

CIRCULAR SOLUTIONS FOR NATURE

Handbook for businesses



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**Circular solutions for Nature - Handbook
for businesses**

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Executive summary

This practical handbook presents a comprehensive guide for businesses aiming to integrate circular business models into their operations to effectively address biodiversity loss.

It provides a primer of the interconnection between circularity and nature, and thereafter provides a three-step approach for action, based on:

- 1.** identifying critical biodiversity impacts in the value chain;
- 2.** using circular solutions to tackle these impacts;
- 3.** designing the circular transformation journey.

Nature plays a vital role in supporting society, yet it has undergone a dramatic decline as a result of human activities. This poses significant risks to businesses, undermining their operations and supply chains at large.

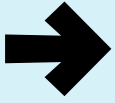
In this handbook, we guide companies to identify and prioritise their most critical biodiversity impacts. To address critical biodiversity impacts, it is vital to tackle the pressures behind these impacts. This requires a shift from the current linear production and consumption models to systems that give us more value from what we have to help us reduce resource use and pressures on nature.

Circular solutions are essential tools for achieving this transformation. Six circular business models are presented to guide companies in formulating which circular solutions can address their critical biodiversity impacts.

Although the handbook can be applied to companies in any sector, it focuses on four land-intensive sectors: buildings and construction; fibres and textiles; food and agriculture; and forests. It delves into the circular solutions that are most relevant for tackling biodiversity loss, tailored specifically for these sectors, providing businesses with actionable strategies for implementation along their respective value chains.

The handbook concludes with designing the transformation journey, by harnessing companies' unique strengths, kick-starting business model transformation and leveraging collaborative efforts for effective outcomes.

By following the outlined steps, businesses can play a pivotal role in unlocking new value-creation opportunities and safeguarding biodiversity.



This handbook will help you to:

1. understand the interconnectedness between the circular economy and biodiversity, and the role of circular solutions in tackling biodiversity loss;
2. discover how circular solutions serve as a vehicle for value creation, competitiveness, innovation and resource optimisation;
3. identify the most critical biodiversity impacts and prioritise actions in these places;
4. to select the most effective circular solutions to reduce the identified critical biodiversity impacts;
5. to kick-start your business model transformation to becoming nature positive.



Who should use this handbook?

1. This handbook primarily targets employees within organisations tasked with corporate sustainability, supply chain management and innovation leadership, as well as executive-level managers seeking to advance solutions that give them more value from existing resources and reduce pressures on nature.
2. Large corporations with established initiatives focused on nature action, including companies that are:
 - a. interested in exploring or already working with nature targets (for example science-based targets for nature (SBTN) or are SBTN-aligned)
 - b. ready to progress towards the implementation phase to deliver on nature targets.
3. Companies especially operating in sectors with significant impact on biodiversity such as: food and agriculture, buildings and construction, fibres and textiles, and the forest sector, with an eye to developing disruptive business models for a growing market.
4. Any company who wants to explore how circular solutions can help them to create more value from existing resources and act on nature.



Circular solutions for nature

Why nature matters for businesses

Businesses rely on nature and ecosystem services for their direct operations and their supply chain activities. About US\$44 trillion of economic value generation – more than half of the world’s GDP in 2019 – depends on nature (WEF 2020). This highlights our society’s vulnerability to risks associated with biodiversity loss.

Despite an increasing focus on nature, companies have limited knowledge of their impacts on biodiversity and how to address them. The World Benchmarking Alliance’s (WBA) Nature Benchmark identified that only 5% of the 350 companies they screened understand their impacts on nature (WBA 2023).

The value of nature should also be seen as an enabler of business value. Nature-positive models could create annual business opportunities worth US\$10 trillion by 2030 (WEF 2020).

To mitigate risks and access untapped business opportunities companies should simultaneously address biodiversity loss, climate change, and overconsumption of natural resources. These challenges are highly interconnected, and management of natural resources is at the heart of both the challenges and the solutions needed.

This handbook serves as an action-oriented guide for companies seeking to navi-

gate the complex interplay between business operations and the natural environment through the implementation of circular solutions.

The loss of global biodiversity

Biodiversity is that part of nature that is alive and that includes all living things on earth. The Convention on Biological Diversity (CBD) defines biodiversity as: “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (CBD 1992).

Rates of biodiversity loss are escalating due to overexploitation of natural resources and services, which are increasingly altering the natural balance and jeopardising the ability of society to meet its basic needs.

As stated by IPBES (2019), there are five main drivers that are directly responsible for biodiversity loss.

- **Land-use change** – Transformation of land due to human activities, encompassing activities such as habitat loss and fragmentation, deforestation and soil degradation.
- **Nature resource use and overexploitation** – Unsustainable use of natural resources such as animals and plants (including overfishing, overharvesting and unsustainable logging).
- **Climate change** – Long-term alterations in temperature and precipitation, driven by greenhouse gas (GHG) emissions. This can negatively affect the conditions that different species need to survive.



The degradation of ecosystem functionality results in a global economic loss exceeding US\$5 trillion annually due to biodiversity loss (BCG 2021).



*75% of the land surface
has been altered by
human activity
(Winkler et al., 2021).*

- **Pollution of soil, water and air** – Contamination of soil, water and air caused by the release of pollutants into ecosystems through the use of chemicals or fertilisers, among other things.
- **Invasive species** – Non-native organisms entering or expanding their presence in an ecosystem.

The alteration of land and sea environments is the largest driving factor of biodiversity loss, involving the conversion, degradation and modification of ecosystems. It is estimated that about three quarters of the earth's land surface has been altered by human activity (Winkler et al. 2021). However, this conversion of land does not happen equally across the globe.

Regions that serve as primary sources of raw materials often suffer the highest levels of biodiversity loss due to the demand for these materials by other countries around the globe. For instance, studies have demonstrated that about 90% or more of Finland's biodiversity footprint related to food is attributed to activities occurring outside its borders (Kyttä et al. 2023; Peura et al. 2023; Sandström 2017). An outsize share of this biodiversity loss takes place in biodiversity hotspots, areas that may be modest in size but still hold a large share of the world's biodiversity. For this reason, this handbook prioritises addressing the value chain stages

where the conversion and use of land are most pronounced.

Following the increased awareness of the role of nature in our society, a significant commitment was made to reverse 30% of biodiversity loss by 2030, as outlined in the Kunming-Montreal Global Biodiversity Framework adopted during the 15th meeting of the Conference of the Parties (COP 15).

