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# Financing Plastic Action in Emerging Markets Addressing Barriers to Investment

Prepared for the Global Plastic Action Partnership  
at the World Economic Forum



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## Introduction

**Plastic is a valuable material, but the adverse environmental, health and economic impacts of plastic waste and pollution have created a planetary crisis.**

Only 9% of all plastic waste ever generated has been recycled, and the flow of plastics into rivers, oceans and other natural ecosystems is expected to triple by 2040 without drastic action to change the plastic's linear system of use. While concern about plastics' detrimental impact has focused to date on producers and the users of plastic packaging, advocacy groups are now turning their attention to the institutions that finance the plastics supply chain without requiring any plastic pollution mitigation measures.<sup>1</sup>

Ambitious commitments have been made across the plastics recycling value chain, most notably by consumer packaged goods companies ("CPGs"), to shift all plastic packaging to recyclable formats by 2025, eliminate avoidable plastics, and increase the recycled plastic content in their packaging.

From the public sector, there is momentum at national levels — country-level partnerships and policies — to create a regulatory environment that supports circularity. However, existing demand for more circular packaging solutions far outpaces supply, while policy developments have not yet led to increased funding for basic waste collection services that could help source feedstock for downstream processors.

Similarly, while investment in the recycling and circular economy ("RCE") space is occurring, particularly in the Indo-Pacific region, the flow is neither large enough nor sufficiently consistent. Much of that investment is strategic (e.g., by plastics supply chain actors), concessionary in nature (e.g., from international development institutions), or impact focused (e.g., private entities that have integrated impact into their investment theses).

However, mainstream Financial Institutions ("FIs") — broadly comprising financial intermediaries, asset managers and trading venues— seeking a commercial rate of return are conspicuously absent. This want of private capital perpetuates a critical financing gap in a transition to a circular economy for plastics in emerging markets. This gap also misses the opportunity to connect action on plastic and climate. Unless barriers to financing are addressed, the gap cannot be closed.



## Barriers to Investing Private Capital in Emerging Markets and How Financial Institutions Can Address Them

Although emerging markets offer a significant opportunity for achieving (a) the largest impact on plastic waste mismanagement<sup>2</sup> and (b) an attractive risk-adjusted return,<sup>3</sup> FI investment in RCE assets has not matched this opportunity.

In Asia, for example, one study found that the top 100 institutional investors, with assets under management totalling about US\$20 trillion, held only 0.3% of those assets in infrastructure investments.<sup>4</sup> Barriers to greater investment of private capital can generally be divided into three broad categories.

### *“The circular economy in emerging markets is uninvestable.”*

Financial institutions' generally negative perception of recycling and the circular economy in emerging markets is largely attributable to three factors: 1) lack of a track record, 2) small deals and pipeline, and 3) challenging local waste management systems.

#### **1** Few investment vehicles and financial transactions have visible financial and impact returns.

Globally, there are relatively few investment vehicles with a demonstrable track record of achieving consistent and attractive returns from investments in the RCE sector. The absence is even more pronounced in emerging markets, where — with the exception of India — data on RCE funding rounds over the last decade is sparse.

Furthermore, as few RCE companies are publicly listed, there is limited transparency concerning financial returns along the plastic recycling value chain, or its participants' environmental impact. That data paucity is mirrored globally by the need for a coherent, uniform and transparent methodology to measure and publicly report financial performance and impact relating to plastic recovery and recycling at the company and deal levels.

#### **What can financial institutions do now to address this barrier?**

Possible FI responses include:

- **Channel capital to RCE in markets and supply chain verticals where more track record exists.**  
  
For example, Circulate Capital Ocean Fund, representing US\$106 million in committed capital from the plastics supply chain and other entities, for investment in South and Southeast Asia, is committed to disclosing its financial and impact returns. As at YE20, it had deployed US\$39 million in India alone.
- **Promote disclosure of financial performance and impact on plastic waste at the company and project levels from companies - as clients or within portfolios - as part of a broader ESG discussion.**

For instance, through the creation of investment indices, or underwriting capital raisings or extending loans, that incorporate plastics-related metrics (e.g., Coca-Cola FEMSA's US\$705 million, 12-year green notes in August 2020 that included waste prevention, reduction, and recycling among the list of eligible projects upon which it will report).



