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KEY POINTS

- The global financing gap for plastic pollution is estimated to be $50 billion–$120 billion annually, potentially reaching $1.64 trillion by 2040. Asia is the global hotspot for plastic pollution, but only accounted for 8% of plastic circularity investments because of a lack of stable investment and supportive policy environments.
- Governments are central to de-risking plastic circularity projects through economic and regulatory instruments.
- De-risking plastic circularity projects that rely on the informal sector requires capacity building, collaboration, and trust.
- Governments can benefit from technical assistance projects that focus on and provide guidance about the range of private financing available and the policies and regulations that can attract private sector investors and de-risk plastic circularity projects.

Financing Plastic Circularity in Asia and the Pacific: How to Overcome Market and Policy Challenges and Create Impact

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OVERVIEW

This brief discusses the latest trends, challenges, resources, and areas for action to accelerate plastic circularity financing and investment while being inclusive to small and medium-sized enterprises (SMEs), women, and informal workers. It is based on the outcomes of the regional technical assistance project of the Asian Development Bank (ADB) on Promoting Action on Plastic Pollution from Source to Sea in Asia and the Pacific.[1] Furthermore, the brief summarizes the insights and strategies derived from stakeholder engagements with governments from ADB's developing member countries and from a regional capacity-building workshop hosted by ADB, in collaboration with the Coordinating Body on the Seas of East Asia[2] and their member countries, which focused on accelerating investments in plastic circularity and took place in June 2024 in Jakarta, Indonesia.[3]

Notes:
In this report, "$" refers to United States dollars and "₱" to Philippine pesos.
ADB recognizes "Vietnam" as Viet Nam.

1 ADB. 2019. *Regional: Promoting Action on Plastic Pollution from Source to Sea in Asia and the Pacific*.
2 United Nations Environment Programme (UNEP). Coordinating Body on the Seas of East Asia.
3 ADB. 2024. *Accelerating Investments for Plastic Circularity*. Regional workshop. Jakarta. 26–27 June.

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THE PLASTIC POLLUTION DILEMMA AND INVESTMENT NEEDS

Driven by many social and economic factors, the excessive production and consumption of plastic, especially single-use products such as plastic bags, bottles, wrappers, takeaway containers, and cutlery, have overwhelmed existing waste management infrastructure, leading to waste mismanagement.[4] Eight out of 10 rivers that transport approximately 95% of the global volume of plastics into the ocean are located in Asia and the Pacific, specifically the Amur, Ganges, Hai, Indus, Mekong, Pearl, Yangtze, and Yellow rivers.[5] Plastic pollution poses a serious threat to marine ecosystems, impacting the tourism and fishing industries and community livelihoods.

To address this plastic pollution challenge, the plastic value chain needs to adopt sustainable consumption and production (Goal 12 of the United Nations Sustainable Development Goals), which can be achieved through circularity. This circular economy approach aims to keep products and packaging in use for as long as possible to prevent plastics from becoming waste or significantly extend their lifespan before they become waste.[6] The circularity concept aims to address the source of the plastic pollution problem in the long term by changing the way plastic is produced and used. Plastic waste management should follow the waste hierarchy, starting with plastic waste prevention and then preparing for reuse, recycling, recovery, and disposal.

Significant investments are needed in circularity capacity, including reduction, reuse, and refill solutions; waste sorting and recycling; and improved treatment to avoid mismanaged waste and close leakage pathways, especially in low- and middle-income countries. Although Asia is the global hotspot for plastic pollution, the region only accounted for 8% ($12 billion) of plastic circularity investments. North America and Europe, however, accounted for 90% of all investments ($142 billion) because these economies offer a stable investment and supportive policy environment.[7]

Governments at all levels play a key role in catalyzing plastic circular investment through supporting policies and infrastructure. Many government agencies are tasked with developing and implementing plans to manage plastic waste through circular interventions. Such interventions require significant financial resources, but most government agencies responsible for plastic waste management need more knowledge and skills on how to mobilize financial resources to accelerate plastic circularity. A 2023 United Nations Environment Programme (UNEP) report estimates that the global financing gap for plastic pollution is $50 billion–$120 billion annually, potentially reaching $1.64 trillion by 2040.[8] Public funds are insufficient to address the gap, and private financing must be leveraged. Solutions in Asia and the Pacific, Africa, and Latin America have a greater need for private investments and the extended producer responsibility (EPR) schemes to scale up their solutions effectively compared to those implemented in North America and Europe.[9]

WHAT IS PLASTICS CIRCULARITY FINANCING?

Financing for plastic circularity refers to funds used to construct and operate a facility or business. It may also be a program that circulates plastic materials to prevent or reduce the generation of plastic waste into the environment. Various types of financing are available from public and private sources that different types of organizations (receivers and implementers) can use to support plastic circularity (Table).

4 C. Morales-Caselles et al. 2021. An Inshore–Offshore Sorting System Revealed from Global Classification Ocean Litter. *Nature Sustainability.* 4 (6). pp. 484–493.
5 ADB. 2022. Stopping Plastic Waste Leakage into Oceans. *Partnership Report 2022 Stories.*
6 ADB (Southeast Asia Development Solutions). 2022. No Time to Waste: Diving Into Plastics Circularity. 9 February.
7 The Circulate Initiative. 2023. *Key Findings from the Global Edition of the Plastics Circularity Investment Tracker*.
8 UNEP Finance Initiative. 2023. *Redirecting Financial Flows to End Plastic Pollution*.
9 World Economic Forum. 2024. *Circular Industry Solutions for a Global Plastics Treaty*.

