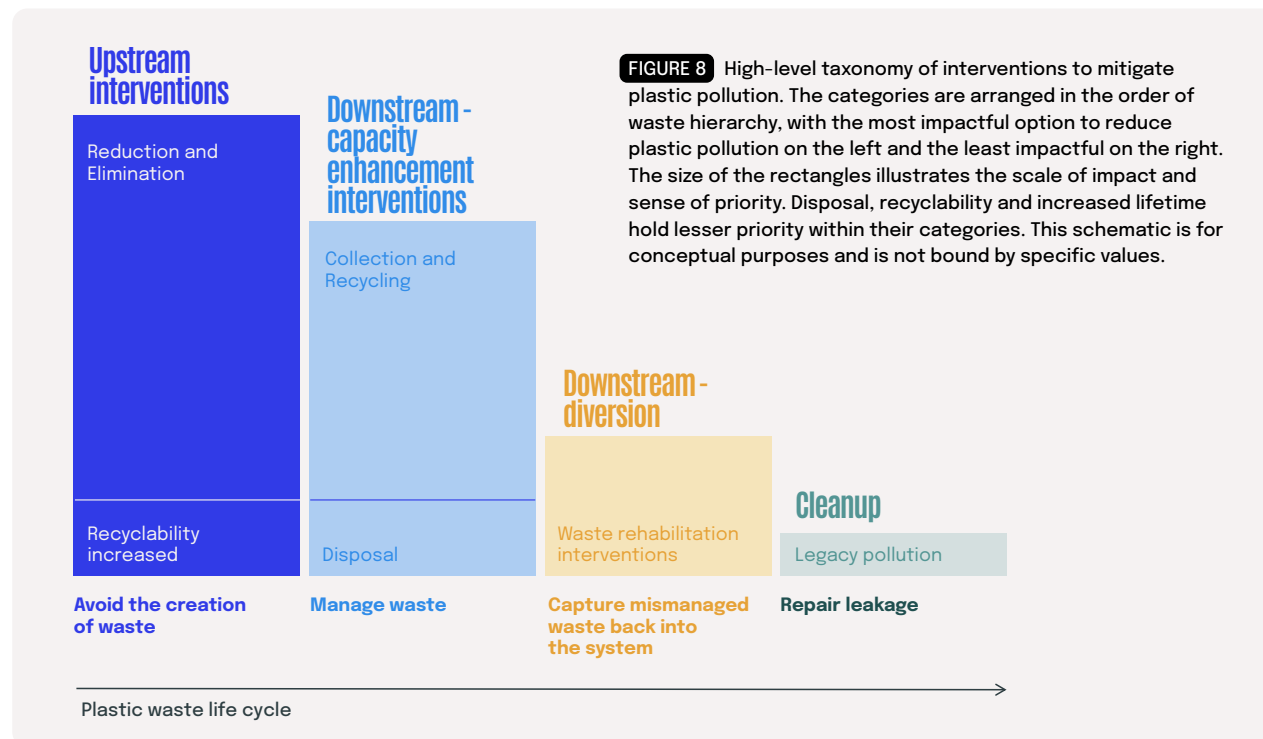


4.3 Laying the Groundwork for an Outcomes-Based Evaluation Framework for Waste Prevention

To transition from interventions to measurable financial instruments, a robust evaluation framework is imperative. The purpose of this section is to explore and discuss an evaluation approach at a conceptual level. While some proposed aspects, such as the reference metric and the classification of interventions, rely on existing methodologies, others are theorized and would require further development. The framework is tailored to address macroplastic pollution and requires further refinement to integrate microplastics.

1. Classification of Interventions

The framework relies on a clear classification of interventions according to their position within the plastic life cycle. This allows for tracking where efforts are concentrated, acknowledging that solutions along the plastic life-cycle hold varying degrees of priority in reaching zero plastic



pollution by 2040 (The Pew Charitable Trusts and Systemiq, 2020; Systemiq, 2023). From cradle to grave, the linear pathway of plastic can be divided into four main intervention groups with waste management and leakage as reference points. This classification follows the waste management diagram from **Plasteax**, a platform providing global leakage and waste management metrics and offering a comprehensive view of the different

stages in the plastic waste life cycle. Waste prevention covers all four categories presented here:

- **Upstream interventions** refer to actions that reduce or eliminate plastic consumption, avoiding the creation of waste in the first place as well as preventing and reducing unnecessary plastic production, leading to lower consumption

and pollution through avoided virgin plastic production. These interventions include for example, product design optimization or repair, reuse and refill systems.

- **Downstream capacity enhancement interventions** focus on enhancing waste management capacity. These interventions are organized with a focus on enhancing collection, recycling and end-of-life processes, alongside infrastructure development, to ensure proper waste management for the collected materials.
- **Downstream diversion interventions** aim at channeling mismanaged waste back into well-managed systems. Mismanaged waste refers to uncollected waste, littered¹ waste and the portion of collected waste ending up in open dumpsites or unsanitary landfills, from which they can be released and scattered in the environment (Velis et al., 2017).
- **Cleanup interventions** consist of removing plastic pollution from terrestrial and marine environments and reintegrate it in controlled waste management systems.

Prioritizing effective interventions along the plastic life cycle is key to a more rapid and cost-effective transition. In line with the widely recognized waste management hierarchy (UNEP, 2002), the classification proposed (Figure 8) follows a specific order in which upstream interventions are the most effective at reducing plastic pollution, followed by capacity enhancement, diversion and ultimately cleanup of contaminated environments. While waste management remains essential for dealing with existing plastic waste, emphasizing upstream actions allows to tackle the problem at its root, providing a more comprehensive and sustainable solution to the issue of plastic pollution. Co-benefits are multiple: Upstream interventions can accelerate the adoption of circular economy principles in our societies, which in turn encourages consumer behavioral shifts by removing the barriers to adoption of circular behavior. Investing in collection and recycling infrastructure is pivotal, especially in countries that currently lack waste management systems. Cleanup efforts have limited impact on changing the current production and consumption patterns, but these actions still

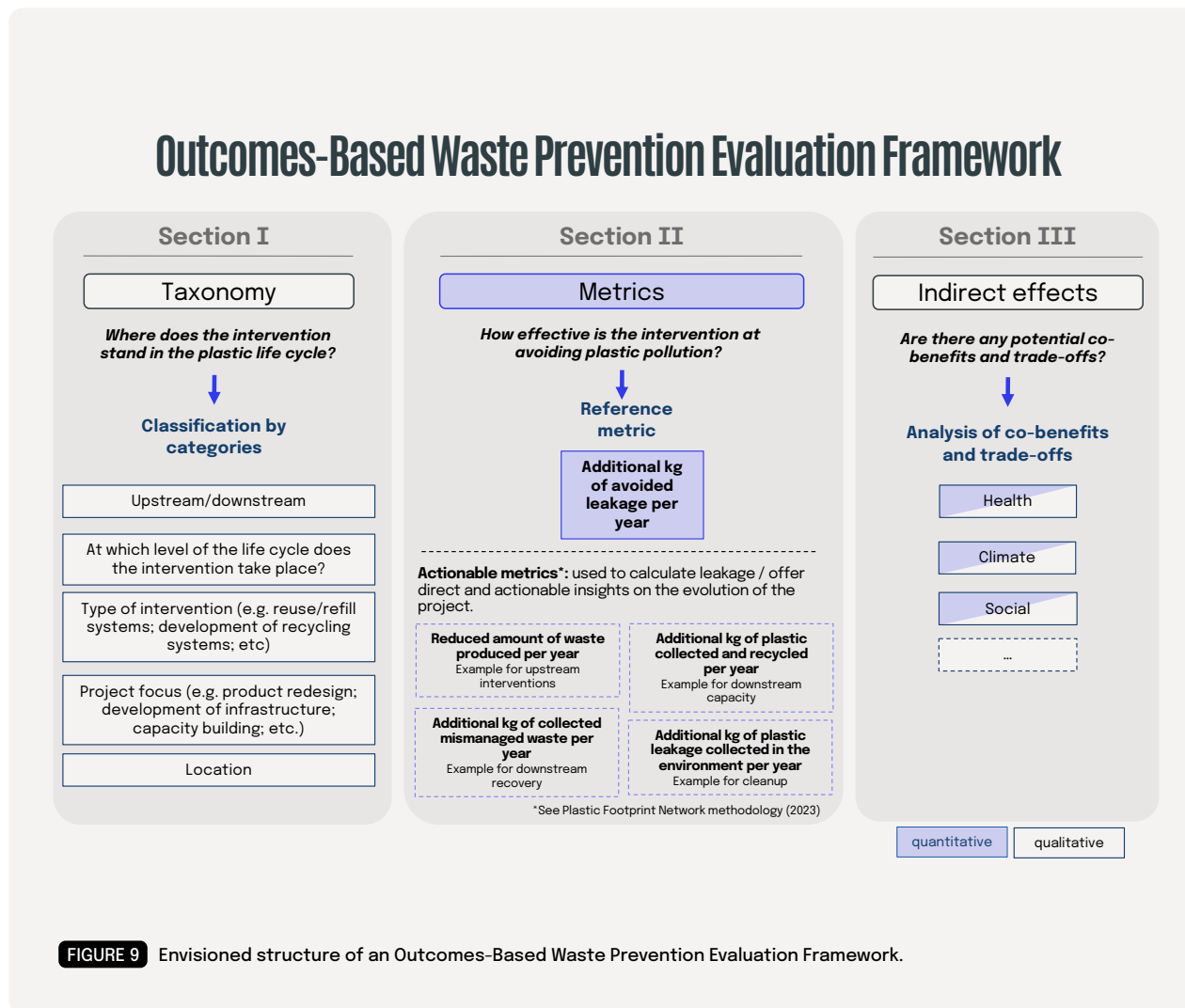
play an important role in addressing health and ecosystem hazards by cleaning up legacy plastic pollution. Nevertheless, as suggested by previous works (The Pew Charitable Trusts and Systemiq, 2020; Systemiq, 2023), post-leakage collection will only contribute marginally to systemic change and does not solve the problem at the source.

1. Littering is defined by the Plastic Footprint Network as the incorrect disposal of small, one-off items, such as: throwing a cigarette, dropping a crisp packet, or a drink cup. Most of the time these items end up on the road or sidewalks. They may or may not be collected by municipal street cleaning. (PFN glossary, 2023)

2. Outlining the Evaluation Framework

The evaluation framework (Figure 9) must include 1) a clear taxonomy and definitions for interventions aimed at mitigating plastic pollution (section I); 2) metrics to measure their success and monitor their evolution (section II); and 3) a methodology to assess the success of interventions considering their potential indirect effects (i.e. co-benefits and trade-offs with other sustainable goals) (section III). Furthermore, it also requires guidelines to allocate impact and prevent double counting, best practices for the adoption of OBF and a strong governance. Such a framework would establish a credible investment environment and mitigate investment risks.

