

**Principles for
Responsible Banking:**
Guidance for banks

UN 
environment
programme

finance
initiative

Principles for
Responsible Banking

Circular Economy as an Enabler for Responsible Banking

Leveraging the Nexus between
Circularity and Sustainability Impact

July 2024

Disclaimer

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Mention of a commercial company or product in this document does not imply endorsement by the United Nations Environment Programme or the authors. The use of information from this document for publicity or advertising is not permitted. Trademark names and symbols are used in an editorial fashion with no intention on infringement of trademark or copyright laws.

The views expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations Environment Programme. We regret any errors or omissions that may have been unwittingly made.

© Maps, photos and illustrations as specified

Suggested citation: United Nations Environment Programme (2024). *Circular Economy as an Enabler for Responsible Banking: Leveraging the Nexus Between Circularity and Sustainability Impact*, Geneva.

Production: United Nations Environment Programme Finance Initiative.

Cover image: elements.envato.com/user/NomadSoul1

Authors

UNEP FI lead authors

Peggy Lefort, Kavita Sachwani, Simona Weber

UNEP FI project team and reviewers

Careen Abb, Jesica Andrews, Johanna Dichtl, Claudia Florowski, Costanza Ghera, Romie Goedicke den Hertog, Sarah Kemmitt, Simon Messenger, Vanesa Osuna, Joana Pedro, Alexander Charles Stopp, Christian Stubbe Olsen.

Acknowledgements

The report is co-developed with member banks and partners based on discussions and work undertaken in UNEP FI's Principles for Responsible Banking (PRB) Working Group on *the nexus between circular economy and climate, nature, pollution and healthy and inclusive economies*.



We wish to acknowledge the active participation of, and contribution made by, the Ellen MacArthur Foundation, Circle Economy Foundation, Bocconi University, GREEN Research Center, Global ABC, Life Cycle Initiative, One Planet Network, UNOPS, UNEP Cities Unit, UNEP Sustainable Consumption and Production Unit, UN Alliance for Sustainable Fashion, 2050cloud.

Acronyms and abbreviations

BAT	Best Available Techniques
CDP	Carbon Disclosure Project
CSRD	Corporate Sustainability Reporting Directive
CTI	Circular Transition Indicators
E&S	Environmental and social
EFRAG	European Financial Reporting Advisory Group
EPR	Extended Producer Responsibility
ESG	Environmental, social and governance
ESRS	European Sustainability Reporting Standards
EU	European Union
GFANZ	Glasgow Financial Alliance for Net Zero
GHG	Greenhouse gas
GRI	Global Reporting Initiative
ICT	Information communications technology
IDB	Inter-American Development Bank
ILO	International Labour Organization
IPBES	Intergovernmental Panel on Biodiversity and Ecosystem Services
ISSB	International Sustainability Standards Board
KPI	Key performance indicator
KYC	Know Your Customer
LCA	Life cycle assessment
MDB	Multilateral development bank
NDCs	Nationally Determined Contributions
PaaS	Product as a Service
PD	Probability of default
PRB	Principles for Responsible Banking
SBTi	Science Based Targets initiative
SBTN	Science Based Targets Network
SMEs	Small and medium-sized enterprises
SDGs	Sustainable Development Goals
TCFD	Task Force on Climate-Related Financial Disclosures
TNFD	Taskforce on Nature-related Financial Disclosures
TPT	Transition Plan Taskforce

TSC	Technical Screening Criteria
UNEP	United Nations Environment Programme
UNEP FI	United Nations Environment Programme Finance Initiative
WBCSD	World Business Council for Sustainable Development
WCEF	World Circular Economy Forum
WWF	World Wide Fund for Nature



Contents

Acronyms and abbreviations	iv
Executive summary	vii
1. Introduction.....	1
2. Principles of a circular economy.....	2
2.1 Eliminate waste and pollution	3
2.2 Circulate products and materials at their highest value	4
2.3 Regenerate nature	4
3. Circular economy in the policy and regulatory landscape.....	5
4. Circular economy in banks' Principles for Responsible Banking journey	8
4.1 Risks associated with linear and circular business models.....	9
4.2 Opportunities in financing circular solutions.....	10
4.3 Managing interlinkages between circular economy and other impact areas.....	11
4.4 Key actions by banks to manage interlinkages	13
5. Interlinkages between the circular economy and other sustainability objectives	20
5.1 Circularity and climate mitigation and adaptation	22
5.2 Circularity and nature.....	24
5.3 Circularity and pollution and waste.....	26
5.4 Circularity and healthy economies	27
5.5 Circularity and inclusive economies	30
6. Outlook.....	32
References	33
Annex: Case studies on operationalising the nexus between circular economy and environmental and social impact	39



Executive summary

The circular economy replaces the linear “take-make-waste” economic model with strategies that minimise waste and pollution, extend the lifespan of materials and regenerate nature. These strategies aim to conserve valuable resources from products and materials, slowing down consumption and production loops, and shifting to new service-based business models. Taking a circular approach can enable and accelerate the transition to a more resilient economic system, bridging different sustainability goals and providing practical and viable business solutions. However, this transition requires mainstreaming circular business models and significant financing, making private investment crucial for its success.

As the concept of a circular economy moves up the agenda of policymakers and businesses, it is increasingly important for the financial sector to understand its interlinkages with other impact areas. It is undisputed that financial institutions are mainstreaming climate change and other environmental, social and governance (ESG) issues, however, the focus needs to shift to how to accelerate real-world impact. The circular economy is a crucial enabler in facilitating this transition. Mainstreaming circularity not only offers opportunities for financial institutions to deliver on climate commitments and other environmental and social objectives, but also allows them to tap into sources of new and better growth, long-term value creation and competitive returns while prudently addressing the long-term risks associated with linear business models.

This report aims to identify and operationalise the nexus between circular economy and climate, nature, pollution, and healthy and inclusive economies. It describes the principles of a circular economy and provides an overview of the rapidly evolving policy and regulatory landscape that is supporting the transition to a circular economy, thus making compliance more relevant for banks than ever before. This report focuses on how banks can integrate supporting the transition to a circular economy into their Principles for Responsible Banking journey, while creating synergies with other impact areas. Banks are encouraged to take action on internal policies and processes, client engagement, portfolio composition and financial flows, and advocacy and partnerships. For each of these areas, this report recommends concrete actions that banks can take to integrate circularity into policies and processes and increase funding for circular solutions and opportunities across the value chain—including circular design and production, circular use, circular value recovery and circular support. It is not only about investing in perfectly circular companies, but also about engaging with and encouraging companies in every industry to make the transition to a circular economy.

This report is the first in a series of publications aimed at setting the scene and providing a general overview on operationalising the nexus between circular economy and climate, nature, pollution, and healthy and inclusive economies. Subsequent papers will focus on providing guidance for banks on the interlinkages with each of these sustainability topics, starting with climate mitigation—a key agenda item for banks. The series also includes sectoral supplements for high-impact sectors with high circularity potential, starting with buildings and construction, and textiles. Each sectoral supplement includes concrete actions on how banks can integrate supporting circular solutions into their climate transition plans.



1. Introduction

Six of the nine key “planetary boundaries” that measure environmental health across land, water and air have been broken—largely due to the impacts of the current linear “take-make-waste” economy. Meanwhile, the global economy’s material consumption continues to rise. Since 2018, we have consumed more than half a trillion tonnes of materials—nearly as much as was consumed in the entire 20th century (Circle Economy, 2024). As the current linear take-make-waste economic model reaches its limits—causing environmental damages estimated at USD 5 trillion to USD 7 trillion (Dasgupta, 2021)—the circular economy has emerged as an alternative model beneficial to our economy, society and planet. It revolves around the idea of designing out waste and pollution, prolonging the lifespan of materials to maximise the value of products and resources for as long as possible, and regenerating nature to create long-term value (Ellen MacArthur Foundation, n.d.c.). It thereby offers the potential to decouple economic activity from natural resource use, which is crucial given that the current consumption of resources is at the centre of the triple planetary crisis of climate change, biodiversity loss and pollution. Alongside these principles, the transition to renewable energy, respect for local communities, social inclusion and economic resilience are all integral to this vision. The circular economy thereby offers an integrated approach that has shown significantly greater positive effects than tackling the environmental, social and economic agenda separately (UNEP, International Resource Panel, 2024).

The circular economy has significantly gained in prominence—the volume of discussions, debates and articles on the concept has almost tripled over the past five years. At the same time, circularity on a global level is in decline, from around 9 per cent in 2018 to 7 per cent in 2023—a 21-per-cent drop in five years (Circle Economy, 2024). Funds flowing to circular activities, projects and clients also remain marginal compared to funding of traditional linear businesses, despite their negative environmental and social impacts. This is exacerbated by the absence of international standards and a lack of awareness of the benefits of circular business models among financial institutions.

This report explores and aims to manage the intrinsic connections between the circular economy and other impact areas underscoring the circular economy’s pivotal role in addressing the most pressing global environmental and social challenges. It is paramount that financial institutions recognise circularity increasingly not as a standalone concept but as an indispensable enabler of a more resilient, sustainable and equitable future for all. This allows them to navigate the emerging regulatory landscape and shifting consumer demands, de-risk portfolios, create new business opportunities and align with broader sustainability goals for climate, nature, pollution and more healthy and inclusive economies.

2. Principles of a circular economy

Circularity is a holistic approach to socioeconomic growth that maximises resource efficiency through the promotion of sustainable production and consumption practices. It involves ensuring that products and materials are retained at their highest value. This requires rethinking how products are designed to extend their useful life and value, and reusing, repairing or repurposing end-of-life materials in manufacturing processes to reduce or eliminate waste, as summarised in Figure I. Figure II illustrates the hierarchy of circular strategies, from less preferred downstream solutions (such as R8 Recycle, R9 Recover) to more preferred upstream solutions (such as R2 Reduce, R3 Reuse). According to this hierarchy, energy recovery (R9) should only be considered a circular strategy when options R1 through R8 are not viable. This approach ensures that products and materials are maintained at their highest value throughout their lifecycle.

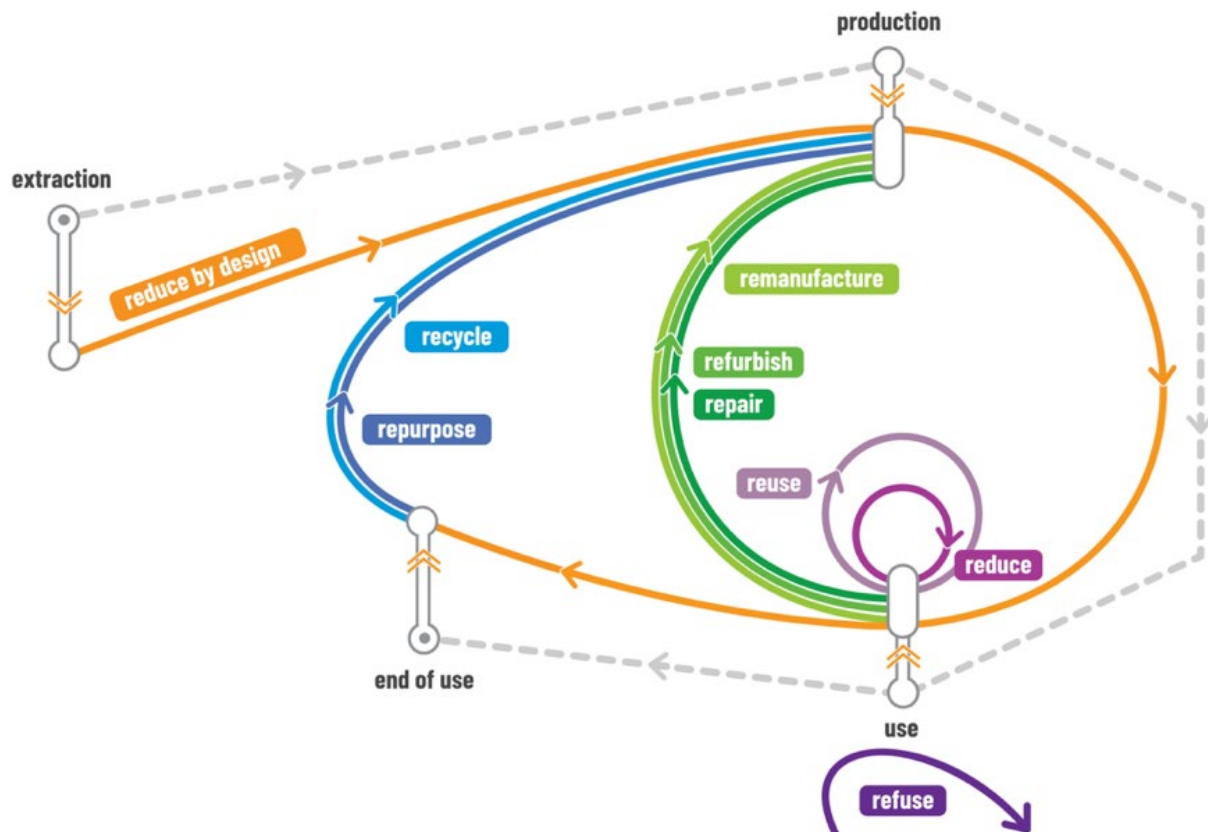


Figure I: Circularity builds upon value-retention loops, as shown in the UNEP circularity approach. Source: UNEP circularity platform (buildingcircularity.org)

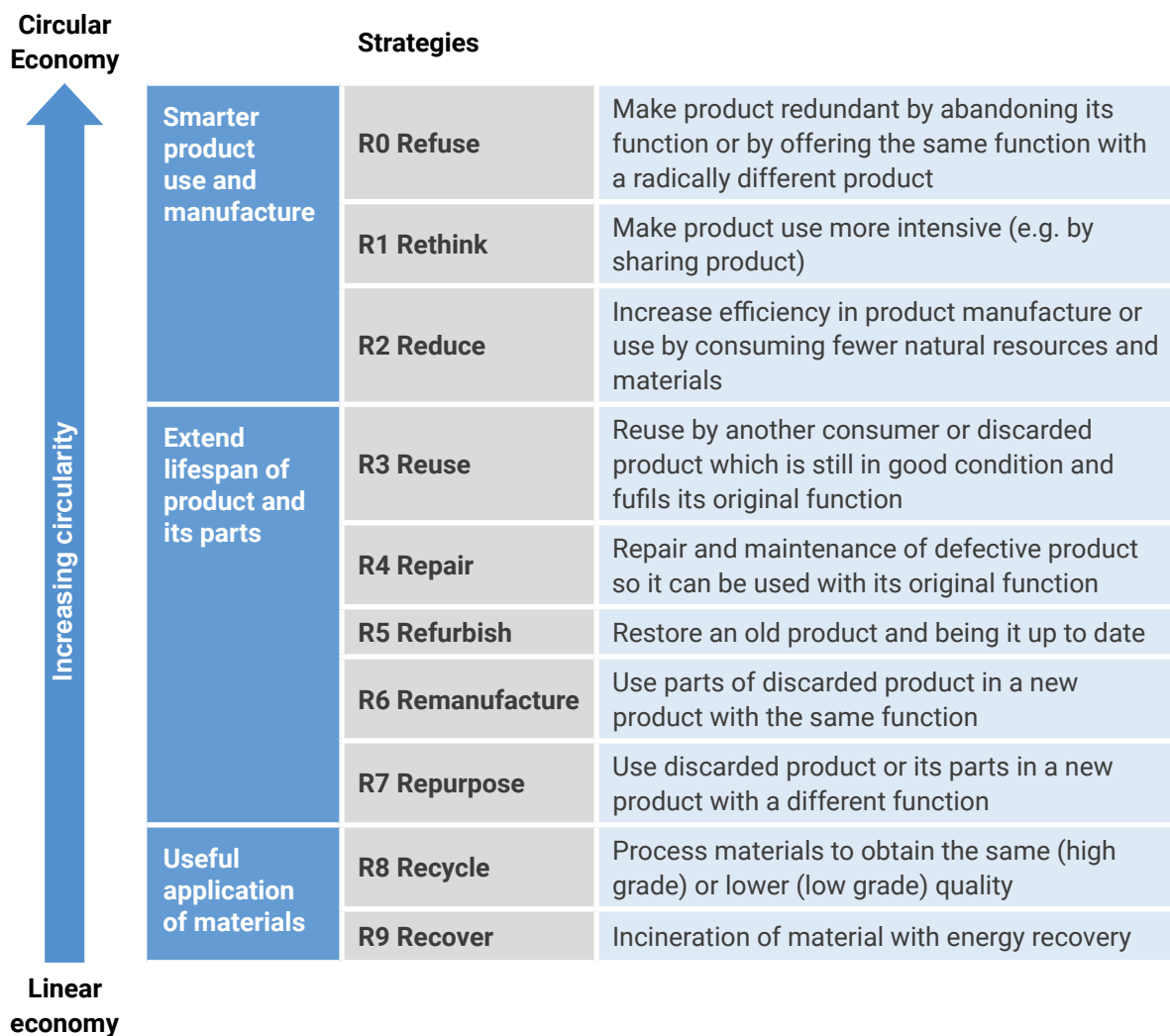


Figure II: The hierarchy of circular strategies (Khanna, et al., 2022).