Table: Public and Private Sources of Financing

<table>
<tr><th>Type</th><th>Source and Intermediary</th><th>Financial Instrument and Mechanism</th><th>Receiver and Implementer</th></tr>
<tr><td>Public financing</td><td>• Government ministries
• Public agencies and funds
• Development finance institutions, aid agencies (national, bilateral, multilateral)
• Multilateral environment funds</td><td>• Government budgets
• Grants, subsidies, transfers
• Taxes, fees, levies
• Debt instruments
• Investment guarantees
• Cofinancing
• Project finance</td><td rowspan="2">• Central government
• Subnational and local governments
• Public utilities, state-owned enterprises
• Specialized public agencies
• International organizations
• Research institutes (i.e., for research grants)
• Private companies, startups
• Nongovernment organizations, foundations, nonprofits, civil society groups
• Local communities and households</td></tr>
<tr><td>Private financing</td><td>• Institutional investors
• Asset managers
• Commercial banks
• Corporations
• Entrepreneur support organizations
• Philanthropic and corporate foundations
• Individuals and family offices</td><td>• Equity/debt financing
• Impact investments
• Accelerator/incubator investments
• Venture capital
• Individual/crowdfunding
• Philanthropy</td></tr>
</table>

Source: Organisation for Economic Co-operation and Development. 2024. Financing Considerations to Support an International Legally Binding Instrument on Plastic Pollution. Webinar presentation. 16 April.

There is public finance, which includes funds from budgets of national or subnational governments that are usually generated through taxes or fees, as well as funding from donors. Private finance is also available from funds such as capital markets and institutions. These funds are disbursed through different actors. Traditional investors, both individuals and companies, provide funds with an expectation of a financial return. Donor institutions, such as governments and philanthropies, provide funding and have a more diverse expectation of a return (i.e., financial return and social and environmental development outcomes). At a global level, financing for curbing plastic pollution has been increasing annually from around $700 million in 2014 to $1.9 billion in 2020.[10] However, private finance flows have represented only up to 3% of the total financial flows.[11]

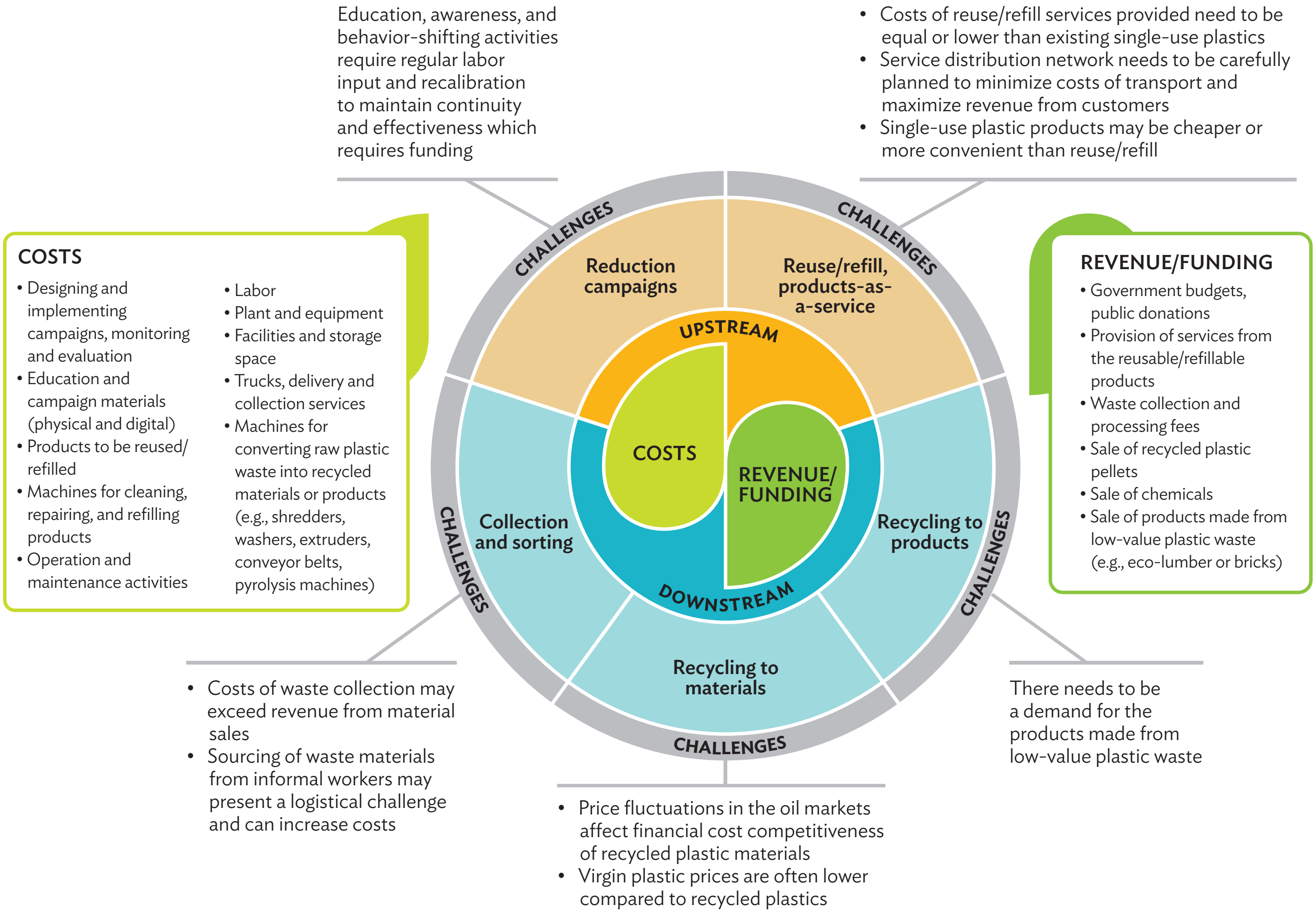
Various activities can be done in the upstream and downstream parts of the plastic value chain to increase material circularity and prevent pollution. All these activities have different types of costs and revenue models and face unique challenges in keeping businesses viable (Figure 1). Plastic circularity activities can generally be categorized as either upstream or downstream based on which part of the plastic value chain the activity targets.