New tools and frameworks have also been developed in rapid succession to guide companies' nature and biodiversity work, such as those provided by the Taskforce on Nature-related Financial Disclosures (TNFD), the Science Based Targets Network (SBTN) and the Capitals Coalition. These are now also being pushed forward by mounting legislative pressure, not least in the EU with the new Deforestation-free Regulation, EU Taxonomy, Corporate Sustainability Reporting Directive and EU Biodiversity Strategy for 2030.

At the same time, the Ecodesign for Sustainable Products Regulation and other measures announced in the Circular Economy Action Plan are creating new norms for circular business models that avoid many of the impacts on nature from the outset.

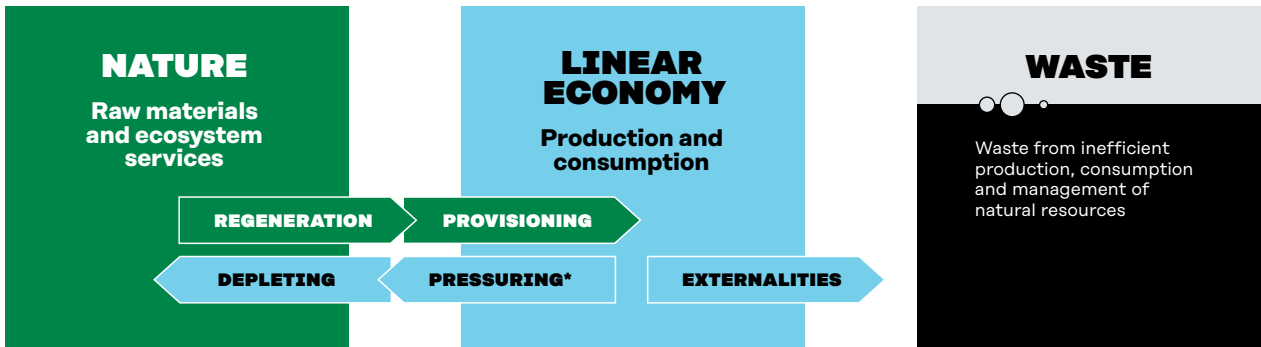
The circular economy

The circular economy is a business-focused solutions framework, which seeks to capture more value from the resources we have.

The circular economy is an economic model that aims to optimise the system as a whole and tackle the root causes of biodiversity loss, climate change and depletion of natural resources. Rather than producing more and more goods, a circular economy provides more value from what already exists and keeps that value in the economy for as long as possible, rethinking how we produce, consume and manage materials.

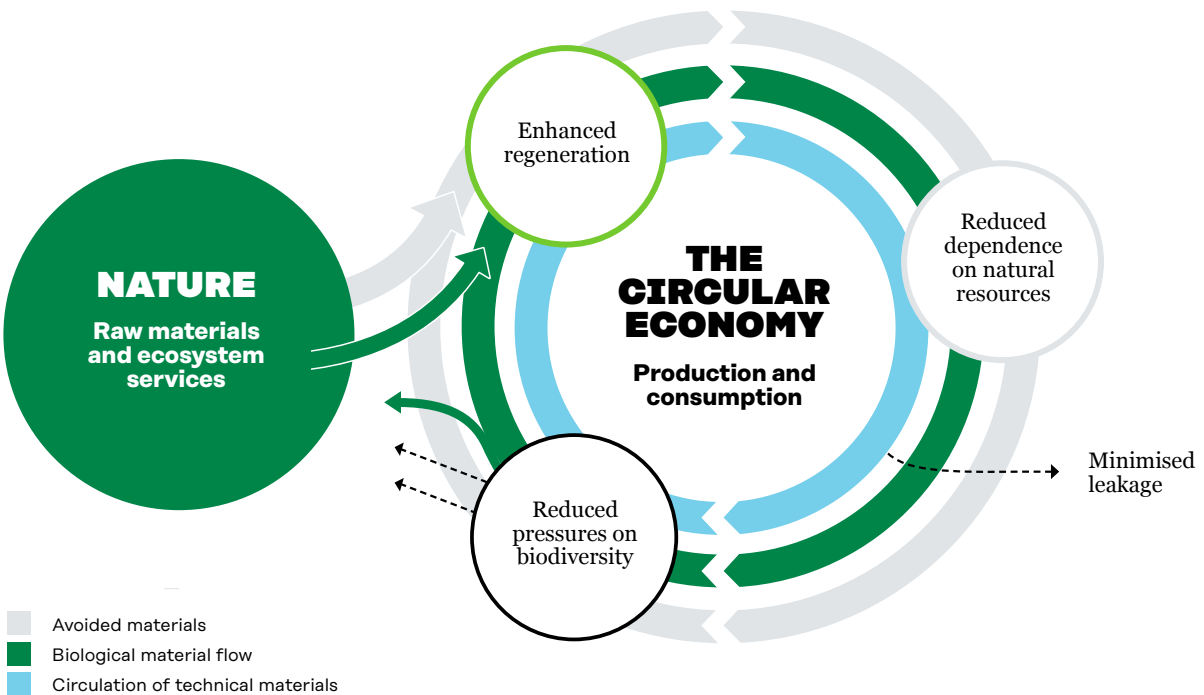
This handbook uses solutions in the circular economy to help business halt and reverse biodiversity loss.

Figure 1a. The relation between the linear economy and nature



* Pressures driving biodiversity loss: e.g. land-use change, emissions and pollution.

Figure 1b. The relation between the circular economy and nature



More than 90% of total land use-related biodiversity loss, more than 55% of greenhouse gas emissions and 40% of particulate matter health-related impacts are driven by the way material resources are extracted and processed (UNEP, 2024).

Three reasons why businesses should use circular solutions to tackle biodiversity loss

Within traditional, linear business models, impacts on nature are significant and often overlooked (Figure 1a). Reducing the pressure on natural systems requires the transformation of the current production and consumption model into a system that decouples companies' value creation from resource use and pressures on nature. Circular solutions are essential for achieving this transformation.

Circularity is a major enabler for combating the decline of species and ecosystems. Four key sectors are responsible for 60 to 80% of current biodiversity loss linked to the change in the use of land for harvesting and extraction practices: (i) food and agriculture; (ii) buildings and construction; (iii) fibres and textiles; and (iv) forestry. Through circular economy interventions in these sectors, the world's biodiversity could recover to 2000 levels by 2035 (Forslund et al. 2022).