This section outlines the key principles that underpin the circular economy, driven by design (Ellen MacArthur Foundation, n.d.c).

2.1 Eliminate waste and pollution

The circular economy emphasises a strategic shift from our current take-make-waste system to a circular system that eliminates waste and pollution. This shift is mostly driven by design and involves the implementation of innovative processes and technologies that can reduce inefficiencies across the value chain and repurpose or extract value from materials that would otherwise be discarded. By avoiding premature disposal and encouraging a more efficient and extended utilisation of available resources, the demand for new raw materials and overall environmental impact of manufacturing can be significantly reduced. By focusing on upstream design, waste can be eliminated before it is even created. Examples include strategies such as lightweighting of components, modular design and design for repair and deconstruction, reducing plastic packaging and minimising the release of toxic substances to the environment.

2.2 Circulate products and materials at their highest value

Circulating materials and product components at their highest value simultaneously reduces both input costs and the cost of waste disposal and treatment. Key strategies include reusing, refurbishing, upgrading and recycling, which are all geared towards extending the life cycle of products and preserving their inherent value. Another important principle is to keep finite materials in use and to create products with durability, reconfigurability and reparability in mind. Innovations that contribute to the longevity of products include modular designs, design for easy disassembly and the use of recyclable materials. For instance, a growing number of companies are adopting innovative solutions to keep materials in circulation or safely return them to the environment, including reusable or biodegradable packaging. In addition, businesses might increasingly shift from selling products to providing services and products-as-a-service, such as outcomes/performance models and sharing or leasing solutions, thus remaining responsible for the product's entire life cycle. This approach promotes easy maintenance, upgrades and eventual recycling, thereby fostering more sustainable consumption patterns. By doing so, fewer virgin materials need to be extracted, reducing the strain on natural ecosystems and mitigating the depletion of finite resources that lies at the centre of the triple planetary crisis.

2.3 Regenerate nature

Natural capital is the world's stock of natural resources, which includes geology, soils, air, water and all living organisms. Some natural capital assets provide people with free goods and services, so-called ecosystem services. All of these underpin our economy and society, and thus make human life possible. With habitat destruction, climate change, pollution and overexploitation, we are losing species at an alarming rate—the World Wide Fund for Nature (WWF) Living Planet Report (Almond, *et al.*, 2022) estimated a 69-per-cent average decline in wildlife populations since 1970. Inaction is a material risk—in the Global Risks Report 2024 (World Economic Forum, 2024) biodiversity loss and ecosystem collapse has been identified as one of the top five risks over the next ten years. Given the current extent of nature loss, the focus should not only be on preserving and conserving nature but also on supporting solutions that actively improve nature. The third principle of the circular economy therefore aims at shifting away from extracting finite natural resources to preserving and regenerating natural capital. This includes less land-use change/conversion for sourcing new materials, reduced reliance on synthetic substances and regenerative farming practices to improve soil health, increase biodiversity and reduce environmental impact.

3. Circular economy in the policy and regulatory landscape

In today's rapidly evolving policy landscape, financial institutions (including banks) face increasing pressure from clients, investors, regulators and the public to align their operations with international frameworks such as the UN Sustainable Development Goals (SDGs). The circular economy can help banks comply with the provisions under international environmental treaties, such as the Paris Agreement, the Kunming-Montreal Global Biodiversity Framework, the Global Framework on Chemicals, or the upcoming UN legally binding instrument to end plastic pollution currently under negotiation, for which the mandate has been given by the UN Environment Assembly (UNEA 5.2) to negotiate an instrument taking into account the full life cycle of plastics, including through circular economy solutions.

In addition to global and regional initiatives, countries are increasingly establishing and implementing national policies to support the development of circular business models, resource efficiency and infrastructure for waste collection and treatment. Extended Producer Responsibility (EPR) measures, eco-design standards and resource efficiency standards (such as the proposed EU Ecodesign for Sustainable Products Regulation) (OECD, 2019) have proven effective at tackling unsustainable resource use and emissions in the most polluting industries.

Most countries have now implemented a waste management and recycling policy, while a growing number of governments are enacting more holistic circular economy policies, roadmaps and action plans (EY, 2022). More and more countries are incorporating circular economy strategies into their Nationally Determined Contributions (NDCs) towards achieving the goals of the Paris Agreement (UNEP, UNDP and UNFCCC Secretariat, 2023). The [Circulareconomy.earth](#) (Chatham House, n.d.) platform by Chatham House presents an overview of existing policies relating to the circular economy, providing evidence of the fast-developing regulatory landscape. Of the 75 policies listed—27 national calls to action, 30 roadmaps and 18 operational strategies—71 were launched since 2016, which reveals a significant acceleration in the last years (Chatham House, 2024). While only 27 per cent of NDCs mention circular economy in their mitigation measures (UNEP, UNDP and UNFCCC Secretariat, 2023), this number is steadily increasing. In view of the rapidly evolving regulatory and policy interventions in this space, it is imperative for banks to initiate first steps to integrate circular economy considerations into their business practices.

Further regulations and policies to incentivise a circular economy and disincentivise a linear economy to discourage unsustainable resource use are expected, due to benefits in terms of efficiency in production and innovation. This could involve a redirection of public subsidies, or the use of fiscal instruments such as a tax on waste and the impacts caused by virgin resource extraction, whose revenues could be redistributed to finance the achievement of SDGs (UNEP, International Resource Panel, 2024). Circular economy principles are also starting to be embedded within sustainable finance regulations, particularly green finance taxonomies that serve as classification systems, double materiality impact reporting and increased environmental and social due diligence requirements. Several stakeholders including China, the EU, Russian Federation, South Africa, South Korea, Colombia, Malaysia, Mongolia and Sri Lanka have already adopted sustainable finance taxonomies, while others are being developed in countries including Argentina, Australia, Chile, India and Mexico (World Wide Fund for Nature, 2022).

The recent integration of circular economy metrics in key reporting standards and emerging reporting frameworks will also help companies assess their circular economy performance and understand the value and impact of their circular economy activities. Figure III provides an overview of existing disclosure initiatives related to the circular economy—whether they have mandatory or voluntary status currently, their approach to materiality and the type of metrics. Although many of these frameworks currently are voluntary in nature and standardisation around key metrics is still missing, including circularity criteria into reporting and measurement will be a strategic asset for companies given the rapidly evolving reporting landscape (Ellen MacArthur Foundation, 2024).

Initiative	Voluntary/mandatory status	Materiality	Metrics related to Eliminate (E), Circulate (C), Regenerate (R)	Circular economy definition is aligned with the Foundation's definition
CDP	Voluntary	Double	E, C, R	Aligned
Circelligence (BvCG)	Voluntary	Impact	E, C	Aligned
Circle Economy	Voluntary	Double	E, C	Aligned
Circulytics	Voluntary	Double	E, C, R	Aligned
CTI	Voluntary	Double	E, C	Aligned
EFRAG	Voluntary	Double	E, C, R	EU definition
EU CSRD/ESRS	Mandatory	Double	E, C, R	EU definition
EU Taxonomy	Mandatory	Double	E, C	EU definition
GHG Protocol	Voluntary	Impact	E, C	Circular economy not referred to or defined
GRI	Voluntary	Impact	E, C, R	Own definition
ISSB	Voluntary	Financial	E	Similar
SBTi	Voluntary	Impact	E	Circular economy referred to but not defined

SBTN	Voluntary	Impact	E, R	Circular economy referred to but not defined
TCFD	Voluntary	Financial	E	Own definition
TNFD	Voluntary	Double	E, R	EU definition
TPT	Voluntary	Financial	E	Circular economy not referred to or defined

Figure III: Disclosure initiatives that relate to the circular economy.

Source: Ellen MacArthur Foundation, 2024.

Globally, the EU has been widely regarded as one of the most advanced regions regarding the circular economy, and its regulations demonstrate the strong link between the circular economy and other sustainability topics. In 2020, the European Commission adopted the Circular Economy Action Plan (European Commission, 2020) as part of the European Green Deal (European Commission, n.d.b). In addition, the transition to a circular economy is one of the six main objectives in the EU Taxonomy (European Commission, n.d.a), together with climate change mitigation and adaptation, water use, pollution and biodiversity.

Furthermore, the recently enacted Corporate Sustainability Reporting Directive (CSRD) (European Commission, 2022) requires large companies and listed companies, including banks and listed small and medium-sized enterprises (SMEs), to disclose non-financial information related to environmental, social and governance (ESG) factors, aiming to enhance transparency and accountability in their operations and promote sustainable business practices. Companies subject to the CSRD will have to report according to European Sustainability Reporting Standards (ESRS). These include a standard on resource use and circular economy (ESRS E5), in addition to four other related environmental standards (ESRS E1 on climate, ESRS E2 on pollution, ESRS E3 on water and ESRS E4 on biodiversity and ecosystems).

ESRS E5 focuses on material flows, including the circularity of material resource inflows, considering waste, renewable and non-renewable resources and resource outflows. Although ESRS E5 is tailored to the European context, its circular economy principles are globally relevant. Non-European banks can benefit from adopting ESRS E5 to align their reporting and business practices with international sustainability standards and enhance transparency and accountability to stakeholders. A mapping of ESRS E5 metrics against circularity metrics can be found in Ellen MacArthur Foundation’s report “Navigating the circular economy reporting landscape” (Ellen MacArthur Foundation, 2024). ESRS E5 and other circularity-related policies are a good starting point, and companies will benefit from going beyond these regulations—notably with regard to reporting on performance related to regenerating nature and circular design.

4. Circular economy in banks' Principles for Responsible Banking journey

The transition to circular economies could generate USD 4.5 trillion in annual economic output by 2030 (Accenture Strategy, 2015). Financial institutions such as banks play a critical role in accelerating this transition by providing financial products and services that enable businesses to adopt circular business models, conserve natural resources and avoid or reduce waste (UNEP, 2020). They may also provide SMEs with the necessary resources and networks to drive innovation in cutting-edge technologies, optimal resource use and alternative materials with lower environmental impacts. In addition, banks can create synergies along the value chain by engaging with their clients, increasing business awareness, improving the identification of circular opportunities across value chains and fostering circular economy networks. Figure IV provides an overview of the key sectors for driving circular economic models—sectors that are particularly resource intensive or that involve heavy or toxic waste production.

Key sectors for banks and circular economy	
Agriculture, logging and fishing	The primary sectors of the economy (agriculture, forestry, fishing, mining and quarrying) extract materials (for example, biomass, metal ores, non-metallic minerals, fossil fuels) from the natural resource base, which are then turned into the basic commodities required for various major economic activities (for example, construction, transportation, manufacturing). Waste is generated at all steps in the life cycle of materials and products, including emissions to air and water.
Mining and quarrying	
Manufacturing	
Electricity and gas supply	
Construction	
Transport	
ICT activities	
Waste management	

Figure IV: Key sectors table for banks and circular economy, derived from the UNEP FI Sector Mappings (UNEP FI, 2024b)

Many banks still lack awareness and expertise on the principles of the circular economy, including potential products and services they could offer to their clients. This can be explained by the fact that the circular economy remains a nascent topic with less guidance and methodologies available compared to other topics such as climate mitigation. It is therefore paramount to better understand the risks and opportunities involved in financing circular activities, projects and clients (4.1 and 4.2), to manage interlinkages between circular economy and other impact areas (4.3), and to identify key actions that banks can take to operationalise interlinkages (4.4).

4.1 Risks associated with linear and circular business models

Circular business models are less well known and understood than linear business models, and often rely on innovative models or technologies. Companies adopting circular business models and strategies therefore face similar risks to new technologies and innovative business models, including the absence of track records, which makes it harder to estimate future expected profits. Coupled with limited consumer awareness of circular products as well as weak supporting infrastructure for reversed product and material flows, this impairs the perceived competitiveness of these products relative to their linear counterparts and creates a perception of higher risk on financing into the space. This is heightened by limited data availability, a lack of common standards and metrics, and inadequate risk assessment models (UNEP, 2023a). This is primarily due to companies' uncertainty about the data required and lack of established data collection mechanisms, exacerbated by an inconsistent approach to data collection and analysis and a narrow focus on recycling and resource management. While metrics around resource management are more common, there is still a lack in metrics related to circular product design, business models and regenerating nature (Ellen MacArthur Foundation, 2024).

The Product as a Service (PaaS) model—a service-centric business model that bundles physical products and service contracts into subscription or pay-per-use offerings—may also introduce new types of risk compared to conventional sales models. It involves selling the functionality of a product rather than the product itself (for example through lease, subscription or pay-for-use arrangements). The property rights therefore remain with the supplier, which might create new types of risk that banks need to understand and assess with regard to contract, usage, creditworthiness of consumers, moral hazard and limited collateral security (ING, 2020). In addition, established businesses willing to increase the circularity of their activities may face other risks linked to the need to adapt their processes and practices, which can require new investments and financial risks.

At the same time, financial institutions may overlook **risks associated with financing linear businesses** in comparison with financing more circular businesses. The open-source Circular Risk Scorecard (Circular Risk Scorecard, n.d.), developed by a group of Dutch financial institutions with the Central Bank of the Netherlands, aims to collect data to demonstrate that the risks of circular businesses are currently overestimated, while the opportunities are not adequately considered in financing or investment decisions. This is partly the result of backward-looking risk models used by financial institutions. Research has shown that continued investment in linear business activities is expected to result in trillions of dollars of stranded assets for the financial sector (The London School of Economics and Political Science, Grantham Institute on Climate Change and the Environment, 2022). The potential downside risk of businesses reliant on the availability of cheap virgin resources and a take-make-waste business model is expected to become even higher in the future, as competition for critical raw materials intensifies. By continuing to invest in traditional businesses that are characterised by a take-make-

waste approach, banks may also increasingly face regulatory and reputational risks that may result in significant financial liabilities. This is further fuelled by the rapidly evolving regulatory and policy landscape on the circular economy, as explained in Section 3.

It is therefore important for banks to build a better understanding through active client engagement and collect data to assess risks related to the circular economy, compared to risks related to current linear models (market risks, operational risks, business risks and legal risks (Circle Economy, PGGM, KPMG, EBRD, and WBCSD, 2018)). In this way, linear risk factors are similar to risk factors developed in the Climate and Environmental Risks (C&ER) classification introduced by the European Central Bank (ECB, 2020). Digging deeper, ECB asks financial lenders to include C&ER in their credit risk process and, inside the climate risks category, it introduces the transition risk class. Climate transition risk refers to the risk that a given asset—such as a non-financial undertaker—will be progressively stranded due to the lack of action toward a zero-emission scenario by 2050 or it incurs in relevant costs for alignment. Missing the transition implies facing risks generated by factors related to legal compliance, market demand, technological advancements, reputation, and access to capital markets. Due to the overlap between linear risk factors and transition risk factors, a circular economy can be a viable solution for effectively managing transition risks.

In addition, development financial institutions and governments are increasingly providing de-risking instruments as well as innovative financing products, which can improve the bankability of circular projects and catalyse more investments from private financiers. Latitud R is an example of a blended finance scheme where the Inter-American Development Bank (IDB) provided support for the design and implementation of projects that contributed to the development of inclusive recycling systems in Latin America and the Caribbean, seeking to improve the quality of life of informal recyclers and to increase recycling levels in municipal solid waste management programmes (IDB, 2021).