The first element of this framework (Section I in Figure 9) relies on the establishment of a comprehensive taxonomy of interventions based on harmonized definitions for a clear understanding of interventions and their assessment (see taxonomy table in Appendix A). The proposed taxonomy addresses the full lifecycle of plastics, from upstream to downstream interventions. It reflects the intervention categories presented in Figure 8. Considering possible locations for deployment is important to enable a more direct connection

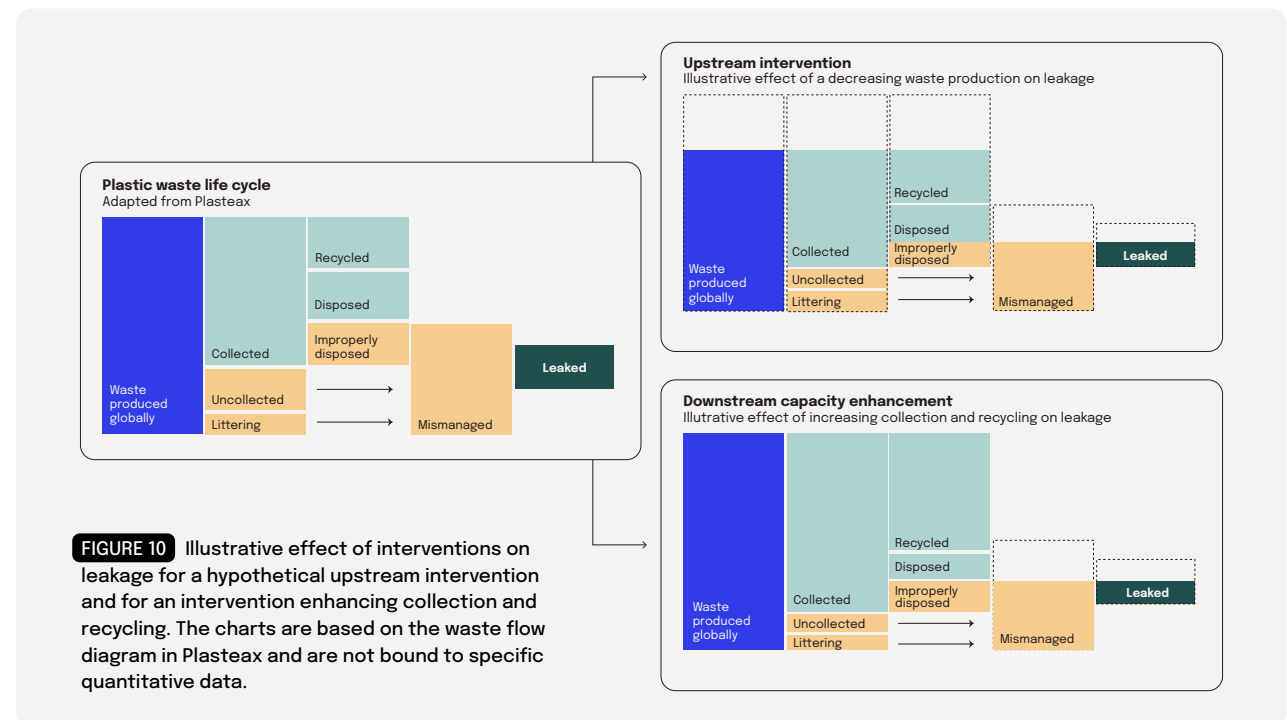


between outcome and investment for businesses that have a specific region of interest (e.g. a region where they may operate).

The second framework element, the choice of metrics, is of crucial importance. Since OBF is tied to an outcome, the chosen metrics should be representative of the outcome aimed for (Section II in Figure 9). The proposed framework suggests a reference metric recurrent to all projects in order to quantify and evaluate how effective interventions are. In alignment with the plastic footprint methodology from the **Plastic Footprint Network**, avoided plastic leakage is discussed in this report as a potential reference metric. Leakage measures the weight of both macro- and microplastic waste material that ultimately finds its way into the environment, including oceans, water bodies, soil and terrestrial compartments, and ultimately affects the environment and human health. Plastic waste is defined as the total mass of plastic, being packaging, textiles or other types of plastic products, that has been discarded during both pre-consumer use and post-consumer phases. In this context, avoided plastic leakage represents the plastic that has been prevented from leaking into the environment as a result of the intervention put into place. It is measured in additional kg (or tonnes) of avoided leakage per year.

To calculate leakage, a range of supplementary metrics are considered, including total plastic production, waste generation, or the proportion of waste that is mismanaged (Plastic Footprint Network, 2023). In that respect, a change in capacity occurring at any stage of the plastic waste life cycle, from its generation to its treatment and mismanagement, will be reflected in leakage to some extent. Similarly, a decline in waste production resulting from successful

upstream interventions would alter leakage. Consequently, leakage is seen as a common denominator for all interventions wherever they take place in the value chain and is the final outcome expressed as an inventory metric for plastic pollution (see Figure 10). Projects, irrespective of their focus, can therefore be compared with each other on common ground and evaluated for their efficiency in tackling plastic pollution.



Besides being a direct input to the calculation of leakage, these supplementary metrics, referred as actionable metrics (section II, Figure 9), also serve as valuable indicators because they are closely linked to the direct impact of the intervention. For instance, for upstream interventions this metric could be "reduced amount of plastic waste produced" or "reduced amount of virgin plastic consumed". These metrics enable the monitoring of the project's progress over time and of its effective operation. They also allow comparison of similar projects, although regional context might differ.

Additionality is embedded into the reference metric (i.e. additional kg or tonnes of avoided leakage per year). In order to attribute the effects of interventions to a specific project, they must occur in addition to what would have otherwise happened without the project. Therefore, if a recycling plant is financed through OBF, the additionality of the project is evaluated by taking into account existing recycling capacity before the project started running (i.e. the baseline) so as to distinguish the project's results from the baseline. In addition, assessing concomitantly the reference metric and the hierarchy of the intervention provided by the taxonomy ensures that effectiveness of the project is evaluated considering the entire plastic life cycle and the

mitigation path suggested by past research (The Pew Charitable Trusts and Systemiq, 2020; Systemiq, 2023).

Projects may positively or negatively impact other areas beyond the plastic pollution crisis. For example, building a new recycling facility in a low-income country may create new jobs with safety standards, improving local socio-economic aspects, as well as reducing greenhouse gas emissions. However, recycling processes could lead to a higher level of energy consumption or an increase of microplastic pollution locally (Saleem, et al., 2023). To maximize co-benefits and minimize trade-offs, it is paramount to assess the side-effects of the project. This is covered by the third element of the evaluation framework (section III, Figure 9). While life cycle assessments are resource demanding and impact metrics are scarce, a qualitative assessment addressing the **UN Sustainable Development Goals** is a good approach.

The methodology to assess the result of interventions should be based on a harmonized definition of a plastic footprint, methodology for additionality measurement, and guidelines to prevent double counting. The Plastic Footprint Network has released such a methodology for conducting plastic footprint assessments in a

single, up-to-date framework, recognizing the need for standardization and harmonization of methodologies and frameworks for assessing, measuring, and mitigating global plastic pollution. Some level of adjustment, and clear guidelines adapted to the measurement of interventions might benefit users and should be further developed.

A comprehensive framework should also include best practices for the deployment of OBF and in terms of governance, the framework should refer to strong integrity guardrails ensuring that interventions are operated transparently through third-party auditing and publicly disclosed information (see WWF, 2021, The Circulate Initiative, 2021). This might not be part of the technical framework as such, but rather attached to it through a certification scheme. Finally, such a framework could be further developed by ranking the effectiveness of interventions in preventing plastic pollution and waste. This could ensure that actions leading to system change are prioritized over more linear options such as end-of-life treatments.

There are a few limitations to acknowledge in the development of this framework. First, a comprehensive methodology for the assessment of upstream interventions has

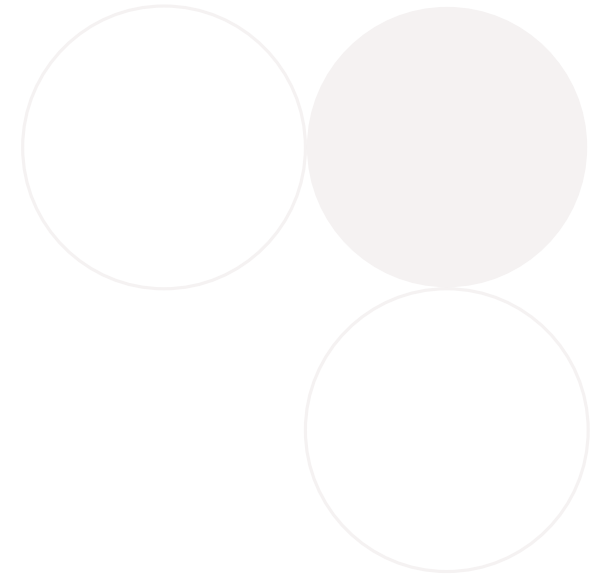
yet to be developed. In order to quantify the avoided plastic leakage generated by upstream interventions, Product Category Rules similar to those available in LCA (Life Cycle Assessment) guidelines and consolidating baseline accuracy would be necessary. This should be developed in a multi-stakeholder, multi-disciplinary setting. In addition, although leakage calculation methodology permits the evaluation of upstream interventions in the context of plastic pollution, metrics targeting circularity could be considered alongside leakage, especially in low-leakage regions. Furthermore, additionality methodologies should be reviewed for accuracy and fed with best-available baseline data. Lastly, future developments are required to strengthen the framework. For instance, project location and timespan before full deployment should be accounted for, as these aspects may affect quantification and comparability of impact.

With all the above-mentioned elements developed and adopted, such an evaluation framework could act as a key enabler and de-risker, creating a credible environment for investment. It would pave the way for informed decision-making, promoting transparency, and measuring the impact of interventions.

3. Illustrative Examples

Examples of projects, representing each one of the four intervention groups, are developed, and presented hereafter. Each introduces how the principles presented in the OBF Evaluation Framework could be applied to identify the potential of a project in the context of OBWP. The investment landscape, from the potential investment source to the potential challenges is also broached to highlight how OBF could support projects that are pivotal for a system change. The examples were selected from the comprehensive taxonomy table in Appendix A reporting more than 40 types of projects. Due to the high-level nature of the analysis, the example cards should be used for illustrative and guidance purposes only.

This brief evaluation highlights that by mobilizing private and public funds, as well as engaging investors to finance Outcomes-Based projects, OBF modalities can contribute to filling the current gaps in plastic circularity provided a thorough monitoring and tracking of additionality and impact is conducted.



Upstream - Example of Reuse/Refill Intervention

According to the latest Systemiq findings (2023), reduction and elimination interventions have the potential to reduce 28% of the total plastic waste production by 2040. To date, reuse schemes are marginal, with only 1.9% of all plastic packaging being reusable among the Ellen MacArthur Foundation’s Global Commitment Signatories (EMF, 2023). Such models require an effective logistical and infrastructure system for the recovery, cleaning and redistribution of plastic items. Lack of viable infrastructure and uncertainty about financial viability are challenges that businesses are currently facing. In that context, OBF mechanisms could provide incentives for investors while building the foundations of a promising system.

Reuse schemes can lead to many positive effects in various sustainability goals, such as creating decent jobs, improving health (Deeney et al., 2022), and ensuring sustainable consumption and production. Nevertheless, a thorough assessment of the potential trade-offs should be carried out for such projects to avoid creating new problems further down the line. For example, without an adequate return/washing/distribution system, reuse schemes could be tied to increased CO₂ emissions, higher energy demands (Cooper and Gutowski, 2017) as well as increased microplastic leakage from the cleaning process (Hee et al., 2022). Although not covered in this report, attention should be brought to microplastic which can leak during pre-consumer and use stages.

Upstream Interventions

Definition

Upstream interventions focus on actions that reduce or eliminate the use of plastic or improve product design for recyclability and lifetime. Such actions take place before waste is produced. They aim at reducing the use of virgin source in plastic production and the creation of waste and at increasing recyclability

Investment needs

2.9 trillion USD over the next 15 years
Systemiq, 2023

Focus

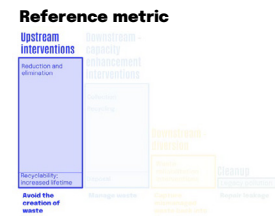
- Reuse/refill systems
- Elimination of need
- Design optimization (plastic reduction; recyclability; substitution; increase lifetime)

Example of reuse/refill project

Building collection and cleaning infrastructure for reusable container

Section I

Taxonomy



Investment profile

- | | |
|--|--|
| <p>Investment allocation
Construction of infrastructure</p> <p>Investment challenges
Delayed return in investment
Upfront investment
Operational costs</p> | <p>Potential investment source
Multilateral and International Organizations / Private Sector Investments / Impact Investment / Extended Producer Responsibility Programs / Public-Private Partnerships / Plastic Industry Initiatives / Public Funds / Development finance institutions</p> |
|--|--|

