

Key findings from the global edition of the Plastics Circularity Investment Tracker: Supplementary Material

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This document contains supplementary material to the Plastics Circularity Investment Tracker.

- I. Glossary
- II. Research Methodology
- III. Data Exclusions
- IV. Investors Profiled

I. Glossary

This section provides definitions of key terms used in the Plastics Circularity Investment Tracker:

- Plastics Circularity and Plastics Circularity Solutions
- Investment and Investment Categories
- Classification of Emerging Markets and High-Income Economies

Plastics Circularity and Plastics Circularity Solutions

Plastics Circularity

Plastics circularity is defined as a system that drives a circular economy for plastics. This includes technologies, business models or other solutions that tackle the plastic pollution challenge by eliminating, reducing or reusing plastic, or by keeping plastic materials in circulation without them leaking into the environment.

Classification of Solutions along the Plastics Value Chain

The archetypes in the Plastics Circularity Investment Tracker can be classified as upstream, midstream or downstream solutions according to where they lie along the value chain.

- Upstream solution: One that may eliminate or reduce the use of plastic, such as the development of a new compostable material for use in foodservice packaging. Example archetypes: Materials, Redesign.
- Midstream solution: One that requires the participation of a consumer to realize its plastic reduction strategy. Examples might include zero waste stores that depend on consumers bringing their own packaging or refill systems that require consumers to return a package for refill. If the consumer does not fulfill the action, the innovation is unlikely to reduce the use of plastic. Example archetype: Refill/Reuse.
- Downstream solution: One that occurs after a package or product becomes waste. Downstream solutions include operational platforms that seek to connect plastic waste generators (i.e., consumers) with informal collectors or mobile apps that track and report waste plastic for the purposes of EPR reporting. Other downstream solutions might include reverse vending machines that collect recyclable plastics and reimburse the user with awards or points that can be redeemed for other products. Example archetypes: Recycling, Recovery.

Note that some archetypes may be cross-cutting; e.g., they may fall under the downstream and midstream, or midstream and downstream parts of the value chain.

Definitions of Solutions

Solution	Description and examples of companies focusing on the solution
<p>Materials</p>	<p>Firms that focus on the production or use of alternative materials for single-use plastics or other applications.</p> <p>Example(s): Fiber-based alternatives, such as molded bagasse, or other compostable substitutes for takeout foodservice ware.</p>
<p>Redesign</p>	<p>Firms that redesign an existing product and/or packaging system with consideration of its performance and value, resulting in products and packaging that are more reusable or recyclable than typical models. Firms included may also redesign existing systems to improve reuse or recycling, such as for the segregation of materials.</p> <p>Example(s): Eliminating polyvinyl chloride (PVC) labels from PET bottles, or shifting from multilayered packaging to mono-material.</p>
<p>Refill/Reuse</p>	<p>Firms that substitute or eliminate single-use and other plastic products through reuse, refill or product-as-a-service business models. These firms reflect a diversity of business models intended to eliminate single-use plastics.</p> <p>Example(s): Zero waste or bulk stores that offer refill services if consumers bring their own packaging, or reuse and refill systems that might require a deposit to incentivize the return of packaging.</p>
<p>Services (driving plastics circularity or plastic waste management)</p>	<p>Firms that support, through their services, the actors involved in driving a circular economy for plastics along the entire plastics value chain. These include, for example, firms that offer services that facilitate alternatives to plastics; enable or promote reuse; account for plastic usage, audit and offer assurance of plastic waste flows; and/or quantify collected waste plastics in line with EPR regulations or voluntarily.</p> <p>Example(s): Service providers that enable organizations to calculate their plastic footprint, or firms that offer EPR accounting and reporting services.</p>