4.2 Opportunities in financing circular solutions

Improved risk management is often stated as the readiest area of opportunity for banks, as financing circular activities, projects and clients can help them de-risk their portfolios. This is a result of reduced exposure to supply chain disruptions, resource scarcity and volatility of resource prices, which leads to increased resilience in the long term. It also allows banks to reduce the exposure of their actual portfolio to the linear risks presented in Section 4.1 and proactively manage their investments, by moving assets from linear portfolios that become progressively stranded to new circular portfolios that are internally hedged from linear risks. This helps banks align their portfolio with environmental, social and governance (ESG) criteria, preparing them for a future where sustainable finance principles are increasingly integrated in investment considerations. An analysis of more than 200 companies across 14 industries has confirmed that the more circular a company is, the lower its risk of default on debt over both a one-year and five-year time horizon (Ellen MacArthur Foundation, Bocconi University, and Intesa Sanpaolo, 2021). In addition, research suggests that facing a massive shock like the Covid-19 crisis, companies that were more circular were also more resilient and performed better in the after-shock phase (Zara & Bellardini, 2023).

Besides a comprehensive de-risking effect, **new revenue opportunities and exposure diversification opportunities** arise for banks investing in circular activities, projects and clients—for example, green project financing, leasing and green corporate bonds. Investing in circular projects and businesses also allows banks to tap into emerging markets and sectors driven by innovations in sustainability, including renewable energy, resource recovery, sustainable agriculture and eco-friendly manufacturing. These sectors present new opportunities for growth and profitability, from waste management and recycling technologies to green chemistry and clean manufacturing processes.

In addition, higher levels of circularity can drive **superior risk-adjusted returns**, as research on the stock performance of European-listed companies has shown (Ellen MacArthur Foundation, Bocconi University, and Intesa Sanpaolo, 2021). This may result from enhanced resource optimisation, the corresponding reduction of operational costs, more closed-loop supply chains and more stable material costs, technical innovation and intelligent design. The strategic adoption of circular economy principles also enables businesses and financial institutions to proactively address evolving consumer demands, while allowing them to gain a competitive advantage in a landscape where sustainability is becoming paramount. This includes the potential to exploit a price premium on new products and services that generate a positive impact on society and the environment (Ellen MacArthur Foundation, 2015). Furthermore, increasing research and innovation projects could play a pivotal role in enhancing circularity and accelerating economies of scale in production systems and processes, for instance through the EU's funding programme Horizon Europe (European Commission, 2024), as well as new initiatives by cities (Ellen MacArthur Foundation, n.d.b).

4.3 Managing interlinkages between circular economy and other impact areas

Under the Principles for Responsible Banking (PRB), banks are required to analyse the impact of their portfolio, to set targets to improve the impact of their portfolio in at least two impact areas, to put in place action plans to meet their targets and to monitor and report their progress towards targets achievement.

Figure V illustrates the importance of banks taking a holistic approach throughout their PRB member journey, considering the variety of impact areas to understand and interlinkages to manage—that is, how action on one impact area might positively or negatively affect other impact areas.

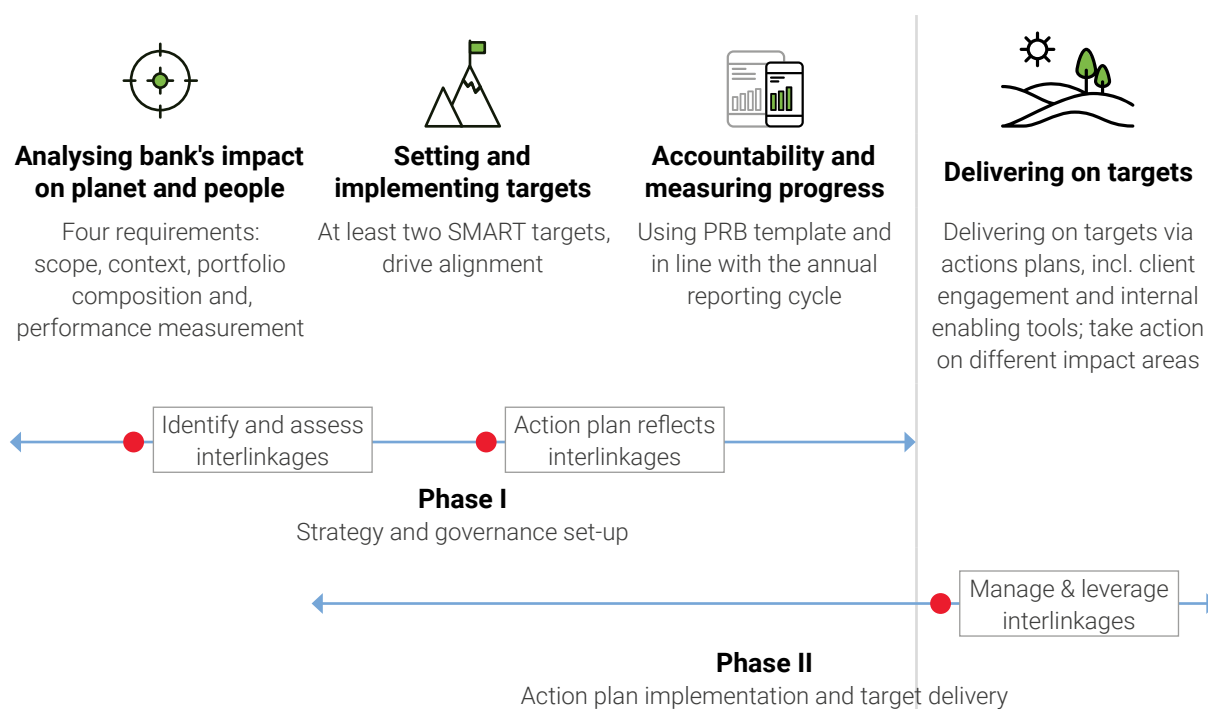


Figure V: Interlinkages in the PRB member journey

As a result of this approach circularity may surface and be integrated in various ways in banks' action plans:

- As a core strategic focus, with PRB targets established for circular economy (UNEP FI 2023),
- As an interlinked topic, associated with a different impact area against which a PRB target is set (such as climate mitigation).

In either case, the four categories of actions in UNEP FI's Impact Protocol (UNEP, 2022a) for banks to manage their impacts apply equally to circularity related impacts. Table 1 elaborates on how interlinkages relate to the four action categories.

Table 1: Managing interlinkages with other impact areas under the four PRB action categories

PRB action categories	Relevance for interlinkages
Internal policies and processes	Making sure the most important interlinkages are accounted for in (i) overall sustainability policies and sectoral policies as well as in (ii) key processes such as KYC, E&S risk management and due diligence
Client engagement	Ensuring clients understand and make provision for potential positive or negative consequences of dropping or taking up a new activity and/or adjusting current practice; and understand and leverage business opportunities that might accrue from dropping or taking up a new activity and/or adjusting current practice.
Portfolio composition and financial flows	Ensuring the negative consequences of dropping or taking up a client/sector to drive performance on one topic might have on another topic are understood and made provision for
Advocacy and partnerships	Advocating for new sectors, business activities and technology that leverages interlinkages and setting up partnerships to promote the same

4.4 Key actions by banks to manage interlinkages

Based on the above, in their Principles for Responsible Banking journey banks are encouraged to undertake priority actions across **all PRB action categories** to support the transition to a circular economy, while managing interlinkages with other impact areas. The table below provides an overview of the different action categories as defined by the PRB, including the underlying sub-categories of actions.

Table 2: Summary of actions across all four PRB action categories

PRB action categories	Sub-categories of actions
Internal policies and processes	Due diligence, risk assessment and other internal processes
	Sectoral policies and other internal policies
	Internal capacity building
Client engagement	Clients' awareness raising
	Client support plan
	Products and services offering
Portfolio composition and financial flows	Increasing circular financing with positive impact
	Decreasing financing in absence of positive impact
Advocacy and partnerships	Engaging with policymakers
	Partnering with other financial institutions including development financial institutions
	Engaging with industry initiatives, civil society and academia

Internal policies and processes

Actions on internal policies and processes are expected to lead to the development and implementation of data collection templates, due diligence and screening processes and policies, as well as internal capacity building, that will support the actions and expected outputs on client engagement, portfolio composition and financial flows to foster the transition to a circular economy. Below is an illustrative list of actions banks can take:

- Due diligence, risk assessment and other internal processes:** Consider the circularity criteria and interlinkages with other impact areas in overall sustainability policies and sectoral policies, and key processes such as “Know Your Customer” (KYC), environmental and social (E&S) risk management and due diligence. For instance, banks can develop risk and pricing models that are tailored to the specifics of the circular economy in terms of price volatility of raw materials, credit risk, asset valuation and management of the installed asset base. This also includes developing processes and methodologies to improve data availability and measurement of circularity and its impact on other impact areas, for example by setting requirements for environmental impact assessments such as a comprehensive life cycle assessment (LCA) to evaluate the environmental impact of products from raw material extraction through production, use and disposal. To improve data availability, banks need to engage with clients to define appropriate key performance indicators (KPIs) and develop data

collection templates for evaluating and monitoring the circularity of projects or activities, as well as their impact on other impact areas.

- **Sectoral policies and other internal policies:** Develop and implement lending policies in key sectors that incorporate circular economy principles and recognise the interlinkages between a circular economy and other impact topics. These policies should contain criteria for financing based on a company's adherence to circular practices, thereby incentivising companies to improve circularity and resource efficiency, the reduction of waste and material use, as well as sustainable product design and manufacturing. Sector-specific criteria can be defined to tailor these policies to the unique challenges and opportunities of increased circularity within different industries.
- **Internal capacity building:** Build internal capacity to support client engagement on the circular economy and its interlinkages with other impact areas, including a robust client engagement strategy and portfolio impact analysis. This also includes the development of new products and services to encourage and support clients' circular business models, technologies and operation. To this end, it is also important to increase awareness and support for new circular business models, such as leasing models for "softer assets". This requires robust legal analysis to reach contractual comfort instead of legal ownership over assets, as well as a more cash-flow-based approach to Product-as-a-Service (PaaS) or leasing models rather than a collateral-value-based approach.

To meet the demand for coherent and robust circularity metrics and reporting, banks can rely on several initiatives that have emerged, including GRI 306: Waste 2020 standard (GRI, 2020), World Business Council for Sustainable Development's (WBCSD) Circular Transition Indicators (WBCSD, 2023), Ellen MacArthur Foundation's Circulytics (Ellen MacArthur Foundation, n.d.a), ISO 59004:2024 (ISO, 2024) or the Global Circularity Protocol (WBCSD, n.d.) currently under development. The Technical Screening Criteria (TSC) (European Commission, 2023) of the EU taxonomy also contain concrete circularity indicators tailored to specific sectors. A standardised method for collecting circular data and metrics for measuring circularity across value chains, however, is currently still missing.

Developing banks' processes to define circularity-related metrics, collect data and monitor circularity of their clients' activities will also help banks to comply with disclosure requirements that increasingly include requirements related to the transition to a circular economy, as for instance in the CSRD and ESRS E5 (see Section 3), and in GRI. For a better understanding of the interoperability between the Principles for Responsible Banking and CSRD, please see UNEP FI's ESRS Interoperability Package (UNEP FI, 2024a).

Banks can bring a circular lens to their risk assessment processes by applying the recently released Circular Risk Scorecard by Kopgroep Circulair Financierien (Circular Risk Scorecard, n.d.). Based on six drivers of risk—ability of management team, robustness of contracts, market competitiveness, security of resources, circularity of the product and suitability for circular proposition—the Circular Risk Scorecard provides insight into the circular risk score of the business or project to be financed to inform decision-making for financing and investments. Banks can use the Circular Risk Scorecard as an add-on to their existing probability of default (PD) models assessing the expected loss (EL) in the event a client defaults (Kopgroep Circulair Financierien, 2024)

Box 1: Example of member bank that is integrating circularity considerations into its internal policies and processes

Intesa Sanpaolo integrates circularity into its internal policies through several strategic initiatives. These include promoting circular economy models in its Code of Ethics, incorporating circularity principles into financial frameworks such as the Credit Strategy, the Green and Social Bond framework, and the ESG Scoring tool, as well as supporting circular production models through its Green Banking Procurement Rules and Environmental and Energy Policy.

Client engagement

It is important for banks to encourage clients to adopt circular practices and to support their transition to more circular business models and technologies, in line with the targets of relevant frameworks or policies. A bank's client engagement can take several forms and should evolve as banks progress on their circular economy journey—from data collection, awareness raising and knowledge sharing, to providing clients with technical assistance and proactive engagement, for example by offering tailored financial products and services. A robust internal set-up will help banks take relevant actions to engage with clients on the circular economy, including through:

- **Clients' awareness raising:** Enhance clients' awareness of the importance of embracing circularity and ensuring that the benefits of circularity and interlinkages with other impact areas are clear. The dialogue can be opened for instance by communicating the results of the bank's risk and impact assessment. Emphasis can be put on how increased levels of circularity can drive alignment with existing client policies for sustainable and circular practices, while overlooking circular economy principles may act as a barrier to delivering on such policies.
- **Client support plan:** Develop a client support plan (either a standalone document or embedded within impact management strategy) with an analysis of the client's action plan and targets, vulnerabilities and performance in terms of circularity and other impact topics, as well as respective financing and liquidity needs. This involves defining appropriate incentives for clients to improve their circularity performance, and KPIs (both quantitative and qualitative) to monitor progress against predetermined timelines and expectations. Specific elements of a client support plan include:
 - Proposals for transition plans and action plans in line with scientific evidence and integrating regulatory demands, including appropriate metrics and targets,
 - Interlinkages between areas of impact addressed within the support plan, including the expected contribution of circular solutions to other impact areas,
 - Associated financing requirements, including agreed upon timelines to achieve targets and deliver on transition plans,
 - A clear understanding of the way forward, including consequences in line with the bank's escalation process if timelines are not met.

- **Products and service offerings:** Implementing client support plans requires designing and offering tailored products and services that encourage circular business models, technologies and operation (such as circular performance-based financial products, or sustainability linked bonds or loans that include circularity criteria). The necessary financing structures may vary from client to client and capital requirements are important to consider.

Box 2: Examples of member banks that are actively engaging with clients to integrate circularity criteria in their transition plans related to climate or nature

BBVA collaborated with Veolia to run a pilot to help water-intensive clients in key sectors to reduce their water consumption and achieve water-positive status with replenishment projects. This initiative supports BBVA's strategy to manage water-related risks and promote sustainable practices, particularly in water-stressed regions like Spain.

Intesa Sanpaolo actively engages clients in adopting circular practices through several initiatives, for example non-financial consultancy services through the Circular Economy Lab and a EUR 8 billion credit facility for financial support for circular economy projects. They also issued a EUR 750 million Green Bond to fund circular projects, providing clients with financial incentives and resources to adopt sustainable models and adopt circular economy practices.

Swedbank, in collaboration with PayEx, developed a tailored financial solution for Synsam's subscription service, Synsam Lifestyle. This initiative supports Synsam's circular business model by integrating essential financial services, significantly enhancing customer satisfaction and contributing to the company's sales growth.

Portfolio composition and financial flows

Banks need to redirect financial flows towards clients, projects and activities that substantially contribute to the circular economy and are expected to have a positive impact on other topics (see Section 5 below), and away from activities that do not have a positive impact. Instead of merely divesting from non-circular activities, the goal should be to support clients in adopting more circular practices and business models while materialising circular opportunities. In doing so, banks need to assess interlinkages, synergies and trade-offs comprehensively and their impact on portfolio composition and financial flows. This includes:

- **Increasing circular financing with positive impact:** Increase the proportion of a bank's portfolios dedicated to supporting the transition towards a circular economy, driving positive impacts across various areas while mitigating potential negative consequences. This requires prioritising financing activities that substantially contribute to resource efficiency and the circular economy, while ensuring that the portfolio/sectors covered include both downstream and upstream activities.

- **Decreasing financing in absence of positive impact:** The goal is to progressively expand the portfolio/sectors screened against circularity criteria and reduce funding for non-circular activities lacking circular potential and positive impact. Before disinvesting from companies with low levels of circularity, banks should prioritise identifying and encouraging the adoption of circular opportunities within these companies.

