IFC International Finance Corporation WORLD BANK GROUP

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The Circulate Initiative

INTESA SANPAOLO

CIRCLE ECONOMY

INTESA SANPAOLO INNOVATION CENTER

Harmonized Circular Economy Finance Guidelines

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About IFC

IFC—a member of the World Bank Group—is the largest global development institution focused on the private sector in emerging markets. We work in more than 100 countries, using our capital, expertise, and influence to create markets and opportunities in developing countries. In fiscal year 2024, IFC committed a record $56 billion to private companies and financial institutions in developing countries, leveraging private sector solutions and mobilizing private capital to create a world free of poverty on a livable planet. For more information, visit www.ifc.org.

Harmonized Circular Economy Finance Guidelines

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We are grateful for the collaborative spirit and the shared vision that guided this initiative. We hope these Guidelines serve as a valuable resource for promoting the financing of circular economy projects and activities globally.

GB-TAP Green Bond Technical Assistance Program

IFC International Finance Corporation WORLD BANK GROUP
Creating Markets, Creating Opportunities

IN PARTNERSHIP WITH

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About *the* Guidelines

The Harmonized Circular Economy Finance Guidelines provide guidance for financial institutions, corporations, and investors on the specific types of activities, projects, and components of investments that are eligible for circular economy finance. Financial institutions can use the Guidelines to identify qualifying assets within existing portfolios and new opportunities for clients. Corporations can adapt projects to access finance by meeting circular economy criteria. By fostering a common understanding of circular economy investments, the Harmonized Circular Economy Finance Guidelines aim to facilitate investment at scale for circular economy projects.

Illustrative examples of project types are included across six sectors (electronics and appliances, packaging, textiles, construction and built environment, automotive and transportation, and agribusiness) to aid understanding. These examples are not exhaustive, however, and the Guidelines are designed to be applied across other sectors—for example, mining or tires—not included in the examples. Although certain project types included may be broad in nature (for example, leasing services), *individual projects must be linked to circular economy criteria* to demonstrate substantial contributions to a circular economy either through reporting indicators or qualitative assessments.

As circular economy models become more prevalent and lessons from application emerge, these Guidelines will evolve and be refined.

Powering Business Growth Through Circular Economy Guidelines

Harmonized Circular Economy Guidelines offer practical pathways for businesses to scale, innovate, and build resilience

Reducing Costs & Enhancing Resilience
Redesigning products to use fewer materials and eliminate waste lowers input costs and shields companies from natural resource price volatility

Expanding Markets & Business Models
Embracing reuse, refill, and resale can open new revenue channels and reach new market segments, including diverse consumers seeking discounted reuse products or willing to pay premiums for circular alternatives

Fostering Innovation and Jobs
Investing in R&D, adopting new technologies, and establishing repair or resale hubs can ignite innovation, spur entrepreneurship, and generate jobs—especially for women and youth.

Unlocking New Clients & Opportunities
Broadening products and portfolios of financial institutions and retailers can generate new clients such as MSMEs involved in refurbishing, resale, and other circular practices

Strengthening Resource Security & National Resilience
Improving the economics of recycling and waste systems reduces dependence on virgin raw material imports, and bolsters national self-sufficiency and local value chains.

Foreword

The circular economy represents an opportunity to transform our economic model of production and consumption. It requires strategies and approaches to minimize the use of natural resources, maintain the value of products and materials in the value chain, and prevent or reduce waste. By transitioning to a circular economy, we can achieve sustainable development while reducing resource depletion and promoting the regeneration of natural ecosystems.

Development of a circular economy presents a $4.5 trillion economic growth opportunity[1] that would create millions of jobs. Many of these jobs would be in micro, small, and medium enterprises (MSMEs) and could be unlocked with access to skills training and finance, both of which require a harmonized view of the types of activity included in a circular economy.

Policy, investment, and behavioral shifts are necessary to materialize a transition. Governments in many developed and emerging markets are already acting, with 75 governments having launched national policies, which include about 3,000 circular economy actions across 17 sectors.[2] Investment needs range across the entire materials life cycle, with upstream and midstream investments typically smaller than those downstream. Growth of these investments will rely heavily on the engagement of local financial institutions, which possess the reach needed to aggregate numerous investments across the supply chain.

A common global understanding of eligible circular economy investments is an important contribution to building investor awareness and confidence, and to unlocking large-scale investor capital. **IFC's Harmonized Circular Economy Finance Guidelines aim to provide a framework for investors and financial institutions to help channel their resources and to create a roadmap for corporations and MSMEs to adapt their projects and activities to meet circular economy eligibility criteria.** They complement other guidelines for climate, biodiversity, and blue finance that equip financial markets to support sustainable development.

We are grateful to our partners—Circle Economy, the Ellen MacArthur Foundation, Intesa Sanpaolo, and The Circulate Initiative—for their dedication and expertise in collaborating on these Guidelines. Many reviewers, including the United Nations Environment Programme Finance Initiative, made key contributions that have enhanced and refined the guidance.

IFC aims to accelerate the transition to a circular economy by improving the enabling environment, catalyzing the private sector, and mobilizing private capital. We hope the Guidelines serve as a practical tool to achieve these goals and encourage investors to use them to target their funding toward a circular economy. We see these Guidelines as a first step in fostering a common understanding of eligible circular economy investments. This will be a living document as we engage in ongoing learning through implementation and partnership.

JAMIE FERGUSSON
Global Director of Climate Business
International Finance Corporation

1 Accenture. 2015. "The Circular Economy Could Unlock $4.5 Trillion of Economic Growth, Finds New Book by Accenture." Press release, September 28, 2015. https://newsroom.accenture.com/news/2015/the-circular-economy-could-unlock-4-5-trillion-of-economic-growth-finds-new-book-by-accenture.

2 Barrie, Jack, Ilmi Salminen, Patrick Schroder, and Jerome Stucki. 2024. *National Circular Economy Roadmaps: A Global Stocktake for 2024*. Vienna, Austria: United Nations Industrial Development Organization and Chatham House. https://www.unido.org/sites/default/files/unido-publications/2024-05/UNIDO_National%20circular%20economy%20roadmaps_v07.pdf.

Summary *of* Guidelines

The transition to a circular economy requires a holistic approach encompassing massive shifts in investment, regulation, and behavior. To gain momentum and achieve the necessary scale, interventions from a multitude of stakeholders are crucial. The Harmonized Circular Economy Finance Guidelines complement ongoing efforts to create an enabling regulatory environment and drive behavioral change by identifying activities that can be financed and attract investment for a circular economy.

There is no globally adopted standard for circular economy finance to date. The European Union (EU) has acted as a standard setter to identify opportunities for financing the transition to a circular economy through the "Categorisation System for the Circular Economy"[3] and the EU Taxonomy. European private banks, including Intesa Sanpaolo, ABN AMRO, ING, and Rabobank, were among the first to create their own frameworks for circular economy finance. Other institutions have supported the development of guidance for circular economy finance, including the International Organization for Standardization (ISO), which recently published definitions and actions to support a circular economy; the United Nations Environment Programme Finance Initiative (UNEP FI), which set forth recommendations for banks, insurers, and investors to accelerate the financing of circularity; and the Global Circularity Protocol, which is providing metrics and impact reporting for corporations. **The Harmonized Circular Economy Finance Guidelines are the first to both define eligibility criteria and quantify the volume of eligible transactions.**

The Harmonized Circular Economy Finance Guidelines are intended to promote market convergence and to be fit for purpose globally. The growing number of circular economy finance guidelines are not harmonized either in form or content. Most of them cover the full life cycle of projects, but there are divergences around the number of categories and the inclusion of energy and water. Fragmented guidelines make it difficult to track existing investments globally, promote and scale eligible investments, and foster confidence among investors who seek transparent, comparable, and verifiable investment opportunities.

The risk of fragmentation is a challenge for sustainable finance taxonomies broadly as the lack of global consensus and coordination hampers capital mobilization, especially for cross-border capital. IFC is collaborating with partners to improve alignment, comparability, and interoperability among several sustainable finance taxonomies to ensure their effectiveness and help reduce transaction costs. The "Roadmap for Advancing Interoperability and Comparability of Sustainable Finance Taxonomies,"[4] launched at the 29th Conference of the Parties (COP 29), aims to coordinate efforts related to sustainable finance frameworks as part of a harmonized global approach.

The Harmonized Circular Economy Finance Guidelines largely build on the existing guidance for circular economy finance, most of which use a sector-agnostic approach. In particular, elements of the EU's Categorisation System are foundational in defining the circular economy investment categories. Financial market participants who are already using the EU guidance should find interoperability with the Harmonized Circular Economy Finance Guidelines. Additionally, the Guidelines are designed to align with the International Capital Market Association's (ICMA's) Green Bond Principles.[5]

3 See https://op.europa.eu/en/publication-detail/-/publication/ca9846a8-6289-11ea-b735-01aa75ed71a1.

4 See https://www.sbfnetwork.org/roadmap-for-advancing-interoperability-and-comparability-of-sustainable-finance-taxonomies/.

5 See https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/.

The Guidelines serve as a practical tool for financial institutions and corporations to identify and evaluate circular economy projects, economic activities, and business models. Specifically, within financial institutions, treasury officers, loan or business development officers, and investment staff can respectively identify qualifying assets within their existing portfolios, identify new opportunities for circular economy finance labeled products, and promote more circular economy investments within their client base. The Guidelines can also help corporations adapt projects and activities to meet circular economy criteria, thereby unlocking access to circular economy labeled finance and potential new investors. Finally, investors can identify and build confidence around labeled finance products qualified under the Harmonized Circular Economy Finance Guidelines.

Illustrative and hypothetical case studies within the Guidelines aim to increase awareness and understanding of circular economy financing opportunities, especially for those projects that encompass elements beyond collection and recycling.

Photo by Aleksandr Zubkov via Getty Image.

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Definitions *and* Principles

Circular Economy Definition[6]

These Guidelines use the following definition of circular economy:

A circular economy is an economic system that aligns production and consumption activities to minimize the use of natural resources and promote the regeneration of nature; maintains the value of products and materials for as long as possible; and designs out waste generation.

Scope of Guidelines: Transitioning to a circular economy requires systemic changes in production and consumption along every aspect of value chains. The categories of circular economy activities and the general principles establish a framework to assess whether the project, economic activity, or company can be classified as contributing to a circular economy. Eligible financing will focus only on the components of project activities that contribute to a circular economy. The Guidelines specify:

- **Materials circularity:** The focus is on materials circularity, including organic and non-organic materials, and not on energy or water.
- **Sector-agnostic:** Sector-agnostic categories are grouped according to a value chain approach to emphasize that circular economy strategies are relevant throughout the life cycle of a project, including Circular Design and Production, Circular Use, and Value Recovery.
- **+Circularity Enablers:** Platforms, services, business models, and tools may be designated as +Circularity Enablers when they enhance Circular Design and Production, Circular Use, and Value Recovery.
- **Multiple categories:** Projects, economic activities, or companies may fit across multiple eligible categories, particularly as circular business models become more widely adopted and circular economy approaches are integrated into business practices.
- **Full and partial eligibility:** Investments may be entirely eligible or only have certain components that meet circular economy criteria.

6 This definition reflects the discussions with the core working group.

Circular Economy Activity Categories*

1. CIRCULAR DESIGN AND PRODUCTION

Category 1A: Circular Design

- Design phase of products/assets/services that incorporates circular economy strategies or principles, including the reduction of material inputs and use of regenerative inputs, and increased ease of reuse, repair, or recycling.

Category 1B: Circular Production

- Production processes that reduce virgin raw material usage and increase production effectiveness.

2. CIRCULAR USE

Category 2: Circular Use

- Lifetime extension of products and assets such as through repair, refurbishment, reuse, retrofitting, and remanufacturing.

3. VALUE RECOVERY

Category 3A: Collection and Sorting

- Collection and sorting to enable circularity of end-of-life products and materials.

Category 3B: Material Recirculation

- Organic and non-organic material management, recycling, and recovery.

+CIRCULARITY ENABLERS

+Circularity Enablers

- Products, services, business models, platforms, and tools that enable circularity across different segments of the materials life cycle, including increased intensity of use.
- A project, economic activity, or business model can receive the designation of +Circularity Enabler if it is also tied to Circular Design and Production, Circular Use, or Value Recovery.

* This table provides a high-level overview of the categories. More complete explanations are provided in section 2.

General Principles

The principles outlined below have been developed to be consistent with guidelines for climate, blue, and biodiversity finance.[7]

ELIGIBILITY CRITERIA AND REPORTING INDICATORS

Eligible projects should clearly outline how they will achieve circular economy goals and how these will be measured, using both qualitative descriptions and quantitative indicators where possible. Given the current lack of standardized metrics to describe contributions to a circular economy in local market contexts, some of the related information is expected to be mostly qualitative, at least in the short term.

Examples of potential reporting indicators are linked to activity categories. Some indicators help identify projects or economic activities that meet circular economy criteria, while others monitor impacts. These indicators should be reported and tracked relative to benchmarks and baselines. Quantitative indicators should clearly define the scope of reference based on:

- Own extraction (for example, waste created through own operations).
- Business operational in-/outflows (for example, recycled material input).
- Value chain in-/outflows (for example, upstream waste created for the production of an input).
- Ecosystem in-/outflows (for example, enabling solutions that avoid or substitute material use outside of own value chain).

Sector-specific criteria may become relevant as more standards are developed for commonly agreed on disclosures and metrics.[8] Where applicable, the amount of greenhouse gas (GHG) emissions avoided or reduced may be included.

Some projects, particularly those that make use of innovative technologies to enable circular business models, may not be fully evaluated using quantifiable indicators and may require additional qualitative evaluation, including by third-party experts or committees.

Benchmarks and baselines for reporting indicators are not included at this time. They are expected to become more established through the development and standardization of circular economy practices and business models, although there may be variations based on regions, particularly once circular economy activities are more widely incorporated into national and regional taxonomies.

The EU's Corporate Sustainability Reporting Directive introduces a specific reporting standard for the "circular economy and resource use" (ESRS E5). This standard outlines detailed data points that businesses must collect if they are considered material. Using the public ESRS E5 data, financial institutions could establish relevant key performance indicators to assess a company's circular economy performance. This would improve alignment with sustainability goals and enhance decision-making processes. This alignment also supports businesses by encouraging consistency between corporate reporting and financial criteria, creating a mutually reinforcing framework for circular economy transitions.

7 See "Common Principles for Climate Mitigation Tracking," https://documents1.worldbank.org/curated/en/514141645722484314/pdf/Common-Principles-for-Climate-Mitigation-Finance-Tracking.pdf; "Guidance for Financing the Blue Economy, Building on the Green Bond Principles and the Green Loan Principles," https://www.ifc.org/content/dam/ifc/doc/mgrt/ifc-guidelines-for-blue-finance.pdf; and "Biodiversity Finance Reference Guide," https://www.ifc.org/content/dam/ifc/doc/mgrt/biodiversity-finance-reference-guide.pdf.

8 The European Sustainability Reporting Standards (ESRS) E5 indicators focus on resource use and circular economy.

SUBSTANTIAL CONTRIBUTION

The project, economic activity, or company's primary activities should have evidence of substantial contribution to circular economy objectives. **The contribution to a circular economy should be clear and go beyond business-as-usual conditions in the local market context.** In general, designing out waste has the biggest impact, followed by extended use, recycling, and recovery.

Examples

A company that produces paper bags would not meet circular economy criteria unless the company's production is directly linked to circular economy objectives (such as using recycled paper as an input). However, a company that replaces plastic bags with paper bags may include that component of a project as eligible by demonstrating a reduction in plastic use.

A company offering a pay-per-use model, like printing services, would not meet eligibility criteria based solely on the pay-per-use model. However, if the company makes new investments that extend the life of printing equipment through maintenance and repair services, those investments may qualify for defined use of funds.

If a clothing company initiates a program to encourage customers to repair clothing through their company, thereby extending the life of the clothing, the company's projects related to the program would likely qualify as meeting circular economy criteria if the company could show evidence that the lifespan of the clothing is extended substantially beyond the baseline.

A digital platform that facilitates the sale of new and used automobile parts would need to provide evidence that a substantial share of its revenue streams is driven by the used part segment of the platform to meet circular economy objectives. Alternatively, an investment to grow the used part segment of the platform may qualify for defined use of funds.

DO NO SIGNIFICANT HARM/ENVIRONMENTAL, SOCIAL, AND GOVERNANCE SAFEGUARDS AND STANDARDS

Do no significant harm: As specified in the EU Taxonomy, "do no significant harm" is a key principle to support an objective that a project or economic activity contributing to the circular economy does not introduce material risks to other environmental objectives, including climate change mitigation, adaptation, and resilience; conservation of natural capital and protection of biodiversity; pollution prevention and control; and sustainable use and protection of marine resources.

Environmental, social, and governance safeguards and standards, such as the IFC Performance Standards on Environmental and Social Sustainability, should be applied in the implementation of the project if there are material environmental and social risks. The project must state which internationally accepted sustainability standards it is following to minimize and manage any adverse environmental and social impacts. Both IFC's Performance Standards (or similar good international industry practices) and national requirements are expected to be followed, as well as industry-specific or product standards.[9]

ASSESSING CIRCULAR ECONOMY FINANCE VOLUME

The financing boundaries for an investment will determine whether the circular economy assessment is done at the project, economic activity, or corporate level. Circular economy finance instruments may include debt and equity products, blended finance, investment guarantees, insurance, and financial leasing, as well as dedicated funds to finance the circular economy. Definitions for circular economy finance may be incorporated into existing frameworks for green and sustainability bonds, as labeled financing instruments that align with these definitions would also be classified as green or sustainability finance instruments.

A. General Purpose Corporate Finance:[10] Bonds, Loans, and Equity

To be eligible for circular economy finance, a company's revenue or expenditure activities must align with at least **one of the three main activity categories and the general principles**. If the primary business activities do not meet this criterion, the company must demonstrate a dedicated use of funds for circular economy initiatives, as outlined below.