Section II

Reference metric

avoided leakage in kg per year

Example of actionable metric

kg of avoided waste per year

Section III

Potential co-benefits and trade-offs



Downstream - Example of Capacity Enhancement Interventions

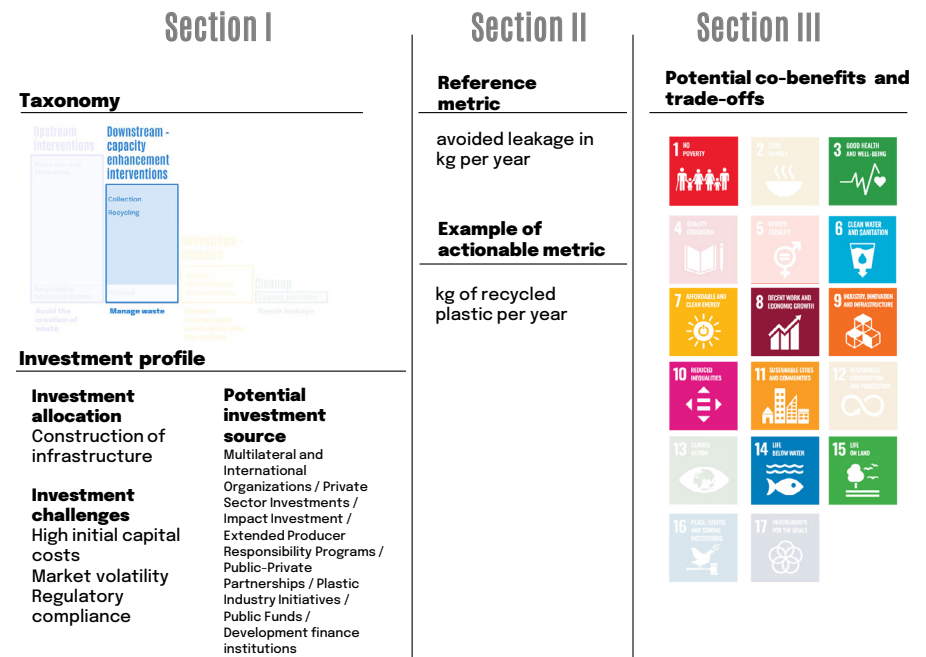
Recycling interventions have the potential to reduce up to 36% of the total plastic waste production by 2040 but should then be seven times more effective than today (Systemiq, 2023). There has been a misalignment on both the supply and demand side (OECD, 2018) that prevents reaching such projected capacity. The lack of effective sorting and recycling infrastructure is one of the main barriers for suppliers, particularly in low-income countries. Channeling investments towards infrastructures through OBF modalities in regions with poor waste management is expected to increase the overall capacity to recover recyclable plastic and process it into high-quality recycled material. As a result, building effective sorting and recycling infrastructure sets the wheels in motion towards a more robust recycling market. The impact of such an investment could extend beyond the reduction of plastic pollution, encompassing the creation of jobs, improvement of workers' conditions, and the provision of a more sustainable urban environment.

Capacity building interventions (i.e. development of collection systems, improving operation and practices, development of infrastructures) are co-dependent for the success of plastic waste recycling. Ideally, they should be locally and concomitantly developed through a coordinated investment approach.

Downstream-Capacity Enhancement Interventions

Definition	Downstream capacity enhancement interventions take place once waste is produced. They focus on enhancing waste management capacity (collection, recycling and safe disposal). The contribution to circularity will vary across the different waste management components.		
Investment needs	1.5 trillion USD (collection/sorting) 800 billion USD (recycling) 44 billion USD (disposal)	over the next 15 years <i>Systemiq, 2023</i>	
Focus	Development or improvement of collection, recycling or end-of-life infrastructures	Development of collection and recycling networks	Improving operations and practices

Example of capacity enhancement projects
New industrial sorting and recycling facility



Downstream – Diversion Interventions

Currently, 21% of the waste generated each year ends up in dumpsites, unsanitary landfills, or as litter (Systemiq, 2023), mostly in low- and medium-income countries. By collecting approximately 60% of all the plastic that is recycled globally, waste pickers are key actors in the reintegration of mismanaged plastic in the recycling system. Programs and initiatives to improve waste pickers activity cover a wide range of areas such as enhancing work conditions and safety, formalizing transactions and community empowerment (WWF, 2023b). Although such interventions are demanding on the operational and community engagement side, they hold potential synergies with many sustainability targets such as reducing greenhouse gas emissions, improving health conditions and helping reduce poverty (Morais et al., 2022). While long-term success depends on multiple factors tied to the unstable and unrecognized status of waste pickers, unlocking financial support through OBF has the potential to extend the impact beyond plastic pollution.

Downstream - Diversion Interventions

Definition	Downstream diversion takes place once waste becomes mismanaged but has not yet reached the environment (Plastic Footprint Methodology, 2023). Interventions focus on channeling improperly disposed waste in unsanitary landfills and dumpsites as well as littered waste back into the formal waste management system.		
Investment needs	Not estimated <small>Systemiq, 2023</small>		
Focus	Collection from unsanitary landfills, dumpsites or directly on the ground	Installation of catchment for water runoff	Littering prevention through waste education

Example of diversion projects

Waste-picker program involving empowerment, professionalization, enhancing stakeholder partnership

Section I	Section II	Section III
<p>Taxonomy</p>	<p>Reference metric</p> <p>avoided leakage in kg per year</p> <p>Example of actionable metric</p> <p>kg of mismanaged waste collected per year</p>	<p>Potential co-benefits and trade-offs</p>
<p>Investment profile</p> <p>Investment allocation Training, capacity building and workforce</p> <p>Investment challenges Success dependent on community trust Limited scalability due to regional specificities</p>	<p>Potential investment source Multilateral and International Organizations / Private Sector Investments / Impact Investment / Extended Producer Responsibility Programs / Public-Private Partnerships / Plastic Industry Initiatives / Public Funds / Development finance institutions</p>	

Downstream - Cleanup Intervention

The amount of plastic in the ocean, ranging from 75 to 199 Mt (UNEP, 2021), poses a threat to ecosystems and human health due to the toxic effects of microplastics. As waste production continues to grow, the discharge of plastic into both land and ocean is projected to rise from 28 Mt in 2019 to nearly 50 Mt by 2040 under business-as-usual conditions (Systemiq, 2023). Despite a rise in cleanup solutions in the last ten years, current cleanup systems have a marginal impact on the annual load of plastic in the environment (Hohn et al., 2020). Costs and fragmented funding are significant barriers to the development of effective and innovative technologies (Schmaltz et al., 2020). Ensuring financial sources through OBF mechanism could therefore scale up innovation and contribute to the widespread implementation of successful cleanup projects. However, while it is necessary to address legacy pollution and cleanup interventions may play an important role in building awareness, they have a limited impact in solving the root cause of the plastic crisis. Investment efforts should be prioritized accordingly. In addition, in this example of a cleanup project, the range of potential synergies with sustainable goals beyond health and marine ecosystems may be limited.

Downstream - Cleanup Interventions

Definition	Cleanup takes place once mismanaged waste has leaked in the environment. Cleanup Interventions focus on removing plastic from the environment. Such actions are necessary to capture legacy pollution but do not prevent pollution from happening	
Investment needs	Not estimated <small>Systemiq, 2023</small>	
Focus	Research and development of innovative technologies	Manual or mechanical collection from terrestrial or marine environment

Example of cleanup projects

Developing new cleanup technologies for plastic pollution in the ocean

Section I	Section II	Section III
<p>Taxonomy</p>	<p>Reference metric</p> <p>avoided leakage in kg per year</p> <p>Example of actionable metric</p> <p>kg of plastic collected in the ocean per year</p>	<p>Potential co-benefits and trade-offs</p>
<p>Investment profile</p> <p>Investment allocation Infrastructure development</p> <p>Investment challenges High initial costs Technological risks Limited scalability Low predictability in financial viability</p> <p>Potential investment source Multilateral and International Organizations / Private Sector Investments / Impact Investment / Extended Producer Responsibility Programs / Public-Private Partnerships / Plastic Industry Initiatives / Public Funds / Development finance institutions</p>		

4.4 Unitization of Impact

Unitization of impact is a feature of OBF which involves tying the delivered impact to each dollar invested. This approach ensures the effective deployment of finance, making funding mobilization swifter and reducing barriers to investment in solutions even at low readiness levels. Additionally, unitization of impact can leverage investment to close the funding gap for waste prevention and management infrastructure.

First, unitization is valuable for the monitoring and evaluation of investments and impact measurement. Since the funding is tied to clear outcomes, robust monitoring and evaluation are built into the instrument and are not detached from one another.

Moreover, unitization enables flexible financing. Unitization may allow investments to be deployed more swiftly due to it bringing clarity around the outcome of investments. Because the mobilization of resources can often be bureaucratic and barriers to investment exist, unitization may help deploy financial resources in a timely fashion and overcome barriers for investment such as low investment readiness

levels of early-stage solutions. Additionally, this feature of OBF instruments answers to the need for immediate action to mitigate plastic pollution, avoiding further delays.

In turn, unitization also allows to address challenges regarding solutions' lifecycle, where currently technical assistance and finance for solutions are disjointed. Finance is invested into scaling impact, which helps achieve the desired outcome, and ultimately builds support with regard to eligibility for garnering more financing. Building capacity for scaling action provides an exit to the chicken and egg dilemma towards a virtuous circle where technical capacity enhancement and financial backing are simultaneously enabled.

4.5 Best Practice Principles for Outcomes-Based Waste Prevention

OBF is part of a broader category of financial mechanisms, and while OBF is new to the field of plastic waste prevention, precedents and existing

guidelines stemming from the establishment of plastic credit programs, as a subset of OBWP, can be useful to inform the design of OBWP programs for practitioners. These guidelines can be leveraged by any global actor seeking to fund waste reduction projects.

Additionality is a fundamental principle for OBWP. Interventions that generate verified outcomes must be additional, meaning that the impact of these interventions goes beyond the 'business-as-usual' baseline scenario. The projects financed through OBF should demonstrate that the revenue stream obtained through the sale of verified outcomes is essential for the project to operate. Additionally, the projects must fulfill the principle of regulatory surplus, i.e., fund action above regulatory requirements of that region.

The **measurability** principle ensures that the impact of interventions are quantified using a reliable methodology and compared against an accurate baseline and minimum data requirements.

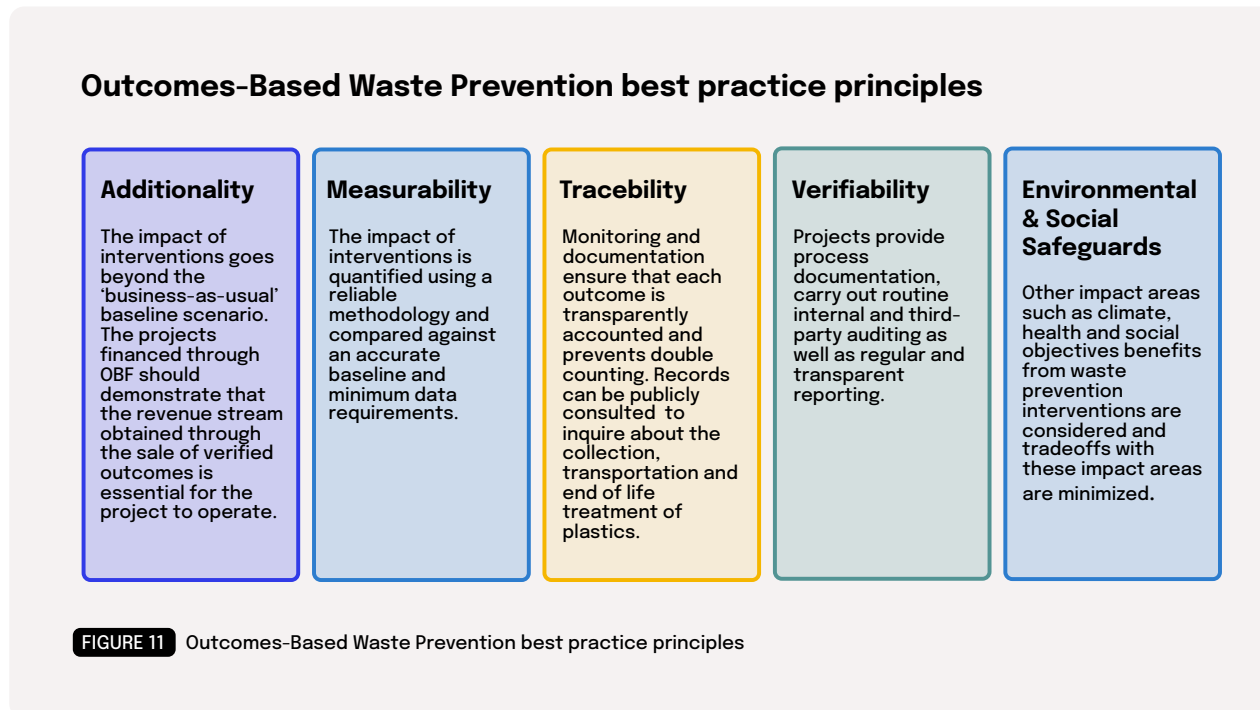
Traceability is important for the monitoring and documentation of plastic waste prevention in a chain of custody system. Traceability ensures that

each outcome is transparently accounted for and prevents double counting. Such records can be publicly consulted to inquire about the collection, transportation and end of life treatment of plastics.