- **Upstream circularity activities.** Target reducing plastic production either through avoidance strategies, using less plastic, or substituting single-use or conventional plastics with other materials. Upstream circularity solutions include reusable or refillable containers for food and beverage and other consumer products, material alternatives, education and awareness campaigns, and behavior-change initiatives aimed at shifting consumers to reduce plastic consumption.
- **Downstream circularity activities.** Target plastic waste management to prevent plastic leakage from polluting the environment. Downstream circularity solutions include plastic waste collection, sorting, reuse, recycling (downcycling and upcycling), and energy recovery.

To date, a majority of global investments in plastic circularity has gone to recovery and recycling (85%); in comparison, reuse-and-refill solutions have received 5% of international investments, and the remaining 10% of global investments have gone to materials, redesign, services, operational platforms, and digital mapping (footnote 7). This indicates that most investments have been focused on managing plastic waste as opposed to reducing or avoiding the use of plastics. Furthermore, this indicates a lack of supporting policies, infrastructure, and consumer behavior and awareness. These elements are needed for reduce and reuse solutions to thrive.

[10] Organisation for Economic Co-operation and Development (OECD). 2023. Financing a Future Free from Plastic Leakage. *OECD Environment Policy Papers*. No. 44.
[11] OECD. 2024. Financing Considerations to Support an International Legally Binding Instrument on Plastic Pollution. Webinar presentation. 16 April.

Figure 1: Costs and Revenue of Plastic Circularity Activities and Challenges



Source: Authors.

INITIATIVES AND CHALLENGES

Government Initiatives in Financing Plastic Circularity

Governments play an important role in developing and enforcing policies and regulations that create conditions for plastic circularity activities that lead to (i) lower initial costs, (ii) lower operating costs of activities, and (iii) higher revenues to operate continuously. Without these favorable policies and regulatory conditions, organizations that implement plastic circularity will face challenges in operating for the long term. Governments can take the following actions to improve the financial sustainability of plastic circularity activities:

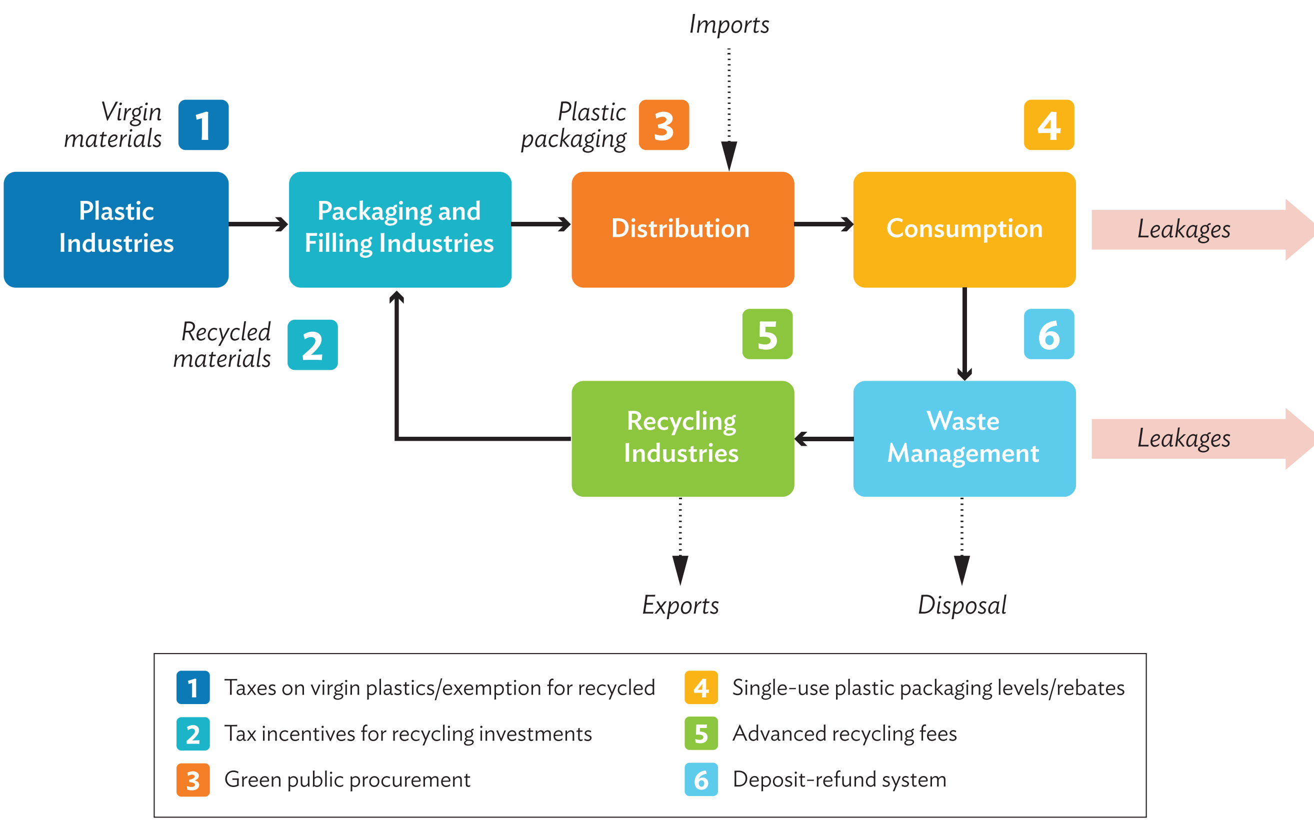
- **Capital expenses.** Offer grants, lower taxes, and provide tax exemptions to lower the costs of equipment to start the project.
- **Operating costs.** Provide tax deductions or exemptions and streamline administrative costs (e.g., business registration, annual reporting, etc.).
- **Revenue.** Create demand for recycled plastic products, reuse-and-refill services through green procurement policies, and develop financial incentives or policies that encourage alternative products or services. Alternatively, the policies could also disincentivize or penalize virgin single-use plastics.