For general purpose corporate finance without targeted use of proceeds, the circular economy assessment will be based on an analysis of the business model, prorating eligibility based on the portion of the revenue or expenditure stream contributing to the circular economy. For example, if a company has forward-looking revenues driven by two products—product A, which contributes to the circular economy, and product B, which does not—only the prorated share of the company's corporate finance associated with product A would be eligible for circular economy finance.

9 For alignment and comparability of IFC's Performance Standards with the EU Taxonomy's do no significant harm and minimum safeguard criteria approach, see "Promoting Interoperability across Environmental and Social Risk Management Frameworks," https://www.ifc.org/en/insights-reports/2023/publications-ifceutaxonomy. For analysis of alignment of IFC's Performance Standards, as part of the IFC Disclosure and Transparency Framework, with global sustainability reporting standards, including International Sustainability Standards Board, ESRS, and Global Reporting Initiative standards, see "Elevating Environmental, Social, and Governance Reporting in Emerging Markets," https://www.ifc.org/en/insights-reports/2025/elevating-environmental-social-and-governance-reporting-in-emerging-markets.

10 General purpose corporate finance may include working capital, revolving credit facilities, trade finance, supply chain finance, general purpose corporate loans or bonds, equity investments, venture capital, and general guarantees.

B. Defined Use of Funds: Bonds and Loans

Specific projects and economic activities may be considered as contributing to the circular economy if they align with at least one of the circular economy activity categories and the general principles. Only the components of the project that are assessed as meeting circular economy criteria would be eligible for circular economy finance.

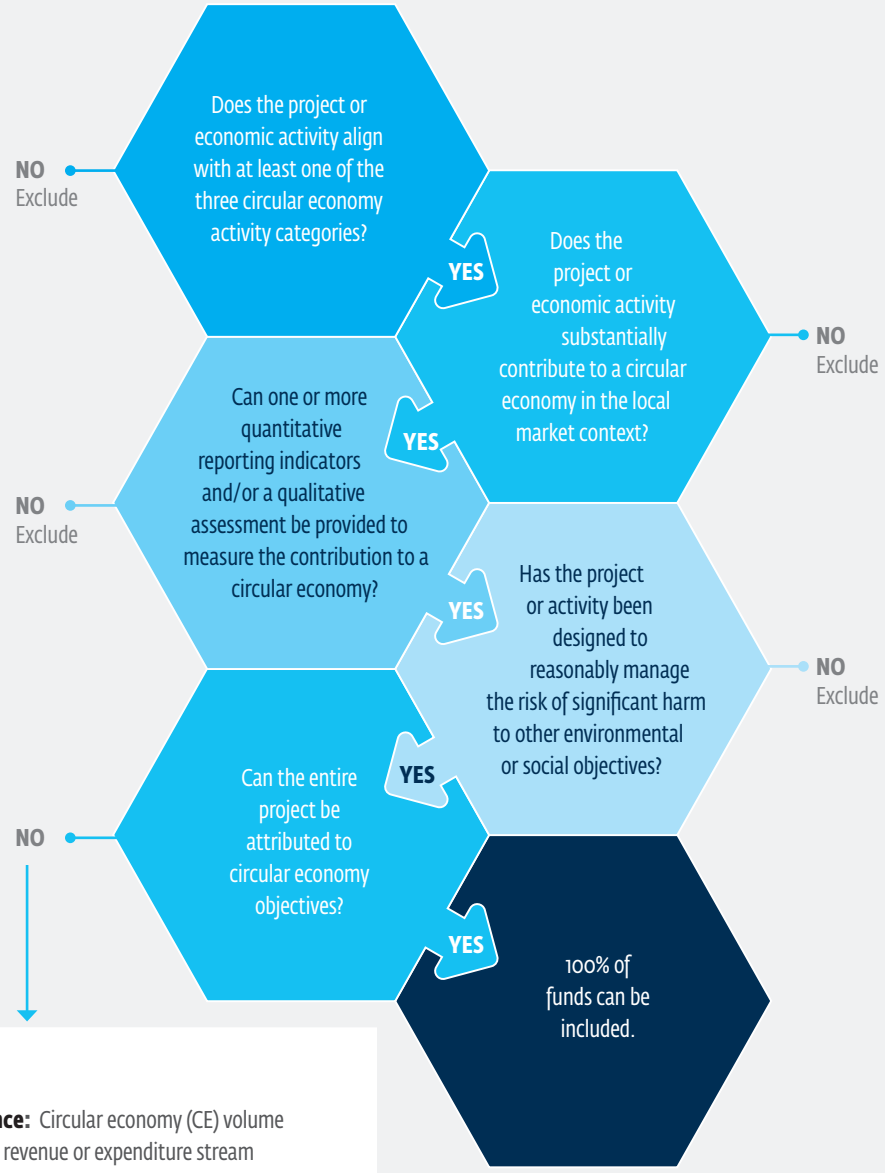
Labeled finance bonds or loans, such as green bonds, blue bonds, and sustainability bonds, are designated to fund specific projects. The portion of bond or loan proceeds allocated for circular economy financing must be clearly specified. Some bonds and loans may have multiple use of proceeds, only some of which are labeled as circular economy. Only the portion meeting circular economy criteria is eligible for circular economy finance.

C. Sustainability-Linked Bonds and Loans

Sustainability-linked bonds and loans are performance-based financial instruments that tie their financial characteristics (for example, pricing) to material key performance indicators and sustainability performance targets (SPTs). They incentivize the achievement of material, quantitative, predetermined, ambitious, regularly monitored, and externally verified sustainability objectives.[11] If the use of proceeds is defined, then the portion meeting circular economy criteria is eligible for circular economy finance. If the use of proceeds is not defined, then the share that is eligible for circular economy finance will be determined based on the expected share of the issuer or borrower's business that contributes to a circular economy at the end of the financing term. The issuer or borrower must demonstrate evidence of their ability to achieve the SPTs.

11 See "Sustainabillity-Linked Bond Principles," https://www.icmagroup.org/assets/documents/Sustainable-finance/2024-updates/Sustainability-Linked-Bond-Principles-June-2024.pdf.

Decision Tree for Circular Economy Finance Eligibility



Financial Instruments

General purpose corporate finance: Circular economy (CE) volume prorated based on the portion of the revenue or expenditure stream contributing to CE

Defined use of proceeds: CE volume based on the investment amount that contributes to CE

Sustainability-linked bonds and loans: CE volume based on either defined use of proceeds or expected share of business that contributes to CE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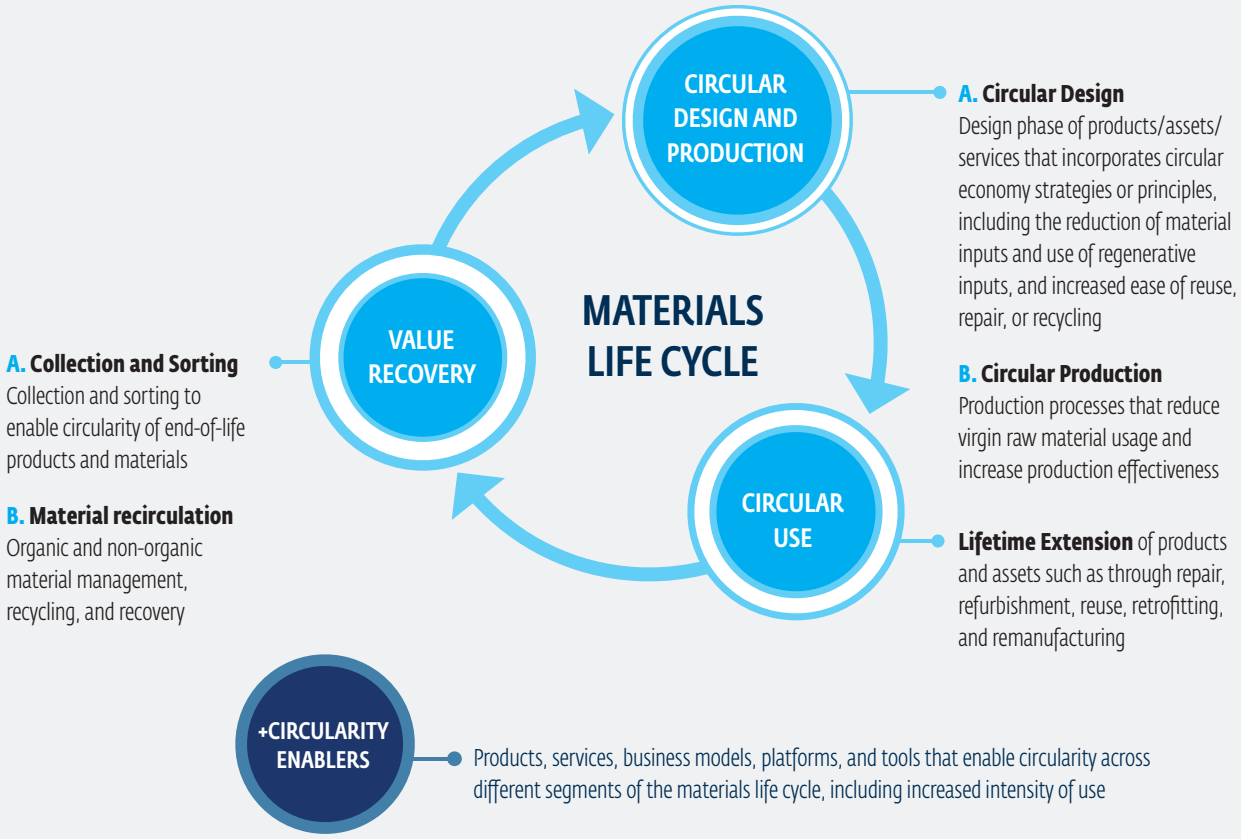
Detailed Category Descriptions *and* Proposed Indicators

The activity categories establish a framework to assess whether a project, economic activity, or company is eligible for circular economy finance. Indicative project types are included as examples of projects that may fit into each category, but these examples are not exhaustive, and other project types may qualify as eligible for circular economy finance. In practice, projects, economic activities, or companies may cover multiple categories.

These sector-agnostic categories are grouped according to a value chain approach to emphasize that circular economy strategies are relevant throughout the life cycle of a project, including Circular Design and Production, Circular Use, and Value Recovery. In addition, platforms, services, business models, and tools may be designated as +Circularity Enablers that enhance Circular Design and Production, Circular Use, or Value Recovery.


CIRCULAR DESIGN AND PRODUCTION
CIRCULAR USE
VALUE RECOVERY
MATERIALS LIFE CYCLE
+CIRCULARITY ENABLERS
A. Circular Design
Design phase of products/assets/ services that incorporates circular economy strategies or principles, including the reduction of material inputs and use of regenerative inputs, and increased ease of reuse, repair, or recycling
B. Circular Production
Production processes that reduce virgin raw material usage and increase production effectiveness
Lifetime Extension of products and assets such as through repair, refurbishment, reuse, retrofitting, and remanufacturing
A. Collection and Sorting
Collection and sorting to enable circularity of end-of-life products and materials
B. Material recirculation
Organic and non-organic material management, recycling, and recovery
Products, services, business models, platforms, and tools that enable circularity across different segments of the materials life cycle, including increased intensity of use

1. Circular Design *and* Production

Category 1A: Circular Design

Design phase of products/assets/services that incorporates circular economy strategies or principles, including the reduction of material inputs and use of regenerative inputs, and increased ease of reuse, repair, or recycling.

At the systemic level, design is key to unlocking circular economy innovations and increasing the effectiveness of resource consumption within the company or along the supply chain. Design enables circular economy principles and objectives to be incorporated at the earliest stage. Standardization of key components in manufacturing would facilitate circular economy principles by creating products that can easily be reused, repaired, remanufactured, refurbished, or recycled.

Financing for Circular Design tends to be coupled with financing for implementing Circular Design objectives—in other words, financing for Circular Design is often coupled with Circular Production, Circular Use, or Value Recovery.

Category 1B: Circular Production

Production processes that reduce virgin raw material usage and increase production effectiveness.

Production processes can reduce material consumption and waste by reducing the use of primary raw materials through greater efficiency and effectiveness, and/or increasing the use of secondary raw materials and by-products. Production processes may include substituting inputs from virgin resources with reclaimed or recovered materials and implementing resource efficiency and effectiveness measures.

Category 1A: Circular Design

Indicative project types

a. Design of products that can be easily repaired, disassembled, or remanufactured (for example, modular design, favoring upgradability)
b. Design focused on durability, increasing the use and extending the life of a product
c. Design to reduce resource requirements and improve the effectiveness of raw materials used
d. Use of standardized key components (for example, equipment for ships enabling remanufacturing and refurbishment)
e. Design of packaging that is reused or recycled in practice and at scale
f. Design to incorporate use of raw materials produced during regenerative practices (for example, bio-based materials and upcycling of materials)
g. Design of food and other products for consumption (for example, cosmetics, pharmaceuticals) using ingredients that are upcycled and produced using regenerative practices
h. Design for recyclability (that is, ease of separating materials, no substances of concern/no toxicity)
i. Design of business models that facilitate resource and asset sharing
j. Design of systems (for example, agricultural practices) to regenerate nature and reverse biodiversity loss
k. Design for traceability of materials in products (for ease of remanufacturing, preparing for reuse, or recycling)

Examples of reporting indicators across sectors

- Increase in number of components, products, or assets with circular design as a result of the project
- Expected extension of lifetime in years or lengthier warranty period compared to the market standard in years based on design
- Percentage and total weight of output materials designed for maintenance and durability, for reuse, or to facilitate repair
- Amount of CO_2 reduced when single-use products are replaced by products designed and produced for reuse
- Amount of food waste avoided when designing circular menus
- Number of recycling cycles that the recycled material can withstand

Category 1B: Circular Production

Indicative project types

a. Use of secondary materials and by-products derived from materials and resource recovery, including during industrial production processes
b. Use of materials that promote nature regeneration or sustainably sourced renewable materials
c. Production that increases durability, repairability, reusability, and recyclability of a product
d. Additive manufacturing/3D printing techniques to minimize material use and resource consumption and increase the repairability of products
e. Implementation of regenerative agriculture production practices (such as agroforestry, cover cropping, rotational grazing, and mixed-crop livestock farming) that prioritize soil health, preserve/increase biodiversity, and limit use of synthetic inputs (such as herbicides, pesticides, and chemical fertilizers)
f. Implementation of regenerative aquaculture practices, such as aquaponics, that promote the cycling of nutrients

Examples of reporting indicators across sectors

- Increased percentage of post-consumer recycled materials as inputs relative to business as usual
- Number or volume of single-use products replaced by products designed and produced for reuse
- Ratio of circular use of materials (that is, reused or recycled materials) to overall material use
- Percentage of new products that meet virgin material quality (such as food-grade packaging)
- Reduction in total volume of raw materials used compared to baseline
- Waste (including by-products) that is prevented, minimized, reused, or recycled relative to total waste based on production processes
- Area under regenerative agriculture practices (in ha and % of acreage farmed; increase in %)
- Production covered by regenerative agriculture certification (in t/y and % of total production; increase in %)
- Production covered by regenerative aquaculture certification (in t/y and % of total production; increase in %)
- Reduction in synthetic fertilizer in total fertilizer used (in %) or reduction in synthetic fertilizer use intensity (in kg/ha)
- On-farm compost produced and applied to farmland
- Reduction in pesticide use (in kg/ha and % of total pesticide used)
- Improvements in site-specific physical, chemical, and/or biological indicators of soil quality
- Amount of secondary raw materials and by-products from manufacturing processes that are used as substitutes to reduce use of virgin raw materials
- Number of components produced through additive manufacturing/3D printing
- Proportion of reusable, recyclable, or compostable materials, components, and products produced relative to total material production of project (%, ton)

2. Circular Use

Category 2: Circular Use

Lifetime extension of products and assets such as through repair, refurbishment, reuse, retrofitting, and remanufacturing.

The overall lifetime of a product or asset can be extended through various strategies, including reuse, repair, refurbishment, repurposing, and remanufacturing. By extending the useful phase of the product or asset and delaying its obsolescence, fewer raw materials are used in new production processes. Projects and activities in this category should reflect the overall environmental cost of the lifetime extension in comparison to a product replacement (in terms of resource and energy use, as well as waste and pollution generated). This category also applies to the strengthening and restoration of ecosystems.

Indicative project types

a. Reuse or resale of products (for example, return and refill of products)
b. Repair, refurbishment, retrofitting, or remanufacturing of products/assets
c. Construction of manufacturing facilities for refurbishing or remanufacturing purposes
d. Production of equipment or technology for refurbishing or remanufacturing purposes
e. Circular approaches to forestry and agriculture that contribute to the usefulness of organic materials, including land, through the restoration of ecosystems such as basin buffer zones and wetlands, reforestation, and restoration of deteriorated soils

Examples of reporting indicators across sectors

- Number or volume of products that have been reused, repaired, refurbished, repurposed, or remanufactured
- Increase in products or parts derived from end-of-life products or components
- Increase in number of refurbished or repurposed end-of-life or immovable assets (for example, buildings, infrastructure, or facilities)
- Expected extension of lifetime in years compared to equivalent product's expected lifetime
- Reduction in life-cycle GHG emissions of materials through reuse

3. Value Recovery

Category 3A: Collection and Sorting

Collection and sorting to enable circularity of end-of-life products and materials.

The collection and sorting activities for end-of-life products and assets minimize waste and facilitate the value retention and recovery process, particularly when these processes are formalized. These may be part of take-back processes and extended producer responsibility schemes.

Category 3B: Material Recirculation

Organic and non-organic material management, recycling, and recovery.

The recovery of value may be through processes such as identifying alternative uses or recycling that supports a circular economy by recovering material from waste and enabling the production of new products. Secondary raw materials used for new products should be of similar quality to virgin raw materials. Other strategies include recovery through processes such as compost and anaerobic digestion for nutrient recirculation.