Verifiability through auditing requires waste prevention projects to provide process documentation, carry out routine internal and third-party auditing as well as regular and transparent reporting.

Environmental and social safeguards are crucial to guarantee that other impact areas such as climate, health and social objectives benefit from waste prevention interventions when possible and, most importantly, that tradeoffs with these impact areas are minimized.

Figure 11 presents an overview of best practice principles for OBF.



The space of OBF applied to plastic pollution mitigation is emerging and in early stages of development. Different levels of accountability and transparency can be achieved in Outcomes-Based arrangements. Highest integrity in quality assurance, impact assessment, operations and governance can be reached by using a publicly available standard and methodologies as well as a public registry enabling the consultation of transactions being made and preventing double counting (Verra, 2023), and third-party verification (see ISEAL, 2015, WWF, 2021, The Circulate Initiative, 2021). Furthermore, establishing independence between roles related to the implementation, development, audit and sales of verified outcomes is required (The Circulate Initiative, 2021).

Transparency is a key principle in environmental and social impact assessment. Therefore, units or verified outcomes should be retired in a public registry to avoid double counting, financial and material flows should be publicly traceable, and the methodology used for additionality and impact assessment should be publicly disclosed.

The following table describes best practice design features for OBWP programs. Design features indicate characteristics of OBWP programs and determine their functioning in

terms of how the program is developed (1), its contribution to impact (2), how the program is implemented (3) and its relevance and reach (4).

Program dimension	Design features	Source
1. Program development	<ul style="list-style-type: none"> Multi-stakeholder process Harmonization Best practices standard or certification Centralized standardization body 	<ul style="list-style-type: none"> The Circulate Initiative, 2021, Lee, 2021
2. Contribution to impact	<ul style="list-style-type: none"> Additionality Co-benefits Prevention of rebound effect Clear, transparent, accessible, verifiable, accurate, conservative and comparable claims 	<ul style="list-style-type: none"> The Circulate Initiative, 2021 WWF, 2021
3. Program implementation	<ul style="list-style-type: none"> Third-party verification Transparency (pricing, impact assessment methodologies, registry, chain of custody) Governance Continuous improvement Location and type of plastic Formalization of the workforce 	<ul style="list-style-type: none"> The Circulate Initiative, 2021 3RI, 2021, Verra n.d. Danielson et al., 2021
4. Relevance and reach	<ul style="list-style-type: none"> Global relevance Commercial adoption Capacity Policy influence 	The Circulate Initiative, 2021

TABLE 1 Best practice design features for OBWP programs

2. Using a public registry implies that transactions for credits issued and retired (used to mitigate plastic pollution) are publicly available (see Verra (2023). Five Things You Should Know About Plastic Credits. <https://verra.org/verra-views/five-things-you-should-know-about-plastic-credits/>).

3. ISEAL, 2016.

4. 3R Initiative - Guidelines for Corporate Plastic Stewardship, abbreviated '3RI' throughout this report.

Program development

These design features are determining characteristics that often relate to how the program is set up in relation to external stakeholders, such as standardization bodies that oversee the program's activities (TCI⁵, 2021). A multi-stakeholder development process can ensure a variety of perspectives have been taken into account to protect the interests of stakeholders and prevent unintended consequences. While harmonization with other programs, claims and standards should be explicitly addressed, the use of a best practice standard or certification can act as a guarantee of quality. Furthermore, a centralized standardization body should ensure the standard remains up-to-date with technological developments (Lee, 2021).

Contribution to impact

The additionality of operations represents a central design feature of the program when it

comes to its contribution to impact. Variation in programs depends on whether programs use a relevant and consistent methodology for the measurement of the impact generated by their activities beyond the pre-established baseline scenario. The benefits stemming from the program's activities must be attributable to the program solely. Co-benefits describe the positive impacts outside the program's core activities areas such as oceans, livelihoods, infrastructure and climate (TCI, 2021). Lastly, the claims often proposed by OBWP practitioners can be more or less clear, transparent, accessible, verifiable, accurate, conservative and comparable depending on any given program (WWF, 2021). Those characteristics have implications to protect OBWP programs and their funders from greenwashing by establishing the true contribution of the organization's sustainability efforts. Similarly, preventing a potential rebound effect is deemed important in the sense that programs showcasing environmental benefits should be mindful that product claims may trigger more consumption (WWF, 2021).

Furthermore, it is advised that organizations taking part in the financing of OBWP move away from headline claims towards narrative claims to minimize the risk implied by their communication of impact and to preserve integrity. This allows the claims to be more descriptive, informative and transparent (VCMI, n.d.).

Program implementation

These design features inform how the program's operations are run and the recurring theme involves transparency and monitoring of operations. TCI (2021) mentions that third-party verification by an independent audit body, transparent pricing and impact assessment methodologies and using a public registry reinforces the level of transparency. Furthermore, chain of custody systems set requirements that ensure appropriate controls at each stage of the supply chain, ultimately making product- or process-related claims valid (ISEAL, 2016). The governance of OBWP is concerned with the decision-making and dispute-settlement process

5. The Circulate Initiative, abbreviated 'TCI' throughout this report.

of programs which implies that appropriate processes are clearly explained and documented. In addition, programs can be designed in a way that allows for continuous improvement of their operations, which involves routine reviews encouraging progress towards best practice (TCI, 2021).

In the case where OBWP programs are being financed through private sector players to help mitigate their plastic consumption, the location where projects operate and the type of polymers they target constitute relevant design features when it comes to assessing mitigation efforts. Because plastic impacts are not equal geography- and polymer-wise (Moon, 2022), it is deemed important that companies target the same type of plastic used in their production lines, in the market location where leakage is caused (3RI, 2021). It is also interesting to distinguish commercially recyclable plastic waste from its non-commercial counterpart since more benefits can be associated with the latter as these programs mitigate waste that would otherwise remain uncollected due to its little to non-existent value on the market (BVRio, 2023). Finally, whether programs actively strive

to formalize the waste picking workforce has ambiguous social implications that can result in more stable employment, greater unionization and recognition of the profession, and related social benefits (Danielson et al., 2020) on the one hand. On the other hand, the long-term success of formalization heavily depends on other policy, economic, and institutional factors (Aparcana, 2017).

Program relevance and reach

The last category of design features is concerned with the relevance and reach of programs (TCI, 2021): global and multi-regional programs are more capable of promoting harmonization and large-scale impact. Relevance and reach of course depend on the program's capacity (in terms of tonnes of plastic collected/recycled/avoided) and ability to scale. Finally, policy influence, as a design feature, accounts for the capability for the program to support or become the foundation of EPR schemes. OBWP programs that promote policy development therefore also support industry-level harmonization.

4.6 Applications of Outcomes-Based Financing for Waste Prevention Outcomes

OBF stands as a unique instrument within the financing landscape which promotes accountability, transparency, effectiveness, scalability, and innovation.

First, OBF promotes accountability and transparency by ensuring the progress and impact of investments. This enhances trust and confidence in the solutions. Second, OBF makes investments efficient. By focusing on outcomes, capital is used effectively, materializing into the desired impact. Third, OBF promotes the scalability of investments. Successful outcomes can attract additional investors and resources, leading potentially scalable projects to have a broader positive impact. OBF also encourages service providers to innovate and adopt more efficient practices to meet the established goals.

Furthermore, OBF enables innovative business models to scale their reach. For example, OBF would enable investment to be made in upstream solutions, as per what science recommends, supporting the heavy investments needed at the start. Establishing reuse infrastructure, including facilities for bulk purchasing, collection, and cleaning of reusable containers, demands significant initial investments. OBF offers a unique financing mechanism that alleviates financial hurdles by linking investment to measurable outcomes. This empowers businesses to attract funding based on their commitment to reducing plastic waste and achieving specific targets, facilitating the kickstart of projects that contribute to a circular economy.

Below, five applications of OBWP programs are showcased and explained.

1. GreenBlue's Recycled Material Standard for plastic

GreenBlue is an environmental nonprofit dedicated to the sustainable use of materials in society. They are a reliable, trusted source of information, bringing together diverse stakeholders to encourage innovation and

best practices. They advance their mission by influencing the debate, enhancing supply chain collaboration, and creating action. GreenBlue is the parent nonprofit to The Sustainable Packaging Coalition, How2Recycle, CleanGredients, Navigate and other programs. GreenBlue recently developed the **Recycled Material Standard** (RMS) through a multi-stakeholder process. This new, third-party certification standard introduced an Outcomes-Based Finance mechanism based on the **Attributes of Recycled Content** (ARCs).

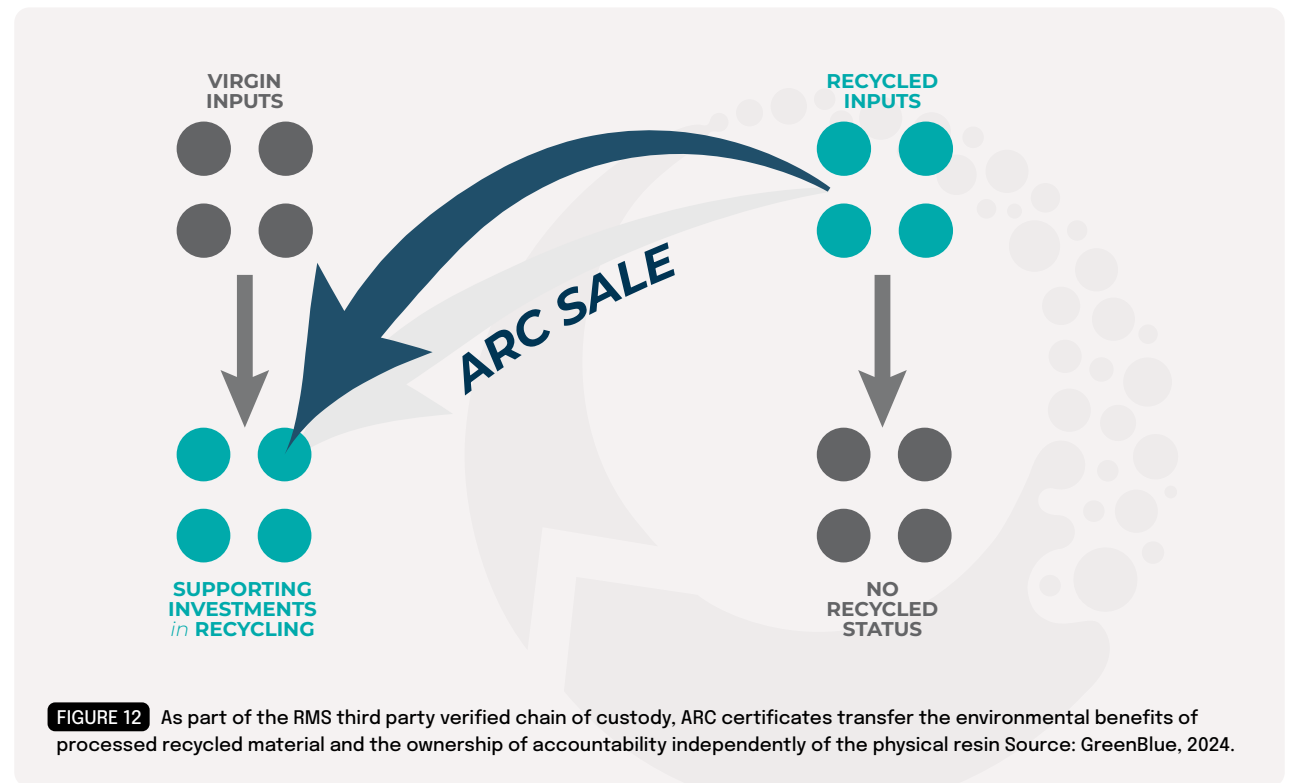
ARCs designate tradeable certificates for recycled plastic. An ARC represents the environmental attribute (recycled status and material type) of one metric ton of output produced from recycled input materials. The ultimate purpose of this finance mechanism is to advance the use of recycled material by incentivizing technology investment in both mechanical and chemical recycling facilities. The outcome that best represents such investment is the recycled material weight produced, while fully accounting for process losses. Thanks to Outcomes-Based Financing allowing to equate the purchase of one ARC with one metric ton of recycled plastic, buyers gain clarity and assurance on the outcome of their investment. Most importantly, it allows brands to be accountable for the material they physically source.