Solution	Description and examples of companies focusing on the solution
Operational Platforms enabling plastics circularity	<p>Firms that offer “on-demand” software, technology platforms or mobile applications that specifically support a circular economy for plastics. These platforms, for example, allow individual consumers and/or companies to request at-home or business collection of recyclable plastics.</p> <p>Example(s): Operational platforms that facilitate waste collection and recycling or marketplaces.</p>
Digital Mapping	<p>Firms that offer digital technology or platforms that are intended to map and/or trace material flows, document the location of waste management infrastructure, or provide insights on waste volumes or composition.</p> <p>Example(s): Blockchain ledger technology that maps and traces the flow of waste plastics from the source of collection through reclamation and end products, or the location of waste management infrastructure.</p>
Recovery	<p>Firms that directly recover municipal solid waste or plastic waste for various purposes, including for recycling. While the principal focus is to ensure collection for disposal rather than for recycling, these businesses support plastics circularity through collection and sorting of plastic waste prior to disposal.</p> <p>Example(s): Plastic litter and waste collection services and riverine cleanup technologies.</p>
Recycling	<p>Firms that offer informal and formal collection, processing or sorting, and reclamation of waste plastics for recycling, as well as firms with technologies to recycle waste plastics into flakes, pellets or finished products.</p> <p>Example(s): Waste management companies and non-profit organizations working with the informal sector to collect waste plastics, reverse vending machines to collect bottles, and companies that recycle and reclaim plastics.</p>

Investment and Investment Categories

Investment

“Investment” is defined as private financing in the form of grants, equity/quasi-equity, debt, and blended finance structures, including credit guarantees and other similar financial instruments. Through this analysis, we seek to capture the allocation of capital flows to companies, and technical assistance accompanying other forms of investment rather than the provision of in-kind “investments,” such as non-monetary technical assistance. Funding via bilateral or multilateral donor agencies, or from national, state or local governments is not included, though we are exploring ways to include this in the future.

Investment Categories

Investment categories for the Plastics Circularity Investment Tracker are based on the provider of capital for plastics circularity transactions. These include accelerators, incubators, banks, foundations, family offices, corporates, individuals, investment firms such as private equity and venture capital firms, and the general public through initial public offerings (IPOs). Public funding sources, such as from national/local governments or government departments and agencies, are excluded.

Definitions of Investment Categories

Investment Category	Definition
Accelerator/Incubator Investments	Cash, or recoverable or non-recoverable funding provided by accelerators, incubators or entrepreneurship support organizations or as award monies (other than directly by corporate) as part of the early stage of development. An equity component in return for financing may or may not be involved.
Financing by Banks	Financing in the form of loans (secured or unsecured), or bonds provided by commercial or multilateral development banks.
Corporate Investments	These include investments effected through joint venture, merger, acquisition, secondary transaction involving minority equity purchases from another investor, asset purchases, and/or direct funding. Bonds issued by corporations are included here, as are grants provided by corporates to startups involved in plastics circularity.
Individual/Crowdfunding/Philanthropic Investments	Investment of a philanthropic nature or otherwise received from an individual, a group of individuals or private foundations. An equity component in return for financing may or may not be involved.

Investment Category	Definition
Private Equity	Private equity (PE) is a form of financing where money or capital is invested in a company. Typically, PE investments are made in mature businesses in traditional industries in exchange for an equity or ownership stake. PE is a major subset of a larger, more complex piece of the financial landscape known as the private markets.
Public Investment/IPO	An initial public offering (IPO) refers to the process of offering shares in a private corporation to the public for the first time. An IPO allows a company to raise equity capital from public investors. Secondary offering is also included here.
Venture Capital	Venture capital (VC) is a form of financing where capital is invested in a company, usually a startup or small business, in exchange for equity, debt or quasi-equity or debt in the company. It is also a major subset of a much larger, complex part of the financial landscape known as the private markets.

Classification of Emerging Markets and High-Income Economies

From the [World Bank’s classification of countries](#), emerging economies considered for the purpose of the Plastics Circularity Investment Tracker include the countries categorized as “Low-income economies”, “Lower-middle-income economies” and “Upper-middle-income economies” as described in the table below.