3A: Collection and Sorting

Indicative project types

a. Deposit return schemes (for example, for recycling beverage containers)
b. Take-back systems (for example, clothing)
c. Collection and sorting services to increase recycling
d. Development of waste management infrastructure to support waste prevention, collection, sorting, and treatment for the purpose of reuse and recycling

Examples of reporting indicators across sectors

- Number or volume of used products collected from consumers for recycling or refurbishment
- Amount of waste avoided through collection (that is, diverted from landfills or collection of mismanaged waste)
- Amount of material sorted and treated for recycling
- Amount of material available for recovery
- Increase in number of collection points that drive reuse or recycling
- Amount of organic waste collected for recirculation
- Amount of organic waste segregated from mixed waste

3B: Material Recirculation

Indicative project types

a. Facilities that prepare products for reuse and recycling
b. Mechanical recycling facilities
c. Chemical recycling facilities that incorporate mass balance methodology to ensure recycled content is evaluated throughout value chain[12]
d. Facilities that enable value recovery and reuse from waste, including materials and bio-wastes
e. Recovery of biomass waste including food, feed, and nutrients, such as biomass composting initiatives to recycle nutrients or organic by-products deriving from or generated by agriculture (for example, bagasse)
f. Wastewater treatment that recovers nutrients or other valuable materials
g. Recovery of hazardous waste for reuse or recycling, so long as it avoids environmental and social hazards
h. Energy recovery projects that result in valuable organic or non-organic by-products, such as nutrient-rich digestate

Examples of reporting indicators across sectors

- New products derived from secondary raw materials, by-products, or waste
- Amount of secondary raw materials or by-products recovered
- Reduction in life-cycle GHG emissions of materials through recycling or composting
- Amount of biodegradable waste and compost recovered
- Amount of food, feed, nutrients, fibers, or fertilizer produced from biological waste or by-products
- Amount of food produced through upcycling of food surplus
- Amount of nutrient-rich digestate or compost produced from valorization treatment of organic waste
- Amount of nutrients recovered from recycling of food loss and waste (such as nitrogen, phosphorus, and potassium)

12 Using the International Sustainability and Carbon Certification's approach.

+Circularity Enablers

+Circularity Enablers

Products, services, business models, platforms, and tools that enable circularity across different segments of the materials life cycle including increased intensity of use.

Managing and coordinating resource flows are key to enabling circularity. Platforms, services, business models, and tools can increase the effectiveness of resource use and production along the supply chain, as well as other circularity strategies, including at the design, production, use, and end-of-life stages. **Platforms, services, business models, and tools may be designated as +Circularity Enablers that enhance Circular Design and Production, Circular Use, or Value Recovery.**

Examples of reporting indicators across sectors

- Amount of waste avoided
- Percentage of products covered by disclosure of inputs or material passport
- Increase in lifespan of product or increased use intensity of product compared to baseline
- Recovery of materials at end-of-life due to circularity enablers
- Amount of food surplus or unmarketable food (for example, due to size or shape) redistributed for consumption
- Amount of food surplus diverted to animal feed
- Area cultivated by precision agriculture (in ha and % of acreage farmed; increase in %) that results in reduced inputs
- Production/supply covered by traceability mechanisms, data, and technologies (in t/y and % of total production/supply; increase in %)

Indicative project types

a. Virtual marketplaces for secondary raw materials or secondhand/repaired/upgraded products
b. Digital tools and applications, including internet of things solutions, to facilitate tracking, traceability, and take-back of products throughout their life cycle for refill, reuse, repair, or recycling to improve resource effectiveness and avoid waste
c. Predictive maintenance and repair tools to extend the life of products
d. Data repositories for material passports to facilitate effective reuse and recovery of materials (for example, description of products, components, and raw materials to construct a building)
e. Development of industrial automation or robotics solutions to promote circularity (for example, selection and sorting of materials for reuse; maintenance of solar/wind power plants)
f. Rental or leasing services such as vehicle or equipment leasing that go beyond business-as-usual conditions by extending lifetime or increasing intensity of use
g. Subscription models that include maintenance and repair services
h. Product-as-a-service and pay-for-use models that extend a product's life cycle and minimize waste
i. Sharing platforms that connect consumers with underused assets (such as ridesharing and coworking spaces), so long as the entity is responsible for upkeep, maintenance, and end-of-life of assets

3

Circular Economy Contributions *to* Green Finance Objectives

A circular economy contributes to sustainable development and a low-carbon transition while improving the resilience of natural ecosystems.[13] Circular economy models and projects therefore often fulfill environmental objectives related to climate mitigation and adaptation, nature finance, and blue finance.

Mitigation: Circular economy strategies can reduce GHG emissions across value chains by designing products with fewer inputs, reducing waste, using recycled inputs, and sequestering carbon by storing it in biomass. Circular economy strategies focused on materials, including cement, aluminum, steel, and plastics, have the potential to reduce GHG emissions by an estimated 40 percent.[14]

Adaptation: The circular economy can contribute positively to climate adaptation and resilience. For example, regenerative farming practices can help reduce water dependence, improve soil health, and mitigate the impacts of droughts—supporting climate adaptation and enhancing resilience.

Nature: The unaccounted global costs of pollution amount to $4.6 trillion annually.[15] Through more sustainable resource use and management, circular projects can reduce the overexploitation and unsustainable use of nature, reduce pressures on land and sea use, and reduce or design out pollution, thereby addressing the direct drivers of biodiversity loss.

Blue: The circular economy is also closely linked with the blue economy, which fosters ocean protection and sustainable water management.

13 See UNEP FI's *Guidance on Resource Efficiency and Circular Economy Target Setting* and *Circular Economy as an Enabler for Responsible Banking: Leveraging the Nexus between Circularity and Sustainability Impact*.

14 Ellen MacArthur Foundation and Material Economics. 2021. *Completing the Picture*.

15 Fuller, R., et al. 2022. "Pollution and Health: A Progress Update." *Lancet Planet Health* 6: e535–47. https://doi.org/10.1016/S2542-5196(22)00090-0; UNEP. 2022. "Outcomes of the Resumed Session of UNEA-5 (UNEA-5.2)." https://www.unep.org/environmentassembly/unea5/unea-5.2/outcomes-resumed-session-unea-5-unea-5.2.

Circular economy and green finance objectives: Projects or economic activities that meet climate, biodiversity, blue economy, and circular economy objectives all fall under the general umbrella of green or sustainable finance. As an economic model, the circular economy includes strategies and approaches to minimize the use of natural resources, maintain the value of products and materials in the value chain, and prevent or reduce waste. Activities that contribute to these approaches will often meet objectives for climate, biodiversity, and the blue economy, as highlighted in the table on page 21.

There are interconnectivities among these objectives, with some projects meeting multiple objectives; however, these objectives are also distinct from one another. Therefore, projects that meet climate objectives do not necessarily meet circular economy objectives and vice versa.

For instance, although the production and use of renewable energy supports circular economy objectives, investments in renewable energy projects (such as solar, wind, and hydro) are generally not classified as circular economy investments unless the project has additional components (for example modular design, substantial recycled material input, or lifetime extension of equipment) that meet circular economy criteria.

The overlap between these objectives is to be expected given their interconnectivities. In these cases, different themes provide issuers, borrowers, and investors a choice to emphasize the type of impacts and results they seek to achieve as a primary focus depending on their sustainability strategy.

POTENTIAL CONTRIBUTIONS OF CIRCULAR ECONOMY FINANCE TO OTHER GREEN FINANCE OBJECTIVES

The transition to a circular economy is a holistic approach to align production and consumption activities to minimize the use of natural resources and promote the regeneration of nature; maintain the value of products and materials for as long as possible; and design out waste generation. Therefore many activities that contribute to a circular economy may contribute to other green finance objectives. The three main circular economy activity categories each include +Circularity Enablers, defined as products, services, business models, platforms, and tools that enhance Circular Design and Production, Circular Use, and/or Value Recovery.

CIRCULAR ECONOMY ACTIVITY CATEGORIES		CLIMATE FINANCE	NATURE FINANCE	BLUE FINANCE
CE Activity Category	Desciption of CE Eligible Activity Category	**Objectives:** *Climate mitigation and climate adaptation*	**Objectives:** *Reduction of the direct drivers of biodiversity or ecoystem services loss; Restoration and conservation of biodiversity or ecosystem services; Integration of nature-based solutions across economic sectors*	**Objectives**: *Sustainable water management; Ocean protection*
Circular Design and Production +Circularity Enablers	**A. Circular Design**: *Design phase of products/assets/ services that incorporates circular economy strategies or principles, including the reduction of material inputs and use of regenerative inputs, and increased ease of reuse, repair, or recycling.* **B. Circular Production**: *Production processes that reduce virgin raw material usage and increase production effectiveness.*	Circular Design and Production contributes to climate mitigation when the reduction in virgin raw materials or increase in production effectiveness results in substantial greenhouse gas (GHG) emission reduction. The use of regenerative inputs may also be less energy-intensive and contribute to GHG emission reduction. Regenerative agriculture practices may contribute to climate adaptation (for example, improving water retention, building healthier soil) if they address climate vulnerability.	Circular Design and Production may contribute to Nature Finance when the reduction of material inputs and/or use of regenerative inputs reduces the overexploitation and unsustainable use of nature. Regenerative agriculture practices, which are part of Circular Design and Production, address land and sea-use change and the overexploitation and unsustainable use of nature.	Circular Design and Production contributes to Blue Finance if the use of regenerative inputs reduces ocean or water pollution. Regenerative agriculture/ aquaculture practices may contribute to Blue Finance objectives by enabling sustainable water management.
Circular Use +Circularity Enablers	**Circular Use:** *Lifetime extension of products and assets such as through repair, refurbishment, reuse, retrofitting, and remanufacturing.*	Circular Use may contribute to Climate Finance as reuse and repair can reduce energy-intensive production processes to manufacture new products.	Circular Use may contribute to Nature Finance by reducing the use of natural resources needed to manufacture new products, addressing the overexploitation and unsustainable use of nature.	Circular Use does not necessarily directly contribute to Blue Finance objectives.
Value Recovery +Circularity Enablers	**A. Collection and Sorting**: *Collection and sorting to enable circularity of end-of-life products and materials.* **B. Material Recirculation**: *Organic and non-organic material management, recycling, and recovery.*	Value Recovery may contribute to climate mitigation by reducing the amount of raw materials needed for production and reducing GHG emissions produced.	Value Recovery may contribute to Nature Finance through Collection and Sorting to minimize pollution created by waste that is improperly disposed and Material Recirculation to address the overexploitation and unsustainable use of nature through reduced use of raw materials.	Value Recovery may contribute to Blue Finance by minimizing pollution from waste in coastal and river basin areas through Collection and Sorting and Material Recirculation.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4

Harmonized Circular Economy Finance Guidelines: *Case Studies*

This collection of case studies showcases investments eligible for circular economy finance, combining real and hypothetical examples to highlight viable projects and financing considerations. While all activities are grounded in real-world action, some case studies feature illustrative financing structures. Company names have been anonymized.

The case studies span six circular economy activity categories across various sectors:

- Electronics and appliances
- Packaging
- Textiles
- Construction and built environment
- Automotive and transportation
- Agribusiness

Some examples overlap multiple activities, demonstrating diverse circular economy strategies. In some cases, the full investment amount qualifies for circular economy finance, while in others, only a portion is eligible. Each case study includes potential reporting indicators that could be used to demonstrate eligibility for circular economy finance or monitor impacts.

CASE STUDIES FOR ASSESSING CIRCULAR ECONOMY FINANCE

	CIRCULAR ECONOMY ACTIVITY CATEGORIES					
	CIRCULAR DESIGN AND PRODUCTION		CIRCULAR USE	VALUE RECOVERY		+CIRCULARITY ENABLERS
	A. Circular Design: Design phase of products/assets/services that incorporates circular economy strategies or principles, including the reduction of material inputs and use of regenerative inputs, and increased ease of reuse, repair, or recycling. **B. Circular Production:** Production processes that reduce virgin raw material usage and increase production effectiveness.		Lifetime extension of products and assets such as through repair, refurbishment, reuse, retrofitting, and remanufacturing.	**A. Collection and Sorting:** Collection and sorting to enable circularity of end-of-life products and materials. **B. Material Recirculation:** Organic and non-organic material management, recycling, and recovery.		Products, services, business models, platforms, and tools that enable circularity across different segments of the materials life cycle, including increased intensity of use.
Electronics and appliances	**1. Circulink:** Equity (venture capital)	**2. Digital Apex:** Green bond	**3. EverFlow:** Project loan	**4. Verdis:** Equity	**5. UrbanOre Global:** Equity	**6. E-Repair:** Equity
Packaging	**7. Loop Foods:** Project loan	**8. SynPro Solutions:** Blue loan	**9. Fizzify:** Green bond	**10. ReBottle:** Equity (venture capital)	**11. EcoMeld Solutions:** Blue loan	**12. Altra S.A.:** Equity (venture capital)
Municipality				**13. Muni Holding:** Sustainability-linked bond		
Textiles	**14. Denim Place:** Corporate loan	**15. Rento Co.:** Corporate loan	**16. Outdoor Threads:** Sustainability-linked loan	**17. Banta:** Corporate loan	**18. Mattress Co.:** Project loan	**19. Brook S.A.:** Corporate loan
Construction and built environment	**20. Venskara:** Project loan	**21. EcoBuild:** Project loan	**22. ReBuild Wizards:** Project loan	**23. ReClaim:** Corporate loan	**24. GreenCycle Solutions:** Sustainability-linked bond	**25. Sunlight Co.:** Sustainability bond
Automotive and transportation	**26. Summit Rails:** Green bond	**27. AutoCircle:** Project loan	**28. OceanLink:** Project loan	**29. TORA:** Sustainability-linked loan	**30. Voltspire:** Project loan	**31. Railion:** Project loan
Agribusiness	**32. EcoHarvest:** Equity (venture capital)	**33. Sucar S.A.:** Project loan	**34. FreshWrap:** Equity (venture capital)	**35. Tepo Organics:** Equity	**36. RegenA:** Project loan	**37. AgroLink:** Corporate loan

ELECTRONICS AND APPLIANCES

ILLUSTRATIVE CASE STUDY 1

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Circulink

Primary activity: Circular Design and Production

Additional activities: Circular Use, Value Recovery

Materials covered: Plastics, metals, critical minerals

Financial instrument: Equity (venture capital)

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Circulink manufactures smartphones designed to be fully modular and repairable. Parts can be easily disassembled, repaired, and replaced at home—such as the battery and the display. Once the device is beyond repair, the modular design allows for easy recycling locally. This approach helps reduce the need for resource extraction to produce new devices and designs out e-waste generation. Replacing components on an average smartphone can be both challenging and expensive, often leading consumers to buy a new device instead.

The company also **incorporates recycled materials into its smartphones, further reducing the demand for virgin resources**. The Circuphone model features 75 percent recycled plastics by weight, as well as specific components, which include a speaker made with 100 percent recycled rare earth minerals and plastics in its cover, a camera crafted with 100 percent recycled plastics (in its camera island), and a battery containing 100 percent recycled tin (in its solder), 75 percent recycled plastics, and 80 percent recycled steel.

Circulink operates a **reuse and recycling program that enables customers to return their used phones**. About 40 percent of these devices are refurbished and resold, while the remaining 60 percent are sent to a local recycling partner to recover valuable materials. The company recycles over 19,000 phones annually.

FINANCIAL INSTRUMENT

Circulink obtained venture capital to expand its manufacturing capacity, strengthen its brand positioning, accelerate integration of recycled materials into its full product portfolio, and fund product development that incorporates circular design elements.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The company's forward-looking revenues are expected to make a substantial contribution to a circular economy, with **100 percent of the revenues considered eligible for circular economy finance**. The company integrates circular economy principles throughout the value chain of its flagship product, the Circuphone, from Circular Design and Production to end-of-life management. The smartphone is **designed with full modularity**, allowing components to be easily disassembled, repaired, and replaced. This modular approach also ensures that individual parts can be efficiently recycled when they reach the end of their life. **Circulink also incorporates recycled materials in its Circular Production**, further reducing the absolute volume of virgin raw material usage. The company contributes to Circular Use and Value Recovery via its various take-back programs, including the reuse and recycling program through which Circulink collects used cellphones for refurbishment and recycling, creating a closed-loop system. This integrated approach designs out e-waste, reduces the need for virgin materials, and adds value by giving recycled materials a second life. The project is assessed to be fully eligible for circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of recycled materials (for example, plastics, tin, and steel) relative to weight of the product
- Percentage of post-consumer products refurbished and resold
- Percentage of post-consumer products recycled
- Number of recycled phones produced
- Number of used products collected from consumers
- Amount of waste avoided through collection
- Reduction in life-cycle greenhouse gas emissions of materials through recycling

ILLUSTRATIVE CASE STUDY 2

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Digital Apex

Primary activity: Circular Design and Production

Additional activities: Value Recovery

Materials covered: Metals, critical minerals

Financial instrument: Green bond

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Digital Apex, a manufacturer of computing technology, has increased the volume and range of recycled materials across its production lines. **Recycled materials used in Digital Apex's production lines include steel, aluminum, copper, and cobalt.**

Digital Apex has used over 20 million kilograms of closed-loop materials in production, recovering and recycling materials from its supply chain into the same type of product. Examples include recycled aluminum in its line of laptops and recycled copper in the cables of some power adapters. Implementation of a company-wide circular design vision has led to the need for fewer internal components and a reduction in the amount of raw materials needed to create products. Closed-loop practices in Digital Apex's supply chain, which include recycling services for corporations and a take-back program for consumers to recycle Digital Apex products, enable materials to be kept in use through recycling and reuse. For example, parts from old hard drives are used as stock for creating new parts for hard drives. Digital Apex has a target for 30 percent of its product content to be made from recycled material by 2030.