Governments can implement economic instruments to incentivize plastic circularity and encourage investments in these business activities. Several types of economic instruments have been implemented worldwide; each type is best suited to address specific parts of the plastic value chain (Figure 2). Applying any particular instruments will need consideration of the market, regulatory environment, available infrastructure, and the formal waste management systems in a country. Policymakers can apply more than one instrument or can apply an instrument with other complementary policy tools, such as bans on single-use plastics. It may also be possible to apply certain instruments at different scales, such as countrywide or citywide.

Governments face the following challenges when creating and implementing policies and regulations that support financing for plastic circularity.

- **Institutional arrangements.** As plastics cut across many different actors in the value chain, different government agencies often have authority over certain activities. Policies to incentivize plastic circularity may involve an industry-focused agency on the upstream side and an environmental management agency on the downstream side. Coordination between different government agencies is essential for policies and regulations to support effective financing for plastic circularity.
- **Enforcement.** In emerging markets in Asia and the Pacific, policies and plans are often well designed but experience limited effectiveness because of the lack of enforcement. This has been observed in the case of plastic bans in countries such as Indonesia, the Philippines, and Thailand. When it comes to economic instruments to finance plastic circularity, the government agencies involved will need to build capacity and allocate human and financial resources toward enforcement to achieve the intended plastic circularity outcomes.

Figure 2: Targeted Economic Incentives to Catalyze Plastics Circularity



Source: Asian Development Bank. 2024. *Accelerating Investments for Plastic Circularity*. Regional workshop. Jakarta. 26–27 June.

- **Monitoring and evaluation.** This is important because monitoring and evaluation (M&E) activities provide the information needed to answer questions regarding the effectiveness of policies and regulations. Questions that can be answered with information collected through M&E include the following: Does the economic instrument lead to intended outcomes and impacts? Are the costs involved justified, given the changes and effects achieved? Is the economic instrument reaching particular beneficiaries or addressing specific needs? It is quite a challenge for governments in emerging markets in Asia and the Pacific to implement and maintain a strong M&E system because of requirements to collect, track, verify, and report detailed data from a myriad of sources. These M&E activities, therefore, require a lot of human and financial resources. When executed properly, these activities can become expensive for governments in the region with limited budgets that may need to prioritize other national interests.

Several Southeast Asian countries have led initiatives to support financing for plastic circularity.

- **Philippines.** The Philippines' Extended Producer Responsibility Act of 2022 requires product manufacturers to be held responsible for the entire life cycle of their products. Businesses or large enterprises that have assets worth over ₱100 million ($1.7 million) are required to participate in the EPR scheme, whereas micro, small, and medium-sized enterprises are not required but are strongly encouraged. Companies that fail to register for the EPR or do not meet their targets will be fined ₱5 million–₱10 million ($89,000–$357,000), depending on the number of offenses.[12]
- **Thailand.** The Board of Investment of Thailand currently offers a corporate income tax exemption for 8 years for companies that produce recycled plastic pellets for food-grade applications and 3 years of exemption for companies that generally produce recycled plastic pellets.[13]
- **Viet Nam.** The country has implemented an EPR policy under the Environmental Protection Law 2022. Under the policy, product manufacturers and importers are now responsible for recycling a particular share of packaging they manufacture or import in Viet Nam or providing a financial contribution to the Viet Nam Environmental Protection Fund.[14]

Accessing Financing for Plastic Circularity

As shown in Figure 1, different types of activities can support circularity both upstream and downstream in the plastic value chain. All of these activities have different types of costs that can be covered by various sources of financing. There are traditional bonds and loans that have typical hurdle rates, which are the minimum rate of financial return that an investment should achieve before it is deemed acceptable to the investor. There are also thematic bonds (e.g., green, blue, climate, sustainability) and outcome-based or sustainability-linked bonds (i.e., social impact bonds, development impact bonds) that use additional indicators (e.g., greenhouse gas emissions reduced, homes electrified, plastic pollution avoided, jobs created, etc.) to measure the success and impact of the investment. In plastic circularity, financing will not come from one single source but rather a combination of private, public, philanthropic, and blended sources. Larger, more established, and mature companies can usually access the aforementioned sources of financing for plastic circularity projects. However, SMEs, informal sector workers, and especially women face major challenges when trying to access financing.

Challenges Small and Medium-Sized Enterprises Face. SMEs in emerging markets in Asia and the Pacific have developed different solutions to address unique plastic pollution challenges. In the Association of Southeast Asian Nations (ASEAN), SMEs contribute 35%–61% to each member state's gross domestic product, provide 48%–97% of employment, and make up for 12%–25% of the export value (footnote 3). SMEs play a crucial role as supply chain partners in plastic circularity among ASEAN countries.

SMEs that are developing new products and/or technologies face challenges in accessing finance because of unclear regulatory frameworks, unclear policy enforcement to support SMEs, lack of investor interest and awareness, and limited information on available funding. Some SMEs have new business models and technologies, such as reuse-and-refill, product-as-a-service, or deposit–return systems, that funders perceive as higher risk. This is mainly due to these businesses currently having small-scale operations and being seen as less mature and not proven in emerging markets in Asia and the Pacific. Furthermore, the companies may not have yet demonstrated the ability to scale up the business. For example, food service operators are generally hesitant to adopt reuse-and-refill system and plastic material alternatives because they anticipate additional work associated with transitioning to the new solutions from SMEs, such as consumer education, staff training, and adjustments to internal and external processes.[15] SMEs that are making conventional operations more efficient and environment-friendly also face financial limitations, supply chain challenges, and unclear policy and regulatory frameworks.

Challenges Informal Sector Workers Face. Workers in the informal sector mainly collect and recycle valuable materials, which is their primary revenue source. Technologies could make their operations more efficient, but access to finance for these technologies has been limited for several reasons:

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12 C. Añonuevo and B. Laureto. 2022. The EPR Law Takes on the Philippines' Plastic Problem. *The Manila Times*. 25 July.
13 Thailand Board of Investment. 2021. *Investment Support Measures for Packaging Businesses in Thailand*. PowerPoint presentation. 9 September.
14 A. Huld. 2024. Vietnam's Extended Producer Responsibility Policy: Company Recycling Obligations. *Vietnam Briefing*. 24 April.
15 The Incubation Network. 2022. *2022 Market Insights Report: The SUP Challenge*.