As such, ARCs represent an application of OBWP for the recycled content portion of the lifecycle. Similar certificate trading systems have been used successfully in driving expansion in other sectors, such as the use of Renewable Energy Certificates (RECs) for renewable energy. Like in the sustainable energy domain, ARCs are important for accounting, tracking, and assigning ownership of the claim related to investments in recycled plastic generation.

While there are numerous chain of custody standards to support sustainable value chain practices, the ARCs system offers a novel concept to the recycled plastic space on the basis of Book and Claim accounting. This approach has been recognized by the U.S. Plastics Pact PCR Certification Principles as a means to support voluntary targets for recycled content. Designed specifically around plastics' features, this system allows the material attributes (such as polymer type and recycled status) to be decoupled from the physical material itself. This process enhances value chain flexibility by propelling the claims further downstream in the value chain while realizing swift upstream investment. Most importantly, it enables brands to help support the recycling infrastructure for the material they physically source.

GreenBlue, as scheme owner or operator of the Recycled Material Standard (RMS), manages the public registry where ARCs are issued, traded and retired to assure no double counting. RMS labels can be applied to plastic products or packaging to help celebrate “supporting investments in recycling”. Buyers benefit from certified recycled

material for corporate reporting and meeting their voluntary commitments thanks to robust third-party assurance mechanisms. As GreenBlue operates the RMS program in continuous maintenance, it can be adapted to future market or technology needs as well as policy needs and eventually become a compliance mechanism.



2. rePurpose Global: Outcomes-Based Financing for Local Waste Management

rePurpose Global is a leading plastic action platform and social enterprise dedicated to combating the global plastic waste crisis. Its mission is to provide innovative solutions to end plastic waste and drive an inclusive, global circular economy. Its range of offerings works to prevent plastic pollution, drive systems change in waste management and develop global waste management supply chains, especially in underserved regions. rePurpose Global partners with philanthropic organizations, consumer brands, innovators, financiers and policymakers to develop solutions across the circular economy value chain.

Through Outcomes-Based Financing, rePurpose Global's **Verified Plastic Recovery** projects have enabled the collection and recovery of over 25 million kilograms (-50+ million lbs) of plastic waste that would have otherwise leaked into the environment. The goal of deploying such financing is to rapidly scale crucial waste management infrastructure in underserved regions and provide capacity building and technical assistance for strengthening local waste management

supply chains that are often underdeveloped and chronically underfunded. This approach supports local solutions and grassroots waste management projects that typically face financial sustainability challenges, enabling them to scale operations and secure additional investments.

rePurpose Global mobilizes voluntary financing from a diverse group of stakeholders, including consumer brands, development finance institutions, and philanthropies. This capital is directed towards waste management projects, developed in collaboration with local partners through Outcomes-Based modalities. These projects are typically located in the Global South, aiming to bolster local waste management systems to mitigate plastic pollution hotspots and generate measurable waste reduction outcomes over baseline scenarios.

These interventions are designed in alignment with rePurpose Global's Verified **Plastic Recovery Protocol** and **Impact Code**, which seek to ensure robust environmental and social safeguards. All collected, processed and recycled plastic volumes are digitally tracked using rePurpose Global's proprietary material traceability platform, "Retrace", from the point of collection to the

final processing destination, which ensures the outcomes generated are traceable and verifiable.

The investment in these Verified Plastic Recovery projects, driven not by the anticipation of financial return but by measurable environmental outcomes, represents a novel approach in the waste management sector. By quantifying the environmental outcomes in terms of plastic waste collected and processed, this financing modality is instrumental in scaling up existing waste management solutions globally.

rePurpose Global Verified Plastic Recovery Project Example: Project Hara Kal

The Hara Kal (translation: Green Future) project, located in the coastal villages of Malappuram, Kerala (India) is an effective example of a Public-Private Partnership model that has developed a sustainable waste management system through Outcomes-Based Financing. The project works in collaboration with the local government bodies and women Self Help Groups to collect and process post-consumer plastics that would otherwise have leaked into oceans. The intervention has already enabled the recovery of over 7,000 tonnes of plastic waste in 30+ coastal

villages through supply chain development efforts. Additionally, it has provided access to waste management to over 100,000 households. The project works to improve the socio-economic conditions of nearly 200+ waste workers by providing them with an additional income stream and also focuses on providing better health care, upskilling initiatives and capacity building efforts.



FIGURE 13 Project Hara Kal: Holistic waste management systems through public-private partnerships in coastal Indian villages enabled by OBF. Source: rePurpose Global, 2024.



FIGURE 14 Project Hara Kal: Engaging female Self Help Groups for collection and sorting of waste in rural, coastal regions of Kerala. Source: rePurpose Global, 2024.

Future Scope and Systems Change Potential

A single clean-up operation might remove plastic waste from the environment once, but it does not tackle the problem in the longer-term. Building and fixing broken waste management systems so that neglected waste streams are consistently collected and processed, has a longer-term impact.

Ethical and efficient waste management systems are the essential foundation of any circular economy. Without systems that intercept materials before they become pollutants, two

problems will always remain unresolved: plastic and other damaging materials leaking into the environment and informal waste pickers being forced to "scavenge" for higher value materials in inhumane conditions (including open dumpsites, landfills and other trash hotspots).

With technical expertise, experience, and efficient protocols that allow the development and monitoring, problematic plastics can be brought back into the value chain through Outcomes-Based Financing across multiple underserved regions globally.

3. Verra’s Plastic Waste Reduction Standard

Verra is a non-profit that develops and manages a range of climate and development standards. These standards are used to certify measurable outcomes and drive investment in responsible, high-integrity projects and programs. Verra’s programs are used by the private sector, governments and civil society to meet their ambitious climate and development goals.

Verra’s **Plastic Waste Reduction Program** (Plastic Program) is designed to enable the robust impact assessment of new or scaled-up waste collection and recycling projects. The Plastic Program is a globally applicable framework that can be used to account for the outcomes of plastic collection and recycling activities. The Plastic Program issues Waste Collection Credits and/or Waste Recycling Credits (collectively known as “Plastic Credits”) to projects that have demonstrated their conformance with the requirements of the Plastic Standard and two activity-based accounting methodologies. After completing an audit by an independent third party and undergoing review by Verra, Plastic Credits are issued to projects for each tonne of plastic collected or recycled

above baseline rates (i.e., what would have happened in the absence of the project activity). Verra’s Plastic Program is an independent program, and the Plastic Standard and associated methodologies are publicly available.

Figure 15 illustrates how the certification of plastic waste collection and recycling activities with Verra’s Plastic Program can mobilize investment needed to scale the impact of plastic waste collection and recycling projects anywhere in the world.

This program can be used by a variety of activities that reduce the amount of plastic waste that ends up in nature, remediate legacy waste⁶, or develop and scale collection and recycling infrastructure. In addition to demonstrating their collection and recycling outcomes, projects must meet mandatory requirements such as those for stakeholder

consultation, social and environmental safeguards, and additionality. Conformance with the program’s requirements is assessed via third-party auditing. The credits issued by Verra are transparently displayed on Verra’s public registry. Businesses can purchase Plastic Credits to make verifiable contributions to plastic waste collection and recycling. This Plastic Crediting mechanism provides an efficient means of financing activities that verifiably reduce plastic in the environment.



6. Legacy waste refers to that waste that has accumulated in the environment, especially in plastic pollution hotspots, and is the result of pollution from years past

4. The World Bank's Outcome Bond for Plastic Waste Reduction⁷

The World Bank (Plastic Waste Reduction-Linked Bond) in partnership with Citi and Plastic Collective has recently launched a fourth Outcome Bond focused on helping communities remove and recycle plastic waste. The innovative use of plastic credits in this bond of \$100 Million value offers a groundbreaking mechanism to finance rapid and significant expansion of plastic collection and recycling, while addressing plastic waste that leaks into nature and oceans, besides going unrecycled into landfill and incineration.

Investors in the bond benefit from 100% principal protection, plus receive a coupon payment linked to the issuance of plastic credits and carbon credits. This structure mobilizes private capital to support the financing of plastic recycling projects with positive climate and social impact.

Sustainability impact

Through the transaction, the initiative mobilizes private capital to support projects with positive



FIGURE 16 ASASE Foundation Community-based Collection and Recycling Project in Greater Accra region, Ghana. Source: Plastic Collective, 2024.

7. Sources: [World Bank Press Release](#), [Financial Times Article](#)

climate and development impacts. Investors are financing the recycling projects in Ghana and Indonesia by providing approximately \$14 Million in upfront financing to recycling projects – increasing capacity at existing facilities, acquiring new collection and recycling sites, and installing food-grade recycling equipment. Additionally, the funding will be used to improve the welfare and livelihoods of informal waste collectors who will be provided with health and medical insurance, educational support for the children of waste collectors, above market wages and safe and healthy working conditions. These projects also contribute to improving local pollution and air quality by stopping plastic from going unrecycled into landfill and incineration, thus decreasing related health conditions, and promote job creation in underserved and marginalized communities.

Financial interest

With clear benefits resulting from impact investment, the bond simultaneously offers attractive financial returns. Investors receive annual coupons consisting of a fixed amount

topped up by revenues from the sale of a portion of the plastic and carbon credits produced by the projects. The financial return on this bond is generated by the sales of plastic credits (Plastic Waste Collection Credits, Plastic Waste Recycling Credits and Verified Carbon Units). In comparison to a similar maturity bond offered by the World Bank, such a bond proposes a potential financial benefit provided the projects perform as expected.

This collaboration between the World Bank, Citi, Plastic Collective and Verra answers investors' appetite to engage with projects providing direct, measurable and quantifiable development impact⁸. Lead investors and partners (Citi, Velliv Pension, Skandia, McKenzie Investments, T. Rowe Price and Muzinich & Co) highlighted how the plastic waste reduction bond, through its innovative structure, promotes strong environmental and social credentials while presenting an attractive return profile.

Anshula Kant, Managing Director and World Bank Group Chief Financial Officer, has expressed that *“Given the huge needs for development,*

channeling private capital to support development challenges has been a fundamental part of our work. Outcome bonds, like the Plastic Waste Reduction-Linked Bond align incentives, so that investors benefit financially when positive development outcomes are achieved. They create a win-win with the local communities and ecosystems that benefit from less pollution, and we will continue issuing them.”

8. Philip Brown, Citi

4.7 Potential for Outcomes-Based Financing to Support Reuse

Crystal Dreisbach, CEO at **Upstream**, relays her nonprofit organization's experience in the reuse movement. Upstream is a leading change agency for the reuse movement in the US and Canada. Its mission is to accelerate the transition from our current throw-away economy to one that is regenerative, circular and equitable. Upstream wants society to reach a tipping point where reuse becomes a widespread, cross-sectional, and interoperable industry and an everyday utility.

To achieve this mission, Upstream works to normalize reuse, grow and support the reuse industry, and create an enabling policy environment. Upstream collaborates with Transformational Partners, groups or corporations which have the scale and buying power to influence their whole sectors. In these engagements, Upstream applies best practices and its impact software to create and elevate (showing, not just telling) replicable success stories and roadmaps to scale.

Upstream and partners are organizing an alliance of reuse service providers with the aim of

ensuring quality standards, unifying a private-sector voice in support of reuse legislation, harmonizing data collection, and attracting and securing large corporate contracts and other funding needed to bring infrastructure to scale and exist everywhere.