FINANCIAL INSTRUMENT

Digital Apex issued a green bond under its Green Bond Framework, which aligns with ICMA's Green Bond Principles and has been reviewed by an independent second-party opinion provider. The use of proceeds will be allocated to **advancing environmental commitments across its global operations** through increasing its use of recycled content and increasing energy efficiency across production lines. Digital Apex's commitments include increasing the percentage of recycled materials in its products to 30 percent by 2030 and increasing energy efficiency across operations by reducing energy consumption per unit of production by 30 percent by 2030, compared to a 2020 baseline.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The green bond is partially eligible for circular economy finance. **The use of proceeds allocated to increasing Digital Apex's use of recycled materials fits the Circular Design and Production criteria.** The use of recycled materials reduces the amount of raw materials needed to create products. Digital Apex's closed-loop practices, including recycling services for corporations and a take-back program for consumers, align with Value Recovery and enable materials to be kept in use through Material Recirculation. Since part of the bond's proceeds will also improve energy efficiency, only a portion of the bond can be classified as circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of recycled content used in products
- Reduction in total volume of raw materials used as compared to baseline
- Proportion of reusable or recyclable components and products produced relative to total material production of project
- Number of components that have been reused
- Amount of secondary raw materials recovered

ILLUSTRATIVE CASE STUDY 3

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: EverFlow

Primary activity: Circular Use

Additional activities: Circular Design and Production, +Circularity Enablers

Materials covered: Plastics, metals

Financial instrument: Project loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

EverFlow is a leading global manufacturer of home appliances, including refrigerators, washing machines, ovens, and dishwashers. EverFlow has built a strong reputation for emphasizing sustainability, energy efficiency, and smart technology. **The company focuses on durability, repairability, and smart diagnostics to extend the lifetime of its products.**

EverFlow provides extended warranties, readily available spare parts, and repair services to help consumers maintain their appliances for years. Many of its products are designed with modular components, allowing for easier repairs and part replacements instead of full-unit disposal. Additionally, EverFlow integrates smart technology, such as remote diagnostics and troubleshooting through its EverFlow app, helping users detect and resolve issues before they lead to major failures.

EverFlow has implemented specific technologies for its washing machines. For example, by integrating internet of things technology, its washing machines enable remote monitoring of usage patterns and predictive maintenance, reducing energy and resource consumption. EverFlow also collaborates with a manufacturer to provide connected machines capable of determining optimal soap quantities and water usage for each load.

FINANCIAL INSTRUMENT

EverFlow has secured a project loan to introduce its offerings into new markets and collaborate with local partners to design and implement sustainable home solutions, integrating modular components and smart diagnostics. A significant portion of the funds will go toward scaling production capacity, including constructing new manufacturing facilities and upgrading existing plants. The financing will also cover global distribution and service expansion, including the establishment of new regional warehouses and customer service hubs to ensure faster delivery and localized support. **EverFlow plans to invest in technician training programs to improve appliance repairability, extending the lifespan of its products in new markets.** Additionally, the loan will support research and development to enhance its smart diagnostics technology, develop more energy-efficient appliances, and incorporate more modular, repairable designs into its product lineup.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project loan for EverFlow is **partially eligible for circular economy finance because specific components of the project align with Circular Use and Circular Design and Production**. These include the design of appliances that integrate modular and easily repairable components as well as investments in technician training programs to improve appliance repairability. Furthermore, the smart diagnostics tools are +Circularity Enablers that can extend the lifetime of the products. However, since the loan will fund production capacity generally, only specific components would be eligible for circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Appliance lifespan compared to industry average
- Reduction in appliance waste generated annually

ILLUSTRATIVE CASE STUDY 4

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Verdis

Primary activity: Value Recovery

Materials covered: Plastics, metals, glass

Financial instrument: Equity

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Verdis is a leading e-waste recycling company that operates across the full spectrum of e-waste recycling from collection to material recirculation. In 2010, Verdis's facilities primarily consisted of sourcing and dismantling e-waste, as well as recovering key component materials such as plastics and metals (including precious metals), which were then sold domestically.

The company's milestones in terms of incorporating circular economy principles include offering services to help companies meet extended producer responsibility e-waste compliance, launching a consumer e-waste collection platform, and establishing a marketplace for metal scrap. Verdis recently announced plans to significantly expand its global presence through phased investment by 2028.

FINANCIAL INSTRUMENT

Verdis obtained an equity investment in 2010 to **support the company's expansion plans**, including expanding its recycling capacity; expanding its sourcing activities through raising awareness of safe disposal of e-waste among corporations, strengthening the collection of printed circuit boards from the informal sector, and setting up collection centers for e-waste from the end consumer; strengthening the logistics network; and continuing research and development activities to improve the efficiency of recycling.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is assessed to be fully eligible for circular economy finance because Verdis's forward-looking revenues directly and substantially contribute to a circular economy. The project contributes to Value Recovery vis-à-vis the Collection and Sorting of e-waste through several avenues, including expanding sourcing activities, strengthening the collection of printed circuit boards from the informal sector, and setting up collection centers for e-waste from the end consumer. Increasing the collection of e-waste for recycling reduces the demand for virgin metals and the energy needed to extract them and minimizes the amount of potentially hazardous waste with detrimental effects on the environment.

The project also contributes to Value Recovery through Material Recirculation by expanding the company's recycling facilities and enhancing the efficiency of its recycling operations, as well as recovering key component materials that can be sold.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Recovery rate of valuable materials from e-waste and batteries
- Volume of e-waste collected for recovery (metric tons per year)
- Number of collection centers from end consumer
- Collection rate of e-waste
- Volume of e-waste recycled (metric tons per year)
- Reduction in life-cycle greenhouse gas emissions of materials from recycling
- Volume of waste diverted from going to landfill (metric tons per year)

ILLUSTRATIVE CASE STUDY 5

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: UrbanOre Global

Primary activity: Value Recovery

Materials covered: Metals

Financial instrument: Equity

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

UrbanOre Global is a leading global urban mining and recycling conglomerate that specializes in recovering metals and other materials from various waste streams, including e-waste, spent automotive catalysts, and lithium-ion batteries from electric vehicles. The company mainly focuses on recovering platinum group metals from spent automotive catalysts and gold, silver, and copper concentrates from e-waste, including printed circuit boards, and non-ferrous scrap metal. It operates over 30 collection and processing facilities worldwide.

The process of recycling spent automotive catalysts involves several steps: collection, de-canning,[1] grinding, and assaying.[2] These steps enable the recovery of valuable platinum group metals. The recycling of e-waste involves physical crushing and sorting technologies to recover valuable metals like gold, silver, copper, and lithium. These materials are primarily sourced from e-waste recyclers and production plants. Recovered materials are then supplied to smelters and refineries for further processing. While the company's primary focus is on non-ferrous metals, steel and iron are recovered as by-products in the recycling processes for platinum group metals and printed circuit boards.

FINANCIAL INSTRUMENT

UrbanOre obtained an equity investment to support its global growth strategy, including the construction of new downstream metals recycling and refining facilities, the acceleration of its global acquisition strategy in new regions, and funding for general corporate purposes.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The equity investment is assessed to be fully eligible for circular economy finance. **UrbanOre's forward-looking revenues directly contribute to Value Recovery and Material Recirculation by supporting the recycling and recovery of valuable metals from diverse waste streams** including spent automotive catalysts and lithium-ion batteries. Furthermore, the revenues involve Collection and Sorting activities, which are essential for efficient recycling processes. These activities increase the recirculation of valuable metals, improving the resilience of the supply chains. By reducing the pressure to extract virgin metals and minimizing improper waste disposal, UrbanOre's activities can also contribute to lowering greenhouse gas emissions associated with primary metal extraction.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of collection facilities
- Amount of waste avoided through collection (that is, diverted from landfills or collection of mismanaged waste)
- Amount of material sorted and treated for recycling
- Amount of secondary raw materials and/or by-products recovered
- Reduction in life-cycle greenhouse gas emissions of materials through recycling
- Recovery rate of recycling facilities (percentage increase per year)

1 De-canning involves removing the shell and extracting the honeycomb-shaped material inside the catalytic converter.

2 The process involves analyzing a substance to determine its precise composition. It identifies the amount of each metal within the automotive catalysts.

ILLUSTRATIVE CASE STUDY 6

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: E-Repair

Primary activity: +Circularity Enablers

Additional activities: Circular Use, Value Recovery

Materials covered: Metals, plastics

Financial instrument: Equity

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

E-Repair is a leading platform in Southeast Asia dedicated to extending the lifespan of electronic devices through reuse, repair, refurbishing, and recycling. The company operates an online platform that provides transparent pricing and bidding for pre-owned consumer electronics, such as smartphones, tablets, and laptops. The platform enables users to sell or recycle used devices, connecting them with distributors who repair, refurbish, and resell items. For devices that cannot be repaired, E-Repair partners with recycling centers to ensure dismantling and material recovery.

E-Repair employs a multi-channel approach to engage customers, offering online transactions and door-to-door collection services. Additionally, it has strategically located physical collection points in shopping malls and urban centers.

According to the company's 2024 Environmental and Social Report, 665,322 pre-owned electronic products were refurbished in 2024. By the end of 2024, the platform had facilitated the transaction of 45 million pre-owned products, showcasing its scale and impact in extending the lifespan of electronic devices.

FINANCIAL INSTRUMENT

E-Repair secured an equity investment to expand its operations across Southeast Asia. **The investment enabled the expansion and upgrade of operational centers, the scaling of the collection network by increasing the number of physical collection points (booths and stores), and the optimization of door-to-door logistics to reach a wider customer base.** It also provided working capital to support ongoing operations.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The investment in E-Repair is assessed to be fully eligible for circular economy finance because E-Repair's forward-looking revenues contribute to a circular economy, specifically by **acting as a +Circularity Enabler that contributes to Circular Use and facilitates Value Recovery**.

E-Repair's online platform promotes the reuse and recycling of electronic devices, reducing the demand for new products and raw material extraction. By connecting consumers, refurbishers, and recyclers, the platform creates a functioning marketplace for pre-owned electronics. The platform contributes to Circular Use, giving a second life to products that are reused, repaired, and refurbished. Additionally, it contributes to Value Recovery through Material Recirculation because it connects users with distributors and recycling centers, creating a robust ecosystem for recovering and recycling material from waste, thereby reducing waste pollution.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of pre-owned electronic products refurbished in a year
- Number of pre-owned products transacted through the platform
- Amount of waste avoided
- Recovery of materials at end-of-life
- Reduction in life-cycle greenhouse gas emissions of materials through recycling

PACKAGING

ILLUSTRATIVE CASE STUDY 7

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Loop Foods

Primary activity: Circular Design and Production

Additional activities: Value Recovery

Materials covered: Plastics, other

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Loop Foods, a global food and beverage company, is committed to reducing the environmental impact of its packaging. Since 2015, its **circular packaging strategy has focused on making packaging more sustainable by improving recyclability, reducing virgin material use, and expanding collection and recycling systems**.

The company has redesigned its packaging to ensure it is reusable, recyclable, or compostable, reaching 92 percent adherence by 2024. Key initiatives include modifying packaging materials to enhance recyclability, optimizing designs for sorting efficiency, and increasing the adoption of reusable packaging.

To further reduce waste, Loop Foods has cut virgin fossil-based plastic usage by 25 percent since 2015. This has been achieved by **eliminating unnecessary packaging, lightweighting materials, and switching to alternative materials** like glass and metal. Additionally, the company has increased the share of recycled plastic content to 16 percent on average from 4 percent in 2015.

Beyond design improvements, Loop Foods has invested in **collection and recycling programs** to recover more packaging materials. In 2024, it collected **70 percent of the plastic it placed on the market**. The company has funded waste collection projects in multiple countries, recovering over 30,000 tons of plastic annually and over 40,000 tons of waste since 2015. It also supports the development of new recycling technologies to improve material recovery.

Loop Foods continues to drive innovation, working toward its **2030 goals of 100 percent circular packaging and a 50 percent reduction in virgin plastic use**. Through ongoing investments and partnerships, the company is redefining how packaging is designed, produced, and recovered to support a more sustainable future.

FINANCIAL INSTRUMENT

Loop Foods obtained a **loan to implement its circular packaging strategy** over three years, including research and development to enhance packaging reusability, expand the use of alternative materials, and optimize packaging designs for improved sorting efficiency to increase recycling.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is assessed to be fully eligible for circular economy finance, as part of the circular packaging strategy, which **finances circular economy activities across the life cycle of plastic packaging**. The project focuses on Circular Design and Production by designing products that can be easily reused and by using alternative materials to reduce the use of virgin fossil-based plastic. Additionally, funds will be used to support Value Recovery through the development of efficient Collection and Sorting systems to increase Material Recirculation by recycling and recovering end-of-life plastic packaging.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of packaging designed to be reusable, recyclable, or compostable
- Percent reduction of virgin plastic in packaging products
- Percentage reduction in the weight of plastic packaging
- Percentage of recycled materials in packaging products
- Quantity of post-consumer plastic collected
- Percentage of post-consumer plastics recycled and recovered

ILLUSTRATIVE CASE STUDY 8

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: SynPro Solutions

Primary activity: Circular Design and Production

Additional activities: Value Recovery

Materials covered: Plastics, fibers

Financial instrument: Blue loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

SynPro Solutions is a large producer and supplier of recycled polyethylene terephthalate (rPET) resin that is used in beverage bottles, having recycled more than 100 billion bottles since 2010. SynPro's circular economy-related targets include recycling 1 million tons of post-consumer PET bale input per year and 25 percent rPET feedstock by 2030.

To achieve these targets, SynPro aims to secure its feedstock by increasing its recycling capacity overall through establishing new recycling plants, launching an automated plant, and enhancing efficiency at existing recycling facilities. This project will boost SynPro's initiatives **to support closed-loop systems for recycled materials, enabling recycled content to be used in production**. These initiatives include a collaboration to supply small businesses in the fashion, furniture, and home décor sectors with rPET fibers from recycled PET bottles to create sustainable products. SynPro has also partnered with sustainable food packaging producers to use flakes from rPET trays to produce PET film for food packaging trays.

FINANCIAL INSTRUMENT

SynPro obtained a blue loan to increase its recycling capacity and finance its initiatives supporting closed-loop systems for recycled materials, enabling recycled content to be used for production in partnerships and in its own production. The loan qualifies as a blue loan because closed-loop solutions for PET waste address marine plastic pollution.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is assessed to be eligible for circular economy finance, with the full amount of the loan qualifying as circular economy finance. **The project makes a substantial contribution to a circular economy and aligns with the activity categories of Circular Design and Production and Value Recovery.** SynPro's closed-loop systems for recycled materials contribute to Circular Production by directly facilitating the use of recycled content in production. Through collaborating with producers across a number of industries, SynPro supports increased use of recycled content in production processes. SynPro has also made commitments to increase the amount of rPET feedstock in its own production lines, decreasing the amount of virgin raw materials needed for production. SynPro's plans to expand its recycling capacity meet criteria for Material Recirculation by recycling used PET bottles and using the recycled PET as input for rPET resins. The increased capacity to produce rPET will return plastic waste to the plastic value chain and create value for PET waste, including food-grade rPET.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Target for recycling post-consumer PET bale input (tons per year)
- Target for percentage of rPET feedstock compared with PET feedstock
- Increase in percentage of rPET feedstock compared with PET feedstock
- Percentage of rPET used in new products
- Increase in volume of rPET produced (tons per year)

ILLUSTRATIVE CASE STUDY 9

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Fizzify

Primary activity: Circular Use

Additional activities: Circular Design and Production, Value Recovery, +Circularity Enablers

Materials covered: Metals, plastics

Financial instrument: Green bond

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Fizzify manufactures sparkling flavored water makers, which enable customers to drink flavored sparkling water in reusable bottles at home. The reusable bottles are designed to have a lifespan of three years, with each bottle replacing up to 2,500 single-use bottles. To make sparkling water, customers use carbon dioxide (CO_2) gas cylinders to carbonate water in the reusable bottles. The cylinders, which are manufactured with high-quality brass and aluminum, are designed for reuse and refilling. Customers can exchange empty cylinders for refilled ones at a discounted price in stores or online through a deposit system.

Fizzify and its partner Zeonova introduced the **Fizzify Free Recycling Program, providing customers with a convenient way to recycle their sparkling water makers**. Zeonova works across 25 countries in creating and operating first-of-their-kind platforms in recycling, recycled materials, and reuse. By downloading a prepaid shipping label online, customers can send their appliances to Zeonova. They undergo a process of cleaning, material separation, and conversion into raw materials suitable for remanufacturing into new products.

FINANCIAL INSTRUMENT

Fizzify issued a green bond under its Green Bond Framework, which aligns with ICMA's Green Bond Principles and has been reviewed by an independent second-party opinion provider. The use of proceeds will be allocated to three areas: expanding its product offerings, including the reusable bottles, to 10 additional countries; expanding the Fizzify Free Recycling Program to those same 10 additional countries; and increasing energy efficiency in its operations.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The green bond is fully eligible for circular economy finance, given that Fizzify's business model and activities substantially contribute to a circular economy through manufacturing products that are reused. The use of reusable bottles is at the core of the company's approach, aligning with Circular Use. Similarly, the durable CO_2 gas cylinders are designed and produced for reuse and refilling, meeting Circular Design and Production criteria. Furthermore, the Fizzify Free Recycling Program is a +Circularity Enabler that facilitates Value Recovery by providing customers with a convenient way to recycle their sparkling water makers. In this case, the energy efficiency component of the project strengthens the company's operations, which are inherently circular and therefore also count toward circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of single-use plastic bottles prevented from becoming waste
- Number of products that have been reused
- Amount of CO_2 reduced when single-use plastic products are replaced by products designed and produced for reuse
- Number of used products collected from consumers for recycling
- Amount of waste avoided through collection
- New products derived from secondary raw materials
- Number of products recycled

ILLUSTRATIVE CASE STUDY 10

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: ReBottle

Primary activity: Value Recovery

Additional activities: Circular Design and Production, Circular Use

Materials covered: Plastics

Financial instrument: Equity (venture capital)

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

ReBottle, a social enterprise founded in 2017, provides household cleaning products in reusable bottles as a sustainable alternative to single-use packaging. **The company operates a take-back and refill system designed to extend the lifespan of packaging and reduce plastic waste.**

Customers buy small, refillable bottles filled with a household product (such as laundry detergent or dishwashing soap) from a local convenience store. Once empty, customers exchange the bottles when purchasing new products and are rewarded with "ReBottle Points" for each bottle exchanged. The points can be used toward buying other products that have reusable packaging. Convenience stores return the empty bottles to a central collection facility, where they are cleaned, refilled, and then redistributed to convenience stores. The standardized design of the bottles across product lines and convenience stores allows for increased efficiency, scale, and cost savings in the process of refilling and reuse.