Taking climate mitigation as an example, assessing the expected impact of circular solutions on greenhouse gas (GHG) emissions will help banks understand how supporting circular solutions can contribute to their climate transition plans. Banks can refer to the Glasgow Financial Alliance for Net Zero (GFANZ) transition financing strategies to accelerate their climate transition and measure progress. Circular solutions are generally expected to reduce GHG emissions. However, some circular solutions, particularly recycling, can be energy-intensive and may increase emissions if reliant on fossil fuels. These challenges emphasise the need for banks to carefully use impact-based metrics across impact areas while working on their portfolio composition and financial flows. A growing number of sustainable finance instruments are already being used by some banks to support circularity, including green bonds, transition bonds, sustainability-linked loans, impact investing and blended finance. Therefore, banks can leverage opportunities to integrate circular-economy-related criteria into existing climate-related transition instruments.

Box 3: Examples of member banks that are integrating circularity considerations into their portfolio composition and financial flows

Bancolombia is promoting the circular economy in Latin America through its financial services and operational practices. Partnering with the Ellen MacArthur Foundation, it has developed dedicated strategies and financing mechanisms to support circular and sustainable business models. From 2021 to 2023, it financed over 1,200 projects totaling USD 538 million, emphasising the importance of circular economy initiatives within its sustainability strategy. Key initiatives include Hub Círculos, Circular Diagnostics, and Circulaton, fostering collaboration, assessing circularity, and promoting sustainable resource use and ecosystem regeneration in Colombia.

Intesa Sanpaolo launched a EUR 750 million Green Bond in 2019, to support loans from its EUR 6 billion 2018–2021 credit plafond dedicated to the circular economy. In 2022, the bank renewed its commitment to the circular economy by setting a new target of EUR 8 billion through a new credit facility, aimed at supporting the circular transition of its clients as part of the 2022–2025 Business Plan.

The Mauritius Commercial Bank (MCB) financed a project with Avipro to recycle chicken slaughter waste into pet food ingredients. This innovative factory supports the circular economy by converting chicken viscera, heads, and feet into pure fat and high-protein flour thus reducing environmental impact. MCB's involvement included financial and environmental oversight, ensuring the project met their green criteria and strategic focus on resource efficiency and waste management.

Advocacy and partnerships

In the rapidly evolving regulatory landscape, financial institutions play a crucial role in advocating for policies that facilitate the transition to circular economy practices and optimise synergies with other impact areas. By actively engaging with relevant stakeholders (such as policymakers) and articulating their needs and concerns, banks can help create a supportive environment that fosters innovation, incentivises investment in circular solutions and enables sustainable resource use. The following actions may be taken by banks:

- **Engaging with policymakers** to advocate for circular economy to be incorporated in policies, regulations, methodologies and tools supporting achievement of the SDGs, Paris Agreement, Global Biodiversity Framework, Global Framework on Chemicals and other global and regional sustainability frameworks; and to foster effective implementation of policies.
- **Partnering with other financial institutions, including development financial institutions**, to exchange knowledge on circular economy and its contribution to other impact areas, and to foster circular transition finance. This includes engaging with Multilateral Development Banks (MDBs) who have collectively, through a working group, developed a shared vision for supporting the circular economy (See box 5). This also includes collaborating with equity providers or engaging in blended finance if the risk-return profile of the circular business case does not match debt finance.
- **Engaging with industry initiatives, civil society and academia** to set new standards and foster implementation of policies, for instance by helping to develop second-hand markets through partnering with key players in the supply chain. Engaging with such a diverse set of stakeholders also helps banks understand societal expectations and enhance transparency in circular practices, while leveraging research and innovation to develop efficient solutions across value chains.

Box 4: Examples of member banks that are integrating circularity considerations into their advocacy and partnerships

SEB published a report “Regenerate the Economic Machine,” predicting a shift from ownership to usership of physical goods, potentially covering 20% of retail within 20 years. The report highlights innovations in logistics, usership platforms, and AI as key enablers of this transition, aiming to reduce CO₂ emissions and foster sustainable economic growth.

UniCredit organised several events to promote the circular economy, including ESG Day and the «Straight Ahead with Circularity» event. ESG Day focused on biodiversity and circular economy transitions, attracting over 11,000 attendees including employees, clients, and ESG experts. The «Straight Ahead with Circularity» event facilitated discussions with industry experts from various sectors on implementing circular business models, highlighting their economic and environmental benefits. In addition, in December 2022 UniCredit became member of the Ellen MacArthur Foundation to strengthen and foster awareness, both internally and externally, on circular economy.

Box 5: Multilateral development banks’ shared vision for the circular economy

At the World Circular Economy Forum (WCEF) 2024 in Brussels, leading multilateral development banks (MDBs) presented the Circular Economy Working Group’s shared vision on the role of MDBs in supporting the circular economy (Circle Economy, 2024). The actions presented in Section 4 align with this vision. The shared vision document stresses the importance of banks building internal capacity to increase support for circular economy approaches, in both lending and advisory activities. In addition, there is a need for methodologies that demonstrate how circular solutions can generate economic value while fostering a just and inclusive sustainable development. Collaboration with other financial institutions plays a vital role in enabling knowledge exchange and sharing of methodologies. Banks should also consider circularity and resource efficiency within their operations across sectors and ultimately facilitate the exchange of knowledge with the private sector, civil society and local, regional and national authorities. To realise these objectives, it is important to engage with new and existing clients on the benefits of the circular economy and its interlinkages with the broader sustainability agenda, while offering them financial products and services that are tailored to their specific needs.

5. Interlinkages between the circular economy and other sustainability objectives

When developing their action plans—including actions under the four categories outlined in Section 4—it is important that banks understand the interlinkages between the circular economy and various sustainability objectives to leverage opportunities for positive outcomes and avoid unintended consequences. Increased circularity is generally expected to have a positive impact on environmental and social impact areas, due to its potential to promote resource efficiency, reduce waste and resource use, and foster sustainable practices across value chains. The extract from the Interlinkages Mapping in table 3 demonstrates how acting on the impact area of circularity can have both positive and negative interlinkages with other topics. For example, efficiency gains might be offset by increased consumption and increased levels of GHG emissions (so-called rebound effects).

Acting upon circularity (resource intensity and waste) by changing production and consumption practices or the nature of products and services offered would result in:

Table 3: Interlinkages table derived from the UNEP FI Interlinkages Mapping (UNEP, 2022b)

Positive inter-linkages on...	Due to...	Negative inter-linkages on...	Due to...
Air	Reduction in air pollutants	Flourishing MSMEs	Short-term costs associated with change in business models ¹
Climate stability	Reduction in CO ₂ emissions		
Energy	Energy efficiency increasing energy availability		
Food	Reduced food waste		
Habitat	Reduced resource extraction in sensitive ecosystems, and less waste in protected areas		
Health and safety	Less waste contributing to a healthy environment		

¹ At the same time, smaller business are generally more agile and capable of taking on circular models faster than the large corporates.

Positive inter-linkages on...	Due to...	Negative inter-linkages on...	Due to...
Healthcare and sanitation	Managing waste water is key to sanitation		
Natural disasters	Resource efficiency building resilience to the consequences of disasters		
Sector diversity	New technologies, sectors and businesses		
Soil	Reduced resource extraction and less waste degrading soil quality		
Species	Reduced resource extraction in sensitive ecosystems and less waste in protected areas		
Water	Improved water quality through sound management of effluents		
Waterbodies	Preventing the degradation of water quality in waterbodies (such as lakes, rivers and seas)		

Figure VI below shows positive interlinkages between circularity and other impact areas listed in Table 3.



Figure VI: Positive interlinkages between circularity and other impact areas (adapted from UNEP FI 2022b)

The subsequent sections explore how the circular economy acts as a powerful driver for addressing the triple planetary crisis of climate change, biodiversity loss and pollution, while promoting healthier and more inclusive economies.

5.1 Circularity and climate mitigation and adaptation

The circular economy can play a key role in the finance sector’s strategy to achieve net-zero targets, with nearly half of global GHG emissions coming from how we make and use products, manage land and grow food (Ellen MacArthur Foundation and Material Economics, 2019). Studies have shown that applying circular economy strategies in just five key areas (cement, aluminium, steel, plastics and food) can eliminate almost half of the emissions from the production of goods—9.3 billion tonnes of CO₂e in 2050—

equivalent to cutting current emissions from all transport to zero (Ellen MacArthur Foundation and Material Economics, 2019). This makes the circular economy an essential strategy in the fight against climate change, as energy efficiency and switching to renewable energy is assumed to address only 55 per cent of global emissions. The circular economy has potential to address the remaining 45 per cent, as Figure VII shows. By integrating waste streams into valuable resource loops and extending product life cycles, circular economy innovations offer a holistic solution to hard-to-abate emissions. Regenerative approaches, particularly in agriculture and ocean farming, also play a crucial role in the fight against climate change as they have significant potential to sequester carbon from the atmosphere and store it in biomass or natural sediments.

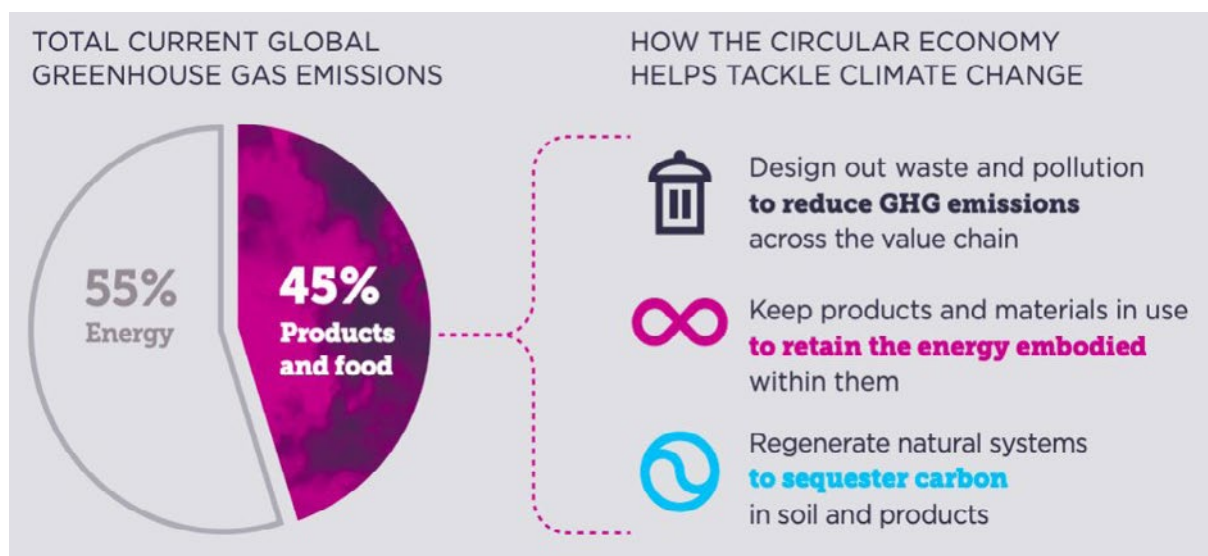


Figure VII: Underpinned by a transition towards renewable energy, a circular economy can help tackle the overlooked 45 per cent of emissions by transforming the way goods are made and used (Ellen MacArthur Foundation and Material Economics, 2019).

In addition to climate mitigation, the circular economy can offer viable solutions to improve the resilience of ecosystems and communities to the effects of climate change, thereby building social resilience in the face of regional and global shocks. In a regenerative agricultural system, for instance, stabilised soil structures enhance moisture retention and reduce reliance on freshwater, thereby enabling rural communities to farm in a manner that builds soil resilience amidst increasing resource scarcity and extreme weather events. Reducing reliance on the same staple crops of a linear food system and increasing local food production and consumption also improves self-sufficiency and strengthen regional food sovereignty, while decreasing vulnerability to whole-crop failure and famine.

Besides agricultural systems, circular economy solutions are also shown to hold significant adaptation answers within systems such as cities, the built environment or fashion through the switching to regenerative methods or the strengthening of alternative business models such as resale, rental, repair, and remanufacturing (Ellen MacArthur Foundation, 2023). These solutions not only promote a more sustainable and cost-effective approach to climate mitigation, but also increase resilience to the effects of climate change by creating more liveable cities, spurring innovation and distributing value more widely in the economy. The circular economy can therefore be viewed as a systemic

response to the climate crisis, which is urgently needed to put the world on track to achieve net-zero emissions by 2050. To date, financial institutions have mainly focused their climate-related investments on low-carbon technologies, deforestation and renewable energy, neglecting the circular economy's potential in the race to meet resource efficiency and climate goals (EESC, 2023).

While the emission-reducing potential of the circular economy is undisputed, potential rebound effects in the form of increased resource use might arise, which are particularly noticeable in environmental technologies related to energy efficiency and transportation. Similar complexities are observed with energy efficiency, where efficiency gains are often offset by increased consumption and therefore, increased levels of GHG emissions (Zink & Geyer, 2017). Some processes involved in the circular economy, particularly recycling, can be very energy intensive or require the use of technology and transportation over longer distances. This could potentially exacerbate climate change if it means relying on fossil fuels or another non-renewable energy source. Circular solutions such as recycling are therefore only worthwhile from a resource and emissions perspective if the resources used and emissions produced are less than those from extraction and disposal. Additionally, there should be consideration of broader environmental and social impacts, including related to primary resource use, pollution, nature loss, unethical labour practices and human rights. This underscores the need for a holistic approach that carefully evaluates the overall balance of benefits and drawbacks, with vigilant implementation and impact-based metrics.

Even though the inclusion of circular economy principles is still lacking in many national climate policies and measures due to their cross-sectoral nature and the challenge of quantifying impacts (European Environment Agency, 2024), circular economy concepts are increasingly incorporated in Nationally Determined Contributions (NDCs) to support the achievement of the Paris Agreement goals (UNEP, UNDP and UNFCCC Secretariat, 2023). This is expected to foster advancement in the quantification of impacts of circular solutions on GHG emissions. Research has confirmed that the circular economy may drive innovation and allow a simultaneous increase in output while reducing emissions, thereby strengthening regional competitiveness and avoiding the relocation of emissions to regions with less stringent environmental regulations, so-called carbon leakages (Brusselaers, *et al.*, 2022). Emerging circular business models such as product-as-a-service, upgrading, repair, refurbishing and pooling (for example, carpooling) not only offer potential for significant emissions reductions, but also lower risks of rebound effects (UNEP, 2024). Ultimately, the choice between “efficiency and sufficiency” is crucial in limiting resource consumption and GHG emissions, requiring a deeper integration of cognitive biases and behaviour changes (Mongo, *et al.*, 2022).

5.2 Circularity and nature

While global economic activity over the last centuries has brought greater prosperity for many people around the world, it has been heavily fuelled by the extraction of natural resources. As research has shown, extraction and processing of virgin natural resources accounts for more than 90 per cent of biodiversity loss and water stress (International

Resource Panel, 2019). Given the urgency of the biodiversity crisis and considering that more than half the world's total GDP is potentially at risk due to the dependence of business on nature (World Economic Forum, 2020), economic activity actively needs to avoid further loss of biodiversity but also to rebuild biodiversity. To this end, it is vital to transform the value chains of major stressors of biodiversity, including including agriculture, food, the built environment, energy and textiles. The circular economy can offer an alternative approach to the traditional, linear way of doing business, with less material extraction and opportunities to protect vulnerable biospheres, regenerate ecosystems, and support biodiversity. Transitioning to more sustainable resource use and resource management practices is imperative to alleviate the pressures that contribute to habitat destruction and the overexploitation of natural resources, which are the top two main drivers of biodiversity loss. Ultimately, circular solutions can help address all five key direct drivers of nature loss identified by the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) (Ellen MacArthur Foundation, 2021a).