Reuse has a unique economic model which requires a higher upfront investment in logistics and infrastructure both of which are critical for any successful reuse system to recover, wash and redistribute materials. Funding for reuse infrastructure is acutely needed. Financial support can come from the government, such as in the form of green bonds, from forward service contracts with large anchor clients as well as from investors who mobilize money toward the growing reuse industry. Investors are of course keen to see not only return on their investment but also impact for their dollar, and Upstream wants to show investors what every dollar put forward will give them. Upstream is hopeful that the OBF can help galvanize more financing towards scaling reuse solutions as well as deploying them in an effective manner.

Accessing finance has been a challenge for reuse innovators for many reasons. Reuse is newer to the landscape of solutions and may seem risky to some investors. Indeed, it requires new ways of

designing systems to recover materials and this may deter investors who are looking for quicker returns. Additionally, reuse systems are not yet widely incentivized through government policies and regulations. Reuse also requires higher initial capital investments potentially making other types of solutions seem more capital efficient in comparison.

However, continuing on with business as usual with a focus only on immediate return on investment is a recipe for disaster. Capital providers need to take interest in investments that provide a return over time. While OBF instruments already exist for waste recovery and recycling sectors, there is currently no well-defined financial instrument specifically designed for reduction and reuse solutions. Upstream believes that establishing an Outcomes-Based instrument for reuse will play a pivotal role in catalyzing investments in this space and accelerating the transition from our current throwaway economy to one that is regenerative circular and equitable.



rePurpose Global's 'Reuse Outcomes Fund': An Application of Outcomes-Based Financing to Scale Reuse Solutions

Transitioning to a circular economy represents the most effective approach to curb plastic pollution, with approximately 70% of plastic reduction achievable through reuse, refill, and new delivery models (UNEP, 2023).

The reuse movement, however, encounters several systemic barriers, including inadequate infrastructure, high cost of adoption, and a lack of access to flexible financing for early-stage innovators, which have hindered the growth and scale of such solutions.

rePurpose Global has launched the Reuse Outcomes Fund to catalyze equitable access to reuse and refill solutions to reduce plastic pollution, through OBF. The Fund aims to specifically accelerate reuse and refill solutions serving low and middle-income communities, in an effort to advance both environmental outcomes and create equitable access to waste reduction solutions.

Central to the Fund's theory of change is the Outcomes-Based financing modality that seeks to gear up financing to specifically work towards generating measurable upstream outcomes. This model diverges from traditional funding mechanisms and instead focuses on the establishment of reuse and refill infrastructure with the primary goal of achieving measurable, additional, and verifiable environmental outcomes (e.g. tonnage of plastic waste avoided). This approach aims to prioritize impact outcomes

over financial return to help ensure that the most effective and impactful solutions receive the support they need.

The Fund ethos is rooted in environmental justice principles, aiming to address the critique that reuse efforts have often been viewed as exclusive and inaccessible to economically disadvantaged and marginalized populations. This has been due to the disproportionate availability of reuse solutions to wealthier demographics, overlooking the varied needs and challenges of those less privileged. By committing to provide equitable access to reuse initiatives and generating broad societal benefits, the Reuse Outcomes Fund seeks to democratize the reuse movement and make waste reduction services an inclusive endeavor for all communities.

In addition to scaling solutions directly, the Reuse Outcomes Fund will also tackle systemic challenges associated with increasing penetration of reuse and refill. As part of the Fund, rePurpose Global aims to help advance the development of high-integrity frameworks and implementation standards, aimed at guiding the scale-up of waste reduction models worldwide.

5

The Enablers

This section addresses key stakeholders as the enablers of OBWP and highlights their benefits for both the public and financial sectors.

Private and public sector are called to work in a coordinated manner, like the two wheels of a bicycle (Figure 17). Through data and knowledge exchange as well as financial and regulatory mechanisms, public and private sector are mutually beneficial to enhance the financing and implementation of Treaty measures.

Three stakeholder groups in particular hold pivotal roles in implementing OBF.

5.1 Development Finance Institutions and Philanthropic Funders

Development Finance Institutions (DFIs) finance projects and initiatives that are aimed at

promoting economic development and addressing socio-economic challenges in developing regions or countries and philanthropies typically finance organizations that operate for the betterment of society.

Although DFIs and philanthropies have slightly different objectives and functioning, they share the common goal of investing resources and efforts in projects and initiatives that produce tangible and meaningful results.

The Outcomes-Based Waste Prevention (OBWP) framework presented in this report can be leveraged by DFIs and philanthropies to effectively channel large sums of capital into waste prevention and management projects to maximize long-term environmental and social returns.

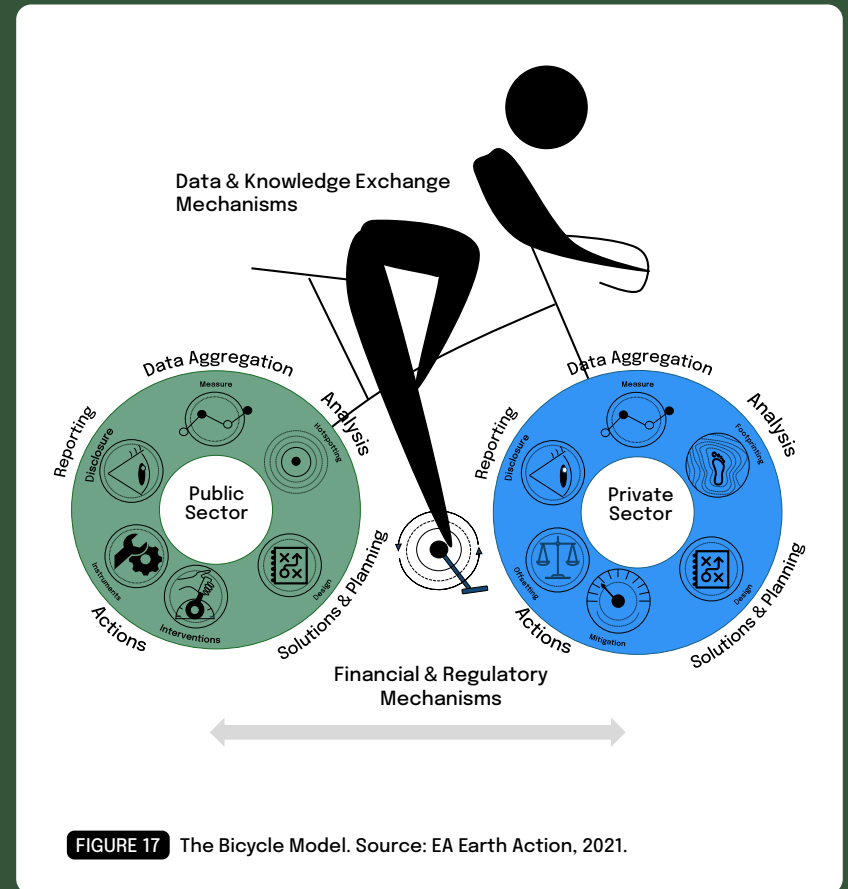


FIGURE 17 The Bicycle Model. Source: EA Earth Action, 2021.

In fact, these frameworks can be leveraged by any global actor seeking to fund waste reduction projects and could serve as a foundational framework to govern the impact efficacy of finance flows.

OBF has the potential of solving some of the challenges that both DFIs and philanthropy face. OBF increases accountability by tying investment to outcome, helps sustain impact by bridging one-time or short-term funding, and ensures resources are allocated based on impact, where it makes the most significant difference. In addition, OBF enhances informed decision-making by bringing data into decision making. Finally, OBF can support the scale up of impact where single-sourced funding alone would not have sufficed. Thus, such institutions are called to directly finance OBF projects that can deploy capital effectively and generate tangible environmental outcomes.

5.2 The Private Sector

The private sector is facing significant challenges with tackling plastic pollution, particularly in regions lacking adequate infrastructure for waste prevention and management.

When existing infrastructure is scarce, corporations have a limiting choice of either not operating in a given market or accepting to be

responsible for some level of plastic pollution and associated externalities which translate into costs that cities must bear for the downstream impacts of their single-use packaging. The effects of pollution expose corporate actors to immediate image risks and future liabilities linked to reparation. Yet, corporations have few possibilities to engage in actions where they do not have direct control or actions outside of their value chain.

On the climate topic, companies are aware that they need to align their emissions with the Paris Agreement. The agreement has set targets to limit warming to 1.5°C compared to pre-industrial levels, and those targets have cascaded into Nationally Determined Contributions (NDCs). At this date however, equivalent targets for plastic are yet to be set.

Bringing clarity on corporate target setting and mitigation is one of the missions of the Plastic Footprint Network who has launched a harmonized and updated methodology for plastic footprint assessment and is currently developing a framework for target setting and mitigation. Pollution mitigation actions should be led by best-in-class science. Further research is needed in

order to set targets for proportional investment towards different mitigation strategies that match science-based scenarios and, additionally, to develop a sectoral approach to the desired mitigation efforts, based on organizations' unique situation.

The first step in the corporate journey is to take stock of a company's products and waste, and assess its plastic footprint baseline the volumes of plastic that will leak in the environment as a result of the company's operation. The second step and the key focus of this framework will be on the measures through which companies are expected to mitigate their impact, through actions within and outside of their value chain.

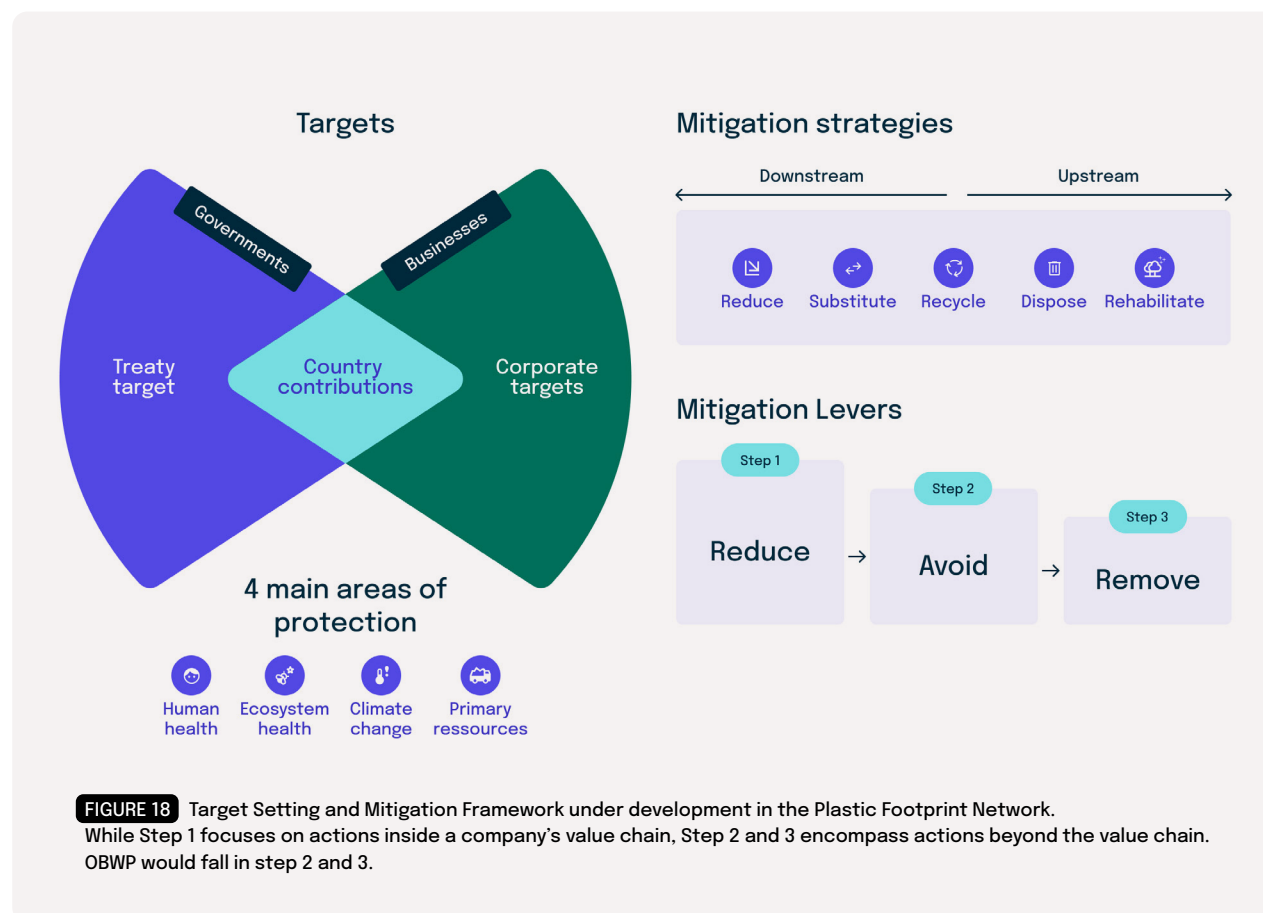
The private sector as a whole and corporations should be given the opportunity to invest into OBWP as part of their mitigation journey, and to complement existing contributions made through Extended Producer Responsibilities (EPR) for example. These actions represent potential solutions to the important hurdles related to underfunded infrastructure: investments for reuse infrastructure, for waste management infrastructure including in high leakage countries for low value plastics, and recycling infrastructure.