- **Lack of formal recognition.** The government often does not recognize informal waste workers, and these workers often require proper documentation to access formal financial services.
- **Limited financial literacy.** Many informal waste workers have limited knowledge about financial products and services and often lack trust in formal financial institutions.
- **Absence of credit history.** Without formal employment or a documented financial history, informal waste workers struggle to prove their creditworthiness. Many lack assets that can be used as collateral for loans.
- **High transaction costs.** Financial institutions may be far from where informal waste workers live and work, which increases the cost and time required to access these services. Furthermore, informal workers may rely on informal lending sources, which often charge exorbitant interest rates.
- **Irregular income.** Earnings for informal workers can be unpredictable and irregular, making it difficult to manage regular loan repayments. Furthermore, these workers have limited ability to save money because of low and fluctuating incomes.
- **Social stigma.** Informal waste workers often face social stigma and discrimination, which can extend to financial institutions. This social bias can lead to exclusion from financial services and support programs.

There is generally a lack of inclusive policies and supportive regulations to integrate informal workers into the formal financial system. More financial products, such as microloans, flexible repayment schedules, and microinsurance, designed to cater to the specific needs of informal workers, would be beneficial.

Challenges Women Face. Women play important roles in the plastic value chain:

- **Generators or consumers.** Women consume household plastics, manage waste at home, and are involved in waste management at the community level.
- **Informal waste collectors.** Most women work in the lower quality end of the waste sorting and recycling value chain, have lower earnings, and are at a higher risk of gender-based violence.
- **Intermediaries.** Women run family businesses and establish waste banks.

Although women in Asia and the Pacific have essential roles in plastic circularity and waste management, their ability to access financing and thrive as entrepreneurs lags behind that of men. In 2021, it was reported that only 14.5% of global venture capital went to women-led startups.[16] However, action is being taken by start-up accelerators to address this significant gender gap. According to the World Bank, most of the 1.7 billion people who do not have bank accounts are women. This impacts women small business owners' ability to access financial products and services that could enable them to expand their businesses.[17] Cultural norms and gender biases often result in women facing more stringent requirements and skepticism from financial institutions. Women often have less access to property or assets that can be used as collateral, and they might lack a formal credit history, making it difficult to secure loans. In some countries, women are not able to open a bank account or access money without permission from their husbands.

Addressing these issues requires concerted efforts from governments, financial institutions, and civil society organizations to create more inclusive and supportive environments for women in waste management. Access to fair and affordable financing could lead to job training and/or capacity-building opportunities. In turn, this could bring about opportunities for quality jobs, stable and reliable income, and better welfare for informal workers. The capacity-building aspect can lead to knowledge in personal safety and security, which are risks women are exposed to as informal waste collectors. Other support initiatives could include mentorship programs to bring together leading women entrepreneurs who can serve as role models and become mentors.

De-risking Projects to Improve Access to Financing

De-risking, in general, can include a variety of activities that will help a project achieve its intended objectives and outcomes. This includes preliminary research (i.e., market assessments, feasibility studies, cost–benefit analyses) or designing, structuring, or managing the project in a particular way. De-risking is essential for projects in nascent markets, such as plastic circularity, where traditional private investors lack the experience or information to make an investment. In plastic circularity projects in emerging markets in Asia and the Pacific, the supply chain is often reliant on workers in the informal sector, which is often perceived as a key risk to traditional investors because of a lack of consistency and reliability. However, informal workers can actually serve as a reliable source of waste feedstock through careful design of the project and capacity building. The following box provides an example of how project developers and investors can take several actions to de-risk plastic circularity projects that rely on informal waste workers and make these projects bankable.

[16] International Finance Corporation, Women Entrepreneurs Finance Initiative, and Village Capital. 2020. *Venture Capital and the Gender Financing Gap: The Role of Accelerators*.

[17] K. Long. 2022. Closing Asia's Gender Finance Gap. *The Banker*. 4 January.

Box: De-risking a Plastic Recycling Project to Make the Informal Sector Bankable

In June 2023, the Asian Development Bank (ADB) signed a $44.2 million blue loan with PT ALBA Tridi Plastics Recycling Indonesia, an ALBA Group Asia company, to establish a polyethylene terephthalate (PET) recycling facility in Central Java. The new recycling facility is expected to recycle up to 48,000 tonnes of PET bottles annually and divert them from landfills, open burning, or leakage into rivers and oceans. The facility will also produce 36,000 tonnes of recycled PET annually, which will offset up to 30,500 tonnes of carbon dioxide that would have resulted from using virgin PET.

Blue loans are financing instruments that aim to safeguard access to clean ocean resources, protect and restore marine and coastal environments, and invest in a sustainable blue economy. These focus areas for ADB's blue projects are based on criteria from the Ocean Finance Framework.

This project faced two key risks:

(i) **Technology risk.** Even though the recycling industry has been around for a long time, the project uses crystallization technology to convert waste PET bottles into new PET bottles. This technology has been around for 16–17 years, but implementing this technology at a larger scale in Indonesia was quite new. The technology requires clean PET as an input. Although there is large volume of plastic bottle waste and plastic waste in general, there are limitations in what the crystallization technology can accept as feedstock.

(ii) **Feedstock supply risk.** Due to the high demand for PET bottles already from other competitors, there is a limited reliable supply of this waste stream. Most PET bottles are getting recycled in Indonesia's major cities, such as Jakarta, because of high demand and sale value. The crystallization technology of the project requires clean PET bottles, which is a challenge to secure in Indonesia and in Southeast Asia, in general. The project needed to establish a process for securing a sufficient and regular supply of clean PET coming out of the waste collection market. Sourcing the material from the informal sector involves a lot of transportation, and cash must be quickly paid to the informal suppliers.