- **Changes in land and sea use:** by reducing the amount of land needed to provide resources to the economy
- **Direct exploitation of organisms and natural resources:** by reducing the extraction of natural resources and managing renewable resources in the long term
- **Climate change:** by reducing GHG emissions across the economy
- **Pollution:** by designing out pollution at every stage of a product's life cycle
- **Invasive alien species:** by designing out the waste on which invasive alien species can be transported to new ecosystems

Given the detrimental impact of current industrialised, intensive farming, regenerative production has emerged as a new approach to managing agroecosystems. It provides food and materials—whether through agriculture, aquaculture or forestry—in ways that yield positive outcomes for nature (Ellen MacArthur Foundation, 2021a). Achieving these benefits involves various context-dependent practices that collectively help regenerate degraded ecosystems and build resilience on farms and in surrounding landscapes. Regenerative agricultural approaches, such as agroecology, agroforestry and managed grazing, can sequester carbon in the soil, enhance air and water quality, improve soil health and increase biodiversity in surrounding ecosystems. By preventing land degradation, regenerative practices also reduce pressure to expand agricultural land in the long run. Negative repercussions from expanding infrastructure needed for the circular transition can also be avoided by repurposing waste management and recycling facilities, or by exploring opportunities for vertically integrating these within urban areas. These solutions help minimise the need for new land development and reduce the potential negative impacts on natural habitats and ecosystems. This transformation is crucial given the need to transform current production and consumption systems to protect global biodiversity, as shown in Figure VIII.

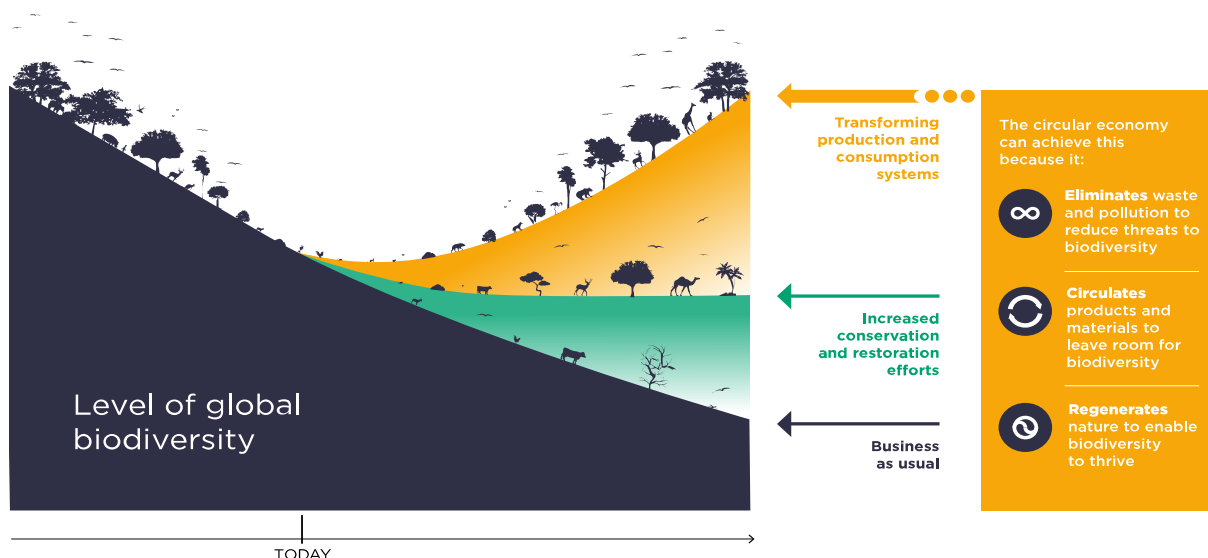


Figure VIII: How the circular economy can play a fundamental role in halting and reversing nature loss (Ellen MacArthur Foundation, 2021a)

5.3 Circularity and pollution and waste

Pollution is considered the third major planetary crisis we currently face. Emissions from vehicles, industries and other sources may lead to the pollution of air, which not only causes climate change but also respiratory illnesses and cardiovascular diseases. Water pollution stemming from agricultural run-off, industrial discharges and improper waste disposal, jeopardises both aquatic ecosystems and drinking water supplies through the contamination of water bodies. Soil pollution, often resulting from industrial and agricultural practices, degrades soil quality, reduces agricultural productivity and poses risks to human health through contaminated food. Furthermore, waste generation, including solid waste, electronic waste and hazardous waste, presents a pressing environmental and health challenge if not properly managed. For instance, plastic waste is estimated to triple by 2060 if no urgent action is taken (OECD, 2022). In this context, 160 financial institutions worldwide—representing USD 15.5 trillion in combined assets—have signed a Finance Statement on Plastic Pollution (UNEP FI, 2024c) acknowledging that the finance sector has an important role in mitigating financial risks related to plastic pollution and calling on countries to negotiate an ambitious instrument addressing the full life cycle of plastic. In addition to plastic pollution, the widespread use of chemicals creates serious health and environmental impacts during the manufacturing, use and disposal of products. Since 2000, the global production capacity of the chemical industry has almost doubled (European Environment Agency, 2022). Growth is driven by industrialisation, urbanisation and the rise of chemical-intensive sectors such as construction, agriculture and food processing, plastics, textiles, mining and electronics—notably in emerging and developing economies. Almost 140,000 industrial chemicals are marketed worldwide, and the use of hazardous chemicals makes it very difficult, if not impossible, to recycle products and their materials (UNEP, 2019).

The opportunities stemming from circular solutions can bring huge benefits in the fight against pollution and the problems associated with improper disposal of waste. For instance, a comprehensive circular economy approach could reduce the volume of plastics entering the ocean by more than 80 per cent by 2040, virgin plastic production by 55 per cent, the sector's overall GHG emissions by 25 per cent and create 700,000 net additional jobs by 2040 (Ellen MacArthur Foundation, 2021b). Through practices such as designing products for durability and reuse, as well as promoting recycling and remanufacturing, circular solutions minimise the need for resource extraction and energy-intensive production processes. This reduction in industrial activities helps decrease air and water pollution associated with manufacturing, such as emissions from factories and discharge of pollutants into water bodies. Circular approaches also reduce waste generated and divert waste from landfills and incinerators, thereby reducing pollution caused by untreated or poorly managed waste. This not only prevents contaminants from leaching into soil and water sources but also minimises GHG emissions from decomposition and incineration. Furthermore, the closed-loop systems advocated by circular economy models ensure that materials are circulated within the economy for as long as possible, reducing the demand for virgin resources and minimising the environmental impacts of extraction and processing. This includes mitigating soil erosion from mining activities and reducing air and water pollution associated with resource extraction and manufacturing processes.

Despite the importance of increasing recycling and reuse, these processes may emit pollutants under certain circumstances if not properly managed. For instance, the recycling of electronics can release hazardous substances such as lead and mercury into the environment. Similarly, the mechanical recycling of plastics often requires significant energy input and can result in the degradation of plastic polymers, releasing microplastics and other pollutants. To mitigate these potential trade-offs, it is crucial to implement robust management strategies and well-designed policies. These include the use of cleaner technologies that reduce emissions and waste during the recycling process, EPR programmes, and the design of products that are easier to recycle and have minimal environmental impact at the end of their life cycle, including the replacement of hazardous chemicals with more sustainable and biodegradable alternatives. Focusing on upstream circular solutions (such as sustainable product design, material sourcing, and production processes, and not only downstream practices such as recycling) is crucial to prevent further linear lock-in, particularly when businesses prioritise linear waste streams.

5.4 Circularity and healthy economies

By increasing revenues from emerging circular activities and lowering cost of production through the more productive utilisation of inputs, the circular economy can contribute to increasing GDP. In an advanced circular economy scenario, net material costs savings could amount to USD 630 billion by 2025 in the EU alone, with an additional USD 700 billion globally in fast-moving consumer goods (Ellen MacArthur Foundation, 2015). It is estimated that profits could rise by around 50 per cent for recover and remanufacture materials while material waste could be decreased by 90 per cent (Esposito, *et al.*,

2018). A circular economy can also reduce dependence on imports (IISD, 2020), enhance energy security and improve management of critical minerals essential to the energy transition. This is vital given that demand for critical raw materials such as lithium, cobalt, and nickel is expected to increase by a factor of 10 to 20 by 2040. On the other hand, many low- and middle-income countries that rely heavily on “linear” sectors such as mining, manufacturing of non-repairable fast-moving consumer goods, textiles and agriculture, and the export of these commodities to higher-income countries, are likely to be negatively affected by the shift to circularity. These countries will need support from the international community through targeted assistance programmes if international trade in established commodities and manufactures declines in the medium to long term (Schröder, 2020).

Although the circular economy may be able to decouple economic growth from resource consumption, it is argued that the existing ecological turmoil requires a transition from efficiency to sufficiency and lower levels of materialism for those currently reliant on high consumption (Zink & Geyer, 2017).

In light of the current environmental and geopolitical crises, businesses and financial institutions are increasingly exposed to systemic risks and uncertainty, including price volatility, supply shortages and logistical challenges. Over the next decade, companies can expect to lose almost half a year’s profit to supply chain disruptions if no action is taken, as research by McKinsey has shown (McKinsey, 2020). The adoption of circular principles, on the other hand, can increase resilience to macroeconomic shocks, while reducing the costs from raw material and energy consumption, waste management and emissions control (Ogunmakinde, *et al.*, 2022). This results from a reduced input of virgin resources, increased asset utilisation, improved resource efficiency or increased value recovery after use. Economic benefits for businesses range from lower input costs, reduced supply risk and exposure to price volatility, to revenues from by-products, reduced obsolescence of products and increased revenues from the same product or asset, as shown in Figure IX.

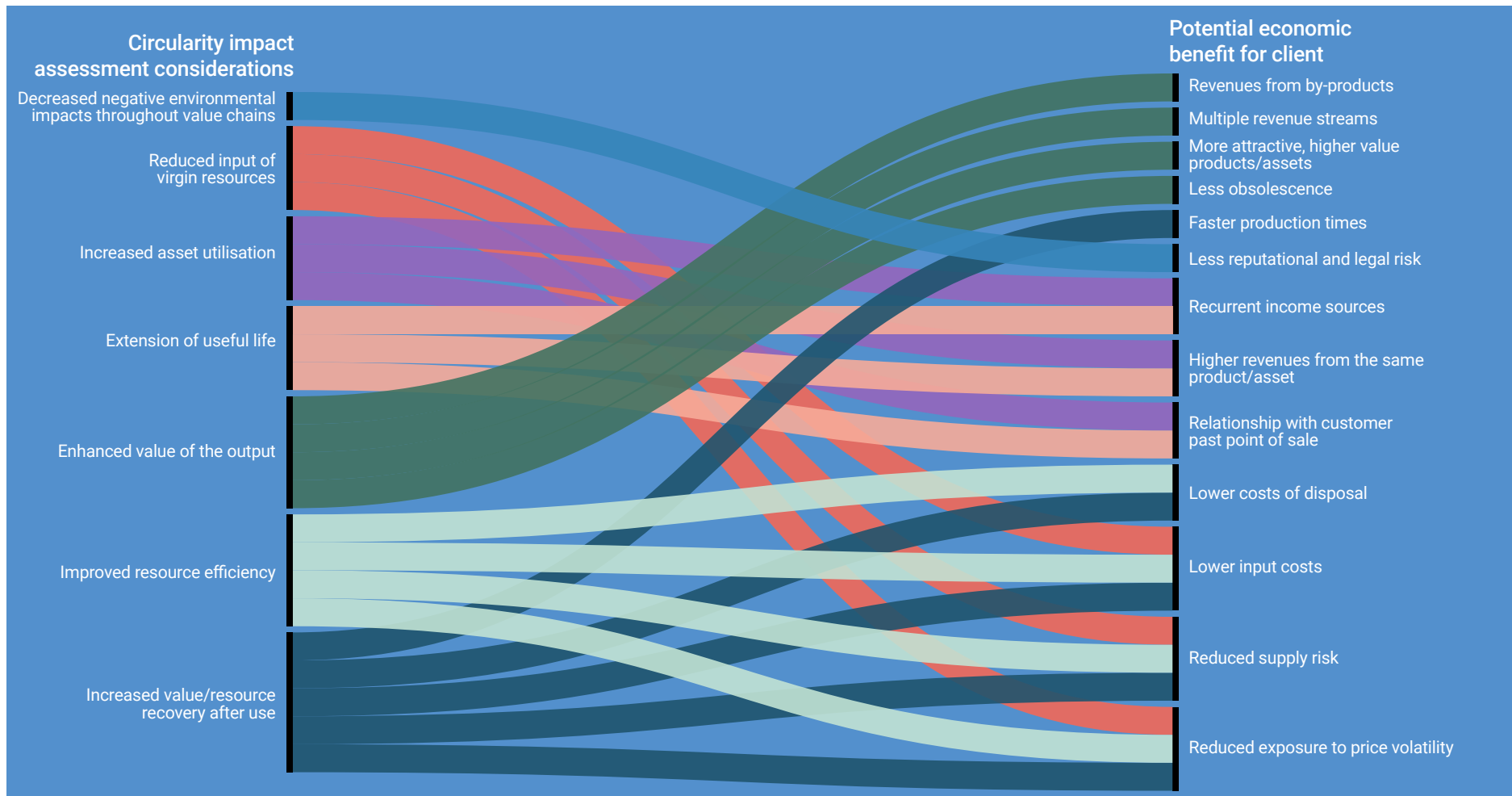


Figure IX: The impact of circular projects or actions may be assessed by one or a combination of these considerations, which lead to potential economic benefits and increased resilience for businesses.

Source: UNEP FI, 2023

5.5 Circularity and inclusive economies

The transition to a circular economy—if done according to the principles of a just transition—can be pivotal in shaping more inclusive communities and workforce, profoundly impacting employment dynamics and skill requirements. Workforce is a key lever of the transition to a circular economy, which is expected to have a significant impact on people and their work (Circle Economy, 2020). The needs for skills may shift towards manual skills (for example, repair activities), soft skills (such as sharing and service-related activities) but also new skills (for example, in new technologies and digitalisation) and transitioning to a circular economy will require re-skilling and a general upskilling. This poses challenges and drives potential negative impacts, due to job losses and skill mismatch, which should be closely monitored and mitigated. At the same time, transitioning to a circular economy represents real opportunities for job creation (for instance recycling activities creating additional jobs compared to waste incineration), improvement of working conditions (for example, through the reduction of informal work such as in the waste collection sector) and a diversification of employment opportunities in green sectors (IISD, 2020). Furthermore, by promoting a so-called sharing economy, the circular economy can create avenues for mutual trust and partnership among clients, manufacturers and stakeholders, as well as between industries and communities (Ogunmakinde, *et al.*, 2022). By decentralising production and fostering local economies, the circular economy may also address regional inequalities by creating employment opportunities and supporting local businesses in underserved regions. For instance, less industrialised countries could benefit from building on existing circular business models, including those that have emerged in the informal sector (International Resource Panel, 2018), by incorporating informal waste pickers in the formal economy.

The opportunities related to the circular economy may still come at a certain cost. One of the most notable trade-offs of the transition involves the decline in traditional industries reliance on virgin material extraction (International Labour Organization, 2023). According to the 2018 International Labour Organization (ILO) report, the extraction and refining of petroleum could see a loss of up to one million jobs (International Labour Organization, 2018) affecting communities that are dependent on these projects. This might lead to shifts in the labour market and displacement in regions where traditional manufacturing or extraction industries are prevalent. Workers in certain regions might be better equipped to face the circular transition than others due to differing levels of education, labour market policies and social protection systems. This risks contributing to the “brain drain” phenomenon and potentially exacerbate socio-economic inequalities, particularly in areas already struggling with job losses and limited economic opportunities (World Resources Institute, 2019). Efforts are needed to promote stakeholder engagement, education and skill development in emerging sectors of the circular economy to ensure that the transition not only fosters environmental sustainability but also fair working conditions and respect for human rights, ensuring that no one is left behind. These skills are necessary to bridge the technology, labour and information requirements of new forms of processing materials and products.

Integrating circular principles into agricultural and food systems can improve food security for communities worldwide, for example by tackling the issue of food waste (UN, 2023). The circular economy can also safeguard substantial human rights and human health, which are increasingly affected by the triple planetary crisis of climate change, biodiversity and nature loss, and pollution—particularly when it comes to the world’s most marginalised communities. In July 2022, the UN General Assembly recognised access to a clean and healthy environment as a universal human right. The circular economy supports this right by fostering practices that ensure cleaner and safer living conditions and by reducing emissions from production processes, minimising waste and preventing pollution of air, water and soil.