A circular economy helps to alleviate pressure on nature (Figure 1b). Extending the life cycle and increasing usage rates of products, components and materials can reduce the need for the extraction of virgin natural resources. This mitigates all five main drivers of biodiversity loss, but especially the intensive and extensive use of land, which is the single largest driver of biodiversity loss. In 2021, S&P Global 1200 companies contributed to biodiversity loss equivalent to the complete degradation of 2.2 million hectares of the world's most pristine and vital ecosystems (S&P Global 2023) – an area slightly larger than Israel.

Besides reducing resource use and the pressures on nature associated with producing these resources, the circular economy can generate positive impacts for biodiversity by driving regenerative outcomes in productive natural areas, creating, maintaining and protecting the right conditions for supporting and enhancing biodiversity and the provision of essential ecosystem services (such as food and timber supply, erosion control, water cycle regulation and carbon sequestration).



1 Manage risks and build resilience

Embracing circularity is a strategic imperative, offering a pathway to address business risks associated with the short, medium and long-term risks of biodiversity loss. According to the recent Global Risks Report (WEF 2024), biodiversity loss, ecosystem collapse and natural resource shortages will be among the top five global risks in the coming decade.

Companies can increase the security of material inputs through circular strategies, which can help to reduce dependency on virgin raw materials, geopolitical uncertainty, volatile markets and fragile supply chains. Circular solutions can also help mitigate transition risks (such as evolving legislation) and systemic risks (like ecosystem collapse) related to biodiversity loss.

2 Unlock opportunities

Addressing nature through circular interventions can also provide business opportunities and co-benefits. These can be broken down into the following categories.

Extract more value from existing resources: Transforming raw materials, by-products and low-value resources into valuable products. Valorisation can lead to new business lines, profits and cost savings. For example, AB InBev transforms spent grains, a by-product of beer brewing, into a variety of nutritious, fibre-rich beverages, thereby reducing waste and promoting an alternative source of protein.

Expand into new markets: Offering innovative business models, putting products and services with lower impacts on biodiversity on the market and expanding business operations. For example, in fashion, the resale, rental, repair and remaking of products is expected to grow from 3.5% to 23% by 2030 globally – a US\$700 billion opportunity (Ellen MacArthur Foundation 2021a).

Create long-term customer relationships: Developing strong and long-lasting customer relationships via a circularity model (for example, using products as a service, rental models and take-back schemes) can facilitate comfortable access to products and services, while encouraging repeat engagement and encouraging customer loyalty.

Climate and pollution co-benefits: Besides halting biodiversity loss, circular solutions can also contribute to other environmental targets, as the same resource use often generates both greenhouse gas emissions and pollution – for example, the emissions and nutrient run-off resulting from food production. More than 90% of biodiversity loss and 60% of emissions – if those associated with land use are included – are driven by resource use (UNEP 2024).

3 Deliver on nature targets

To set meaningful targets, companies first need to understand their nature-related impacts and dependencies. This can be done through different nature-related frameworks, such as science-based targets for nature by SBTN, the LEAP approach by TNFD or The Natural Capital Protocol by Capitals Coalition. By identifying which impacts are most critical, companies can align their targets with strategic priorities.

This handbook has been developed to support companies to identify impactful circular economy actions that can help them to achieve their nature targets. To guide this process, we have taken inspiration from science-based targets for nature (SBTN 2023).

There are four key features of the science-based targets for nature that we particularly want to emphasise here, as follows.

- **Consider a value chain perspective** to understand and address the nature-related impacts of your business. Understanding the footprint of your entire value

chain will allow you to set targets that address the most critical biodiversity impacts and implement the right actions in the right place.

- **Define the baseline** for the initial state of your impact on nature. A baseline serves as a reference point against which the targets set by a company will be evaluated.
- **Use the AR3T framework** (see Figure 2 and Table 1) to define the impact of your nature-related actions in a hierarchical manner. This framework defines levels of actions to avoid future impacts, reduce current impacts, regenerate areas of production and transform the systems where businesses have influence.
- **Approach the nature agenda with no-regret actions.** The urgency of the global challenge encourages us to start acting on nature now. SBTN recommends that companies identify these no-regret actions, which can be put into practice in the short term, regardless of current or future evolutions of the framework (for instance gathering data, measuring and setting targets, defining actions).

Relevant nature-related frameworks

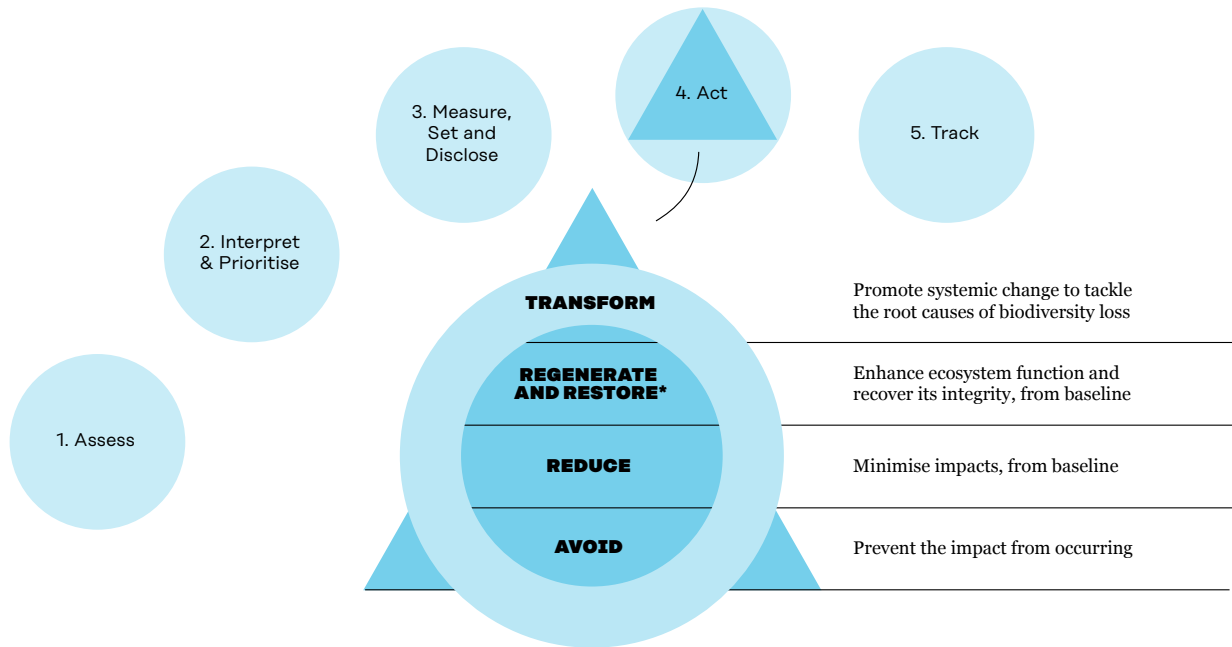
There are several frameworks, including the science-based targets for nature, which guide companies to integrate nature into their business processes.