In the target setting and mitigation framework (Figure 18), the hierarchy for plastic pollution mitigation is key. The framework provides guidance on how much (in percentage) should be achieved in each step, building on existing quantitative analysis, for instance based on Breaking the Plastic Wave (The Pew Charitable Trusts and Systemiq, 2020), Towards Ending Plastic Pollution (Systemiq, 2023) or Towards Eliminating Plastic Pollution by 2040 (OECD, 2023). Actions should primarily lie in steps 1 and 2, directly impacting the production of plastic. Actions outside corporate value chains must go beyond cleanup activities.

The first step has to be **reduction, within corporations' value chain**, of their own footprint or leakage. This entails the reduction of plastic usage and the change in business models.

Companies should also finance plastic pollution mitigation outside of their value chain to enable system change, by supporting the **avoidance** of other's waste, for example through the development of reuse infrastructure and models that will not benefit only them, but also others, or by integrating recycled content in their products, thus supporting the collection and recycling of the waste created by others.

And finally, efforts should go towards supporting the **management** of waste when it is created, such as establishing collection and recycling infrastructure, as well as addressing legacy pollution.



Best practice for corporations

A corporate accountability framework for target-setting and mitigation would provide consistency, clarity and accountability by establishing tools, instruments, monitoring and evaluation processes that align all stakeholders on a level playing field. This approach improves comparability of data and facilitates information exchange to track progress. On common ground, communication between corporations, governments, and civil society on coordinated actions to tackle plastic pollution would be improved.

Corporate targets should be **transparent, robust, comparable, and actionable**. Transparency involves defining clear criteria, publicly available methodologies, third-party verification, and regular public reporting. Robustness is ensured with the use of science-based metrics and scientific analysis with continuous improvement through regular review. Comparable and actionable targets allow companies to set near-term objectives towards long-term achievements, providing a comprehensive scope that is aligned with business objectives.

Principles for best practice corporate target setting



Transparency

- Clear criteria
- Publicly available methodologies
- Third-party verification
- Regular public reporting



Robustness

Science-based metrics with continuous improvement through regular review



Comparability & Actionability

Near-term objectives aligned with long-term goals and business objectives

5.3 Policymakers and Regulators

While it is optimistic to anticipate spontaneous corporate initiatives, a pragmatic perspective acknowledges the necessity of a regulatory framework for effective action. This leads to the recognition of the crucial role played by policymakers and regulators in shaping and enforcing policies.

Policymakers and regulators serve as linchpins in the enforcement of regulations that instill a sense of corporate responsibility. Among the key tools at their disposal is Extended Producer Responsibility (EPR), necessitating a vigilant approach to ensure the effective enforcement of regulations that mandate corporate accountability. EPR places the onus on producers to manage the life cycle of their products responsibly, from production to disposal, fostering a more sustainable and environmentally conscious approach.

In addition to EPR, policymakers must take proactive measures to align companies operating within their jurisdictions with the principles of

circular models. This alignment involves promoting interventions that actively prevent waste and pollution, emphasizing the importance of sustainable business practices. Policymakers play a vital role in crafting and enforcing regulations that incentivize companies to adopt circular economy approaches, encouraging the design of products with longevity, recyclability, and reduced environmental impact.

To further enhance the impact of corporates' and others' efforts in plastic stewardship on a national scale, there is a compelling opportunity to integrate OBF into overarching national action plans and policies. By doing so, policymakers can leverage financial incentives to encourage businesses to not only comply with environmental regulations but to actively contribute to national sustainability goals. OBWP provides a dynamic mechanism for linking plastic stewardship initiatives with measurable outcomes, aligning private sector efforts with broader national strategies for waste reduction, pollution prevention, and the advancement of circular economy principles.

5.4 The UN Global Plastics Treaty

The UN Treaty is a unique opportunity to shift the paradigm on how actors of the plastic value chain act on plastic pollution and implement mitigation measures. As the Treaty stands to unlock considerable financing for meeting goals, financial mechanisms are crucial to ensure that financing unlocked from the treaty is deployed properly and channeled effectively.

In the pursuit of mitigating plastic pollution, OBF emerges as a strategic instrument, offering innovative solutions and aligning financial incentives with tangible environmental outcomes. Integrating OBF principles into the text can pave the way for transformative actions and collaborations, particularly in the context of innovative business models geared towards the reduction of plastic waste.

Addressing Financial Needs through the Treaty

The negotiation of an international Treaty dedicated to addressing plastic pollution represents a landmark opportunity to help solve essential financing needs. By embedding

OBF principles within the Treaty's text, the global community can signal a commitment to results-driven strategies. This involves incentivizing nations and businesses to adopt and scale innovative approaches, such as reuse infrastructure, through the promise of financial support tied to measurable outcomes.

Additionally, OBF is complementary to other financial instruments in place as a modality playing a dual role in finance flows. OBF generates a source of funding for waste prevention interventions by unlocking financial resources originating from a mix of private and public funding and encourages further investment by improving investors' confidence. Besides, the modality principles, metrics, and project development as well as monitoring and evaluation frameworks that underpin OBF projects can be applied to investments in waste management or reduction in general as these frameworks can be used to govern global financial flows for waste management. As such, OBF may apply to other financial mechanisms. For instance, OBF may apply to EPR programs, whereby EPR fees feed into OBWP, or grants. In this context OBF can also serve to quantify investment from EPR.

In particular, improving waste management in low to middle income countries including SIDS

and LDCs is challenging due to demographic, geographical, and economic factors. These regions have historically faced a disproportionate burden of plastic pollution, despite their size or per capita contribution to the plastic problem. In addition, supply-side challenges, such as the absence of bankable and scalable projects, prevent several countries from accessing multilateral funding. Securing sustained funding for waste management operations is crucial for such regions.

Prioritizing waste management in underfunded regions helps build capacity, addresses legacy plastic waste and reduces financial burdens on governments. Robust financing systems are needed for infrastructure development, job creation, and building technical capabilities, all of which are crucial for effective implementation of the treaty.

OBWP offers flexibility to fund diverse projects and incentivize long-term investments in recycling infrastructure across different plastic types, collection and processing methods, and regions. Such projects can benefit environmentally and economically vulnerable areas such as SIDS & LDCs and encourage the development of crucial infrastructure for reduction and management of plastics.

Establishing Clear Targets

The integration of OBF into the Treaty's text enables the establishment of clear and quantifiable targets for plastic pollution reduction. By specifying outcomes such as the reduction of single-use plastic consumption and improvements in plastic waste management infrastructure, the Treaty can provide a roadmap for measurable success. OBF then becomes a mechanism to financially reward entities that meet or exceed these agreed-upon targets.

Financing Sustainable Practices

Should the Treaty incorporate OBF, financial mechanisms could be established to support sustainable practices that directly contribute to plastic pollution reduction. For instance, nations and businesses investing in the creation and expansion of reuse infrastructure could receive financial incentives based on their success in achieving predefined outcomes. This not only encourages the widespread adoption of circular practices but also ensures that financial resources are directed towards initiatives with proven positive impacts.

Strengthening Global Collaboration

The integration of OBF in the Treaty encourages global collaboration by aligning the interests of nations, businesses, and environmental stakeholders. Financial incentives linked to measurable outcomes create a shared commitment to finding and implementing effective solutions. This collaborative approach can foster the sharing of best practices, technology, and expertise on a global scale, contributing to the overall success of plastic pollution reduction initiatives.

Monitoring and Reporting Mechanisms

OBF integrated into the Treaty can establish robust monitoring and reporting mechanisms to track progress toward agreed-upon outcomes. This ensures transparency and accountability, allowing stakeholders to assess the effectiveness of interventions. Regular reporting on the achievement of targets becomes a prerequisite for accessing OBF, reinforcing a culture of responsibility and continuous improvement.

Most importantly, **member states and negotiators** are encouraged to:

1. **Recognize** Outcomes-Based Financing and payment-by-result waste prevention programs, as innovative financial schemes.
2. **Stimulate** various forms of innovative financial schemes, with strong environmental and social safeguards to enhance the pace, effectiveness, and scale of resource mobilization and use.
3. **Leverage** Outcomes-Based Financing to unlock more financial resources from public and private sources towards capacity building in SIDS, LDCs, and other developing countries for waste prevention.

6

Outlook

As presented in this report, adoption of robust guidelines and standards for OBWP with transparent methodologies would strengthen the assessment of social, economic and environmental impacts and make OBWP a robust innovative financial mechanism. However, a successful outcome in this regard cannot be fully assured unless all limitations and undesirable scenarios are acknowledged and addressed. Fundamental changes are required across sectors and in the ways different stakeholders operate (policymakers, private sector, financial institutions, governments) to achieve a genuine transition towards a circular economy for plastics.

For instance, in the private sector, production lines and business practices need to undergo fundamental restructuring. Mechanisms allowing organizations to mitigate plastic pollution outside of their value chain could fuel complacency. As a result, organizations might not undertake a profound change in their own business model. OBWP should therefore be tied to a broader corporate accountability framework to mitigate plastic pollution such as the one envisioned by the **Plastic Footprint Network** to ensure holistic action on plastic is taken encompassing both

in-value chain measures and beyond value chain investments.

The pricing of interventions and their financial return on investment is another important point to reflect on. The expected pricing variability for unitized outcomes across the different types of OBWP interventions and across geographies could potentially channel buyers of verified outcomes or units towards cheaper interventions that may not offer a comprehensive or complete solution to the problem at hand. Moreover, the price put on plastic pollution mitigation interventions by OBWP actors may not encompass the environmental and social cost associated with plastic pollution impacts. The pricing of OBWP solutions should reflect the true cost of operations, including social impact reflected through fair wages and a sustainable environmental outcome. The pricing of OBWP solutions should reflect the true cost of operations, including social impact reflected through fair wages and a sustainable environmental outcome. It is therefore important to develop an investment strategy throughout the OBWP financial instruments landscape that links pricing and project outcome while balancing the cost variability across geographies. Balancing [...]

[...] across interventions part of the environmental and social cost associated with plastic pollution, as well as long-term operational and implementation costs in the pricing could help address the pricing inequity.

This report brings forward unequivocal research: mitigating plastic pollution requires acting across the whole plastic life cycle, implementing a wide range of interventions with different priorities in collaboration with a range of stakeholders. Rather than addressing interventions in silos, ranking interventions respecting the waste management hierarchy would help ensure efforts are targeted rightfully towards system change and reduction of waste rather than motivated by investment costs. Furthermore, rising concerns and unknowns surrounding chemical recycling and mechanical recycling as end-of-life treatment options for plastics (WWF, 2022, Bell, 2023, Denney, 2022) must be acknowledged and further researched, and those conclusions should be reflected in the mitigation hierarchy and future evaluation frameworks. Risks and opportunities tied to every intervention should therefore be carefully weighed to avoid important downsides. Furthermore, regional and local factors significantly shape the dynamics of the

plastic crisis, from regulations to operational capacity. A similar intervention may have different implications and outcomes whether deployed in a high-leakage country or a low-leakage country. These specificities and differences should be accounted for.

As the UN Plastics Treaty is implemented, financing of plastic pollution mitigation measures will be an important aspect of it. All financing mechanisms will be needed. It is important to consider how OBWP can work synergistically with other mechanisms such as government taxes and fees.

While OBWP presents multiple advantages and has potential to facilitate waste management interventions and finance lacking infrastructure, the institutionalization of such a system, if heavily focused on downstream interventions, may engage a technological and infrastructural lock-in, exacerbating systemic issues. A focus on upstream prevention, reuse and refill models and plastic use reduction is essential to avoid perpetuating plastic overconsumption, chemical toxicity and ever-growing leakage rates.