FINANCIAL INSTRUMENT

ReBottle secured venture capital funding to expand its footprint to five times the number of local convenience stores. The funding will also support ReBottle's scoping of other household products that could follow a similar model.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

ReBottle's venture capital funding is assessed to be fully eligible for circular economy finance as the financing directly addresses three key circular economy activity categories: Circular Design and Production, Circular Use, and Value Recovery. The core of the model is a take-back and refill program, where used bottles are collected from local convenience stores for cleaning, refilling, and subsequent redistribution. This closed-loop system ensures that packaging materials remain in circulation for as long as possible.

The reuse of bottles containing household products supports Circular Use by extending the useful life of packaging and reducing the need for new production. This model directly reduces the demand for raw materials and the associated environmental impacts of extraction and manufacturing. Furthermore, ReBottle's system minimizes waste, diverting packaging from landfills and reducing plastic pollution. Finally, the uniform design of the bottles aligns with Circular Design and Production principles, simplifying reuse and refilling across product lines.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of packaging products collected from consumers for reuse
- Number of collection points established via convenience stores
- Amount of landfill waste avoided through collection
- Reduction in life-cycle greenhouse gas emissions of materials through reuse

ILLUSTRATIVE CASE STUDY 11

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: EcoMeld Solutions

Primary activity: Value Recovery

Additional activities: Circular Design and Production

Materials covered: Plastics

Financial instrument: Blue loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

EcoMeld Solutions specializes in the manufacture of recycled plastics, including recycled polystyrene (r-PS) and recycled polyethylene terephthalate (rPET). The company sources post-consumer and post-industrial plastic waste, which would otherwise contribute to landfill accumulation or ocean pollution, transforming it into durable, high-value materials. The company uses these recycled materials to produce a range of products such as picture frames, mirror frames, architectural panels, and other home furnishings, **supplying major global retail corporations with sustainable alternatives to virgin plastic-based products**.

EcoMeld incorporates cutting-edge sorting, cleaning, and extrusion[1] technologies to maximize material recovery and quality. The company collaborates with industrial partners and retail clients to source plastic waste. By integrating advanced polymer processing techniques, EcoMeld ensures that its recycled plastics maintain structural integrity and aesthetic appeal.

FINANCIAL INSTRUMENT

EcoMeld Solutions has secured a **blue loan to establish a greenfield recycling facility**. This loan was committed to enable EcoMeld to expand rPET production capacity from 80,000 tons to 150,000 tons per year, while also providing the necessary working capital for the continued growth and operation of the company. The loan is considered a blue loan because the recycling of plastic will reduce plastic waste in waterways.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is assessed to be fully eligible for circular economy finance. Its main component is the development of a greenfield recycling facility to expand the production capacity of rPET and use these **recycled plastics to manufacture various types of frames and other products, aligning with both Circular Design and Production and Value Recovery**. The working capital is also considered eligible given that the company's primary activities contribute to a circular economy. By closing the loop on plastic waste and promoting the use of recycled materials, this project reduces reliance on virgin plastics, minimizes waste sent to landfills, and contributes to a more circular plastics value chain.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- rPET production capacity (tons per year)
- Amount of post-consumer plastics diverted from landfills
- Number of product lines incorporating rPET
- Percentage of rPET in each product

1 Extrusion is the process of melting down plastic and then forming pellets.

ILLUSTRATIVE CASE STUDY 12

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Altra S.A.

Primary activity: +Circularity Enablers

Additional activities: Circular Use

Materials covered: Plastics

Financial instrument: Equity (venture capital)

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Altra S.A. is a company that allows customers to refill household and cleaning products through smart powered dispensing machines and smart packaging embedded with radio frequency identification (RFID). This system allows customers to purchase specific quantities from different brands, eliminating the need for single-use packaging. Through the Altra S.A. app, users can order products—such as laundry detergent, personal care items, and pet food—and refill smart containers either at in-store dispensers or via electric tricycles that deliver refill services to their doorsteps.

The RFID technology in the reusable packaging helps customers track their refills and calculate the amount of avoided plastic waste. Altra S.A.'s smart dispensers recognize the tagged packaging and dispense the exact product and quantity requested. Customers pay for the product itself—not the packaging—only incurring a one-time cost for the container during the initial purchase. The refills are priced at bulk rates, providing significant cost savings for consumers. At the end of their life cycle, the containers are recyclable.

To date, Altra S.A. customers have reused more than 900,000 units of packaging, preventing over 80,000 kilograms of plastic from becoming waste. The service operates in over 2,000 family-owned stores in one city.

FINANCIAL INSTRUMENT

Altra S.A. received **venture capital to expand the manufacturing capacity of the dispensing machines and RFID-enabled smart packaging**, strengthen its brand positioning and marketing, and accelerate the expansion to new products.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

Altra S.A.'s forward-looking revenues are expected to make a substantial contribution to a circular economy, with 100 percent of the revenues considered eligible for circular economy finance. **Altra S.A.'s innovative refill system serves as a +Circularity Enabler.** Unlike recycling, which often involves breaking down materials for reprocessing, Altra S.A.'s reuse model preserves the structural integrity of packaging, conserving resources and minimizing the need for additional manufacturing. The system is powered by innovative digital tools, including an app and RFID technology, which streamline the refill process. These tools enable customers to track refill quantities and measure the environmental impact. **This circular business model contributes to Circular Use by extending the use of packaging materials and minimizing waste.** By combining reuse with digital innovation and fostering collaboration across the value chain, Altra S.A. contributes substantially to a circular economy.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Pieces of packaging reused through this model
- Volume of plastic waste prevented
- Number of times a packaging piece is reused

MUNICIPALITY

An overview shot of Elemental Holdings' urban recycling center 40 km southwest of Warsaw, Poland, 2023. Photo by Djenno Bacvic/IFC.

ILLUSTRATIVE CASE STUDY 13

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Muni Holding

Primary activity: Value Recovery

Materials covered: Plastics, paper, glass, organic materials

Financial instrument: Sustainability-linked bond

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Muni Holding is the city of Keiko's municipal utility holding company, responsible for providing the city's essential services. The company has control over 25 municipal companies in Keiko, which provide services including waste management, water supply and drainage services, gas storage and distribution, production of renewable energy, road maintenance, maintenance of communal public infrastructure, and real estate business activities.

Muni Holding has implemented several initiatives to enhance the sorting and collection of recyclable materials. This includes its waste management model introduced in 2023 to incentivize residents to separate waste by charging for municipal waste collection based on the quantity disposed. Households purchase official bags for mixed waste, encouraging the separation of recyclables to minimize costs. Muni Holding also established a system of separate collection, providing residents with different containers or bins for various types of waste, such as recyclables, organic waste, and general waste. This separation facilitates easier recycling and proper disposal.

FINANCIAL INSTRUMENT

Muni Holding issued a sustainability-linked bond in 2021 to improve waste management systems, enhance resource efficiency, and strengthen climate resilience in Keiko. The bond incorporates ambitious sustainability performance targets (SPTs) to significantly increase the share of municipal waste separately collected and to expand the use of renewable energy sources. Specifically, the SPTs include the following aims by 2030:

- Increase the percentage of municipal waste separately collected (removed from landfill) from a 2021 baseline of 25 percent to 60 percent. This is expected to avoid up to 150,000 tons of landfill waste.
- Increase the share of renewable energy in total electric energy consumption from 50 percent in 2021 to 80 percent by 2030.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The amount of the sustainability-linked loan eligible for circular economy finance is based on the expected share of Muni Holding's business contributing to a circular economy at the end of the financing term. The SPT to increase the **percentage of municipal waste that is separately collected would directly contribute to a circular economy** by aligning with Value Recovery. It incentivizes the improvement of separate waste collection infrastructure and processes, which facilitates more effective processing of materials for recycling. In turn, this enhancement supports Material Recirculation by diverting waste from landfills and reintroducing valuable resources into the economy, promoting a closed-loop system and minimizing pollution.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of municipal waste collected separately for recycling or reuse (that is, removed from landfill)
- Volume of waste diverted from going to landfill (metric tons per year)

TEXTILES

ILLUSTRATIVE CASE STUDY 14

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Denim Place

Primary activity: Circular Design and Production

Materials covered: Fibers

Financial instrument: Corporate loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Denim Place, one of the world's largest denim manufacturers, is making significant strides toward circular fashion. Traditional denim production is highly resource intensive, consuming large amounts of chemicals, water, and energy. Additionally, complex designs with zippers, rivets, and blended materials make jeans difficult to recycle at the end of their life, contributing to textile waste.

To address these challenges, Denim Place joined the **Ellen MacArthur Foundation's The Jeans Redesign project in 2021**, adopting guidelines to improve circularity in the design of its products. By 2024, the company had successfully applied these principles to 20 styles of jeans, achieving key milestones:

- **Up to 100 percent cellulose-based content**, exceeding recyclability standards.
- **No zippers or rivets**, and **removable screw-based buttons** for easier disassembly and recycling.
- **45 percent post-consumer recycled content** in production.

FINANCIAL INSTRUMENT

Denim Place secured a corporate loan to support ongoing design innovation, modernization, expansion, and sustainability initiatives. The funding was allocated to the **expansion of its innovation center, equipment upgrades** to facilitate circular fashion (including machinery for weaving rigid fabrics, manufacturing removable screw-based buttons, and incorporating recycled content), and the **expansion of production capacity** to meet growing market demand for both conventional and circular denim. Part of the loan was also allocated for **working capital** to support general business operations. This investment enables Denim Place to enhance both its sustainability performance and overall production efficiency.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

Only the part of Denim Place's investment related to **the expansion of the innovation center and equipment upgrades** that support **Circular Design and Production would be eligible as circular economy finance**. These investments enable jeans to be **reused and recycled**, incorporating 100 percent cellulose-based fibers, eliminating zippers and rivets, and using removable screw-based buttons for easy disassembly. Upgraded equipment also increases **post-consumer recycled content**, reducing reliance on virgin raw materials. **The expansion of conventional denim production and general working capital** do not align with circular economy principles. Only the portion of funds used to implement the circular activities would be eligible for circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of cellulose-based fibers, by weight, in the total textile composition of the jeans
- Percentage of post-consumer recycled content
- Expected extension of lifetime in years compared to the market standard in years
- Reduction in total volume of raw materials used compared to baseline

ILLUSTRATIVE CASE STUDY 15

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Rento Group

Primary activity: Circular Design and Production

Additional activities: Value Recovery

Materials covered: Fibers

Financial instrument: Corporate loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Rento Group is a diversified industrial group operating in the construction, packaging, cement, and textile sectors. The Group includes **Rento Textiles, a vertically integrated premium yarn manufacturer that produces recycled yarn**, and Rento Cem, a local cement manufacturer. The Rento Group launched a multi-year corporate investment program to support climate-smart modernization, expand production capacity, and enhance competitiveness across the Group.

FINANCIAL INSTRUMENT

Rento Group received a senior secured corporate loan to partially finance the Group's corporate investment program. Specifically, the loan is designated to finance the following activities:

Rento Textiles

- **Construction of a ring spinning plant**, increasing daily raw yarn production capacity from 250 to 400 tons. This includes an increase in both raw yarn production and the production of yarn from recycled textile waste.
- **Construction of a new recycling plant**, increasing annual recycling capacity from 80,000 to 200,000 tons of textile waste.
- Installation of 8.45 megawatts (MW) of rooftop solar panels across the expanded ring spinning plant and the new recycling plant.

Rento Cem

- Development of a 32 MW greenfield solar power plant at the Rento cement plant.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is **partially eligible for circular economy finance based on the components directly contributing to a circular economy**. The construction of Rento Textiles' ring spinning plant and the construction of its new recycling plant contribute to both Circular Design and Production and Value Recovery. By increasing the capacity to transform textile waste into high-quality recycled yarn, the investment reduces reliance on virgin raw materials and minimizes textile waste generation, contributing to Circular Production. Furthermore, the new recycling plant directly contributes to Material Recirculation by increasing the volume of textiles recycled that can then be reintroduced in the Circular Production process. The portion of the loan that finances these activities would be considered eligible for circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Recycling capacity of recycling facility per year
- Daily production capacity of recycled yarn
- Increased percentage of post-consumer recycled yarn as inputs relative to business as usual
- Reduction in total volume of raw materials used compared to baseline
- Waste (including by-products) that is prevented, minimized, reused, or recycled relative to total waste

ILLUSTRATIVE CASE STUDY 16

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Outdoor Threads

Primary activity: Circular Use

Additional activities: +Circularity Enablers

Materials covered: Polyester, wool, and other fibers

Financial instrument: Sustainability-linked loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Outdoor Threads, a global leader in sustainable apparel, has implemented a comprehensive strategy to **extend the lifespan of its products through its Repair & Renew program**. Launched in 2015, the program encompasses several initiatives to promote repair, reuse, and recycling, all aimed at reducing waste and fostering a circular economy within the textile sector.

The Repair & Renew program includes **professional repair services, enabling customers to send in damaged items for restoration, and the provision of DIY repair kits for minor fixes**. To date, the program has repaired more than 600,000 items, keeping them out of landfills and significantly reducing waste. Outdoor Threads also operates a resale marketplace as part of the program, where pre-owned gear is refurbished and sold. By December 2024, the company had resold over 130,000 items, significantly reducing the demand for new products and cutting waste and emissions. In cases where products are beyond repair or reuse, Outdoor Threads operates a recycling initiative that repurposes materials into new items, such as using old fleece jackets to create fabrics for new garments.

FINANCIAL INSTRUMENT

Outdoor Threads issued a sustainability-linked loan to expand the Repair & Renew program and advance its circular economy initiatives. The loan incorporates sustainability performance targets (SPTs), which aim to scale repair and resale operations. Specifically, the project aims to achieve the following by 2028:

- Increase the annual number of items repaired by 50 percent compared to the 2024 baseline.
- Expand the volume of pre-owned items sold through the resale platform by 70 percent compared to the 2024 baseline.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The amount of the sustainability-linked loan eligible for circular economy finance is based on the expected share of Outdoor Threads's business contributing to a circular economy at the end of the financing term. Both the SPTs would contribute to circular economy objectives. **The SPT to increase the number of items repaired aligns with Circular Use**, prolonging the lifespan of products and reducing the need for new production. **The resale platform is a +Circularity Enabler that facilitates the reuse of products.**

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of items repaired through the Repair & Renew program yearly
- Volume of pre-owned items sold through the resale platform (units per year)
- Estimated reduction in carbon dioxide emissions from extending product lifespans and reducing production of new items

ILLUSTRATIVE CASE STUDY 17

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Banta

Primary activity: Value Recovery

Materials covered: Fibers

Financial instrument: Corporate loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Banta specializes in sorting and logistics for end-of-life apparel and footwear to enable the recycling of textiles. The company maintains a large database to stay up to date with the large variety of textiles on the market, which enables more accurate sorting. It has purchased Textant technology, which can **be used in recycling facilities to automatically sort large volumes of mixed post-consumer textiles**. Textant relies on near infrared technology to analyze the fiber composition and an RGB camera[1] to analyze the color. The fibers are sorted into 45 different fractions based on fiber composition and color.

The Textant technology has been optimized to sort about 1,400 kilograms of post-consumer textiles per hour, and the machine's capacity can be increased by adding additional robots. **These materials can then be used as inputs for textile recyclers, enabling a closed loop for textiles.** Sorting by color has the potential to reduce additional dyeing of textiles in the recycling process, avoiding the negative environmental impacts of dyeing.

FINANCIAL INSTRUMENT

Banta secured a corporate loan to buy additional technology to enable the sorting of larger volumes of post-consumer textiles as feedstock for recycling. Banta also plans to use the funding to partner with textile recyclers in new markets.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The investment is fully eligible for circular economy finance because **Banta's primary activities are considered to substantially contribute to a circular economy and are aligned with Value Recovery**. The growing amount of textile waste is exacerbated by limited separate collection of textiles and saturation of many secondhand markets. Banta exemplifies Value Recovery for large volumes of mixed post-consumer textiles through Collection and Sorting that facilitates their transformation into feedstock for recycling. Its use of innovative technology enables closed-loop recycling for textiles, which are otherwise often downcycled, incinerated, or sent to landfill.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Hourly sorting capacity
- Volume of textiles sorted per year
- Volume of textiles recycled per year
- Amount of waste avoided per year

1 RGB cameras are based on the red, green, blue color model and are designed to capture visible light.

ILLUSTRATIVE CASE STUDY 18

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Mattress Co.

Primary activity: Value Recovery

Additional activities: Circular Design and Production

Materials covered: Fibers, plastics

Financial instrument: Project loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Mattress Co. is a leading manufacturer and distributor of polyurethane (PU) foam and bedding products in Africa. The company employs 1,500 people and has an extensive logistics platform in its home country. Mattress Co. sells its products through a network of 2,000 distributors, 45 owned stores, and 10 distribution facilities. **The company plans to build its own recycling plant to source secondary raw materials for its products and reduce reliance on imported feedstock.**

FINANCIAL INSTRUMENT

A project loan was provided to Mattress Co. to support the greening of its operations and its expansion into Sub-Saharan Africa. The loan proceeds were allocated as follows:

- **Plastic recycling plant:** Construction of a new recycling plant to manufacture recycled polyethylene terephthalate (rPET), including PET flakes, polyester staple fibers, and non-woven geotextiles, from recycled PET bottles. Once complete, this plant is expected to result in a 50 percent increase in the company's rPET production. This expanded capacity will provide a significant supply of recycled plastics as raw materials for the company's bedding products, reducing reliance on virgin plastics.
- **Solar energy installation:** Installation of solar panels across the company's industrial facilities in its home country.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project loan is partially eligible for circular economy finance, as not all project components directly contribute to a circular economy. **The construction of a new plastic recycling plant is the only component that is eligible for circular finance given that it aligns with Value Recovery and Circular Design and Production.** The plant processes post-consumer PET bottles, transforming them into valuable recycled materials (rPET flakes and polyester fibers) that are then used as inputs in the company's bedding products, contributing to Material Recirculation. By incorporating rPET into its bedding products, the company reduces its use of virgin plastic resources, contributing to Circular Design and Production. Mattress Co. diverts plastics from landfills and contributes to reducing plastic pollution.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage increase in rPET production
- Amount of post-consumer PET bottles diverted from landfills
- Amount of PET bottles recycled
- Number of new product lines incorporating rPET
- Percentage of rPET content in each bedding product
- Percentage reduction in life-cycle greenhouse gas emissions per unit of product compared to a baseline scenario using 100 percent virgin PET

ILLUSTRATIVE CASE STUDY 19

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Brook S.A.