## 2

**The current pipeline requires smaller ticket sizes, with too few larger investment opportunities.**

For emerging market SMEs generally, a financing gap exacerbates the ‘missing middle’ of potentially investible RCE pipeline.<sup>5</sup> For example, sorters, aggregators, and smaller processors in South and Southeast Asia are often unable to access the US\$2-10 million that could contribute to a more reliable post-consumer plastic feedstock supply – both in terms of quantity and quality.

Extended producer responsibility (EPR) policies at the national levels and engagement of MDBs and DFIs are beginning to play the role of de-risking investment for such upstream activities. Addressing these gaps would in turn enhance the ‘bankability’ of larger investments downstream.<sup>6</sup>

**What can financial institutions do now to address this barrier?**

Possible FI responses include:

- **Deploy capital via VC/PE deals, funds or other vehicles that aggregate and channel capital to RCE.**

For example, in addition to Circulate Capital Ocean Fund, Althelia Sustainable Ocean Fund, a US\$132 vehicle focused on circular economy and other ocean-related business models, has invested US\$2 million in India in an effort that seeks to transform informal sector actors into ‘waste-preneurs.’ The German development bank KfW, the EIB, together with French insurers BNP Paribas Cardif and Garance, are all investors in Althelia Sustainable Ocean Fund.

- **Explore innovative investor partnerships across the financing spectrum that encourage and facilitate acceptance of greater risk.**

For example, ADB’s recently announced Clean and Sustainable Ocean Partnership with European Investment Bank in the Indo-Pacific region<sup>7</sup> provides technical assistance and advisory support to help entities get sustainable blue economy and clean oceans projects off the ground.



### 3 Local waste management systems are often chronically underfunded and uncreditworthy.

Formal waste management infrastructure is typically organized, implemented and generally funded at the subnational or municipal government level. But significant funding gaps exist that result in municipalities and/or their waste management systems being deemed uncreditworthy (e.g., the estimated total cost of waste management in Hanoi, Vietnam is US\$39 per ton versus household service fees of US\$9.7 per ton<sup>8</sup>).

Moreover, the presence of the informal sector (which in Vietnam gathers an estimated 83% of all plastic waste collected for recycling<sup>9</sup>) means that a significant proportion of the waste with a high financial and calorific value is removed from the formally managed waste stream. Enhancing infrastructure funding of subnational or municipal governments' waste management systems through taxation or other sources would allow more private capital to come in.

### What can financial institutions do now to address this barrier?

Possible FI responses include:

- **Participate in country-level cross-sectoral planning, such as NPAP processes, to ensure private investment is 'at the table' as public policy and funding is developed.**

In late 2020, the Vietnamese government adopted a new law, incorporating the 'polluter pays' principle with three different funding models for addressing plastic waste, and officially launched a National Plastics Action Partnership, with support from GPAP.

- **Encourage, underwrite and/or invest in sovereign or quasi-sovereign (e.g., creation of national waste authorities/funds) debt issuance, where the use of proceeds includes recycling and circular economy opportunities.**





***“Plastics recycling markets are too volatile - especially in emerging markets.”***

During a transition from a linear to circular economy, downstream (waste management and recycling) investments must contend with dynamic commodities markets influenced by: 1) historically high price volatility, and 2) supply-demand disconnect.

## 1 Recycled plastics markets have historically experienced high absolute and relative price volatility.

Participants in all segments of the plastic recycling value chain are exposed to price risk at two levels: a) to fluctuations in the absolute price of the relevant polymer to be recycled; and b) to the price of the same virgin plastic polymer, which is directly related to the price of crude oil from which it is derived.