ADB and ALBA Tridi took the following actions to de-risk the project:

(i) **Modify the technology.** After the deal team examined the full capabilities of the crystallization technology, the project set up a front-end system with sorting that allowed the project to accept a wider range of feedstock materials and process these materials so they meet the requirement of the crystallization technology.

(ii) **Harness the informal sector through commitment and capacity building.** ADB's Office of Risk Management and the private sector team analyzed how the informal sector could be harnessed to acquire a stable supply of feedstock. ALBA Tridi already had a strong understanding of the local market and the needs of the informal sector workers through support from previous early-stage investors, such as Circulate Capital. The project made volume purchase commitments to the informal sector suppliers for their materials. Furthermore, ALBA Tridi worked directly with the suppliers from the informal sector to train them in fulfilling the list of requirements (e.g., health and safety) to meet ADB's blue loan requirements and ensure a stable supply of feedstock.

(iii) **Collaborate and build trust on all sides.** This involves building a strong relationship between the financier and the project developer. During the deal development, the parties agreed that should the project encounter any major issues, instead of terminating the contract, there would be discussions to figure out plausible solutions. For example, when the issue of the limited consistent supply of PET bottles arose, ADB and ALBA Tridi developed a plan to increase the collection rate of bottles in the area where the project would be operating.

The ALBA Tridi experience of implementing a large-scale recycling project with feedstock material supplied by the informal sector can be replicated in Asia and the Pacific. Several actions can be taken by various stakeholders to motivate such projects:

(iv) **Multilateral development banks.** They can create more funds dedicated to these specific types of projects focused on plastic circularity.

(v) **Government policymakers.** To make plastic recycling business plans more viable, companies need to be able to sell recycled plastic materials. The price of recycled plastics is affected by the price of virgin plastics and their production volume. Government policymakers play a key role in influencing the market demand for recycled plastics. For example, in the European Union, there is a policy for products to have a minimum recycled content. This pushes product manufacturers to purchase recycled materials, such as plastics.

(vi) **Informal sector.** Nongovernment and social development organizations can provide training and support services to gradually formalize the informal sector. Informal waste workers have existed in the market for a long time and so the business opportunity exists. Capacity building is needed to help the informal sector gradually modify their practices so that they can work with the formal sector. Furthermore, on a macro level, formalization will need legal recognition to businesses and access to waste, licenses, and contracts.

Support for blue loans is available through the Blue SEA Finance Hub. This is an initiative that provides technical assistance for the preparation of bankable blue projects in Southeast Asia.[a]

[a] ADB. 2023. *Blue SEA Finance Hub*.
Source: Authors.

Government policies in emerging markets in Asia and the Pacific can help de-risk plastic circularity projects for investors. Such policies should create a level playing field by addressing the following risks:

- **Lack of raw materials for recycling facilities.** Not having sufficient and reliable supply of raw materials (waste plastic) can disrupt the operations of recycling plants and result in higher costs.
- **Lack of demand for recycled content.** There is a lack of growing demand for recycled material content in new products. One of the reasons for this is that virgin plastics are often cheaper than recycled materials.
- **Lack of demand for reuse-and-refill solutions.** Currently, goods and service providers are generally not required to use reuse-and-refill solutions in their operations. These solutions can reduce reliance on single-use plastics and packaging.
- **Free movement of recyclable content across borders.** This can hinder plastic circularity investments in domestic markets because recycled material that is sourced cheaper from elsewhere will be more attractive. Waste collected and processed could get exported for higher prices, while domestic investors compete for raw materials. Mandating recycled content in products for the domestic market or putting some restrictions on exports can help stabilize the domestic market.
- **Higher operating costs of building fit-for-purpose recycling plants.** The aim of building fit-for-purpose facilities is to ensure sound environmental practices and avoid pollution from recycling activities. Such projects run the risk of not being price competitive because their operations will be costlier than those of less responsible recycling operators who may not be properly treating solid waste residues from their operations and are releasing untreated wastewater. This can be addressed by enforcing environmental laws on plastic waste recyclers to penalize irresponsible operators and improve the operational standard of recycling activities.

Blended finance serves as a way to de-risk plastic circularity projects by using public funds to attract private sector funds to co-invest in development-related projects in emerging markets.[18] Blended finance can mitigate certain risks of pioneering investments that cannot move forward on strictly commercial terms. This helps mitigate risks for private sector investors interested in having a stake in the project. The use of blended financing in plastic circularity needs to be designed carefully so that plastic circularity projects are not reliant on government support in the long term. This risk can be minimized if the project establishes a clear exit strategy that defines increased private capital. The proportion of public fund sources for blended financing needs to be set at an appropriate amount, where the private sector still sees plastic circularity as a lucrative investment worth participating in. This will help prevent the market perception of circularity as an activity that will be dominated by public financing, with little to no room for the private sector to be involved and gain attractive returns.

Financing Considerations Under an International Legally Binding Instrument on Plastic Pollution

To date, international collaboration to address plastic pollution has been voluntary country by country. A mandatory approach is needed globally to address the immense plastic pollution challenge. This has led the United Nations Environment Assembly to initiate an international legally binding instrument on plastic pollution, also known as the Global Plastics Treaty. Such an instrument on plastic pollution requires financing to achieve the proposed implementation measures. There are several different financing options that can be considered, including a multilateral fund or a global plastic pollution fee. According to research conducted by the Minderoo Foundation, a fee of $60–$90 per tonne of virgin polymer is needed to close the financing gap to achieve the objectives of the Global Plastics Treaty.[19] The analysis showed that developing countries will need more money to implement an internationally legally binding instrument on plastic pollution.

NEEDS AND AREAS FOR ACTION

Financing plastic circularity is complex because of the various types of activities that can be implemented both upstream and downstream, different types of business models, and the size and types of stakeholders involved. Countries in Asia and the Pacific will need to mobilize financing quickly from both public and private sources to meet their plastic waste management targets and prevent further environmental pollution and any associated economic damages. This section presents the needs and areas for action for government agencies, project developers and solution providers, and investors and donor institutions that should be addressed to improve financing for plastic circularity in emerging markets in the region.