6. Outlook

As the global community faces unprecedented environmental and social challenges, the integration of circular economy principles within the broader sustainability agenda is more crucial than ever. This report shows how circular economy is an enabler in meeting the broader sustainability agenda. It provides insights on how banks can understand and manage the interlinkages between circular economy and environmental and social impact areas in their Principles for Responsible Banking journey, and the initial actions banks can take to support the transition to a circular economy.

The interlinkages between the circular economy and environmental and social impact areas offer banks a unique opportunity to enhance their Principles for Responsible Banking (PRB) journey. By understanding and managing these interconnections, banks can develop more comprehensive and effective strategies that address multiple sustainability objectives simultaneously and more synergistically. This report outlines the initial actions banks can take to support the transition to a circular economy, emphasising the importance of integrating circular principles into their internal policies, client engagement, portfolio management, and advocacy efforts.

This report will be supplemented by a series of guidance documents to support banks to manage the nexus between the circular economy and other impact areas as outlined in Section 5.

The first guidance will focus on the circular economy—climate nexus, both at sector-agnostic level and then at the sectoral level for the buildings and construction sector and the textile sector, which will be followed by additional sectoral supplements.

Looking ahead, further work will be undertaken to develop additional guidance documents that explore the nexus between the circular economy and other environmental and social impact areas. These include the preservation and restoration of nature, reduction of pollution, and the promotion of healthy and inclusive economies.

As banks embark on this transformative journey, collaboration and innovation will be key. By partnering with industry leaders, policymakers, and other stakeholders, banks can drive the systemic changes needed to transition to a circular economy. This collaborative approach will not only enhance the resilience and sustainability of their own operations but also contribute to the broader goal of creating a sustainable and inclusive global economy.

In conclusion, the circular economy is a powerful enabler for addressing the intertwined challenges of climate change, resource scarcity, nature loss, pollution and social inequality. By embracing circular principles and integrating them into their strategies and action plans, banks can play a pivotal role in shaping a sustainable future. This report and the subsequent guidance documents aim to equip banks with the insights needed to lead this transformation, turning the vision of a circular economy into a reality.

References

- Accenture Strategy, 2015. Waste to Wealth. [Online] Available at: newsroom.accenture.com/news/2015/the-circular-economy-could-unlock-4-5-trillion-of-economic-growth-finds-new-book-by-accenture
- Almond, R., Grooten, M., Petersen, T. & Bignoli, D., 2022. Living Planet Report 2022—Building a Nature-Positive Society. [Online] Available at: wwflpr.awsassets.panda.org/downloads/lpr_2022_full_report.pdf
- Brusselaers, J. *et al.*, 2022. Macroeconomic and environmental consequences of circular economy measures in a small open economy. *The Annals of Regional Science*, 68(2), pp. 283–306. [Online] Available at: pubmed.ncbi.nlm.nih.gov/34602724/
- Chatham House, 2024. National Circular Economy Roadmaps: A Global Stocktake for 2024. [Online] Available at: unido.org/sites/default/files/unido-publications/2024-05/UNIDO_National%20circular%20economy%20roadmaps_v07.pdf
- Chatham House, n.d. Circular Economy.earth. [Online] Available at: circulareconomy.earth/?policy=ce-p
- Circle Economy, 2020. Jobs & Skills in the Circular Economy—State of Play and Future Pathways. [Online] Available at: circle-economy.com/resources/jobs-skills-in-the-circular-economy-state-of-play-and-future-pathways
- Circle Economy, 2024. Circularity Gap Report. [Online] Available at: circularity-gap.world/2024#download
- Circle Economy, 2024. A Shared Vision for the Circular Economy. [Online] Available at: circle-economy.com/resources/a-shared-mdbs-vision-for-the-circular-economy
- Circle Economy, PGGM, KPMG, EBRD, and WBCSD, 2018. Linear Risks. [Online] Available at: docs.wbcsd.org/2018/06/linear_risk_report.pdf
- Circular Risk Scorecard, n.d. Circular Risk Scorecard. [Online] Available at: circularrisks-corecard.streamlit.app/
- Dasgupta, P., 2021. The Economics of Biodiversity: The Dasgupta Review. [Online] Available at: assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf
- ECB, 2020. Guide on climate-related and environmental risks. [Online] Available at: bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks~58213f6564.en.pdf

- EESC, 2023. Accelerating the financing of the circular economy in climate and biodiversity strategies. [Online] Available at: circulareconomy.europa.eu/platform/en/news-and-events/all-events/accelerating-financing-circular-economy-climate-and-biodiversity-strategies
- Ellen MacArthur Foundation and Material Economics, 2019. Completing the picture: How the circular economy tackles climate change. [Online] Available at: ellenmacarthurfoundation.org/completing-the-picture
- Ellen MacArthur Foundation, 2015. Towards a Circular Economy: Business Rationale for an Accelerated Transition. [Online] Available at: archive.ellenmacarthurfoundation.org/assets/downloads/publications/TCE_Ellen-MacArthur-Foundation_26-Nov-2015.pdf
- Ellen MacArthur Foundation, 2021a. The Nature Imperative: How the circular economy tackles biodiversity loss. [Online] Available at: emf.thirdlight.com/file/24/FM9nvqPFM.IixvIFMZ6iFC9A.NLF/The%20Nature%20Imperative%3A%20How%20the%20circular%20economy%20tackles%20biodiversity%20loss.pdf
- Ellen MacArthur Foundation, 2021b. The Solution to Plastic Pollution. [Online] Available at: ellenmacarthurfoundation.org/articles/the-solution-to-plastic-pollution
- Ellen MacArthur Foundation, 2023. Bridging the adaptation gap: can the circular economy help?. [Online] Available at: ellenmacarthurfoundation.org/articles/bridging-the-adaptation-gap-can-the-circular-economy-help
- Ellen MacArthur Foundation, 2024. Navigating the Circular Economy Landscape. [Online] Available at: emf.thirdlight.com/link/msf8mv6pn6ou-jmu184/@/preview/1?o
- Ellen MacArthur Foundation, Bocconi University, and Intesa Sanpaolo, 2021. New research shows that the circular economy has a de-risking effect and drives superior risk-adjusted returns. [Online] Available at: ellenmacarthurfoundation.org/news/new-research-shows-that-the-circular-economy-has-a-de-risking-effect-and
- Ellen MacArthur Foundation, n.d.a. Circulytics: Measuring circular economy performance. [Online] Available at: ellenmacarthurfoundation.org/resources/circulytics/resources
- Ellen MacArthur Foundation, n.d.b. Examples of circular economy in cities. [Online] Available at: ellenmacarthurfoundation.org/topics/cities/examples
- Ellen MacArthur Foundation, n.d.c. What is a circular economy?. [Online] Available at: ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview
- Esposito, M., Tse, T. & Soufani, K., 2018. Introducing a Circular Economy: New Thinking with New Managerial and Policy Implications. California Management Review, 60(3), pp. 5–19. [Online] Available at: researchgate.net/publication/323742801_Introducing_a_Circular_Economy_New_Thinking_with_New_Managerial_and_Policy_Implications
- European Commission, 2020. A new Circular Economy Action Plan for a Cleaner and More Competitive Europe. [Online] Available at: eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN
- European Commission, 2022. Directive (EU) 2022/2464 of the European Parliament and of the Council. [Online] Available at: eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464

- European Commission, 2023. Commission Delegated Regulation (EU) 2023/2486. [Online] Available at: eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202302486
- European Commission, 2024. Circular economy and bioeconomy sectors . [Online] Available at: rea.ec.europa.eu/funding-and-grants/horizon-europe-cluster-6-food-bioeconomy-natural-resources-agriculture-and-environment/circular-economy-and-bioeconomy-sectors_en
- European Commission, n.d.a. EU Taxonomy for Sustainable Activities. [Online] Available at: finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en
- European Commission, n.d.b. The European Green Deal. [Online] Available at: commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
- European Environment Agency, 2022. Managing the systemic use of chemicals in Europe. [Online] Available at: <https://www.eea.europa.eu/publications/managing-the-systemic-use-of>
- European Environment Agency, 2024. Capturing the climate change mitigation benefits of circular economy and waste sector policies and measures. [Online] Available at: eea.europa.eu/publications/capturing-the-climate-change-mitigation#:~:text=The%20circular%20economy%20is%20an,the%20challenge%20of%20quantifying%20impacts.
- EY, 2022. Circular Economy: Navigating the Evolving Global Policy Landscape. [Online] Available at: ey.com/en_us/insights/chemicals/circular-economy-navigating-the-evolving-global-policy-landscape
- GRI, 2020. GRI 306: Waste 2020. [Online] Available at: globalreporting.org/standards/standards-development/topic-standard-for-waste/
- IDB, 2021. Inclusive Circular Economy in the Pacific Alliance. [Online] Available at: iadb.org/en/project/RG-T3775
- IISD, 2020. Effects of the Circular Economy on Jobs. [Online] Available at: iisd.org/system/files/2020-12/circular-economy-jobs.pdf
- ING, 2020. Rethinking the road to the circular economy. [Online] Available at: think.ing.com/reports/circular-economy-rounding-up-the-costs-and-benefits/
- International Labour Organization, 2018. World Employment Social Outlook 2018—Greening With Jobs. [Online] Available at: webapps.ilo.org/weso-greening/documents/WESO_Greening_EN_web2.pdf
- International Labour Organization, 2023. Decent Work in the Circular Economy: An overview of the existing evidence base. [Online] Available at: ilo.org/sites/default/files/wcmsp5/groups/public/@ed_dialogue/@sector/documents/publication/wcms_881337.pdf
- International Resource Panel, 2018. Re-defining Value—The Manufacturing Revolution. [Online] Available at: resourcepanel.org/reports/re-defining-value-manufacturing-revolution

- International Resource Panel, 2019. Global Resources Outlook 2019. [Online] Available at: resourcepanel.org/reports/global-resources-outlook-2019
- ISO, 2024. ISO 59004:2024. Circular economy—Vocabulary, principles and guidance for implementation. [Online] Available at: iso.org/standard/80648.html
- Khanna, M., Gusmerotti, N. & Frey, M., 2022. The Relevance of the Circular Economy for Climate Change: An Exploration Through the Theory of Change Approach. [Online] Available at: researchgate.net/publication/359588593_The_Relevance_of_the_Circular_Economy_for_Climate_Change_An_Exploration_through_the_Theory_of_Change_Approach
- Kopgroep Circulair Financiering, 2024. Guidance on the origin, goal, and use of the Circular Risk Scorecard. [Online] Available at: dnb.nl/media/gx2nwzlo/circular-risk-scorecard-a-practical-guide-v1-0.pdf
- McKinsey, 2020. Risk, resilience, and rebalancing in global value chains. [Online] Available at: mckinsey.com/capabilities/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains
- Mongo, M., Laforest, V., Belaïd, F. & Tanguy, A., 2022. Assessment of the Impact of the Circular Economy on CO₂ Emissions in Europe. Journal of Innovation Economics & Management, Issue 39, pp. 15–43. [Online] Available at: [cairn.info/revue-journal-of-innovation-economics-2022-3-page-15.htm&wt.src=pdf](https:// Cairn.info/revue-journal-of-innovation-economics-2022-3-page-15.htm&wt.src=pdf)
- OECD, 2019. Best Available Techniques (BAT) for Preventing and Controlling Industrial Pollution, Activity 3: Measuring the Effectiveness of BAT Policies, Environment, Health and Safety, Environment Directorate. [Online] Available at: oecd.org/content/dam/oecd/en/publications/reports/2019/06/best-available-techniques-bat-for-preventing-and-controlling-industrial-pollution-activity-3-measuring-the-effectiveness-of-bat-policies_edd66e19/e8a85f61-en.pdf
- OECD, 2022. Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options. [Online] Available at: oecd-ilibrary.org/environment/global-plastics-outlook_de747aef-en
- Ogunmakinde, O., Egbelakin, T. & Sher, W., 2022. Contributions of the circular economy to the UN sustainable development goals through sustainable construction. Resources, Conservation, and Recycling. [Online] Available at: sciencedirect.com/science/article/abs/pii/S0921344921006315
- Schröder, P., 2020. Promoting a Just Transition to an Inclusive Circular Economy. [Online] Available at: circulareconomy.europa.eu/platform/sites/default/files/2020-04-01-inclusive-circular-economy-schroder.pdf
- The London School of Economics and Political Science, Grantham Institute on Climate Change and the Environment, 2022. What are stranded assets? [Online] Available at: lse.ac.uk/granthaminstitute/
- UN, 2023. Reducing food loss and waste: Taking Action to Transform Food Systems. [Online] Available at: un.org/en/observances/end-food-waste-day

- UNEP FI, 2023. Guidance on Resource Efficiency and Circular Economy Target Setting. Version 2. [Online] Available at: unepfi.org/industries/banking/guidance-on-resource-efficiency-and-circular-economy-target-setting-version-2/
- UNEP FI, 2024a. European Sustainability Reporting Standards (ESRS). [Online] Available at: unepfi.org/impact/interoperability/european-sustainability-reporting-standards-esrs/
- UNEP FI, 2024b. Sector Mappings. [Online] Available at: unepfi.org/impact/impact-radar-mappings/impactmappings/
- UNEP FI, 2024c. Statement from the private financial sector to the member states negotiating the international legally binding instrument (ILBI) to end plastic pollution. [Online] Available at: unepfi.org/wordpress/wp-content/uploads/2024/04/Finance-Statement-on-Plastic-Pollution_Signatories.pdf
- UNEP FI, 2020. Financing Circularity: Demystifying Finance for the Circular Economy. [Online] Available at: unep.org/news-and-stories/press-release/new-unep-report-lights-way-financial-institutions-shift-more
- UNEP FI, 2022a. Impact Protocol. [Online] Available at: unepfi.org/impact/impact-protocol/
- UNEP FI, 2022b. Impact Radar. [Online] Available at: unepfi.org/impact/impact-radar-mappings/
- UNEP, 2019. Global Chemicals Outlook II. From Legacies to Innovative Solutions: Implementing the 2030 Agenda for Sustainable Development. [Online] Available at: unep.org/topics/chemicals-and-pollution-action/chemicals-management/global-chemicals-outlook
- UNEP, 2023a. Guidelines for Accelerating the Circular Economy Transition in Africa. [Online] Available at: wedocs.unep.org/handle/20.500.11822/43144
- UNEP, International Resource Panel, 2024. Global Resources Outlook 2024. [Online] Available at: unep.org/resources/Global-Resource-Outlook-2024
- UNEP, UNDP and UNFCCC Secretariat, 2023. Building Circularity into Nationally Determined Contributions (NDCs)—A Practical Toolbox. [Online] Available at: unep.org/resources/toolkits-manuals-and-guides/building-circularity-nationally-determined-contributions-ndcs
- WBCSD, 2023. Circular Transition Indicators v 4.0. [Online] Available at: wbcSD.org/resources/circular-transition-indicators-v4/
- WBCSD, n.d. Global Circularity Protocol. [Online] Available at: wbcSD.org/actions/global-circularity-protocol/
- World Economic Forum, 2020. Nature Risk Rising. [Online] Available at: weforum.org/press/2020/01/half-of-world-s-gdp-moderately-or-highly-dependent-on-nature-says-new-report/
- World Economic Forum, 2024. The Global Risks Report 2024. [Online] Available at: www3.weforum.org/docs/WEF_The_Global_Risks_Report_2024.pdf
- World Resources Institute, 2019. Here's What Could Go Wrong with the Circular Economy—and How to Keep it on Track. [Online] Available at: wri.org/insights/heres-what-could-go-wrong-circular-economy-and-how-keep-it-track

- World Wide Fund for Nature, 2022. When Finance Talks Nature. [Online] Available at: wwfeu.awsassets.panda.org/downloads/when_finance_talks_nature.pdf
- Zara, C. & Bellardini, L., 2023. Circular Economy and Finance. In: The Routledge Handbook of Catalysts for a Sustainable Circular Economy. s.l.:s.n., p. 642. [Online] Available at: taylorfrancis.com/chapters/oa-edit/10.4324/9781003267492-15/circular-economy-finance-claudio-zara-luca-bellardini
- Zink, T. & Geyer, R., 2017. Circular Economy Rebound. Journal of Industrial Ecology, Volume 21. [Online] Available at: onlinelibrary.wiley.com/doi/abs/10.1111/jiec.12545



Annex

Case studies on operationalising the nexus between circular economy and environmental and social impact

About the case studies

This compilation is a collection of nine case studies received from seven member banks. Its purpose is to serve as an inspiration for banks and the broader community by showcasing how some 'early mover' banks are integrating circularity into their policies and processes through client engagement, and aligning portfolios and direct investments to operationalise the nexus between circular economy and environmental and social impact.