During recent crude oil price collapses, the consequent decline in virgin prices resulted in recycled plastic prices trading at premium to virgin plastic and encouraged a switch to the former by many packaging producers. The absence of cost-efficient hedging instruments inhibits long-term supply contracts and investment.

### What can financial institutions do now to address this barrier?

Possible FI responses include:

- ▶ **Create financial instruments (e.g., futures, options, insurance-like instruments) that can manage absolute and relative price risk** in connection with recycled plastics, and provide liquidity to resulting exchange-based contracts.

Similar instruments have been used in agricultural supply chains (e.g., coffee, cotton) to support more sustainable systems.

## 2 Industry commonly faces disconnected supply and demand.

Plastic processors face both feedstock supply and recycled plastic offtake risks. While offtake risk is increasingly being mitigated through commitments from CPGs and others, the reliability of feedstock supply (as noted above) is often a barrier to investment, even for those polymers that have relatively high collection rates, such as PET. Waste management and recycling policies at the national and subnational levels play an important role in unlocking supply, but are not always linked to end market development. Facilitating greater equilibrium in the demand for, and supply of, recycled plastics will help address the Affordability Gap such materials face with respect to virgin plastics and reduce the plastic recycling value chain's Data Gap.

### What can financial institutions do now to address this barrier?

Possible FI responses include:

- ▶ **Underwrite or invest in issuances, or extend loans, where the use of proceeds concerns long-term supply or demand contracts, and annual reporting is required on their application.** For example, PepsiCo's US\$1 billion, 30-year inaugural green bond in October 2019 that included sustainable plastics and packaging purchases and investments as eligible projects within its use of proceeds.
- ▶ **Advise on, underwrite, or invest in new plastics spot market trading venues** (e.g., similar to agricultural physical commodity markets) or platforms that encourage price discovery and contract standardization (polymer type, quality and quantity).

### ***“Alternative materials and other innovations are not yet investment-ready.”***

In many low- and middle-income countries, particularly in Southeast Asia, plastic packaging in the form of sachets facilitates consumption by consumers with low and variable incomes. Unfortunately, these plastics also contribute disproportionately to waste mismanagement, while being simultaneously economically inefficient to collect and process.

New materials and other innovations are required if plastic pollution is to be addressed comprehensively. However, in many cases, technologies and business models are still in their infancy. Opportunities are still to be defined, but should be in the long-term purview of financial institutions.

#### **Early-stage technologies are concentrated in developed markets, lacking capital, and risky to transfer to emerging markets.**

Innovative solutions for advanced recycling, alternative materials, and new delivery models are emerging. While we might expect innovations to largely come from corporate R&D budgets, many never get beyond pilot stage. If they are able to reach commercial scale, technology-driven solutions are concentrated primarily in North America and Europe, and are often capital-intensive to develop and operate.

For example, total project costs to achieve one commercial scale plant for advanced recycling technologies can exceed US\$300 million; historically, these projects have taken 17 years on average to reach commercial scale in developed markets, with growth stalled due to a lack of capital.<sup>10</sup>

**Applying such innovations in emerging markets carries additional risks**, including legal/regulatory, management expertise and workforce, and supply chain risks. The lack of supportive ecosystems in many emerging markets make it difficult to transfer technologies, as well as incubate local innovations.

To support innovation pipeline development, MDBs have recently increased their role in providing technical assistance and funding to early-growth stage ventures that may serve to de-risk and buttress the investment pipeline (e.g., ADB Ventures in Asia; IDB Labs in LatAm). World Bank, in particular, has played a thought leadership role on the issue of plastic mismanagement (e.g., through its ‘What a Waste v1.0 and v2.0’ reports and its encouragement of experiments in results-based financing of waste management infrastructure).

However, absent further incentives — whether voluntary or mandated by government policies — early-stage innovations will likely struggle to overcome the economic inefficiencies, convenience of existing packaging materials, as well as entrenched consumer behaviours.