TNFD recently launched guidelines for businesses to assess, act and report on nature-related impacts, dependencies, risks and opportunities based on a comprehensive approach known as LEAP (Locate, Assess, Analyse and Prepare).

The Natural Capital Protocol was the first harmonised global framework for companies to measure and value the impacts and dependencies of natural capital, to generate credible and actionable information for decision-making.

The ACT-D framework was developed through a collaboration between Business for Nature, Capitals Coalition, the Science Based Targets Network, TNFD, WBCSD, WEF and WWF. ACT-D stands for Assess, Commit, Transform and Disclose. It builds on existing action frameworks and guidance for businesses through tools, frameworks and initiatives to support them in developing their framework.

Figure 2. The role of the circular economy in the Science-Based Targets for Nature five-step framework and AR3T framework (avoid, reduce, restore and regenerate, transform)



* Restorative actions are also important for nature action, but they are generally not central to the circular economy.

The role of the circular economy in the AR3T framework

Leading companies across sectors are actively engaged in the finding pathways to deliver on their nature targets. However, only a few have established a structured road map for taking actions to achieve these targets.

While this is the natural course of any evolving subject in the market, the severity of global biodiversity loss urges companies to start acting on nature, and especially by identifying the no-regret actions that can

already be implemented now. The circular economy can provide many of these no-regret actions that can be implemented immediately and bring other benefits at the same time.

The science-based targets for nature AR3T framework (Figure 2) and the mitigation hierarchy provide a clear structure for current and future actions for nature. The Table 1 below shows how the circular economy has the potential to be deeply ingrained in the framework. It is important to note that “avoid” in the AR3T framework applies to new or potential impacts, whereas “reduce” applies to existing impacts.

Table 1. The role of the circular economy in the AR3T framework.

STAGE	THE ROLE OF THE CIRCULAR ECONOMY
Avoid	Avoid impacts by rethinking needs altogether, for example shifting to as-a-service and sharing-based business models and designing out unnecessary materials (like packaging), virtualising products, accessing products through peer-to-peer sharing platforms*, valorising overlooked or underused resources and adapting physical spaces for more purposes (dual use of a building, for example).
Reduce	Reduce impacts through long-lasting design, as-a-service models, resale, repair, refurbishing and remanufacturing, increased recycling rates and substituting inputs in production processes.
Regenerate	Drive regenerative outcomes in agriculture, forestry and other parts of the bioeconomy, to enhance soil health, carbon sequestration, nutrient retention and other ecosystem services.
Transform	Drive systemic transformation by collaborating to unlock new value from resources, building alliances to set ambitious sector targets built on disruptive business models and advocating ambitious policies, sharing and scaling learning outcomes, and embracing continuous improvement.

* The distinction between avoidance and reduction is largely a construct contingent on the assumptions of system boundaries, the choice of baseline and not least whether the product is additional or not. For example, were it to remain idle otherwise, a previously unused garment obtained through a peer-to-peer sharing platform could be said to avoid impacts associated with the purchase of a new, additional product, whereas the impact caused by a product obtained as a service through a rental platform which sources new, additional products to rent these out to people has its impacts divided across its users each time a product is rented out. In reality, this distinction can be blurry, with most applications having some impact allocated to their respective use phases, with few completely void of impacts.

Examples of circularity targets for nature

Existing circular economy targets and actions can already be contributing to the reduction of virgin raw material use, which in turn reduces the pressure on the use and conversion of land and on biodiversity. The

examples below showcases specific, measurable, achievable, relevant and time-bound (SMART) circular targets in different areas of operations, including wood products, waste, packaging and food waste, that can contribute to reducing the impact on nature as a result of reducing the extraction of raw materials.

Holcim

Holcim has set measurable circularity targets that can contribute to reducing the extraction of raw materials through recycling, reuse and regeneration within the construction sector.

Holcim's circularity targets:

- Recycle 10 million tonnes of construction and demolition materials into high-value products by 2025.
- Increase recycled content in cement to 30% by 2030.
- Recycle 70 million tonnes of waste and by-products for alternative energy and raw materials by 2030.
- Enhance the circularity of the product portfolio, increasing the recycling ratio to 17% by 2030.
- Substitute 50% of fuel by generating energy from non-recyclable waste by 2030.

Contribution to the reduction of land use via circular economy targets

Recycling construction and demolition materials, using recycled material and transforming waste into new alternative materials or energy sources and reducing the demand for new raw materials, which generate pressures that drive biodiversity loss.

IKEA

IKEA has embarked on a transformation journey to become a circular business by 2030 and to regenerate resources by 2030. The case illustrates IKEA's strategic initiatives to achieve its circular resource targets and showcases how these targets reduce the company's pressure on new raw materials and therefore contribute to reducing the company's nature footprint.

As part of its efforts to improve resource efficiency, IKEA has set the target of **ensuring that at least 80% of its particle board is based on recycled wood by 2030**. With this target, the company is reducing the need for the harvesting of timber by increasing the use of recycled wood in its products. In 2023, IKEA had already achieved using 30% recycled content in its particle board.

Ikea has also set a target for its operations to reuse waste by **sending zero waste to landfill by 2030**. Each factory prioritises and develops a road map to minimise, reuse, recycle or send waste, ensuring used materials are repurposed and valorised. By the end of 2023, nine of IKEA's 21 units had managed to divert all waste from landfill, making significant progress towards this ambitious target. This means fewer virgin resources extracted from nature and a reduction in landfill pollution.

Furthermore, IKEA set a target to reduce food waste in all its shops by 50% by 2020, compared to a baseline set in 2017, a target that was also exceeded. Ikea has also set a target for ensuring that 50% of the main meals offered in its restaurants are plant-based and 80% are non-red meat, and to replace dairy where possible.



TOOLKIT

WHAT IS YOUR STARTING POINT?

Based on what you have learned in this chapter, think about where you are in terms of your nature work. Which steps have you already taken? How circular economy can help you to take your nature work forward?