The case studies have been compiled based on insights gathered from member banks and publicly available information. They offer practical examples of supporting clients in the integration of circular business models across the value chain and of implementation of relevant financial products and policies, illustrating how circular economy models can be put into action while upholding the Principles for Responsible Banking, with the objective to generate positive impact and decrease negative impact across impact areas.

Disclaimer








The case studies are examples of actions taken by signatories to the Principles for Responsible Banking to support circularity. The examples are highlighted to demonstrate positive, first steps on operationalising the nexus between circular economy and environmental and social impact areas.

The examples referred to in these case studies represent each named bank's own individual progress and action, reflective of their business activities, country context and sustainable banking strategies. The collation of these case studies should in no way be construed as suggesting that the banks represented have worked together on any form of collective action. While collecting case studies may have been inspired and supported by circular economy working groups convened by UNEP FI, their consolidation and publication within this Annex does not represent an endorsement by UNEP FI as to the quality or correctness of the banks' individual action reported within public disclosures.

In the same way, none of the banks, nor any of their subsidiaries, branches, directors, officers or employees accepts any liability for any loss, direct or indirect, that may result from the use of this information nor offers any warranty, either express or implicit, regarding its accuracy, integrity or correctness. None of the banks are responsible for updating these contents or for giving notice of such changes. This document and its contents do not constitute an offer, invitation or solicitation to purchase, divest or enter into any interest in any assets or instruments.

The case study summary box shown with each case study represents UNEP FI's own categorisation assessment based on the relevant bank's public disclosures and, amongst other things, aims to highlight how the nexus between circular economy and environmental and social impact areas is being operationalised through each individual bank's policies and processes, client engagement, portfolio composition and financial flows, and advocacy and partnerships.

Case study listing

Bank	Case study	Nexus	PRB Action Category*	Sector(s)	Circular business model category
 Bancolombia	Strategic circular finance initiatives and partnerships	Climate, Nature, Healthy and inclusive economies	1, 2, 3	Various sectors	Across the value chain
 BBVA	Strategic partnership for a circular reverse factoring solution	Climate, Nature	1, 2, 3, 4	Energy	Across the value chain
	Driving sustainable water management through water positive technical solutions financing	Climate, Nature, Healthy and inclusive economies	2, 3, 4	Food & beverage, Hotels, Agriculture, Textile, others.	Circular design and production
 INTESA SANPAOLO	Advancing circular economy through Green Bonds	Climate, Healthy and inclusive economies	3	Various sectors	Across the value chain
	Circular Economy Lab	Climate, Nature, Healthy and inclusive economies	1, 2, 4	Various sectors	Across the value chain
 MCB	Circular investment to harness by-products of the poultry industry for use in pet food	Climate, Nature, Healthy and inclusive economies	2, 3	Agri-food	Circular value recovery
 SEB	Research on the shift from ownership to usership models	Climate, Nature	4	Various sectors	Circular use
 Swedbank	Supporting circular vision through product as a service model	Climate, Nature, Healthy and inclusive economies	2, 3	Retail	Circular use
 UniCredit	Advancing circular economy through strategic events	Climate, Nature, Healthy and inclusive economies	2, 4	Various sectors	Across the value chain

*PRB Action Category: 1: Policies and Processes; 2 : Client Engagement; 3 : Portfolio Composition and Financial Flows; 4 : Advocacy and Partnerships

Strategic circular finance initiatives and partnerships

Sector	Various sectors
Region	Latin America
PRB Action Category	Internal Policies and Processes, Client Engagement, Portfolio Composition and Financial Flows
Nexus with which Impact area(s)	Climate Mitigation, Nature, Healthy and inclusive economies
Stakeholders involved	Ellen MacArthur Foundation, Investors, Clients
Circular business model category	Across the value chain

What?

In June 2021, Bancolombia identified the circular economy as a strategic priority and subsequently established a dedicated team to develop this strategy. Under the Sustainable Division, Bancolombia's Circular Economy team created a specific internal taxonomy to identify and support the financing of projects supporting circular and sustainable business models. Between 2021 and 2023, the bank financed over 1,200 projects, amounting to 2.1 trillion Colombian pesos (USD 538 million), underscoring the significance of circular economy initiatives within its sustainability agenda. In March 2023, Bancolombia became the first Latin American company to partner with the Ellen MacArthur Foundation, aiming to enhance circular economy capacities and value chains. Key initiatives, such as Hub Círculos, Circular Diagnostics, and Circulaton, further described below, foster collaboration, assess circularity, and promote sustainable resource use and ecosystem regeneration in Colombia.

Who?

The Vice-Presidency of Innovation and Sustainability, leads the sustainability strategy and spearheads the circular economy team, the sustainability team, the innovation team and the foundation Bancolombia team.

Bancolombia partnered with the Ellen MacArthur Foundation to enhance its efforts in Colombia and other regions.

Additionally, large companies and various economic actors in the region are integral to these initiatives.

Why?

Bancolombia's efforts to promote the circular economy stem from the mandate to honour their purpose "Promote sustainable development to achieve the wellbeing of all". This purpose guides the actions of the teams to address environmental, economic, and social challenges in Colombia. This approach is particularly significant for Colombia due to its rich biodiversity and natural resources, which are currently threatened by issues such as deforestation, pollution, and climate change impacts like flooding and water shortages.

Bancolombia understands that the transition to circular economy models is the way to achieve a sustainable economic model that allows all the economic actors to create a sustainable future for all the actors and the future generations and is a tangible path of actions to materialise the sustainability concept.

The National Circular Economy Strategy (ENEC), launched in 2019 in Colombia, underscores the importance of integrating circular practices across various sectors to enhance resource efficiency and foster sustainable business models. This strategy aims to create new jobs, reduce poverty, and promote industrial symbiosis, where different sectors collaborate to optimise resource use and minimise waste. Bancolombia's initiatives align with these national goals by financing projects that support the transition to circular business models.

How?

Bancolombia is advancing the circular economy through several strategic initiatives and partnerships.

- **Circular economy Taxonomy:** The circular economy team within Bancolombia's Vice-Presidency of Innovation and Sustainability has developed a specific circular economy taxonomy for its Sustainable Division. This internal taxonomy guides the financing of projects that promote the transition to circular and sustainable business models.
- **Hub Círculos**, is a collaborative platform that brings together large companies in the region to create systemic changes by solving problems that affect multiple economic agents. This initiative promotes learning and the development of collaborative projects that support circular economy principles.
- **Circular Diagnostics** is an innovative tool, which aligns with international circular economy standards while being tailored to the needs of local clients and the national context. The tool helps organisations assess their level of circularity and provides recommendations to facilitate their transition towards a circular business model, aiming for positive social, environmental, and economic impacts.
- **Circulaton program** is an annual call for initiatives and solutions that promote the responsible use of resources and the regeneration of ecosystems in Colombia. This program aims to contribute to the design of sustainable systems that generate economic opportunities with social and environmental benefits.

Read more about this case study [here](#).

Strategic partnership for a circular reverse factoring solution

Sector	Energy
Region	Spain
PRB Action Category	Internal Policies and Processes, Client Engagement, Portfolio Composition and Financial Flows, Advocacy and Partnerships
Nexus with which Impact area(s)	Climate Mitigation, Nature
Stakeholders involved	Sustainability Team Endesa and BBVA Global Sustainability Area, Caixabank, Santander
Circular business model category	Across the value chain

What?

In 2022, BBVA and Endesa, Spain's largest electricity company, introduced an advance invoice payment structure for suppliers demonstrating their commitment to circularity and sustainability, beyond reducing GHG emissions. This preferential payment system improves the competitiveness and financing conditions of Endesa's suppliers, incentivising the integration of circular economy practices into their business models. The financial incentive structure for integration of circularity in client business models targets sectors including energy, food and beverage, hotels, construction, and retail.

Who?

BBVA partnered with Endesa, CaixaBank, and Santander for this project. The innovative financial solution is part of Endesa's Iberia Supplier Development Programme, which helps companies, especially SMEs, become more sustainable and competitive by offering them tools to improve their environmental management and circular economy strategies.

Why?

Measuring and reducing GHG emissions and circularity for the supply chain was a priority for most of the big companies that participated in a working group (informal alliance) created by Endesa to work towards circular solutions.

BBVA and Endesa decided to take the lead in developing a financial solution to promote circularity in the value chain. BBVA and Endesa's perspective was that circularity is a medium-term path that starts with GHG reductions, but that it needs to scale in a holistic approach with other criteria such as water consumption, materials, and others to increase resilience in their value chain and develop new business models with waste valuation.

Endesa's objective was to create awareness of this path towards circularity in their value chain, in collaboration with the finance and procurement teams because circularity is part of their sustainability strategy.

How?

Endesa and BBVA defined sustainability criteria to create a path of circularity for the supply chain after internal research and polls to the suppliers to know what kind of certifications they could have and would be easier to get.

On the basis of certifications that demonstrate a degree of commitment to the circular economy of suppliers, a progressive bonus scheme applies on the costs of advance payment of invoices. Access to these bonuses, divided into two levels, depends on the type of certification that is accredited by suppliers. In this way, it is possible to reduce the advance payment costs by up to more than 50 per cent.

Level 1: If suppliers have the Carbon Footprint Stamp in “Calculation” mode registered at official institutions or ISO 14001 Environmental certification, they benefit from a 35-per-cent reduction in the cost of the advance payment.

Level 2: A bonus upgrade applies if the suppliers have the Carbon Footprint Stamp in “Calculate” and “Reduce” mode registered or any of the following certifications: ISO 14001 Environmental certification, Zero Waste type waste reduction and valorisation certification or equivalent, ISO 50001 Energy management certification, ISO 14046 Water footprint certification or some circular management certification provided by an accredited entity. In this case, a 25-per-cent reduction in the cost of the advance payment is achieved in addition to the discount obtained with Level 1 (i.e. more than 50-per-cent total reduction of the advance payment cost).

Endesa developed a tool to monitor compliance with these conditions in their procurement teams, while BBVA created a new business line primarily aimed at reducing GHG emissions to enhance the sustainability supply chain finance offering for more sectors. These internal tools are used for large clients and allow to offer supply chain finance and advisory to suppliers. BBVA is currently exploring how to incorporate other metrics such as water related metrics.

Read more about this case study [here](#).



Driving sustainable water management through water positive technical solutions financing

Sectors Involved	Food and Beverage, Hotels, Agriculture, Textile, others.
Region	Spain
PRB Action Category	Client Engagement, Portfolio Composition and Financial Flows, Advocacy and Partnerships
Nexus with which Impact area(s)	Climate Mitigation, Nature, Healthy and inclusive economies
Stakeholders involved	Veolia and BBVA, business clients
Circular business model category	Circular design and production

What?

BBVA assists clients in water intensive industries with their water footprint assessments and with financing water solutions with an overarching goal to help them execute a water consumption reduction plan or become water positive.²

Who?

BBVA's Global Sustainability Business Development department partnered with Veolia, a company specialising in water, waste and energy solutions.

Why?

Water is the natural capital with the most dependencies, risk, and business opportunities in BBVA's footprint. Spain is a country with high risk of water stress and some regions are currently experiencing drought emergency. In some of those regions, local authorities have asked the industry sector to reduce their water consumption by 25 per cent, which can limit productivity and competitiveness.

² "Water positive" refers to efforts and practices by individuals, communities, or companies that aim to return more water to the environment and communities than they consume. This can be achieved through various methods such as enhancing water efficiency, restoring water habitats, or investing in technologies that increase water availability.

How?

BBVA started by identifying the business opportunity on water investments and prioritising two sectors in Spain: agribusiness and hotels.

BBVA and Veolia started a collaboration to run a pilot in January 2024 that proposed to BBVA clients specific water advisory and solutions that include:

1. Assessing corporate/product water footprint
2. Setting a water footprint reduction plan and offer to finance specific water-tech solutions implementation (with Veolia) by sector to reduce water-related risks and footprint.
3. Offering to finance water nature-based projects in local basins to become water positive through offsetting (through Veolia and Act4water certification system).

BBVA contemplates to expand the pilot, in view of:

- i. the strong nexus between sustainable agriculture practices, capturing carbon, water efficiency and waste management in the food and beverage sector;
- ii. the risk of water stress in other sectors with a high nexus between climate, natural capital, health, and inclusive growth in Mexico, where a pilot expansion is being considered.

Read more about this case study [here](#).

Advancing the circular economy through green bonds

Sector	Various sectors
Region	Global
PRB Action Category	Portfolio Composition and Financial flows
Nexus with which Impact area(s)	Climate Mitigation, Healthy and inclusive economies
Stakeholders involved	Investors, beneficiaries of proceeds, Sustainability rating agencies.
Circular business model category	Across the value chain

What?

In 2019, Intesa Sanpaolo launched a EUR 750 million Green Bond focused on circular economy to support loans from its EUR 6 billion 2018–2021 credit plafond dedicated to the circular economy. The bond, developed in line with ICMA’s international standards (Green Bond Principles 2018, Social Bond Principles 2018, and Sustainability Bond Guidelines 2018), received a Second Party Opinion from ISS ESG. In 2022, the bank renewed its commitment to the circular economy by announcing a new target of EUR 8 billion, through a new credit facility, to support the circular transition of its clients along the 2022–2025 Business Plan.

Who?

Intesa Sanpaolo bank, in particular the Group Treasury and Capital Management function was supported by the Circular Economy Desk of Intesa Sanpaolo Innovation Center for the creation of the green bond focused on circular economy.

Why?

Intesa Sanpaolo’s strategic transition towards the circular economy is driven by economic, environmental, and strategic motivations. By supporting the innovation of industrial processes and business models, the bank aims to contribute to enhance resource efficiency, prolong product lifecycles, and reduce waste, thereby securing economic benefits and competitive advantage. This shift aligns with global sustainability trends and mitigates risks related to resource price volatility and environmental regulations.

The bank has seen substantial financial success with this strategy, as demonstrated by the strong market demand for its Green Bond focused on circular economy issued in 2019, which collected over EUR 3.5 billion of orders—four times its issuance target. This high demand reflects robust investor interest in circular economy projects.

How?

Intesa Sanpaolo estimates the impacts and benefits of its entire portfolio of eligible loans for each green category. By evaluating the average impact per million euros financed, the bank calculates the tons of CO₂ avoided for each bond acquired.

Impact reporting at Green Portfolio Level				
Eligible Loan Category	# of loans	Outstanding Amount EUR m	Share of total portfolio financing	Avoided financed GHG emissions (tCO ₂)
Renewable Energy	957	2,337	18%	2,812,800
Energy efficiency	17	142	1%	30,500
Green buildings	65,961	8,542	65%	201,300
Circular economy	374	2,197	16%	3,433,000
Total	67,309	13,218	100%	6,477,600
Estimated Impact per EUR 1m invested (GHG)				490

*as of 31 December 2023

The circular economy loans within Intesa Sanpaolo's green portfolio have demonstrated substantial environmental impact. With a circular economy loan amount of EUR 2.2 billion, representing 16.6 per cent of the total EUR 13.2 billion portfolio, these loans account for 3.4 million tCO₂eq, which is 53 per cent of the total 6.4 million tCO₂eq. Notable projects financed by these bond proceeds include the acquisition and revamping of a photovoltaic park, the development of a Product-as-a-Service business model for public lighting, and the establishment of a European green hydrogen-based steelmaking plant.

As of December 31, 2023, the total amount of Intesa Sanpaolo Green Bonds outstanding is approximately EUR 8.7 billion. Proceeds from any Intesa Sanpaolo Bond issued under the Framework are exclusively allocated to Eligible Loans defined within the ICMA Green Bond Principles 2021.

Read more about this case study [here](#).