Primary activity: +Circularity Enablers

Additional activities: Circular Use, Value Recovery

Materials covered: Fibers, paper

Financial instrument: Corporate loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Brook S.A. is a secondhand trading platform specializing in refurbished books and clothing. Unlike traditional consumer-to-consumer platforms, Brook S.A. acts as an intermediary, refurbishing and monitoring the quality standards of products before they reach buyers. Its pricing algorithm analyzes transaction data to assess product demand and quality. Initially focused on books, Brook S.A. offers sellers a free courier service for collection. Books are repaired and reconditioned using ozone sterilization to ensure cleanliness and durability. Brook S.A. expanded its model to clothing, which is now the platform's primary focus. **The company collects, repairs, and sells clothing items.** A fully automated secondhand clothing facility facilitates the sorting process. After sorting, the items are refurbished by hand, using similar materials to the original fabrics.

FINANCIAL INSTRUMENT

Brook S.A. secured a corporate loan in 2022 to scale its operations in the country. The loan was committed to finance the following components:

- **Expansion of warehousing and logistics:** Expanding the warehouse space will accommodate increased inventory and improve logistics, including the purchase of additional vehicles for the courier service and upgrades to warehouse management systems.
- **Investment in refurbishment and sorting facilities:** Investment includes upgrading the book reconditioning equipment and expanding the automated clothing sorting and repair facility.
- **Technology development and platform enhancement:** Further development of the platform's algorithm, pricing model, and mobile apps will support scaling of operations.

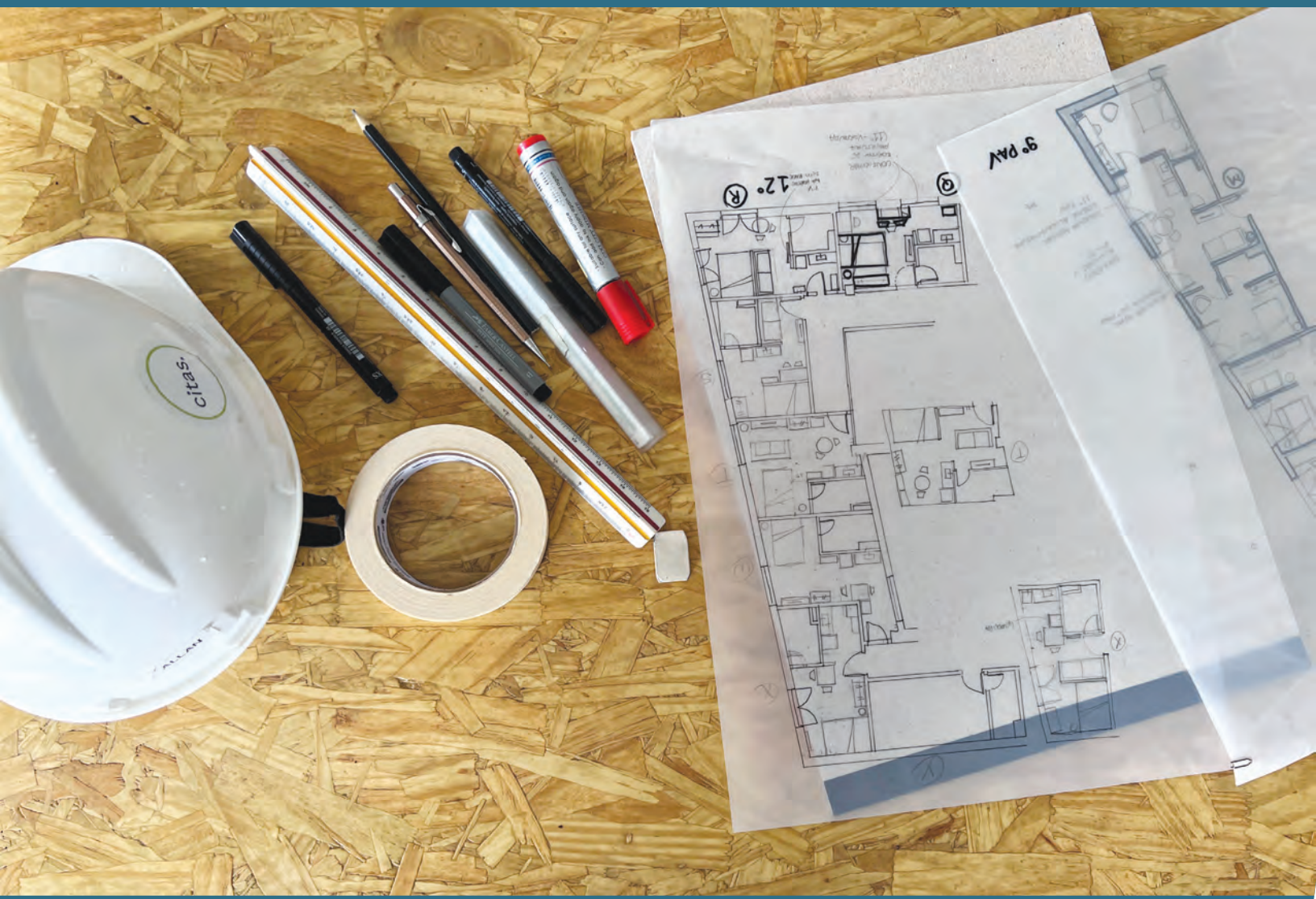
CIRCULAR ECONOMY FINANCE ELIGIBILITY

The corporate loan provided to Brook S.A. is assessed to be fully eligible for circular economy finance, given that all projected revenue streams are derived from business activities that directly support a circular economy. Brook S.A.'s platform **acts as a +Circularity Enabler by creating a marketplace for secondhand goods** and managing the refurbishment process. The platform **contributes to Circular Use by providing services such as repair and refurbishment**, which extend the lifespan of products, ensuring materials are used for as long as possible and minimizing waste. The company also plays a **key role in the Value Recovery stage** through the collection of products and its sorting facility, which supports value retention and facilitates the recovery process.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of recycled books and clothing items
- Amount of waste avoided
- Number of facilities for sorting, treatment, and preparing for reuse
- Number of products that have been repaired and refurbished
- Reduction in life-cycle greenhouse gas emissions of materials through reuse
- Amount of material sorted

CONSTRUCTION AND BUILT ENVIRONMENT



ILLUSTRATIVE CASE STUDY 20

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Venskara

Primary activity: Circular Design and Production

Additional activities: Circular Use

Materials covered: Metals

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Venskara is a leading construction and development company that incorporates sustainability and circular economy principles into its operations. **The company designs its buildings for disassembly, making it easier to reuse building materials and components.** Venskara uses software tools to plan for disassembly and material reuse before construction begins, as well as tools to track its materials through "material passports." These digital records document key details about building materials, such as composition, accessibility, origin, and location within a structure.

Modular units are built offsite and assembled using recycled concrete, reusable steel, and sustainably sourced timber. The buildings are structured in layers, so that individual elements can be separated without affecting the entire building. Additionally, the buildings are designed with standardized components, which makes the components easier to replace, upgrade, or transfer.

FINANCIAL INSTRUMENT

Venskara secured a loan **to fund its investment in the software tools** that support the design and development of modular mixed-use building units that can be easily disassembled. These units will incorporate recycled concrete, sustainably sourced timber, and other low-carbon materials.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project loan for Venskara is assessed to be fully eligible for circular economy finance. **Venskara will apply its Circular Design and Production tools** to develop mixed-use building units that are modular and can be easily disassembled. Recycled materials will be incorporated into the Circular Design and Production of the buildings, as will materials that can easily be reused after disassembly. Using its "material passports," Venskara is able to trace details about the materials throughout the life cycle of the project, enabling their reuse and refurbishment, thereby exemplifying Circular Use through lifetime extension.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Volume of components designed for disassembly and reuse
- Volume of materials reused
- Volume of landfill waste avoided through reuse

ILLUSTRATIVE CASE STUDY 21

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: EcoBuild

Primary activity: Circular Design and Production

Additional activities: Value Recovery

Materials covered: Cement

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

EcoBuild, a global leader in innovative and sustainable building solutions, has initiated the RecyCon project, aiming to build the world's first fully recycled concrete housing complex. This ambitious initiative sets **a new standard in construction by using 100 percent recycled materials to create a sustainable social housing development**. The project comprises a 300-unit housing complex designed to demonstrate the feasibility and scalability of recycled concrete in modern construction.

The project features an innovative concrete mix developed using recycled aggregates sourced from construction and demolition waste and fully recycled cement made from 100 percent recycled clinker. **By using recycled clinker, the project saves about 2,000 tons of natural resources** that would have otherwise been extracted from quarries.

FINANCIAL INSTRUMENT

EcoBuild secured a project loan to fund the RecyCon initiative. The financing was fully allocated to the development of the construction project using 100 percent recycled materials, including research and development, procurement of recycled materials, and implementation of innovative recycling technologies.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

EcoBuild's RecyCon project is assessed to be fully eligible for circular economy finance due to its comprehensive alignment with multiple circular economy activity categories across all stages of the project. The project **primarily advances Circular Design and Production by leveraging recycled materials throughout the production process**, demonstrating how construction materials can be sustainably sourced and reused. Additionally, the use of recycled aggregates and water in concrete production minimizes material waste, supporting Value Recovery within the industry.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of recycled materials used in production process
- Reduction in total volume of raw materials used compared to baseline
- Volume of recycled materials used
- Volume of waste diverted from landfills

ILLUSTRATIVE CASE STUDY 22

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: ReBuild Wizards

Primary activity: Circular Use

Materials covered: Wood, metals, other construction materials

Financial instrument: Project loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

ReBuild Wizards is the owner, developer, and manager of certified green buildings in a business district. In 2021, the company **certified an entire portfolio of office towers under the Excellence in Design for Greater Efficiencies (EDGE[1]) Zero Carbon Retrofit Protocol.** Covering 320,000 square meters, these buildings showcase innovative and sustainable urban infrastructure.

ReBuild Wizards' retrofitting initiatives **reuse materials such as floor slabs, roofs, external and internal walls, flooring, and window frames**. As part of the retrofitting process, the materials are recirculated for onsite use. This approach substantially reduces the need for new materials and minimizes embodied energy in materials, exemplifying how circular economy projects may contribute to climate objectives. For retrofit projects to be certified under the EDGE Zero Carbon Retrofit Protocol, they must achieve a minimum of 20 percent savings in water and embodied energy in materials, onsite energy savings of 40 percent, and 100 percent emissions reduction through renewables or carbon offsets. Additionally, **refurbishing and upgrading the building interiors** extends the use of office spaces and common areas.

FINANCIAL INSTRUMENT

ReBuild Wizards obtained a loan to carry out its retrofitting initiatives across its building portfolio. The funds will support the redesign and reuse of existing materials, support the implementation of energy efficiency upgrades and water savings measures, and ensure compliance with the EDGE Zero Carbon Retrofit Protocol.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The investment component related to the reuse of existing materials would be eligible for circular economy finance. **The retrofit project undertaken by ReBuild Wizards aligns with Circular Use by extending the life of construction materials such as floor slabs, walls, and window frames.** By reusing existing materials, the project reduces embodied energy and minimizes the environmental impact associated with sourcing new materials. However, the project is assessed to be only partially eligible for circular economy finance because some of the financing supports water and energy savings, which fall outside the scope of circular economy activity categories.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of building materials reused
- Embodied energy savings compared to conventional buildings
- Volume of waste avoided

1 EDGE is a green building certification system developed by IFC. See https://edgebuildings.com/.

ILLUSTRATIVE CASE STUDY 23

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: ReClaim

Primary activity: Value Recovery

Materials covered: Concrete, asphalt

Financial instrument: General purpose corporate loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

ReClaim is a leader in **civil construction, demolition services, and construction and demolition waste (CDW) collection and recycling services**. The company introduced the first dedicated concrete collection and recycling service in its region, specializing in repurposing concrete and asphalt waste into high-quality aggregate products. These materials are reintegrated into residential, civil, and infrastructure projects, demonstrating ReClaim's commitment to treating demolition waste as a valuable resource.

From 2021 to 2023, **ReClaim achieved an average waste recovery rate of 90 percent** across 18 demolition projects. Over the same period, the company recycled more than 40,000 tons of concrete and asphalt waste, preventing these materials from being sent to landfills. By investing in advanced mobile concrete crusher units, ReClaim optimized its recycling process. This machinery specializes in removing reinforcing bars from concrete, allowing the remaining material to be repurposed as aggregate for civil construction.

ReClaim also conducts pre-demolition audits to identify hazardous materials, such as asbestos and hexavalent chromium, ensuring they are separated and disposed of appropriately. All recycled CDW products are issued contaminant clearance certificates and tracked throughout the supply chain, ensuring quality and compliance with environmental standards.

FINANCIAL INSTRUMENT

ReClaim obtained a general purpose corporate loan to scale its operations by expanding its demolition services and investing in advanced processing machinery to sort materials from CDW. The same loan also supports general operations, which are not tied to material recovery or circular processes.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The loan is partially eligible for circular economy finance. **A portion of the loan aligns with Value Recovery since ReClaim plans to use advanced machinery to systematically sort and process construction and demolition waste.** However, the corporate loan to Reclaim is assessed as partially eligible for circular economy finance as part of the financing also supports non-circular activities, such as general construction services and administrative operations. The amount of the loan that qualifies for circular economy finance is based on the forward-looking expenditures related to Collection and Sorting activities.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Volume of material collected
- Volume of material sorted
- Volume of material available for recovery

ILLUSTRATIVE CASE STUDY 24

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: GreenCycle Solutions

Primary activity: Value Recovery

Additional activities: Circular Design and Production

Materials covered: Concrete

Financial instrument: Sustainability-linked bond

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

GreenCycle Solutions, a leader in sustainable construction materials, developed its EcoFlow initiative to **focus on waste collection, management, recycling, and co-processing**, with the aim to reduce reliance on virgin raw materials and minimize construction-related waste. In 2024, EcoFlow recovered over 10 million tons of construction and demolition waste. This waste was co-processed as secondary inputs for aggregates used in concrete production, reintegrating them into the construction supply chain.

GreenCycle Solutions aims to recover over 15 million tons annually by 2030, enhancing resource effectiveness and waste reduction. The EcoFlow initiative also incorporates by-products from industrial processes as substitutes for virgin raw materials. This approach helps GreenCycle Solutions and its partners reduce waste, preserve natural resources, and lower carbon emissions.

FINANCIAL INSTRUMENT

GreenCycle Solutions issued a sustainability-linked bond to expand its EcoFlow initiative and further its circular economy efforts. The bond incorporates two sustainability performance targets (SPTs) aligned with the company's sustainability strategy. By 2030, the project aims to:

- Increase the annual recovery of construction, demolition, **and excavation waste to over 15 million tons**.
- **Expand the integration of recycled materials into concrete production by 20 percent.**

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The amount of the sustainability-linked loan eligible for circular economy finance is based on the expected share of GreenCycle Solutions' business contributing to a circular economy at the end of the financing term. **Both the SPTs would contribute to Value Recovery.** The SPT that aims to increase the recovery and recycling of construction materials aligns with Value Recovery by recovering valuable resources from landfills and reintroducing them into the supply chain. This reduces environmental impacts and demand for virgin materials. Additionally, **Circular Design and Production is demonstrated by using recycled materials in concrete manufacturing**, reducing the carbon footprint of production processes.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Volume of materials recovered
- Percentage of recycled materials used in concrete production
- Energy savings or carbon emissions reductions from material recirculation

ILLUSTRATIVE CASE STUDY 25

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Sunlight Co.

Primary activity: +Circularity Enablers

Additional activities: Circular Design and Production, Circular Use

Materials covered: Glass, metals, plastics

Financial instrument: Sustainability bond

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Sunlight Co. is a global lighting equipment leader. The company provides lighting-as-a-service with a pioneering business model that upgrades and replaces industrial and commercial lighting systems. Under its service contracts, Sunlight Co. takes full responsibility for installing, operating, and maintaining lighting systems. Customers only pay a monthly service fee for the lighting system. The luminaires and other lighting fixtures provided under these contracts are specifically designed for easy repair and replacement during operation. Lighting products are also built to be easily reused or recycled at the end of their life. This is achieved through features like non-destructive demounting and dismantling, and by avoiding the use of glue and potting (in electronics).

Sunlight Co.'s lighting-as-a-service model provides several advantages. First, customers avoid the initial upfront costs of buying lighting equipment. Second, **luminaires are designed to last 70 percent longer than conventional equipment, reducing the need for frequent replacements and lowering maintenance costs**. Third, the company can significantly reduce energy consumption and greenhouse gas emissions by optimizing lighting systems.