WHICH ARE THE MAIN BIODIVERSITY DRIVERS THAT YOUR COMPANY HAS AN INFLUENCE ON?

- **Land-use change** – all companies that source natural resources have an impact on land use due to their supply chain. Often these impacts are the largest at the beginning of the value chain, due to extraction and cultivation, especially where biomass is involved in large quantities or if it is sourced from biodiversity hotspots where land has been cleared. Resource use is the dominant driver of land-use-impacts, but companies' operations and buildings can also generate additional impacts through the space they directly occupy.
- **Nature resource use and overexploitation** – for example, companies directly extracting natural resources from nature, such as plants and animals in marine or terrestrial environments, can put pressure on nature and its ecosystems.
- **Climate change** – all company activities that emit greenhouse gas emissions to the atmosphere have an impact on the climate, which in turn negatively impacts the state of nature.
- **Pollution** – Most companies release pollutants into ecosystems, for example by using chemicals or fertilisers.
- **Invasive species** – for example, companies commercialising live animals or engaging in transportation activities and that spread non-native species across borders, affecting local ecosystems and their dynamics.

HAVE YOU ALREADY SET TARGETS FOR NATURE?

- Yes** – Great! Make sure, that your targets are specific, measurable, achievable, relevant, and time-bound (SMART). Use recognised nature related frameworks (SBTN, TNFD, NCP), if you haven't done that yet.
- No** – Consider the following:
 - Kick off the process of setting targets for nature.
 - Utilize recognized nature-related frameworks to guide your work, such as the science-based targets for nature developed by SBTN, TNFD's LEAP approach or The Natural Capital Protocol by Capitals Coalition.
 - SBTN has a particular role to play by providing companies with the guidance to set science-based targets for nature.
 - Get started, even with tiny steps. At first, you can set targets for a specific operation or material stream. You learn by doing.
 - You can also learn from global frontrunners that have already mastered their supply chains, set targets and developed circular solutions.

DOES YOUR COMPANY USE CIRCULAR SOLUTIONS TO DELIVER ON NATURE TARGETS?

- Yes** – You're on the right track. Keep in mind how circular solutions help you manage risks and unlock other opportunities. Make sure that you implement the actions in a hierarchical manner according to the AR3T framework.
- No** – Consider the following:
 - Expand your understanding about the role of circular economy in delivering on nature targets. Circular solutions reduce the need for the extraction of virgin natural resources, which mitigates many drivers of biodiversity loss. It can also generate positive impacts by driving regenerative principles in areas under production in the bioeconomy.
 - Consider how circularity helps you manage risks. Circular solutions can help you reduce dependencies on virgin raw materials, geopolitical uncertainty, volatile markets and fragile supply chains.
 - Identify how circular solutions can provide business opportunities, for example by getting more value out of what you have or by expanding into new markets.
 - Get familiar with AR3T framework and on how it links to circular economy.
 - Use the AR3T framework to define the impact of your nature-related circular solutions in a hierarchical manner.
 - Start acting immediately and identify circular solutions that can be implemented right away and deliver quick wins.

STEP 1

IDENTIFY CRITICAL BIODIVERSITY IMPACTS IN THE VALUE CHAIN

This chapter outlines the concept of critical biodiversity impacts as specific places in a company's value chain, in which significant impacts on biodiversity occur. Recognising critical biodiversity impacts allows companies to understand their biodiversity footprint and prioritise actions in these places.

Step

1

AFTER READING THIS CHAPTER YOU WILL:

- understand the definition for critical biodiversity impacts across the value chain following three key principles aligned with SBTN and TNFD guidance: **1) definition; 2) evaluation; and 3) interpretation;**
- understand your company's biodiversity impacts and where they are found in the value chain.

Defining critical biodiversity impacts along the value chain enables companies to implement the right actions in the right place.

Critical biodiversity impacts

All stages of a company’s value chain interact with nature in one way or another; therefore, all stages have an impact on the state and health of ecosystems. However, some have a much greater impact than others. We refer to these as “critical biodiversity impacts”.

Critical biodiversity impacts are specific stages within the value chain where substantial negative impacts on biodiversity take place. A critical biodiversity impact approach identifies the stages that pose the greatest potential risk to biodiversity and allows companies acting on nature targets to increase the speed and scale of their actions.

Previous studies have acknowledged that sectors with land-intensive and extractive processes in primary production have the greatest impacts on the state of nature (Forslund et al. 2022; UNEP 2024).

Understanding that these land-intensive sectors, such as food and agriculture, buildings and construction, fibres and textiles, and forestry, account for 60-80% of global land use-related terrestrial biodiversity loss (Forslund et al. 2022), this handbook prioritises addressing these four key sectors and the stages of the value chain that directly or indirectly contribute the most to conversion and use of land. However, it is essential to acknowledge the other drivers of biodiversity loss and that all sectors have an impact on biodiversity. Therefore, firms in all sectors should actively engage in implementing circular solutions aimed at mitigating negative impacts and promoting nature benefits.

Approaching biodiversity loss from a value chain perspective enhances the likelihood of identifying the stages with the greatest negative impacts, as well as the stages and actions relevant to upstream and downstream operations, where a company will have the greatest impact.

We acknowledge that taking a value chain scope increases the complexity and the need for strategic planning, targets and actions on nature. However, addressing these impacts can ensure that the company is optimising resources and allocating them to the places where they will have the greatest impact in halting and reversing biodiversity loss.



Three principles in identifying the most critical biodiversity impacts

Identifying biodiversity impacts of a business can be complex. This is because biodiversity impacts can be caused by a variety of drivers, including resource use, land use, waste and pollution. These drivers can be caused by various activities located throughout a value chain, for example upstream resource production, downstream waste generation and within a company's own operations.

To act effectively, businesses must first establish and locate the most material drivers of biodiversity loss within their value chain. There are several well-established guides for helping businesses with this process. SBTN and TNFD both provide guidance for businesses to evaluate, assess and interpret their nature impacts. While SBTN focuses on setting nature targets and TNFD focuses on nature reporting, there is alignment between the guidance provided by the SBTN and TNFD.

Based on SBTN and TNFD guidance, we can observe three key principles when identifying the most critical biodiversity impacts.