Group	Gross National Income Per Capita	Example Countries
Low-income economies	≤US\$1,135	Afghanistan, Burundi, Yemen
Lower-middle-income economies	US\$1,136-US\$4,465	Algeria, India, Kenya, Vietnam
Upper-middle-income economies	US\$4,466-US\$13,845	Argentina, Brazil, China, Malaysia, Thailand, South Africa
High-income economies	≥US\$13,846	Australia, Chile, Germany, Netherlands, UK, USA

II. Research Methodology

Types of Investment Covered in the Investment Tracker

Building on data already included for emerging markets from the first edition, for the second global edition of the Plastics Circularity Investment Tracker, The Circulate Initiative consulted various databases covering private market investment transactions and filtered data for third-party investments made in plastics circularity solutions for the period of January 2018 to June 2023. Each transaction was reviewed for its relevance and applicability to plastics circularity, with more than 15,000 transactions as the starting point. The information compiled from these databases was cross-checked against publicly available information where possible. In addition, where possible, information was collected and validated in discussions with investors, although this was not a core component of the research approach. Investments were categorized according to investment type and archetypes, and the data was aggregated to generate insights while maintaining the transactions' anonymity.

Transactions included in the Plastics Circularity Investment Tracker were screened to meet one or more of the following criteria:

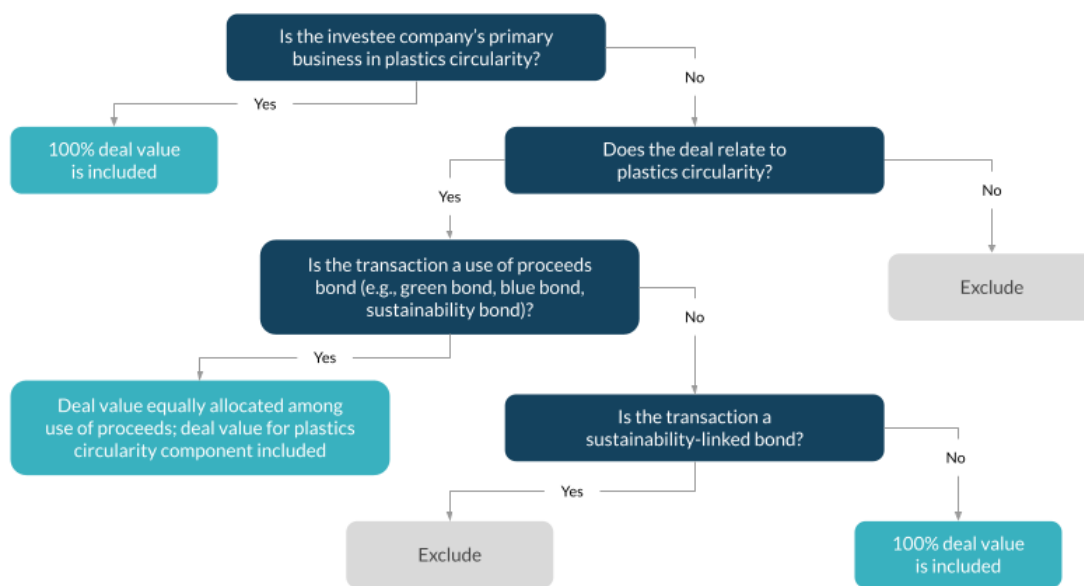
- Plastics circularity is a core function of the business operations of the investee company.
- Where plastics circularity is not a core function of the investee company, the investment should be directly attributed to a plastics circularity-linked purpose.
- The use of proceeds of the investment falls within one of the eight archetypes of solutions tackling the plastic pollution challenge.