Government Agencies

- **Implement a mix of economic instruments as a blended policy strategy.** There are several types of economic instruments that governments can implement to reduce plastic pollution and generate funds (Figure 2). Governments can consider implementing a mix of economic instruments to finance plastic circularity at different times based on the type of policy framework that exists and new laws and regulations to be established in the future. For example, in the short term, taxes on virgin plastics and tax exemptions for recycled plastics

[18] ADB. 2018. Green Finance, Explained. *Development Asia*. 10 April.

could be implemented if virgin plastics are currently very cheap and recycled plastics are financially uncompetitive in a country. Earmarking the taxes on virgin plastics for use in the intended efforts to curb plastic pollution and implementing new instruments, such as advanced recycling fees, and a deposit-refund scheme may require appropriate legal frameworks to be in place before these instruments can be applied. The outcomes of the economic instruments introduced in the short term can help create more success in implementation of economic instruments in the medium term. The challenge to designing a blended policy strategy is gaining a strong understanding of the policy context of the country in question to ultimately decide which economic instruments are suitable to implement at which times.

- **Build capacity in developing policies that attract private sector investments.** Government agencies that are responsible for developing the plans and policies to manage plastic waste generally lack awareness about the range of options available to secure financing beyond annual government budgets to implement the plans. Capacity building should be focused on helping governments understand the range of private financing available that could be used to address plastic circularity and the type of policies and regulations that could be implemented to attract private sector investors and de-risk potential projects. A challenge to overcome when delivering capacity building is ensuring that governments can use the new knowledge and skills they gained relatively quickly in their assigned roles and responsibilities and retain the capacity built within the government agencies themselves.
- **Develop incentives for recycled plastics production and consumption.** For plastic recycling businesses to thrive, there needs to be a clear, consistent, and growing demand for recycled plastic to generate revenue. This can be achieved by creating manufacturing and/or procurement policies that mandate a certain percentage of new products to be made with recycled plastic. This will stimulate plastic recycling activities and help plastic recycling businesses compete with virgin plastics, which are often cheaper. Supporting labeling schemes that signal to consumers that the products are made with recycled plastics or through other circular practices would also help distinguish the products in the market. A challenge to overcome is ensuring that policies regarding the use of recycled plastics are unambiguous and are backed by technical standards to avoid confusion and prevent issues during implementation.
- **Mandate reuse-and-refill options for consumers.** Many types of reuse-and-refill solutions have been implemented in emerging markets in Asia and the Pacific to reduce single-use plastic consumption. Most operations have been small-scale and face barriers from consumer goods and services providers. Policies and regulations could be developed that mandate service providers to offer a certain percentage of products or services that use reusable packaging. This type of policy has already been implemented in the European Union.[20] Design and implementation of such a policy or regulation needs to be done carefully in Asia and the Pacific to fit the local context. A challenge to overcome is the process of enforcing the mandate of reuse-and-refill options for consumers and if the mandate conflicts with the financial constraints of service providers.
- **Allocate research and development budget to circular business models and technologies.** Governments have budgets that are used to support research and development (R&D) in different fields that are of national interest (e.g., energy, agriculture, transport, health care). Existing budgets could be shifted to focus more on technologies and business models that support plastic circularity as a means to manage the growing volumes of waste. Both software and hardware could be supported under the R&D budget, along with business model testing. A challenge to overcome is creating a strong and convincing rationale for decision-makers to prioritize R&D for plastic circularity in government budgets.

Project Developers and Solution Providers

- **Build awareness about the range of financing options available for plastic circularity businesses.** Businesses are generally aware of traditional bond and loan options from commercial institutions that use typical hurdle rates and other financial indicators to measure performance. Other types of thematic bonds are available (e.g., green, blue, climate, and sustainability bonds) or linked to certain development outcomes. Plastic circularity projects have the opportunity to meet the requirements of these alternative forms of financing, but project developers may not be aware of this. It should be noted that blue and green bonds usually do not cost companies less. Blue and green bonds have the same financial expectations from investors, but the companies may be able to generate interest from a wider variety of investors. Programs could bring together plastic circularity businesses to build awareness about other types of financing that could be used to scale up their businesses. Training could also be provided on how businesses should de-risk their projects to achieve the objectives and outcomes under a loan or bond. Trainings should bring in tangible examples and successful case studies.
- **Lower interest rates and provide tax incentives for plastic circularity businesses.** Financial incentives can motivate businesses to develop plastic circularity projects. For example, Thailand offers a corporate income tax exemption for companies that invest in developing plastic recycling businesses in the country. A challenge to overcome is that some governments may face budget constraints that make it challenging to offer tax incentives without affecting other critical sectors.

[19] The Minderoo Foundation. 2024. *The Polymer Premium: A Fee on Plastic Pollution*.

[20] European Parliament. 2024. New EU Rules to Reduce, Reuse, and Recycle Packaging. Press release. 24 April.

- **Enforce laws governing good environmental and social business practices.** Certain plastic circularity companies or projects face higher costs as a result of ensuring that their activities adhere to good environmental and social practices and prevent pollution from their activities. These projects face the risk of not being able to compete with other companies that choose not to implement good business practices. To create a level playing field, emerging markets in Asia and the Pacific should enforce environmental, social, and governance practices (e.g., pollution control, health and safety, and good labor practices) to help eliminate irresponsible operators. During the transition period, governments, donor organizations, nonprofit organizations, or educational institutions can provide capacity building to companies operating the projects to explain how to meet the requirements of such rules and regulations. A challenge to overcome is determining which government agency or agencies will be responsible for enforcing these policies and regulations and allocating the resources required for successful enforcement and compliance.