1 Definition

- Establish a common level of understanding of the drivers of biodiversity loss and the impacts and dependencies that define a business's interaction with biodiversity.
- Map your value chain. Many companies understand their own operations well but might lack important knowledge of their upstream and downstream value chain.
- Value chains are complex and are often best described visually to ensure all stakeholders can follow upstream and downstream material and energy flows.
- For companies with many different value chains, a materiality assessment prior to value chain mapping can narrow down the most relevant value chains to map and zoom in on. [Science-based targets for nature step 1 guidance \(2023, pdf\)](#) is a materiality assessment and value chain mapping.

2 Evaluation

- Use the value chain map to help identify and rank the relative weight of different impacts that drive biodiversity loss. This should consider location, magnitude and irreversibility. (While this guide focuses on impact identification, many businesses are also interested in their dependencies on biodiversity. TNFD provides guidance for assessing business dependencies on biodiversity.)
- Consider all drivers of biodiversity loss: land-use change, pollution, climate change, invasive species and overexploitation of resources. Their relative impacts vary across sectors, companies and different business activities, but the single largest driver and the focus of this handbook is land-use change.
- Since land-use change is the biggest driver of biodiversity loss, focus on the activities where the impacts relate to the use and conversions of land. Understand the magnitude and location of sourced natural resources, type of harvesting practices (intensive vs extensive) and the deforestation risk associated with regions and commodities.
- Climate change is an important driver of biodiversity loss. Therefore, it is important to identify the overlaps between biodiversity and climate impacts. This approach can provide more precision in the identification of priority actions with the potential to address both climate change and biodiversity.

3 Interpretation

- Define which material biodiversity impacts are present within your company's own operations, and which are located upstream and downstream.
- For each impact, attempt to define the relevant locations and their characteristics, as well as relevant internal and external stakeholders.
- Based on the available information, prioritise the identified impacts according to their severity. [Science-based targets for nature step 2 guidance](#) (2023, pdf) and [the LEAP approach by TNFD](#) (TNFD 2023, pdf) provide detailed instructions on various approaches for the prioritisation of impacts.

Tools for measuring biodiversity impacts

The process of identifying biodiversity impacts often requires the use of data and tools that may not be familiar to many companies. There are three general categories of tools available to assist businesses with their biodiversity impact assessments: materiality tools, mapping tools and foot-

print methods. Table 2 presents some examples of these three categories of tools available for companies to use.

After identifying the critical biodiversity impacts, it is important to set targets to drive the organisation's work forward. This is not the focus of this handbook but further guidance is provided by [Science-based targets for nature step 3 guidance](#) (measure, set and disclose targets).

Table 2. Tools for measuring biodiversity impacts

MATERIALITY TOOLS	
ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure)	<u>ENCORE</u> helps users to better understand how different sectors and sub-sectors potentially depend on and impact natural capital, and how these potential dependencies and impacts can pose a business risk.
SBTN Materiality Screening Tool	The <u>Materiality Screening Tool</u> aims to assist companies in making high-level selections of material economic activities based on their contribution to the drivers of biodiversity loss and pressure.
MAPPING TOOLS	
WWF Risk Filter Suite	<u>WWF Risk Filter Suite</u> helps businesses to identify, assess and manage nature-related risks. The tool includes a Biodiversity Risk Filter and Water Risk Filter.
Biodiversity Indicators for Site-based Impacts (BISI)	<u>BISI</u> offers evaluation and guidance on requirements, existing methods and potential indicator models, alongside a tool providing a reliable and replicable methodology for choosing biodiversity indicators. This includes a systematic approach to using these indicators to evaluate the ecological environment's status, biodiversity pressure and responses at corporate levels.
IBAT (Integrated Biodiversity Assessment Tool)	<u>IBAT</u> is an online platform that provides interactive mapping tools, which enable users to visualise and analyse biodiversity data spatially, tailored to aid decision-making in biodiversity conservation and natural resource management.
FOOTPRINTING TOOLS	
Biodiversity footprint calculation method by University of Jyväskylä	A <u>method</u> developed by University of Jyväskylä allows companies to calculate their biodiversity footprint in their value chain and own operations. The methodology integrates scientific databases, accounting and commercial data to measure the impacts of business activities on nature.
Global Biodiversity Score (GBS)	<u>GBS</u> is a biodiversity footprint assessment tool, which can cover the entire value chain. This tool aggregates the contributions of different types of pressure into a single biodiversity score for simple communication and tracking.



INSIGHT

S GROUP SHOWS THAT IT IS POSSIBLE TO ASSESS THE BIODIVERSITY IMPACTS EVEN IN COMPLEX VALUE CHAINS

The Finnish retailer S Group, in collaboration with University of Jyväskylä and Sitra, has piloted a biodiversity footprint assessment across their value chain. Satu Kuoppamäki, Sustainability Manager at S Group, explains the motivations behind the initiative.



“All the products on our shelves come from nature. Therefore, our business is entirely dependent on it. We invest in halting biodiversity loss, as it safeguards our company’s future operations.

What cannot be measured cannot be managed. We wanted to calculate our biodiversity footprint to understand our impacts in more detail. This enables us to focus on the right actions in the right places. By measuring our biodiversity footprint, we know our baseline, can set nature targets and track progress. But measurement alone does not change anything; we must also put plans into action.

One of the most important lessons we’ve learned along the way is that in tackling biodiversity loss, it’s crucial to turn our attention to the value chain. While about 80% of the food sold by the S Group is made in Finland, up to 90% of our biodiversity impacts originate outside Finland’s borders. For instance, the impact of foreign fertilisers and feed is significant. While I expected this, the scale was larger than I thought.

I often hear people saying that calculating a company’s biodiversity impacts is extremely complicated and almost impossible. I do not fully agree with this. We already know and can do enough to calculate it. We operate in many different sectors, have long supply chains and sell thousands of products. If our biodiversity footprint can be calculated, then surely many others can as well.

While calculating the ecological footprint and setting nature targets, it’s equally important to focus on practical action. We have a global agreement to halt biodiversity loss by 2030. There is no time to waste; we must roll up our sleeves immediately. For example, we continuously strive to increase the share of plant-based food in our sales and reduce food waste.

Calculating our biodiversity footprint has also brought us many other benefits. It has helped us to better understand our value chain and to improve our risk management work. I want to give one tip to all companies considering this. Be brave and start. It’s not as difficult as you think, and you learn by doing.”

STIGHT



TOOLKIT

WHAT ARE YOUR CRITICAL BIODIVERSITY IMPACTS?

Based on what you have learned in this chapter, this toolkit will help you to make a first estimate of your critical biodiversity impacts, based on the three-step process outlined above: definition, evaluation, and interpretation.