The following additional considerations apply to financing by banks, including loans, sustainability-linked bonds, green bonds, and blue bonds:

- Loans, syndicated or otherwise, for which information is not available in the public domain are excluded.
- Sustainability-linked bonds:
 - Issued by plastics circularity-focused companies are included in their entirety.
 - For those issued by other companies:
 - Proceeds of sustainability-linked bonds are usually intended to be used for general purposes. Where information on the exact quantum of money applied to plastics circularity is typically unavailable, this will be excluded. For example, a US\$100 million sustainability-linked bond issued by a fast-moving consumer goods company is excluded, even if one of the key performance indicators relates to recycling. However, if the company specifically mentions the amount from the sustainability-linked bond proceeds that will be used for plastics circularity-related operations, this will be included.
- Use of proceeds bonds (e.g., green bonds, blue bonds, sustainability bonds):
 - Issued by plastics circularity-focused companies are included in their entirety.

- Issued by other companies, and where a part of the use of proceeds is allocated for plastics circularity, are included as the use of proceeds for these bonds are more specific. For these transactions, the total quantum of the investment has been divided into equal proportions among the various use of proceeds indicated by the issuer. For example, US\$25 million is included in the year of issue from a US\$100 million green bond issued by a fast-moving consumer goods company that has reported four types of use of proceeds, one of which relates to recycling.

Figure 1: Decision Tree for Screening Plastics Circularity Deals and Deal Value



Investor Profiles

The Investment Tracker profiles 24 investors in plastics circularity (see Part IV for the list of investors). The centrality of plastics circularity to their overall investments was the primary criteria for selection of these investors for profiling. While information on the exact quantum of investment or of the assets under management was not always available, company documents, publicly available materials and conversations with various stakeholders provided useful guidance to evaluate the relative importance of plastics circularity to each investor’s operations.

The value of investments and the number of deals were considered when shortlisting investors. However, it must be noted that the investors profiled are not necessarily those who have invested the largest amounts or had the most deals. Several other considerations such as having a variety of investors (corporates, venture capital providers, non-profits etc.), providers of different types of capital (equity and debt), and the spread of investors across different geographies were all considered when selecting the investors to be profiled.

III. Data Exclusions

To provide comprehensive and accurate coverage of private investments in plastics circularity, the following data were excluded from the Plastics Circularity Investment Tracker:

- › Public funding; e.g., local government investment in waste management services.
- › Paycheck Protection Program in the U.S.: a loan backed by the U.S. Small Business Administration, provided to small businesses during the Covid-19 pandemic.
- › Investments in alternative materials if the products were not intended to replace plastics; e.g., firms producing glass and paper packaging.
- › Internal financing, for example, through retained profits that does not involve any third-party.
- › Deals where the investee's primary business is not in plastics circularity, or instances where information on the amount of financing received for such purposes was unavailable.
- › General debt transactions for which information was unavailable in the public domain or through the databases accessed for the study.
- › Money collected in a pool of funds or bonds raised in a collective manner by development finance institutions, where allocation to companies is not yet clear.

IV. Investors Profiled

Following are the 24 investors profiled in the Plastics Circularity Investment Tracker.

1. Aavishkaar Venture Management Services Private Limited
2. Alliance to End Plastic Waste Inc., The
3. Alpla Group
4. Ambipar Group
5. Asian Development Bank, The
6. BASF Venture Capital GmbH
7. Biffa plc
8. Circulate Capital LLC
9. Closed Loop Partners LLC
10. Dow Venture Capital
11. Foundation for Innovation and Social Entrepreneurship (Social Alpha)
12. Indorama Ventures Public Company Ltd
13. International Finance Corporation
14. Katapult Group AS
15. Kohlberg Kravis Roberts & Co LP
16. PepsiCo Greenhouse Collaborative Accelerator
17. Plug and Play Ventures
18. Regeneration.VC
19. S2G Ventures
20. Safer Made
21. Sagana GmbH
22. Unreasonable Group
23. Valor Management LLC
24. Waste Management Inc