FINANCIAL INSTRUMENT

Sunlight Co. issued an **inaugural sustainability bond**, with the use of proceeds designated to finance expenditures on green innovation, the transition to a circular economy, and achieving carbon neutrality. The eligible activities for the bond are outlined in Sunlight Co.'s Green and Sustainability Bond Framework. They include expenditures related to research and development in green innovation, including energy efficiency; expenditures related to circular products and solutions, including the lighting-as-a-service model and products designed to last longer; expenditures related to a sustainable operations program; and expenditures related to improving access to the service for underserved communities.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The sustainability bond issued by Sunlight Co. is partially eligible for circular economy finance. **The eligible activities for the bond include expenditures related to circular products and solutions, including the lighting-as-a-service model and products designed to last longer.** This model is an example of a +Circularity Enabler because it offers a product as a service, allowing customers to contract a lighting service rather than buying bulbs and other lighting equipment. The lighting equipment is set to last longer than conventional equipment and is used for a longer period, supported by regular maintenance from the company, which helps reduce the demand for virgin materials. The model contributes to Circular Use by extending the lifespan of lighting equipment, increasing the intensity of use and minimizing waste. By incorporating lighting equipment specifically designed for durability, the model also aligns with Circular Design and Production.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage increase in the lifespan of luminaires compared to conventional equipment
- Percentage and total weight of output materials designed for maintenance and durability, for reuse, or to facilitate repair
- Number of products that have been repaired and refurbished
- Reduction in life-cycle greenhouse gas emissions of materials through reuse

AUTOMOTIVE AND TRANSPORTATION

ILLUSTRATIVE CASE STUDY 26

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Summit Rails

Primary activity: Circular Design and Production

Materials covered: Metals

Financial instrument: Green bond

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

To revitalize the regional public railway system, **Summit Rails, a leading provider of railway services, commissioned all newly manufactured trains to be 95 percent recyclable at the end of their life**. To make their trains more recyclable, Summit Rails designed rail cars to use materials like aluminum and stainless steel, with modular components for easy disassembly, and eco-friendly interiors with biodegradable or upcycled materials. Additionally, the trains are designed with standardized, removable electronics, non-toxic coatings, and refurbishable parts. The new fleet incorporates secondary raw materials, reducing reliance on virgin resources while maintaining high performance and durability. Furthermore, the design of these trains enables a 30 percent reduction in energy consumption when in operation.

FINANCIAL INSTRUMENT

Summit Rails issued an inaugural green bond, with the use of proceeds designated to finance the design and manufacturing of new regional and high-speed trains. The eligible activities for the bond are outlined in Summit Rails' Green Bond Framework, which was certified by a second-party opinion provider to align with the four pillars of ICMA's Green Bond Principles.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The green bond is assessed to be fully eligible for circular economy finance. The **proceeds of the bond are allocated to Circular Design and Production** as the new train fleet is designed and manufactured for recyclability through the types of materials used and the ease of dismantling the trains, increasing the efficiency and effectiveness of resource consumption. Additionally, the trains are manufactured using secondary raw materials, contributing to Circular Production.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of components that can be dismantled and reused
- Percentage of recycled materials relative to weight of the total
- Percentage of secondary raw materials used

ILLUSTRATIVE CASE STUDY 27

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: AutoCircle

Primary activity: Circular Design and Production

Additional activities: Circular Use, Value Recovery

Materials covered: Metals, plastics, rubber

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

AutoCircle has established one of the first facilities dedicated to automotive production that fully incorporates circular economy principles. The ReAuto Center was repurposed from an existing factory and launched as the central hub **to support circularity throughout the life cycle of vehicles, from design and production to end-of-life management**, in collaboration with an extensive network of partners.

The ReAuto Center operates various programs, including **remanufacturing vehicle components such as gearboxes and turbo compressors, increasing the recycled plastic content in new vehicles, and creating second-life applications for electric batteries**. These initiatives extend the life of vehicles and components, minimize waste, and reduce the environmental impact of automotive manufacturing. For example, recycled parts are incorporated into new vehicles, while old parts are remanufactured and reintroduced into the sales network as guaranteed components. Since its inception, AutoCircle has remanufactured significant volumes of engine parts, including gearboxes, turbos, and injectors.

Additionally, the ReAuto Center operates a reverse logistics ecosystem where partner companies collect used parts, which are dismantled, remanufactured, and certified for sale. This system optimizes material use and supports circular material flows.

FINANCIAL INSTRUMENT

AutoCircle secured a project loan to develop and expand the ReAuto Center's operations and circular economy initiatives. The **financing exclusively supports activities aligned with circular economy activity categories**, including the development of advanced infrastructure for incorporating recycled materials into vehicle components, scaling remanufacturing processes to extend component life cycles, and enhancing efficiency for reverse logistics systems.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

AutoCircle's ReAuto Center is assessed to be fully eligible for circular economy finance. **The financing is designated for activities contributing to a circular economy, including remanufacturing operations, recycled material integration, and second-life applications for components.** The project contributes to Circular Design and Production by incorporating recycled materials and Circular Use by prolonging the use of vehicles and components through resale, repair, and remanufacture. The ReAuto Center also exemplifies Value Recovery through its reverse logistics ecosystem, enabling Collection and Sorting. This comprehensive approach reduces waste, minimizes reliance on virgin resources, and creates a closed-loop system.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of recycled materials in new vehicles
- Number of remanufactured automotive components
- Extended lifespan of batteries
- Percentage of materials recycled from end-of-life vehicles

ILLUSTRATIVE CASE STUDY 28

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: OceanLink

Primary activity: Circular Use

Materials covered: Steel

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

In 2022, OceanLink initiated a project to **renew its freight ferry fleet by acquiring and converting three offshore supply vessels** previously used in the offshore energy sector. These vessels will be used for passenger transport for island communities.

The conversion process, carried out by a regional shipyard, **includes modifications to meet regulatory standards for passenger transport**. Key upgrades include vessel length adjustments, modifications to stern areas for compatibility with existing transfer bridges, the addition of structural subdivision bulkheads, and machinery overhauls. These modifications will extend the operational life of the vessels by at least 25 years, ensuring reliable transportation for island communities while reducing the need for building new ships.

Using similar vessel designs creates operational efficiencies by enabling interchangeable spare parts, reducing inventory costs, and simplifying repairs. **The total estimated cost for acquiring and converting the vessels is about $30 million, which is significantly less than the cost of building new vessels ($100 million).** This approach offers a cost-effective and sustainable solution to fleet modernization.

FINANCIAL INSTRUMENT

OceanLink obtained a loan to fund the acquisition and conversion of the vessels. The financing also supported the repurposing of assets, including structural modifications and equipment upgrades, to ensure compliance with operational and safety standards.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project **exemplifies Circular Use by repurposing and upgrading existing vessels**, extending their operational life by at least 25 years. This approach reduces the demand for building new ships, which is resource intensive and generates substantial greenhouse gas emissions. **The project is assessed as fully eligible for circular economy finance given that all modifications, including compliance with regulatory standards and operational adjustments, are necessary to repurpose the vessels.**

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Expected extension of vessels' operational life in years
- Reduction in resource consumption compared to new vessel construction
- Reduction in greenhouse gas emissions compared to new vessel construction

ILLUSTRATIVE CASE STUDY 29

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: TORA

Primary activity: Value Recovery

Materials covered: Metals, plastics

Financial instrument: Sustainability-linked loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

TORA is an automobile manufacturing company at the forefront of recycling and recovering valuable materials from end-of-life vehicles. TORA arranges vehicle collection at the customer's preferred time and location. Customers also receive a certificate that qualifies them for price reductions on new vehicle purchases, as per government guidelines. Once collected, technicians inspect the vehicle to confirm its condition and proceed with depollution, safely removing hazardous materials and fluids. The vehicles are dismantled, with all ferrous and non-ferrous metals extracted and recycled. These recovered materials are then reintroduced into TORA's supply chain.

TORA specializes in recycling steel and various non-ferrous metals used in vehicles. With scrappage and recycling plants already operational across nine cities, the company plans to establish a presence in over 100 cities by 2027. Each recycling facility is designed to efficiently dismantle and recycle a wide range of vehicles, including cars, trucks, buses, and two-wheelers.

Since its founding, the company has successfully recycled 20,000 vehicles and more than 10,000 tons of ferrous scrap. Furthermore, it aims to recycle up to 95 percent of each car's materials.

FINANCIAL INSTRUMENT

TORA obtained a sustainability-linked loan focused on improving collection and recycling of end-of-life vehicles. The loan includes two sustainability performance targets:

- **Increasing the collection of end-of-life vehicles to 80 percent by 2030** (from 40 percent in 2020); and
- **Recycling up to 95 percent of each vehicle's materials by 2030.**

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The amount of the sustainability-linked loan eligible for circular economy finance is based on the expected share of TORA's business contributing to a circular economy at the end of the financing term. The sustainability performance targets both meet criteria for Value Recovery. The first target contributes to a circular economy by **increasing the Collection and Sorting of end-of-life vehicles, while the second target aligns with Material Recirculation through recovering and recycling vehicle components** and materials. TORA plans to enhance its collection system through increasing the locations available for vehicle collection. By recovering and recycling 95 percent of each vehicle's materials, TORA will recover valuable materials such as steel and other metals and reintroduce them into the supply chain, minimizing waste.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of vehicles recycled
- Tons of ferrous scrap recycled
- Total weight of materials recovered from a vehicle as a percentage of the total vehicle weight
- Number of operational recycling facilities
- Vehicle collection capacity across all facilities
- Amount of waste diverted from landfills through recycling

ILLUSTRATIVE CASE STUDY 30

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Voltspire

Primary activity: Value Recovery

Materials covered: Metals

Financial instrument: Project loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Voltspire, a leader in lithium-ion battery recycling and manufacturing, **focuses on recovering and repurposing valuable materials from end-of-life batteries and waste circuit boards**. The company is building a state-of-the-art facility designed to recycle 90,000 electric vehicle battery packs per year while assembling an additional 45,000 new battery packs from recovered and purchased cells.

Reusable battery cells are recovered, repurposed, and reassembled into new battery packs for secondary applications such as energy storage systems. The company aims to produce about 90,000 recycled battery packs annually through this process. In addition, it plans to manufacture 45,000 new battery packs annually using purchased battery cells. Unusable batteries are sorted, dismantled, and recycled to recover valuable metals such as cobalt, nickel, lithium, zinc, and copper. Similarly, waste circuit boards are processed using techniques such as crushing, separation, and pyrolysis[1] to extract these critical materials.

FINANCIAL INSTRUMENT

Voltspire obtained a project loan to **support the development of its lithium-ion battery recycling and assembly facility**. The funds were allocated to building infrastructure, procuring advanced recycling technology, and expanding operational capacity.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is partially eligible for circular economy finance. **Some components of the project align with the circular economy objectives of Value Recovery.** The construction of an electric vehicle lithium-ion battery recycling and assembly facility facilitates Material Recirculation. The facility will recycle lithium-ion batteries and waste circuit boards, recovering valuable metals such as cobalt, nickel, and lithium. This recycling process involves specialized sorting and recycling technologies to prevent and minimize waste and maximize resource recovery. However, the project is only partially eligible for circular economy finance, as a portion of the funds also supports broader production activities that are not directly aligned with circular economy objectives, such as assembling new battery packs from purchased cells.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Number of battery packs produced from recycled batteries
- Number of battery packs sorted
- Reduction in life-cycle greenhouse gas emissions of materials through recycling

1 Pyrolysis is a technique to degrade organic compounds in the absence of oxygen at high temperatures.

ILLUSTRATIVE CASE STUDY 31

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company/project name: Railion

Primary activity: +Circularity Enablers

Additional activities: Circular Use

Materials covered: Metals

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

The train manufacturer Railion offers RailGuard—a predictive maintenance tool that monitors the health of trains, train infrastructure, and signaling systems. **RailGuard is a web-based platform that uses advanced data analytics to extend and maintain the useful life of trains.** The platform uses rule-based algorithms to translate raw data into actionable information, including through the calculation of health indices for the trains, continuously monitoring fleets to prevent service failures. This condition-based and predictive maintenance approach is a shift from traditional mileage-based maintenance. **It reduces material consumption as materials are replaced only when needed.** As a result, there are typically longer periods between maintenance, and the components have a longer lifespan. For example, the lifespan of a wheelset can be extended by up to 25 percent.

The technology has recently been deployed to several tramways, metros, and train systems globally. Although the tool was originally designed to monitor Railion's own fleet and equipment, it is able to incorporate third-party data. For large or dispersed fleets, RailGuard analyzes data from a platform that uses 3D cameras and lasers to monitor and diagnose the performance of wheels, brake pads, and wear-and-tear-prone pantograph carbon strips (the framework that conveys currents to trains from overhead wires).

FINANCIAL INSTRUMENT

Railion obtained a project loan **to scale RailGuard's deployment, enhance the capabilities of the platform, and expand its reach to new markets through partnerships with transportation authorities**. The project is designed to accelerate the adoption of innovative maintenance practices in the rail industry.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project is assessed to be fully eligible for circular economy finance. **Railion's RailGuard tool is an example of a +Circularity Enabler, as it makes use of advanced data analytics to monitor trains for maintenance needs and contributes to Circular Use.** Materials do not have to be replaced as often, given that they are only replaced when needed, reducing the need to extract virgin materials. Additionally, merging data from multiple sources into the RailGuard tool enables precise diagnosis of when components require maintenance and can extend their lifespan.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Reduction in number of components needing to be replaced
- Reduction in raw material extraction for new components
- Lifetime extension of components

AGRIBUSINESS

ILLUSTRATIVE CASE STUDY 32

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: EcoHarvest

Primary activity: Circular Design and Production

Materials covered: Organic nutrients

Financial instrument: Equity (venture capital)

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

EcoHarvest is an agribusiness input producer dedicated to sustainable farming solutions. The company has developed a pioneering approach to nitrogen delivery by engineering soil microbes that convert nitrogen from the atmosphere and deliver it to plant roots as ammonia. By treating seeds with the soil microbes, farmers can reduce synthetic fertilizer inputs by 20 percent on average. Unlike conventional fertilizers that require multiple applications, EcoHavest's microbes continuously "fix" nitrogen, so that the plants receive steady flows and precise amounts of nitrogen throughout the growing season.

The microbes are produced through a fermentation process requiring only sugar, water, and basic nutrients, rather than a complex system of inputs and fossil fuels. Because the microbes bind to the root, leaching and runoff are minimized, resulting in less environmental harm and less wasted product. The manufacturing emissions of microbial nitrogen are only 1 percent the manufacturing emissions of synthetic fertilizer.

FINANCIAL INSTRUMENT

EcoHarvest obtained venture capital funding **to expand its existing research and development efforts, enhance testing facilities, and increase production capacity**. The investment supports broader commercialization of its engineered microbes, allowing greater production capacity. The funding will also support further advancements in microbial technology, ensuring continued improvements in soil health and crop yields while reducing the use of synthetic inputs.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The funding is fully eligible for circular economy finance because the financed activities substantially contribute to a circular economy by designing an alternative to synthetic fertilizer. **The activities meet the criteria for Circular Design and Production because the company is replacing synthetic inputs with a more sustainable alternative through the engineered soil microbes.** The project further meets Circular Production criteria given that funds will be used to implement and expand the use of the engineered soil microbes in its production process.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Reduction in synthetic fertilizer usage
- Reduction in greenhouse emissions through manufacturing microbial nitrogen as compared to manufacturing emissions of synthetic fertilizer

ILLUSTRATIVE CASE STUDY 33

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Sucar S.A.

Primary activity: Circular Design and Production

Additional activities: Value Recovery

Materials covered: Organic materials

Financial instrument: Project loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

Sucar S.A. is a leading producer of sugar, ethanol, and renewable energy. The company cultivates corn and sugarcane, producing sugar for food, ethanol fuel, and industrial-grade ethanol for transport, paints, and cosmetics. **Its regenerative agriculture techniques, including the use of by-products from sugarcane processing and recycling of nutrients, exemplify practices that contribute to a circular economy.**

The company uses by-products from sugarcane processing, such as vinasse and filter cake, as organic fertilizers to enhance soil quality for its sugar plantations. Vinasse, a potassium-rich liquid waste produced during the ethanol distillation process, is used in fertigation.[1] Filter cake, a phosphorus-rich by-product of the sugarcane juice clarification process, is treated and enriched with additional nutrients to create organic fertilizers. Sugarcane bagasse is a by-product from the sugarcane crushing process that can be converted into renewable energy or alternative fibers. Sucar S.A. developed an investment program to expand its renewable energy generation capacity and strengthen its sustainability efforts.

FINANCIAL INSTRUMENT

A project loan was provided to Sucar S.A. to finance the following:

- Bagasse-based cogeneration expansion: The expansion includes the installation of new boilers and equipment and will boost renewable energy production to supply electricity to the equivalent of 46,000 homes per year.
- Renewal and treatment of existing sugarcane fields: Adoption of regenerative agriculture techniques includes the increased use of organic fertilizers derived from sugarcane processing by-products (vinasse and filter cake) and recycling of nutrients as well as deployment of real-time monitoring systems to optimize crop management.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project loan is partially eligible for circular economy finance based on the second component. **The portion of the loan that finances regenerative agriculture techniques is eligible for circular economy finance.** The transformation of sugarcane by-products into organic fertilizers, which are then used as inputs in sugarcane cultivation, directly supports Circular Design and Production. The recycling of these by-products into nutrient-rich organic fertilizers contributes to Value Recovery and improves soil health. The project minimizes waste generation and reduces the need for mineral fertilizers (virgin resources) while providing rich nutrients. These regenerative agriculture techniques positively impact soil microbiology and sugarcane production, increasing agricultural yield and soil lifespan.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of industrial waste used as inputs for biofertilizers
- Area under regenerative agriculture practices (in hectares and % of acreage farmed; increase in %)
- Production covered by regenerative agriculture certification (in tons/year and % of total production; increase in %)
- Reduction in synthetic fertilizer in total fertilizer used (in %) or reduction in synthetic fertilizer use intensity (in kilograms/hectares)
- Improvements in site-specific physical, chemical, and/or biological indicators of soil quality

1 Fertigation is a fertilization technique that delivers nutrients to soil using irrigation water.

ILLUSTRATIVE CASE STUDY 34

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: FreshWrap

Primary activity: Circular Use

Additional activities: Value Recovery

Materials covered: Organic materials

Financial instrument: Equity (venture capital)

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

FreshWrap, an agritech startup founded in 2018, is dedicated to sustainable agricultural innovations that enhance food security and reduce waste. **The company developed an edible coating derived from chitosan, a biopolymer extracted from shrimp shell waste.** This innovative coating forms a tasteless, odorless, and natural protective layer for the surface of fruits and vegetables, helping retain moisture, reduce oxygen exposure, and enhance antibacterial activity. These properties significantly slow spoilage and extend the shelf life of fresh produce, reducing food waste.