Investors and Donor Institutions

- **Develop more blended finance packages targeted at plastic circularity.** It is clear that public funds will be insufficient to meet the plastic circularity financing gap, and private funds must be leveraged. Donors can initiate blended financing targeted at plastic circularity projects. Such investments can use hurdle rates to measure performance, along with other development-oriented indicators. Blended finance products can also have a dedicated focus on reuse-and-refill solutions, which have received significantly lower investments compared to downstream solutions focused on sorting and recycling. ADB's Blue SEA Finance Hub provides technical assistance for preparing bankable blue projects in Southeast Asia.[21] Although there are financial packages and technical assistance support available, a challenge to overcome is identifying projects and businesses with strong potential for scaling up and are coachable to make improvements.
- **Invest in upstream steps of plastic recycling.** As the demand for recycled plastic grows from public and private procurement, companies will need to secure more waste plastic and preprocess it into a suitable feedstock form. The ability to meet this growing demand for recycled plastic will depend on the state of waste management infrastructure in place and both formal and informal waste workers in Asia and the Pacific.[22] More investments are needed in the collection, sorting, pretreatment, and aggregation of waste plastic feedstock. A challenge in investing in the upstream stages of waste management is that revenue for such businesses is reliant on general waste collection and processing fees (i.e., tipping fees), which are paid by governments and are frequently too low in countries in developing Asia, inhibiting cost recovery and making for an unattractive investment.
- **Provide technical assistance and capacity building for preparing investible projects.** Donors can lead technical assistance programs that build capacity for SMEs to prepare investment-worthy projects. Investors and venture capitalists from the private sector can be brought in to support such training. A challenge to overcome is that donors will need to provide a clear incentive for investors and venture capitalists to provide their time and knowledge to contribute to capacity building for SMEs.

All Stakeholders: Crosscutting Issues to Address in Pursuit of Increasing Financing for Plastic Circularity

As government agencies, project developers, investors and donor institutions, and other stakeholders take action in pursuit of improving financing for plastic circularity in emerging markets in the region, it is important that gender and human rights challenges across the value chain are not left behind. Gender equality means that the rights, responsibilities, and opportunities of all individuals, irrespective of their sex or gender identity, are considered, valued, and favored equally in the economic, social, and political spheres of society. Dismantling inequality may require targeted support of socially disadvantaged groups to create a level playing field.[23]

All stakeholders can consider the following actions to help address gender issues in accessing financing for plastic circularity:

- **Incorporate gender goals into financing instruments and plastic circularity investments.** Investors could invest in gender bonds, either by refinancing existing facilities or by financing new facilities that support women-owned SMEs, low-income women, or disadvantaged female groups. Several gender bonds have been issued in Southeast Asia—e.g., Indonesia,[24] Thailand,[25] and Singapore[26]—and with support from organizations such as the International Finance Corporation, Goldman Sachs, and the Government of the United Kingdom to expand capital for women entrepreneurs. Across countries in Asia and the Pacific, more gender bonds should be available for plastic circularity investments. One of the challenges holding investors back is that there are fewer high-profile success stories of women-led businesses in plastic circularity in emerging markets, which makes it harder for investors to gauge potential success.[27]

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21 ADB. 2022. *Asian Development Bank Ocean Finance Framework*; and ADB. 2023. *Blue SEA Finance Hub*.
22 W. Gao et al. 2023. A Unique Moment in Time: Scaling Plastics Circularity. *McKinsey & Company*. 16 August.
23 UNEP, Coordinating Body on the Seas of East Asia. 2019. Gender Equality and Preventing Plastic Pollution. *SEA Circular.* Issue Brief 02.
24 OCBC. 2020. IFC Invests up to IDR 2.75 trillion in Bank OCBC NISP's Gender and Green Bonds to Empower Women Entrepreneurs and Women-Owned SMEs, and Catalyze Green Project Financing. Press release. 8 March.
25 *SME Finance Forum*. 2019. First Private-Sector "Gender" Bond to be Issued in the Asia Pacific Region. 26 Aug.
26 A. Tjaardstra. 2024. IWD Deal Analysis: How IIX's WLB6 Orange Bond Helps Women's Livelihoods in Asia. *Finance Asia*. 7 March.
27 D. Walsh. 2024. Building the Case for Women Waste Entrepreneurs. *MIT Sloan School of Management*. 13 March.

- **Design products and services that meet the needs of women.** Globally, women make up most of the workforce in the informal waste management sector, according to the United Nations Development Programme.[28] Therefore, when implementing products and services in the plastic circularity and waste management sectors, it is crucial to design them to meet the needs of women to enhance their overall well-being. Women should be involved at the start of the design and planning stages of the products and services. A challenge to overcome is understanding what specific factors to consider when designing products and services that are cost-effective and give women confidence and pride in their work.

In the pursuit of a circular economy for plastics, it is essential that all stakeholders identify ways to address the human rights impacts on the most vulnerable informal waste pickers across the value chain. Actions all stakeholders can consider are as follows:

- **Provide social and financial support.** Businesses and governments across the plastic value chain should initiate social and financial mechanisms that allow informal waste pickers to have a right to a standard of living adequate for their health and well-being, as well as their families. A challenge to overcome in initiating such mechanisms is pursuing a multifaceted approach and motivating governments to provide social and legal recognition of informal waste pickers.
- **Promote inclusion in the policymaking process.** Representatives from the informal sector should be included in dialogues and policymaking processes that affect their livelihoods. To achieve this, a challenge to overcome is that organizers of the policy dialogues will need to carefully identify suitable representatives who can provide the necessary input and ensure that the views of the informal sector are equally respected and valued among all decision-makers.
- **Support access and ownership of banking services.** Many women and informal workers lack access to basic bank accounts and financial products and services. Access to these basic resources is essential for them to develop and scale up businesses focused on plastic circularity. A potential challenge to overcome in expanding such financing services is addressing the fees associated with bank accounts or services that may be prohibitive for low-income individuals, even after training in financial literacy.

[28] C. Wiesen. 2022. The Tactics to Drive a Gender-Inclusive Circular Economy. Blog post. United Nations Development Programme. 26 May.

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