#### **What can financial institutions do now to address this barrier?**

Possible FI responses include:

##### **Deploy capital at scale by investing in and/or underwriting, via:**

- ▶ **Early-stage innovation funds or companies:** Sky Ocean Ventures Fund with £25 million deployed to new technologies, materials, and business models; and RWDC (Singapore-registered/US-located facility), a PHA-based biomaterials producer, which raised US\$133 million in Series B funds raised in May 2020<sup>11</sup>
- ▶ **SPACs**, such as Danimer Scientific’s (PHA-based biopolymer producer) US\$890 million go-public merger on October 2020, and IPOs, such as the December 2020, US\$40 million-equivalent listing of Antony Waste Handling on BSE/NSE in India, which was 14x subscribed

## Increasing Engagement of Financial Institutions

**Despite the challenges, FIs can pursue a number of strategies to support plastic action and generate both financial and impact returns.<sup>12</sup>**

Momentum and action by both international and local institutions, from private and public sector, are demonstrating that the barriers can be overcome. It is time for FIs to increase their engagement on the issue of plastic pollution by joining the spectrum of potential capital providers, and reinforcing and encouraging the actions of other stakeholders.

**In the near- and longer-terms, FIs can apply their financial expertise, creativity and assets in three key ways:**

1. **Enhance RCE investability** by investing in and/or underwriting transactions that address the financing gap for infrastructure and innovation.
2. **Support the development of financial instruments, platforms and venues** that address volatility and promote greater plastic recycling supply chain efficiency and clarity.
3. **Promote transparency in and reporting on plastic waste and pollution** in connection with financial transactions and in regular disclosures by corporations in their investment portfolios.





1. "Banks Called Out For Their Role In Financing Plastic Pollution," Mike Scott, Forbes (January 8, 2021) (referencing the finding in PortfolioEarth's [Bankrolling Plastics](#) report that, between January 2015 and September 2019, banks provided more than US\$1.7 trillion to 40 companies with significant involvement in the global plastics supply chain without due diligence concerning the effect of those loans on plastic pollution)
2. See, e.g., "[Plastic waste inputs from land into the ocean](#)," Jenna R. Jambeck, et al., Science (15 February 2020)(estimating that over half of mismanaged plastic entering the ocean comes from five emerging markets in Asia: China, Indonesia, the Philippines, Vietnam, and Sri Lanka).
3. "[Investing to Reduce Plastic Pollution in South and Southeast Asia: A Handbook for Action](#)," Circulate Capital (2019)
4. [Infrastructure Investment, Private Finance, and Institutional Investors: Asia from a Global Perspective](#), G. Inderst, Asia Development Bank Institute (January 2016) at pp 25
5. [MSME Finance Gap](#), SME Finance Forum, IFC
6. See, e.g., [Financing Waste in Indonesia](#), Macquarie-Green Investment Group (September 2020) (recommending, inter alia, the development of a fleet of sorting MRFs alongside pre-planned chemical recycling facilities)
7. <https://www.adb.org/news/adb-eib-join-forces-protect-oceans-support-blue-economy>
8. [Solid and Industrial Hazardous Waste Management Assessment: Options and Action Areas](#), World Bank/NDC Partnership/Korea Green Growth Trust Fund (2018)
9. Radically Reducing Plastic Leakage in Vietnam: Action Roadmap, National Plastic Action Partnership Vietnam (forthcoming)
10. [Accelerating Circular Supply Chains for Plastics: A Landscape of Transformational Technologies that Stop Plastic Waste, Keep Materials in Play and Grow Markets](#), Closed Loop Partners (April 2019)
11. <https://www.bioplasticsmagazine.com/en/news/meldung-en/20200513RWDC-PHA-start-up-attracts-funding-of-US-133-million-to-build.php>
12. See generally, "[Financing Waste Management and Recycling Infrastructure to Prevent Ocean Plastic Pollution: A Survey of Innovative Financial Instruments](#)," Ocean Conservancy (2021)







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