1. DEFINITION: HAVE YOU DEFINED YOUR NATURE IMPACTS AND DEPENDENCIES?

- **Yes – in the whole value chain.** Good work. If you already know your nature impacts and dependencies in the value chain, you can move into evaluating and prioritising them.
- **No, or only in my own operations** – Consider the following:
 - Start mapping the value chain. Make sure to include the upstream part of the value chain, and where possible also the downstream part. The Science-based targets for nature step 1 guidance offers information for value chain mapping.
 - If your company has multiple value chains, conduct a high-level materiality screening to define priority value chains, and focus on those, with an emphasis on the materials expected to have the largest impacts on nature.
 - If needed, initiate a dialogue with your suppliers and customers to gain insight into their operations and their suppliers (tier 2 and 3 suppliers).
 - Prioritise high-impact commodities or critical raw materials (see the High Impact Commodity List by SBTN).
 - Identify the geographical areas in which your raw materials are sourced and identify associated risks. For example, whether deforestation-risk commodities and regions are involved in your value chain.
 - If your company does not directly require the extraction of raw materials for its products and services, evaluate if raw materials are used by tier 2 or 3 suppliers in your value chain.

2. EVALUATION: HAVE YOU EVALUATED THAT WHICH NATURE IMPACTS AND DEPENDENCIES ARE MATERIAL FOR YOUR COMPANY?

- Yes** – Great! Measuring pressures allows you to understand which impacts are material for your company and where you should take action.
- No** – Consider the following:
 - Use the value chain map to help identify and rank the relative weight of different impacts that drive biodiversity loss. This should consider location, magnitude and irreversibility.
 - Consider all drivers of biodiversity loss: land-use change, pollution, climate change, invasive species and overexploitation of resources. Their relative impacts vary across sectors, companies and different business activities, but the single largest driver is land-use change.
 - Define which of these material impacts are associated with the main drivers of biodiversity loss, in particular land use and conversion of land.

3. INTERPRETATION: HAVE YOU PRIORITISED AND IDENTIFIED YOUR CRITICAL BIODIVERSITY IMPACTS?

- Yes** – Amazing! By identifying your critical biodiversity impacts, you can define targets and actions in the stages of your value chain that will have the greatest positive impact on biodiversity.
- No** – Consider the following:
 - Define which material biodiversity impacts are present within your company's own operations, and which are located upstream and downstream.
 - Based on the available information, prioritise the identified impacts according to their severity. The Science-based targets for nature step 2 guidance provides detailed instructions.
 - Ensure that the sourcing of high-deforestation risk commodities and sourcing from biodiversity hotspots regions are considered priorities.
 - Define a short list (1-3) of critical biodiversity impacts in your value chain.
 - For each impact, attempt to define the relevant locations and their characteristics, as well as relevant internal and external stakeholders.

STEP 2

USE CIRCULAR SOLUTIONS TO REDUCE BIODIVERSITY IMPACTS

This chapter provides guidance on how to use circular business models to halt and reverse biodiversity loss. It outlines how these circular business models can be embedded throughout the value chain, focusing primarily on reducing the demand for raw materials and the related land-use change pressure. The chapter explores case studies in which innovative circular solutions have successfully been implemented. This chapter also delves into specific circular economy levers for the food and agriculture, buildings and construction, fibres and textiles, and forestry sectors.

Step

2

AFTER READING THIS CHAPTER YOU WILL:

- understand circular economy business models and how to utilise them to reduce biodiversity impacts;
- identify the most effective circular solutions for tackling biodiversity loss in the food and agriculture, buildings and construction, fibres and textiles, and forestry sectors;
- be inspired by company examples showcasing successful applications of circular solutions and how they address biodiversity loss;
- be equipped with more detailed information on selected circular economy lever for each sector.

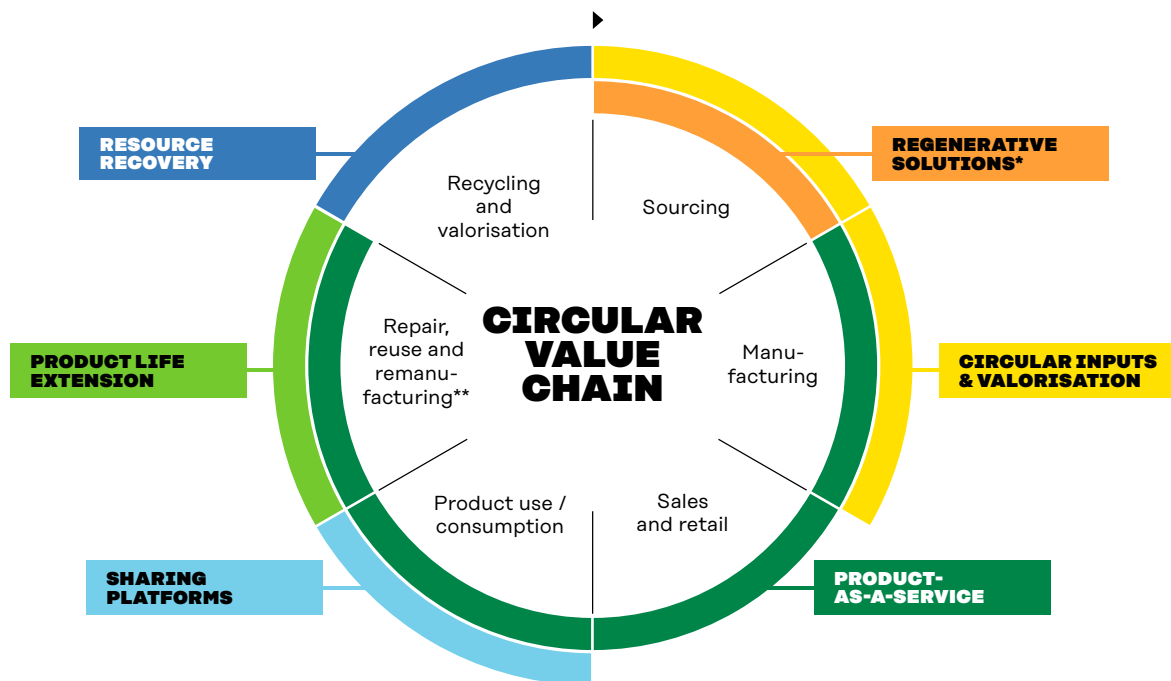
Aligning business practices with circular strategies can reduce the land-use footprint and other pressures driving biodiversity loss.