In 2023, FreshWrap established three Fresh Hubs at local fruit and vegetable markets, which serve as food recovery and distribution centers, collecting and coating surplus produce that would otherwise be discarded due to overproduction or spoilage. Over a period of three months, nearly 350 kilograms of green beans and cherry tomatoes were rescued and distributed to community organizations. Currently, FreshWrap recovers about 1 ton of food per week and plans to increase this to 3 tons per week. By repurposing shrimp shell waste into its edible coating, FreshWrap **addresses both post-harvest produce loss and seafood industry waste**. Additionally, by extending the shelf life of fruits and vegetables, the company reduces greenhouse gas emissions associated with decomposing food waste.

FINANCIAL INSTRUMENT

FreshWrap is using **pre-seed venture capital funding to scale its edible coating production, establish additional Fresh Hubs, and develop partnerships with farmer groups and community organizations**. The funding fully supports the company's circular economy initiatives, including reducing food waste and reintroducing shrimp shell waste into the value chain.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The venture capital funding is **fully eligible for circular economy finance**, as it is exclusively allocated to the production of the edible coating, the establishment of Fresh Hubs, and the scaling of operations that directly reduce food and material waste. **The edible coating aligns with Circular Use by extending the shelf life of fresh produce**, thereby reducing food waste along the supply chain. **This innovation also contributes to Value Recovery by repurposing shrimp shell waste into a valuable product**, closing material loops, and promoting resource effectiveness.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Reduction of post-harvest loss (metric tons per week)
- Volume of shrimp waste used
- Reduction in greenhouse gas emissions from reduction in food waste

ILLUSTRATIVE CASE STUDY 35

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: Tepo Organics

Primary activity: Value Recovery

Additional activities: Circular Design and Production

Materials covered: Organic materials

Financial instrument: Equity

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

Tepo Organics **collects discarded rice husks from local farmers and uses innovative technology to transform them into high-value organic biochar fertilizer**. This nutrient- and carbon-rich organic biochar fertilizer is then sold back to the same farmers at competitive prices. The overall model is a closed-loop system that reduces agricultural waste, improves soil health, and enhances crop yields.

As of 2024, more than 10,000 farmers had purchased Tepo Organics' fertilizer, which helped farmers increase their earnings because of its high quality. The biochar fertilizer offers several key benefits:

- Reduces soil acidity and improves soil structure.
- Sequesters about 1.7 tons of carbon dioxide equivalent (CO_2e) per acre, contributing to climate change mitigation.
- Increases crop yields by up to 30 percent in a single planting season, boosting farmer productivity.

FINANCIAL INSTRUMENT

Tepo Organics obtained **equity financing to scale its operations** by enhancing its production technology, optimizing supply chain logistics, and increasing outreach to more farmers across the region. Funding will also support research and development efforts to further improve the efficacy of its organic biochar fertilizer, ensuring greater soil health benefits and higher crop yields.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The company's forward-looking revenues are expected to substantially contribute to a circular economy, with **100 percent of the revenues considered eligible for circular economy finance**. The project is assessed to be fully eligible for circular economy finance.

Tepo Organics contributes to Value Recovery by collecting and recovering agricultural waste that would otherwise be discarded, incinerated, or sent to landfills. The company collects these by-products from farmers, uses Circular Production techniques to process the by-products into high-quality organic biochar fertilizer, and sells the fertilizer back to farmers, creating a closed-loop system. The research and development efforts to improve the efficacy of its fertilizer directly contribute to Circular Design. The use of the organic biochar fertilizer reduces the use of primary raw materials for synthetic fertilizer production.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage increase in crop yields per planting season
- Amount of fertilizer produced from by-products
- Amount of agricultural waste collected
- Amount of CO_2e sequestered per acre

ILLUSTRATIVE CASE STUDY 36

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: RegenA

Primary activity: Value Recovery

Additional activities: Circular Design and Production

Materials covered: Organic materials

Financial instrument: Project loan

Eligibility for circular economy finance: Full

COMPANY/PROJECT DESCRIPTION

RegenA is a multinational food and beverage company specializing in dairy products and bottled water. The company developed a **comprehensive regenerative agriculture framework to enhance soil organic matter**, increase soil carbon sequestration, and strengthen biodiversity globally. The Regeneration project is an initiative supporting RegenA's bottled water business in partnership with local farmers and municipalities. The purity of the bottled water relies on a 15-year mineralization process, where water infiltrates through the catchment's topsoil. However, local dairy farming practices, which involve fertilizing cultivated grass with raw manure, posed a significant risk to water quality due to runoff and contamination. To address this, the Regeneration project **developed a methanization unit that processes raw manure into biogas and digestate, a nutrient-rich natural fertilizer**. This solution protects the purity of RegenA's water source while helping local farmers improve soil nutrition practices.

FINANCIAL INSTRUMENT

A project loan was provided to RegenA to finance the Regeneration project and develop a methanization unit. Key features of the project include:

- **Biogas production:** The facility generates nearly 1 million cubic meters of biogas per year, which is refined into biomethane and injected into the local gas network. The energy produced is sufficient to heat 900 homes, and revenue from gas sales covers manure collection and operational costs.
- **Digestate as fertilizer:** The digestate by-product of the methanization is odorless and spread over 75 percent of the agricultural area. It improves soil health while mitigating the risk to water resources.

The project has reduced farmers' fertilizer expenses by 65 percent and eliminates the need to transport and manage raw manure elsewhere, reducing carbon emissions and associated costs. Furthermore, the digestate by-product prevents soil percolation and runoff, safeguarding the purity of RegenA's water source.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The project loan is fully eligible for circular economy finance, given that the use of proceeds directly contributes to a circular economy. The **methanization unit contributes to Value Recovery** by converting raw manure, an agricultural waste product, into digestate—a natural fertilizer better absorbed by plants. While biogas production is a valuable outcome, the circular aspect lies in the repurposing of raw manure into a resource that supports regenerative agriculture and protects RegenA's water purity. Without the construction of a methanization unit, use of the resulting digestate by-product would not be possible. **The project also supports Circular Design and Production by producing organic fertilizer** that promotes regenerative agriculture practices and reduces the reliance on chemical fertilizers within the community.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Percentage of agricultural area where digestate is applied
- Waste that is prevented relative to total waste
- Amount of secondary raw materials and/or by-products recovered
- Reduction in synthetic fertilizer usage

ILLUSTRATIVE CASE STUDY 37

This case study is hypothetical although based on real-world actions. Company names are anonymized.

Company name: AgroLink

Primary activity: +Circularity Enablers

Additional activities: Circular Design and Production

Materials covered: Plastics, organic materials

Financial instrument: Corporate loan

Eligibility for circular economy finance: Partial

COMPANY/PROJECT DESCRIPTION

AgroLink connects smallholder farmers with urban consumers through a digital platform, creating a more streamlined and sustainable food supply chain. **Farmers list organic produce on the platform, while the company manages order consolidation and eco-friendly delivery using reusable containers.** This model minimizes inefficiencies and waste by emphasizing local sourcing and reducing transit times.

Since its inception, AgroLink has prevented about 2 tons of single-use packaging waste through its reusable packaging system. Durable containers are cleaned and reused for subsequent deliveries, eliminating the need for single-use plastics. Additionally, its streamlined supply chain has avoided an estimated 350 tons of food waste by reducing the time from harvest to delivery and limiting the number of stages in the supply chain. Products travel no more than 50 kilometers, with delivery times under 24 hours, ensuring freshness and minimizing spoilage.

AgroLink's platform also creates economic opportunities for smallholder farmers **through the direct-to-consumer model, which increases farmer profits by an average of 20 percent** while fostering education on sustainable farming practices. The initiative encourages the adoption of organic production methods, supporting environmental goals and advancing sustainable agribusiness.

FINANCIAL INSTRUMENT

AgroLink secured a corporate loan to expand its digital platform and enhance its reusable packaging systems. The financing also supports the scaling of logistics infrastructure to optimize delivery efficiency and improve waste management practices.

CIRCULAR ECONOMY FINANCE ELIGIBILITY

The loan is partially eligible for circular economy finance and is prorated based on the portion of AgroLink's revenue streams that contribute to a circular economy. **Some of AgroLink's activities exemplify +Circularity Enablers by creating a more sustainable food supply chain through its digital platform, contributing to Circular Design and Production.** The platform connects farmers directly with urban consumers, reducing food waste through improved demand forecasting. AgroLink's use of reusable containers instead of single-use plastics significantly reduces packaging waste. These activities would be eligible for circular economy finance. However, some of the revenue streams that include product offerings beyond its reusable packaging system and the reduction of food waste would not be considered eligible activities for circular economy finance.

POTENTIAL INDICATORS FOR THIS CASE STUDY

- Reduction in single-use packaging
- Reduction in food waste
- Percentage of packaging reused in operations

Annex I

Circular Economy Guidelines and Framework References

The Harmonized Circular Economy Finance Guidelines draw on the below guidelines and frameworks for circular economy finance and activities to promote market convergence and interoperability. However, this list is not necessarily comprehensive in terms of all existing guidelines and frameworks.

Financing guidelines help users understand when activities that contribute to a circular economy are eligible for circular economy financing.

ABN AMRO, ING, Rabobank: Circular Economy Finance Guidelines

EU: Categorisation System for the Circular Economy

The EU Taxonomy includes the transition to a circular economy as an environmental objective. Technical screening criteria for the transition to a circular economy are included in Annex II of the EU Taxonomy.

Canadian Financial Institutions: Financing the Circular Economy

Intesa Sanpaolo: Green, Social and Sustainability Bond Framework

Colombia: Financing Circular Economy Investments

Peru: Diagnosis of Financing in Circular Investments and Categorization Systems in Circular Economy

Definitions of circular activities help users understand actions that can be taken by corporations and banks to promote a circular economy.

ISO: Circular Economy—Vocabulary, Principles and Guidance for Implementation

UNEP FI: Guidance on Resource Efficiency and Circular Economy Target Setting and Circular Economy as an Enabler for Responsible Banking: Leveraging the Nexus between Circularity and Sustainability Impact

Reporting indicators can both help identify projects or economic activities that meet circular economy criteria and monitor impacts.

ICMA: Suggested Impact Reporting Metrics for Circular Economy and/or Eco-Efficient Projects

Mapping of Harmonized CE Finance Guidelines with EU, Financial Institution (FI), and Country Guidelines

EU RELATED GUIDELINES

	Harmonized CE Finance Guidelines	EU Categorisation System	EU Taxonomy
Audience	FIs, Corporations, Investors	FIs, Corporations, Investors, Policy makers	FIs, Corporations, Investors
Resources Covered	Organic and non-organic materials	Materials, wastewater	Materials, water
Eligibility Criteria	Substantial contribution Alignment with categories Reporting indicator(s) Do no significant harm	Substantial contribution Alignment with categories Specific circularity criteria	Substantial contribution (sector specific) Do no significant harm
Sector Approach	Sector agnostic	Sector agnostic	Sector specific
Activity Categories	Circular Design and Production Circular Use Value Recovery +Circularity Enablers	Circular Design & Production Models Circular Use Models Circular Value Recovery Models Circular Support	Manufacturing Water Supply & Waste Management Construction & Real Estate Information & Communication Services

FINANCIAL INSTITUTIONS WITH GUIDELINES

	Harmonized CE Finance Guidelines	ABN AMRO/ING/Rabobank	Intesa Sanpaolo
Audience	FIs, Corporations, Investors	FIs, Corporations, Investors	Internal framework, Corporations, Investors
Resources Covered	Organic and non-organic materials	Materials	Materials, energy
Eligibility Criteria	Substantial contribution Alignment with categories Reporting indicator(s) Do no significant harm	Business model assessment Impact assessment ESG policies and criteria Exclusions and conditions	Alignment with categories Do no significant harm Minimum social safeguards
Sector Approach	Sector agnostic	Sector agnostic	Sector agnostic
Activity Categories	Circular Design and Production Circular Use Value Recovery +Circularity Enablers	Circular Inputs Circular Design Sharing Business Models Life Time Extension Product-As-A-Service Material/Resources Recovery Circular Facilitators and Enablers	Extension of product life or cycles of use Circular production processes Circular products and/or services Circular design and manufacturing Circularity enablers

COUNTRY-SPECIFIC GUIDELINES

	Harmonized CE Finance Guidelines	Canada	Colombia	Peru
Audience	FIs, Corporations, Investors	Canadian FIs, Corporations	Colombian FIs, Corporations, Policy makers	Peruvian FIs, MSMEs, Policy makers
Resources Covered	Organic and non-organic materials	Materials, energy, water	Materials, energy, water	Materials, energy, water
Eligibility Criteria	Substantial contribution Alignment with categories Reporting indicator(s) Do no significant harm	Alignment with categories Country-specific technical screening criteria Do no significant harm	Alignment with categories Exclusion filters Social and environmental standards	Alignment with categories Exclusion filters Social and environmental standards
Sector Approach	Sector agnostic	Sector agnostic	Sector agnostic	Sector agnostic
Activity Categories	Circular Design and Production Circular Use Value Recovery +Circularity Enablers	Circular Design & Production Circular Usage Life Extension Value Recovery Enabling Platforms & Services	Waste Valorization Circular Design Models Life Cycle Extension Products as a Service Models Technology Platforms Facilitating Services	Waste Valorization Circular Design Models Life Cycle Extension Products as a Service Models Technology Platforms Facilitating Services

Annex II

Terms and Definitions

The following terms and definitions are provided by Circulytics, the International Resource Panel (IRP), or the United Nations (UN).

Anaerobic digestion (Circulytics): Microbial breakdown of organic matter in the absence of oxygen, under managed conditions to release biogas (methane) and digestates (or biosolids that can be used as fertilizers). Anaerobic digestion must meet the *qualifying conditions for nutrient recirculation.*

By-products (Circulytics): An inevitable result of certain types of material processing and agriculture. In a circular economy all by-products can be feedstock for another production process.

Composting (modified from Circulytics): Microbial breakdown of organic matter in the presence of oxygen. In a circular economy, composting can be used to convert food by-products and other biodegradable materials into compost, which can be used as a soil enhancer. Composting must meet the *qualifying conditions for nutrient recirculation.*

Mixed farming (UN): Mixed farming that combines crop cultivation with animal husbandry offers additional opportunities to deepen circular agriculture. Use of locally produced feed and manure instead of imports and chemical fertilizers, for example, can contribute to reduced CO_2 emissions of agriculture.

More intensive use (IRP): It implies that less product is required to provide the same service. In the case of vehicles, ride sharing (car-pooling) and car sharing imply that fewer vehicles are used more intensively to provide transport services to a given population. For buildings, both higher utilization rates, for example, through peer-to-peer lodging, smaller, more efficiently designed residential units, and increased household size/cohabitation can achieve a reduction of building space required.

Non-virgin (Circulytics): Materials that have been previously used, including in products that have been reused, refurbished, or repaired, components that have been remanufactured, and materials that have been recycled. They are also known as secondary materials.

Qualifying conditions for nutrient recirculation methods (Circulytics):

- Other end-of-use options for the material, besides landfill and incineration, have been investigated and found to be not feasible on technical or economic grounds;
- The material is from a biological source;
- The material does not cause harm to human health or the environment during or after use and is completely uncontaminated by materials that may cause harm to human health or the environment during or after use (including coatings, preservatives, and fillers, except when these are demonstrably inert and non-toxic, and other materials of biological origin which do not adhere to these qualifying conditions);
- If energy generation is involved in this process, it should be usefully employed;
- The products of the process are themselves 100 percent biologically beneficial (for example, as a soil conditioner), and are not detrimental to the ecosystems to which they are introduced.

Recirculation (Circulytics): Recirculation is the action of keeping products and materials in the economy after their initial use. Processes, such as composting, anaerobic digestion, or others that meet the qualifying conditions of nutrient recirculation, can be used to recirculate materials that are designed to be consumed. Recirculation excludes discharges to land, water, or air that threaten the environment or human health. Products and materials that are designed to be used may, after their initial use, get recirculated through reuse/redistribution, maintenance/repair, refurbishment/remanufacturing, or recycling, and in some cases composting or anaerobic digestion after use. Recirculation excludes incineration or discharges to land, water, or air that threaten the environment or human health. Recirculation "in practice" means the recirculation is truly occurring, as opposed to a product or material simply being designed for recirculation in theory. This may require tracking, particularly if the products or materials are no longer in company ownership.

Recycling (Circulytics): Reduce a product all the way back to its basic materials, reprocessing and using them to make new products, components, or materials. Significant value and embedded energy is lost in the process. In a circular economy, recycling is the last resort action.

Refurbish (Circulytics): Return a product to good working order. This can include repairing or replacing components, updating specifications, and improving cosmetic appearance. For example, a sofa can be refurbished by replacing a worn cover with a new one, perhaps with a more modern design.

Remanufacture (Circulytics): Re-engineer a component to an as-new condition with the same level of performance and warranty as a newly manufactured one.

Renewable materials (Circulytics): Materials that are continually replenished at a rate equal to or greater than the rate of depletion (compare ISO 14021: Environmental labels and declarations—Self-declared environmental claims, Type II environmental labelling). Renewable materials include, for example, cotton, hemp, maize, wood, wool, leather, agricultural by-products, nitrogen, carbon dioxide, and sea salt. To fit in a circular economy, such materials (where relevant) must be produced using regenerative production practices. Note that bio-based materials are not necessarily renewable. Examples of bio-based materials not considered renewable are oil and peat.

Reuse/redistribute (Circulytics): The repeated use of a product or component for its original intended purpose without significant modification, but potentially involving cleaning or small adjustments so it is ready for the next use.

Secondary material (IRP): A secondary material has already been used and recycled (= recycled material). It refers to the amount of the outflow which can be recovered to be reused or refined to re-enter the production stream. One aim of dematerialization is to increase the amount of secondary materials used in production and consumption to create a more circular economy.

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