7

Conclusion

With waste production expected to increase by 80% in the next 20 years (Systemiq, 2023), current efforts are not sufficient to tackle the escalating plastic crisis. A global shift from the traditional linear model to a circular paradigm is urgently needed. As plastic continues to accumulate in the environment, jeopardizing environmental health, ecosystem stability, and human well-being, a recalibration of current approaches to focus more on impact and transformative solutions becomes imperative. There is scientific evidence that a variety of mitigation measures along the plastic life cycle should be implemented with a priority on the pre-consumption stage of the plastic value chain as well as on the collection and recycling of plastic waste (The Pew Charitable Trusts and Systemiq 2020; Systemiq, 2023). Upstream interventions hold a strong mitigation potential by addressing the problem at its root. Downstream solutions are an important part of the equation as well, although their implementation is limited by economic factors (Systemiq, 2020, EMF, 2023).

Among the obstacles to their implementation are a significant funding gap driving a lack of infrastructure, the low maturity of solutions, and the disconnection between technical assistance and financial resource deployment. Allocating resources efficiently becomes paramount, and OBF emerges as a potential solution. This novel financial modality is anchored in a comprehensive understanding of the plastic's life cycle and links investments to tangible outcomes which can effectively contribute to systems change by redirecting investment towards solutions all along the plastic action value chain. OBF comes in a variety of forms and offers important benefits. As a feature of OBF, unitization of impact, accompanied by a robust OBF evaluation framework tailored to plastic waste prevention, come forward as a comprehensive strategy to achieve this objective. Such a framework offers strong governance safeguards through best-practices bolstering accountability and transparency. Furthermore, it enables investments where it is most needed

and impactful, for instance, in countries that have limited waste management systems.

Unitization of impact allows a paradigm shift, prioritizing outcomes over return on investment. It evaluates the efficiency of investments based on impact per dollar spent. In addition, unitization holds value in monitoring and evaluating investments, as it is integrated into the instrument. Furthermore, it aids in impact measurement, enables flexible financing and swift deployment of funding, and is particularly suitable for solutions with lower levels of investment readiness.

Undoubtedly, a robust OBWP evaluation framework would establish a credible investment environment and mitigate risks. This report explored the contours of what an effective evaluation framework could be, one that could act as a key enabler and de-risker, creating a credible investment environment. Plastic leakage is proposed as the reference metric [...]

[...] to evaluate the impact of interventions on plastic pollution. With further development, it is an essential tool for stakeholders seeking to invest in sustainable waste prevention solutions, offering a standardized and transparent approach to measure the impact of plastic pollution interventions and guide decision-making processes. The present framework sets tentative foundations for monitoring and reporting mechanisms to track progress toward outcomes. Such an approach ensures transparency and accountability, making reporting on target achievements a prerequisite for accessing further OBF, reinforcing a culture of responsibility and continuous improvement.

The successful implementation of OBWP depends on the collaboration between and adoption by key stakeholders, including the public and private sectors, DFIs, philanthropic funders, policymakers, and regulators. Through data exchange, knowledge sharing, financial and regulatory mechanisms, both private and public sectors can

mutually benefit and enhance the financing and implementation of measures that will be outlined in the UN Global Plastics Treaty. In turn, the forthcoming Treaty provides a unique opportunity to channel financial resources from the public and private sector towards waste prevention and capacity-building through an OBF mechanism. This modality holds potential to not only alleviate the plastic crisis at its root but also to usher in a new era of accountability, transparency, and sustainability.

In conclusion, OBWP provides potential solutions to address current obstacles that hinder progress in mitigating global plastic pollution and achieving circularity. By addressing challenges encountered by investors, such as enhancing accountability, sustaining impact, and bridging funding gaps, this approach not only alleviates hurdles but also fosters informed decision-making and enables the scaling up of impact. Nonetheless, further developments are required to steer OBWP towards global mitigation targets

and a trustworthy accountability process.

This report provides a basis for the definition of the OBWP concept and proposes a nascent evaluation methodology for its implementation. As next steps, pilots or case studies for the different intervention types could be conducted to further assess the success factors and challenges OBWP stakeholders may encounter. Such assessment would ultimately strengthen recommendations on how OBWP can be implemented for various types of interventions and develop guidance on how to identify interventions, connect interventions and investment, and monitor progress.

Summary of Recommendations

OBWP practitioners and standards should **leverage methodologies, guidelines and best practices** in a holistic way, addressing potential undesirable scenarios with the support of environmental and social safeguards. This includes transparent contribution to impact, robust program implementation accompanied by third-party verification, and a focus on global- and policy-relevance. Additionally, enhancing measurability, transparency, additionality and traceability throughout the assessment of plastic waste management interventions and disclosing financial and material flows is key.

Member states and negotiators are encouraged to **recognize OBF** as a part of innovative financial schemes that can catalyze the development of the circular economy, especially in underserved regions. These schemes have the potential to enhance the pace, effectiveness and scale of resource mobilization while maintaining environmental and social safeguards. Member states and negotiators can leverage such financial schemes to unlock and deploy financial resources from public and private sources for capacity building, with an emphasis on developing regions.

Private and public sectors should work hand in hand to implement OBF. Development finance institutions and philanthropic funders can join efforts to **invest resources in OBWP projects** that yield tangible and meaningful results. The private sector can go beyond their efforts to reduce plastic waste in their own value chains while financing additional actions beyond their value chain, thereby supporting the creation of global circularity infrastructure through OBWP. Policymakers and regulators can benefit from integrating OBF investment mechanisms in national plans and policies, fostering corporate accountability and galvanizing crucial finance towards high performing and promising interventions.

OBWP should be integrated in a **global corporate mitigation strategy** that differentiates between within and beyond value chain actions. The corporate plastic accountability framework proposed by the Plastic Footprint Network offers a promising structure where OBWP could be safely deployed within the corporate action landscape and bolster the Plastic Treaty's measures.

The Global Plastics Treaty negotiations should prioritize the **integration of innovative financial schemes leveraging OBF mechanisms** to unlock more financial resources in vulnerable regions. By embedding OBF, the treaty can signal a commitment to results-driven strategies and incentivize nations and businesses to adopt innovative approaches for plastic pollution mitigation. This integration would pave the way for transformative actions and collaborations, particularly in the development and scaling of innovative business models aimed at reducing plastic waste.

Policymakers and regulators should incentivize private sector engagement in OBWP initiatives. By establishing clear frameworks for target-setting and mitigation, and by promoting transparency and accountability in corporate practices, policymakers **can encourage corporations to invest in OBF approaches** as part of their mitigation journey. This engagement can facilitate system change and complement existing efforts, such as Extended Producer Responsibilities (EPR), towards mitigating plastic pollution.

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⑨ Appendix

Comprehensive taxonomy of interventions illustrating Section I of the evaluation framework explored in section 4.3 of the main report

Plastic life cycle stage where the intervention takes place		High level category of physical material flow directly impacted	Type of intervention	Project focus	Examples of projects	
Upstream	Plastic production	Reduced virgin source in plastic production	Use of biobased-sourced plastics ¹⁰	Redesign in biobased	Using bioplastics to replace virgin plastic in packaging, casings for consumer electronics, etc.	
			Use of recycled plastics	Redesign to increase recycled content	Using recycled plastic to replace virgin plastic	
	Product redesign	Increase recyclability	Design for recyclability	Product design optimization	Product design optimization	Selecting plastic material that are easy to recycle, avoiding complex combinations
					Design for repairability	Encouraging modular designs to facilitate disassembly
					Design for robustness	Improve product quality and robustness
		Increase lifetime	Product redesign	Product design optimization	Product design optimization	Eliminating unnecessary layers and features, and using more efficient shapes to reduce overall material usage
					Plastic material substitution	Product design optimization
	Reduce the use of plastic material (virgin or recycled)	Reduced waste creation	Reduction of dependency to plastic	Sanitary drinking water	Sanitary drinking water	Installing community water filtration stations in public areas
					Reuse and refill systems	Refill on the go
	Refillable containers	Providing water fountains in public areas				
	Refillable containers	Providing refillable stations and containers in shops for cosmetic and cleaning products as well as for food				
	Reduced waste creation	Reduced waste creation	Business models increasing lifetime and usage of products	Rental-repair-rent	Rental system including maintenance service for items containing plastics (garden tools, building tools, outdoor equipment, clothes etc)	
				Repair	Repair workshops for clothes, shoes, electric items, etc.	
				Second-hand	Buy-and-sell shop for used items	

10. Provided sufficient evidence demonstrating that the biobased option is better than using virgin plastic in an LCA context

Plastic life cycle stage where the intervention takes place		High level category of physical material flow directly impacted	Type of intervention	Project focus	Examples of projects
Downstream - Capacity enhancement	Waste collection	Increased portion of waste collected	Development of collection system	Infrastructures	Creating a network of collection infrastructure for household waste or waste from the private sector
					Baling infrastructure for pre-sorted waste collected
				Implementation of public bins	Installing bins in public outdoor areas
				Transportation	Purchasing garbage trucks
			Improving the operational aspect of waste collection	Capacity building of formal waste collection	Awareness programs and training
				collection from households	Establish a network between waste management facilities and households
				collection community centers	Building collection facilities in strategic location Community engagement and awareness programs
				collection from public bins	Establish strategic public bin network and collection workforce
	Waste recycling	Increased portion of waste recycled	Development of recycling infrastructure	Sorting system for collected waste	Development of sorting infrastructure
					Baling infrastructure for sorted waste
				Mechanical recycling system	New industrial recycling facility (mechanical)
					Expansion/new line in an existing mechanical recycling facility
				Chemical recycling system ⁹	New industrial recycling facility (chemical)
					Expansion/new line in an existing chemical recycling facility
Improving recycling practices	Capacity building for recycling practices	Developing programme that empowers community with the knowledge and skills for effective recycling			
	Increase seller/buyer connection for transactions of collected waste	Online marketplace that connects the producers, recyclers, and manufacturers			

9. Depending on geography & output material produced, chemical recycling is not recognized as recycling in every country.

Plastic life cycle stage where the intervention takes place		High level category of physical material flow directly impacted	Type of intervention	Project focus	Examples of projects
Downstream - Capacity enhancement	End-of-life	Improved end-of-life treatment	Development of end-of-life infrastructure	Energy Generation and Transformation	Treatment facility to convert waste to energy
					Expansion/new facility for safe waste incineration
			Waste transformation	New facility for plastic fossilization ¹⁰ for the construction sector	
				Composting in controlled environment	
	Composting in natural environment under controlled handling				
	Improving end-of-life practices		Capacity building in safe disposal	Developing capacity building programs	
Downstream - Diversion	Improperly disposed waste	Reduced improperly disposed waste	Waste mining of improperly disposed waste	Collection from unsanitary landfills	Inclusion of waste pickers in formal waste management systems, connecting stakeholders and providing support for organizing and capacity-building.
				Collection from dumpsites	
	Littered ¹¹	Increased collection of littered waste	Development of infrastructures	Management of urban water runoff /Urban water filters	Installing meshes and urban gratings in strategic points
			Improving collection of littered waste	Collection on the ground	On-the-ground waste picking systems
	Littering prevention	Waste education	Raising awareness by educating communities		
Cleanup	Leaked	Remediate pollution	Collection from terrestrial environment	Clean-up programs for natural land	Communities adopt specific areas such as parks, trails, or nature reserves to regularly clean up plastic litter and maintain cleanliness.
			Collection from marine environment	Manual extraction	Training of fishermen to collect plastic in the ocean
				Technologies for river clean-up	Installing river skimmers
				Technologies for oceans clean-up	Research and development of innovative technologies
		Passive floating device collecting plastic (Ocean cleanup)			

10. Turning non-recyclable waste into mineral aggregates (stones) without heat. These aggregates can then be reused in the high-performance concrete (HPC) industry.

11. Littering is defined by the Plastic Footprint network as the incorrect disposal of small, one-off items, such as: throwing a cigarette, dropping a crisp packet, or a drink cup. Most of the time these items end-up on the road or side-ways. They may or may not be collected by municipal street cleaning. (PFN glossary, 2023)