Circular economy lab

Sector	Various sectors
Region	Italy
PRB Action Category	Client Engagement, Advocacy & Partnerships
Nexus with which Impact area(s)	Climate Mitigation, Nature, Healthy & Inclusive Economies
Stakeholders involved	Industry/individual companies, Cariplo Factory, Fondazione Cariplo, Clients
Circular business model category	Across the value chain

What?

Intesa Sanpaolo offers dedicated consulting services aimed at generating new economic and relational value for the bank and increasing the competitiveness of its clients. For example, Intesa Sanpaolo Innovation Center, in synergy with the bank's business units, develops advisory and non-financial services, proposing transformative paths in terms of innovation and circular economy. In particular, in 2018 Intesa Sanpaolo and Intesa Sanpaolo Innovation Center established the [Circular Economy Lab](#) in collaboration with Fondazione Cariplo and Cariplo Factory. The aim is to support and accompany the transformation of the Italian economic system, disseminating new models of value creation in the collective interest by accelerating the transition to the circular economy.

Who?

The Circular Economy Lab is a collaborative initiative established thanks to the partnership among:

- Intesa Sanpaolo Innovation Center (ISPIC), the Intesa Sanpaolo Group company dedicated to frontier innovation. Among its objectives, ISPIC accelerates the business transformation of companies according to the criteria of open innovation and the circular economy, to make the Intesa Sanpaolo Group the driving force of a more aware, inclusive and sustainable economy;
- Cariplo Factory, an innovation hub established by Fondazione Cariplo serving as a catalyst for talent development, entrepreneurial support, investment, and internationalisation. Fondazione Cariplo is the philanthropic foundation behind Cariplo Factory with a strategic focus on youth, work, and innovation.

Why?

The establishment of the Circular Economy Lab aligns with Intesa Sanpaolo's strategic commitment to support the sustainable development and the circular economy, aiming to embed social and environmental considerations into its business model and support global sustainability targets. The Circular Economy Lab was established to serve as a key national hub dedicated to circular innovation, providing education, connection and

advisory solutions to SMEs and corporate clients aimed at transforming their business models according to a circular approach. Intesa Sanpaolo recognises that the Italian economic and industrial ecosystem has the opportunity to play a leading role in this shift, especially thanks to the distinctiveness of Made in Italy, with the strategic objective of protecting and increasing the competitiveness of companies and their resilience over the medium-long term.

How?

The Circular Economy Lab strategy involves open innovation operating methodologies aimed at identifying innovative solutions and technologies in the area of the circular economy. Activities are based on three pillars:

- **Circular Connection:** initiatives aimed at creating an open dialogue on the Circular Economy, involving a vast national and international network of companies, institutions, universities, research centers and other partners;
- **Circular Innovation:** innovative consultancy services that can be customised, aimed at accelerating the transformation process of companies (SMEs and corporates) towards circular economy models;
- **Circular Education:** training courses for companies, aimed at spreading knowledge of the circular economy and related opportunities, especially in terms of business, competitiveness and resilience.

An example of a circular open innovation service is represented by a path developed in collaboration with a leading company in the packaging sector, which allowed the identification of innovative and circular materials aimed at replacing plastic packaging and containers used in the food sector, as well as to initiate the exploration of a "proof of concept" product to demonstrate the industrial applicability of the technologies identified. In general, during 2023 the Circular Economy Lab guided and facilitated the identification of the circular innovation needs of various companies through the activation of two Circular Open Innovation programs for the mobility and healthcare sector and one circular workshop project for the fashion sector. A [Strategic Master Agreement](#) has also been finalised between Intesa Sanpaolo, Intesa Sanpaolo Innovation Center and the Ministry of Economy of the United Arab Emirates for the analysis of the local circular environment and the creation of an Emirates Circular Economy Lab.

Read more about this case study [here](#).



Circular investment to harness by-products of the poultry industry for use in pet food

Sector	Agri-food
Region	Mauritius
PRB Action Category	Client Engagement, Portfolio Composition and Financial Flows
Nexus with which Impact area(s)	Climate Mitigation, Nature, Healthy and Inclusive Economies
Stakeholders involved	Avipro
Circular business model category	Circular value recovery

What?

In March 2023, MCB financed with preferential pricing under its Sustainable Loan scheme Avipro's innovative project aimed at recycling waste from chicken slaughtering to produce valuable by-products used in pet food production. Avipro, a company specialising in poultry processing, established a state-of-the-art facility with MCB's support. This facility transforms chicken viscera, heads, and feet into pure fat and high-protein flour, effectively reducing waste and environmental impact.

MCB conducted an eligibility assessment based on their internal green taxonomy—which includes a circular economy segment, ensuring the project meets their green criteria, including environmental and social risk assessments before fund disbursement.

Who?

- The Avipro team spearheaded the operational aspects of the project, overseeing the construction and management of a new factory designed to recycle chicken slaughter waste into valuable by-products. Their responsibilities included implementing advanced equipment and ensuring high standards of production and sustainability.
- MCB took a prominent role in overseeing the financial and environmental aspects of the project. In 2023, MCB conducted an eligibility assessment based on their green taxonomy to verify the project's alignment with their criteria for green financing. Before disbursing funds, MCB conducted comprehensive environmental and social risk assessments. The project was categorised under the circular economy segment.

Why?

This initiative aligns with MCB's strategic focus on enhancing resource efficiency, managing waste effectively, and mitigating greenhouse gas emissions, contributing to a more sustainable future.

A reduction in greenhouse gas emissions is achieved by placing the rendering plant adjacent to the slaughterhouse, thereby eliminating the need for transporting waste to the distant Mare Chicose landfill. This proximity not only saves fuel and reduces operating expenses but also minimises the environmental footprint of the operations.

Furthermore, by processing chicken waste locally, the plant decreases reliance on imported raw materials, enhancing resource efficiency and self-sufficiency. This is particularly important for Mauritius, an island nation that benefits greatly from reducing dependency on international suppliers. The project also supports climate mitigation and adaptation efforts through its circular economy approach, which recycles waste into valuable products. This contributes to a more resilient and reliable local supply chain.

Additionally, the project aligns with national environmental policies. The Ministry of Environment in Mauritius has published a roadmap prioritising the circular economy in key sectors such as agrifood and solid waste. Mauritius is also revising its National Adaptation Plan and has committed to reducing greenhouse gas emissions in its Nationally Determined Contribution. Aligning with these policies underscores the project's commitment to national environmental goals. The financing of Avipro's rendering plant by MCB sets a precedent for encouraging resource efficiency, waste management, and the circular economy in Mauritius.

How?

Avipro, a client of MCB, has implemented an innovative solution for managing waste from chicken slaughtering in Mauritius. Traditionally, chicken viscera, heads, and feet were disposed of in the island's sole landfill, Mare Chicose. Avipro's newly constructed factory now recycles this waste by cooking it at high temperatures and separating it into two valuable by-products: pure fat and high protein flour. These products are essential ingredients in the production of pet food, supplied to Livestock Feed Ltd, a reputable local producer.

Construction of the factory began in 2019 but faced delays due to the COVID-19 pandemic, ultimately completing in 2022. The facility officially commenced operations in July 2022, equipped with advanced technology imported from Europe and overseen by a team of four experts to ensure smooth and efficient operations. This initiative not only mitigates waste but also generates raw materials, enhancing the sustainability of Avipro's operations.

Additionally, the factory utilises surplus fat as a combustible for steam production and repurposes heat from the cooker to warm water in the slaughter unit, further exemplifying its commitment to energy efficiency and environmental sustainability. The project was financed by MCB, which provided preferential pricing under its Sustainable Loan scheme.

Read more about this case study [here](#).



Research on the shift from ownership to usership models

Sector	Various sectors
Region	Global
PRB Action Category	Advocacy and Partnerships
Nexus with which Impact area(s)	Climate Mitigation, Nature
Stakeholders involved	Actors from various sectors including retail, B2B and B2C markets, AI and tech industries, manufacturing sector
Circular business model category	Circular use

What?

Published in April 2023, SEB's report titled "Regenerate the Economic Machine" presents a comprehensive analysis of the circular economy, emphasising the shift from traditional ownership to usership models. Predicting that usership could make up 20 per cent of physical retail in the next two decades, the report identifies "next mile" logistics, usership platforms, and software advancements as pivotal elements. It underscores the critical role of artificial intelligence in minimising CO₂ emissions and aiding climate change mitigation. The primary objectives of this report are to initiate discussions among stakeholders about the necessity of this economic shift and to encourage the development of new economic incentives for the sustainable design and manufacture of physical goods. This approach not only fosters client engagement by highlighting innovative business models and technology but also serves as an advocacy tool promoting broader adoption of sustainable practices within the industry.

Who?

The report was produced in collaboration with stakeholders in various sectors such as retail, B2B and B2C markets, AI and technology industries, and the manufacturing sector.

Why?

The rationale behind SEB's report is to address the pressing issues of overconsumption and resource depletion by promoting a shift from ownership to usership of physical products. SEB believes that this shift is a necessary step towards achieving a circular economy, which aims to reduce waste and optimise resource use.

How?

The report highlights the potential economic benefits of usership models, such as creating new business opportunities and improving resource efficiency. This approach aligns with global sustainability goals and seeks to provide a viable pathway for industries to reduce their environmental impact.

The report outlines several ways to facilitate the shift from ownership to usership and advance the circular economy. It suggests leveraging disruptive innovations such as smart sensors, artificial intelligence (AI), 5G technology, encryption technologies, additive manufacturing, and renewable materials. These technologies are expected to converge and enable new business models based on usership.

The report also introduces the concept of “financial twins” in smart accounts to attract third-party investments, which can help scale the sharing economy. This approach involves creating digital replicas of physical assets that can be managed and monetised more efficiently. Furthermore, the report discusses the development of novel “next mile” logistics and usership platforms that can streamline the transition and improve accessibility for consumers. These innovations aim to lower CO₂ emissions and foster a more sustainable economic model by reducing waste and optimising resource use.

Read more about this case study [here](#).

Supporting circular vision through product as a service model

Sector	Retail
Region	Nordics
PRB Action Category	Client Engagement, Portfolio Composition and Financial Flows
Nexus with which Impact area(s)	Climate Mitigation, Nature, Healthy and inclusive economies
Stakeholders involved	Consumer, corporate client (Synsam), financial services (PayEx), insurance providers
Circular business model category	Circular use

What?

Between 2018 and 2020, Swedbank, in collaboration with PayEx (a subsidiary of Swedbank), developed a customised financial solution for Synsam Lifestyle, a subscription service in the Nordic eyewear market. Synsam Lifestyle offers a combination of products and services (including spectacles, sunglasses, contact lenses, a pair of replacement spectacles every year, eye examinations, insurance against loss, theft and damage, and free replacement of lenses if their vision changes), all for a fixed monthly fee. Swedbank and PayEx integrated credit assessments and payment options into Synsam’s checkout process and provided a financing solution that ensures Synsam promptly receives the full value of a subscription once the customer gets their glasses. PayEx manages ongoing invoicing and claim management, significantly supporting Synsam’s transition to a circular business model, now a major part of their sales.

Who?

Swedbank collaborated closely with PayEx on this project. Swedbank was responsible for arranging the financial structure, including the distribution of risk to manage client insolvency through financial guarantees with two insurance companies. PayEx handled the integration of credit assessments, payment options, and ongoing invoicing and claim management within Synsam’s checkout environment.

Why?

The biggest climate impact from eyewear comes from raw material extraction (for instance, mining and forestry) and manufacturing phases in the product life cycle. The

“X as a service”³ model allows the operator to retain control over the product. That in turn allows for increased utilisation (via for instance, second life reselling) and ensuring recovery and finally recycling of the product. This reduces the need for new raw material extraction in the value chain and therefore reduces embedded GHG emissions in the product.

Localising and on/re-shoring more of the product value chain may positively impact local communities through direct (work opportunities), indirect (secondary work opportunities), and induced (increased taxes for social welfare distribution etc.) effects. There is also potential for negative social rebound impacts in the existing global supply chain(s) communities. In such cases, it is important to identify alternatives to replace lost job opportunities.

How?

Based on PayEx’s existing services, PayEx developed a specially adapted financial solution for the entire Nordic region, where everything from credit assessment to the customer’s choice of payment method is integrated into the checkout environment. PayEx also added a financing solution, according to Synsam’s needs, where Synsam receives the full value of a contract as soon as the customer receives its glasses. PayEx also manages the ongoing invoicing to Synsam’s customers and follow-up claim management.

Synsam’s subscription solution together with PayEx services has been very well received by both customers and staff and has also influenced Synsam’s customer satisfaction in a positive direction. In 2023 this circular business model represents more than half of Synsam’s total sales (approx. EUR 500 million).

Read more about this case study [here](#).

3 X as a Service (XaaS) is a collective term that refers to the delivery of anything as a service. It encompasses the many products, tools and technologies that vendors deliver to users as a service over a network—typically the internet—as an alternative to providing them locally or on-site to an enterprise. (techtarget.com/searchcloud-computing/definition/XaaS-anything-as-a-service)

Advancing the circular economy through strategic events

Sector	Various sectors
Region	Europe
PRB Action Category	Client Engagement, Advocacy and Partnerships
Nexus with which Impact area(s)	Climate Mitigation, Nature, Healthy and inclusive economies
Stakeholders involved	Employees, Clients, ESG experts, Industry
Circular business model category	Across the value chain

What?

UniCredit organised several events aiming to advance the circular economy, highlighted by (i) its **ESG Day** on 9 November 2023, focused on various ESG topics, particularly biodiversity and the transition to a circular economy and (ii) the “**Straight Ahead with Circularity**” event in February 2024, which explored the shift from linear to circular business models across multiple sectors, discussing the practical challenges and opportunities this transition presents.

In addition, in December 2022 UniCredit signed its membership to the Ellen MacArthur Foundation both to increase and enrich the knowledge and the awareness around circular economy topics among its employees and to get specific tools to support its clients towards a green and circular transition.

Who?

The ESG Day attracted over 11,000 attendees, including UniCredit employees, clients, and a diverse array of ESG experts, fostering multi-stakeholder engagement. The “Straight Ahead with Circularity” event brought together industry experts from sectors like oil and gas, steel, and fashion to discuss the practicality of circular business models, facilitating dialogue with UniCredit’s clients on sustainable practices.

Why?

UniCredit’s commitment to the circular economy stems from its recognition of environmental sustainability as a core corporate responsibility contributing to long-term business viability and addressing pressing global environmental issues. The emphasis on “cathedral thinking” during ESG Day highlights the need for long-term planning that benefits future generations and aligns with global sustainability goals.

How?

During the ESG Day, UniCredit utilised additionally interactive workshops where participants engaged with topics such as materiality analysis, climate change adaptation strategies, and circular economy principles. Insights from these workshops are intended to refine UniCredit's business strategy towards sustainable and circular practices. The "Straight Ahead with Circularity" event provided a platform for discussing the practical implementation of circular models in conventional industries, highlighting their economic and environmental benefits.

By promoting sustainability discussions and actions within the banking sector, such events encourage industry-wide adoption of resilient and sustainable business models, emphasising the link between circular economy practices, climate action, nature conservation, and the promotion of healthy and inclusive economies.

Read more about the ESG day 2023 [here](#).

UN 
**environment
programme**

**finance
initiative**

UNEP Finance Initiative brings together a large network of banks, insurers and investors that collectively catalyses action across the financial system to deliver more sustainable global economies. For more than 30 years the initiative has been connecting the UN with financial institutions from around the world to shape the sustainable finance agenda. It has established the world's foremost sustainability frameworks that help the finance industry address global environmental, social and governance (ESG) challenges. Convened by a Geneva, Switzerland-based secretariat, more than 500 banks and insurers with assets exceeding US\$100 trillion work together to facilitate the implementation of UNEP FI's Principles for Responsible Banking and Principles for Sustainable Insurance. Financial institutions work with UNEP FI on a voluntary basis and the initiative helps them to apply the industry frameworks and develop practical guidance and tools to position their businesses for the transition to a sustainable and inclusive economy.

unepfi.org



unepfi.org



info@unepfi.org



[/UNEPFinanceInitiative](https://www.facebook.com/UNEPFinanceInitiative)



[UN Environment Programme Finance Initiative](https://www.linkedin.com/company/UNEPFinanceInitiative)



[@UNEP_FI](https://twitter.com/UNEP_FI)