Implementing circular business models for nature action

Circular business models aim to maximise the value and use of materials while minimising the environmental impact of business activities by focusing on the entire life cycle of products and materials. These business models help keep the products and their components active in the economy for as long as possible.

Once the critical biodiversity impacts have been identified, the next step is to define which circular business models can be implemented to best reduce the pressure from them. For this handbook, six circular business models have been identified (Figure 3). These are based on the framework of five circular business models (Sitra 2022) and complemented by regenerative solutions, identified as being an important business model from the perspective of nature.

Figure 3. Circular economy business models and their locations in the value chain



* Regenerative solutions apply to biological cycles and processes such as cultivation.

** Repair, reuse and remanufacturing does not apply to all resource flows, such as food, bypassing this step.

Six circular business models to help halt and reverse biodiversity loss

1

1. Circular inputs and valorisation encompasses using renewable, reusable, recyclable and land-efficient materials that reduce the impact of processes driving biodiversity loss. This model also involves the valorisation of undervalued products as well as side streams.

EXAMPLE: Hailia turns what was previously low-value, underused raw materials from fish into high-value premium food products. Their expertise lies in efficiently converting low-value fish components (for example those used for feed) into food products that replace the use of highly commercialised fish, such as tuna. Through their innovative approach, Hailia plays a crucial role in reducing overexploitation, minimising waste and valorising resources that might otherwise be considered low-value by-products. [See the full case.](#)

2


2. Product-life extension can be achieved by making use of high-quality products, components and materials to extend product lifespans and enable several stages of reuse through maintenance and repair, refurbishment and remanufacturing. This model reduces the fast replacement of items (and fast obsolescence), decreasing the demand for virgin raw materials.

EXAMPLE: FabPatch produces high-quality textile repair patches. The patches are produced using eco-friendly practices and are free from harmful substances and solvents. This solution enables the extension of product lifespans, reduces waste and decreases the need for land use in virgin raw material production. [See the full case.](#)

3


3. Product as a service is offering services instead of products. This business model promotes the development of durable products to be used multiple times by different users. This model, alongside the sharing platform model, can help drive a shift in end-user behaviour, enhancing a culture of access rather than a culture of ownership.

EXAMPLE: Vuokrapuu offers a rental service for Christmas trees. After Christmas, the trees are sent back to the company to continue their growth, so they can be reused several times. Trees that have either been damaged or are at the end of their life cycle are repurposed into biochar, a soil enhancer, completing a closed-loop system. Additionally, this model can reduce the need for additional land use in plantations and the cutting down of trees for single-use purposes. [See the full case.](#)




4. Sharing platforms are digital platforms that increase the use of goods and resources, as a result of sharing, renting, selling and reuse. This model has similarities with the product-as-a-service model, the main difference being that the as-a-service model is based on the rental of products that remain the property of the service provider, whereas a sharing platform acts as a distributor and matches the supply and demand between the users in the platform.

EXAMPLE: Combi Works implements a “factory-as-a-service” approach, which provides businesses with access to manufacturing facilities equipped with cutting-edge machinery and infrastructure. This minimises the need to invest in costly equipment. Combi Works empowers businesses to realise their manufacturing ambitions with efficiency, precision and agility, positioning them for sustained success in an increasingly competitive global market. [See the full case.](#)



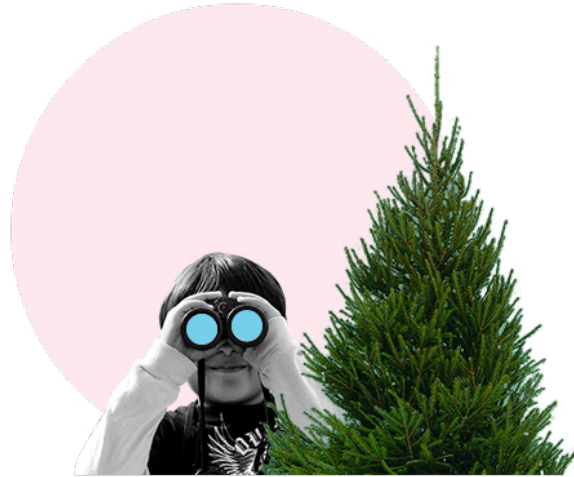
5. Resource recovery refers to the collection and reuse of products and raw materials that would otherwise have reached the end of their life cycle and become waste, transforming these materials into new products, components and feedstocks.

EXAMPLE: Infinited Fiber transforms cellulose-based waste materials, such as cotton-rich textile waste, into high-quality recycled fibres. This closed-loop process not only diverts waste from landfills but also reduces the need for virgin resources, conserving water and energy. By offering a scalable and environmentally friendly alternative to traditional textile production, they help to reduce the demand for virgin materials. [See the full case.](#)



6. Regenerative solutions drive regenerative outcomes in the bioeconomy, to improve soil health, carbon sequestration, nutrient retention and diversity to build resilience. Regenerative solutions apply to biological materials such as food, wood and fibres, in contrast to technical materials (for example metals and concrete).

EXAMPLE: Agreena provides a soil carbon platform to assist farmers in transitioning to regenerative agricultural practices. The platform integrates advanced technologies to measure agricultural impact and monitor farmers' performance in the field. This tool offers information on opportunities for improvement on their own farms, enabling them to reduce their GHG footprint, restore degraded soils and improve water management. It also helps to conserve and enhance agroecosystems and species. [See the full case.](#)



The relevance of circular business models depends on the sector, geography of source and raw materials involved. Each sector presents unique challenges and opportunities for implementing circular solutions to tackle biodiversity loss.

For example, in construction, the highest impact solutions include:

- minimising land use from construction, for example by using modular buildings, sharing buildings or making design decisions in the construction phase that favour taller and denser construction (at the same time it's important to preserve urban nature areas with valuable biodiversity);
- reducing the sourcing of high-impact materials, such as wood, which is possible by designing buildings with fewer materials, by extending the lifetimes of buildings or increasing reuse and recycling of building materials.

Moreover, companies operating in sectors reliant on land-intensive raw materials (such as cattle farming) and geographic biodiversity hotspots (cacao produced in

Latin America, for instance) should prioritise initiatives that reduce both land use and land-use change, for example by opting for products that either require less land for production overall or substitute raw materials that are likely to cause habitat loss in biodiversity hotspots, while ensuring that the remainder still sourced is deforestation-free.

Furthermore, selecting the appropriate circular business model requires understanding the properties of the raw materials involved, be they technical or biological. Some materials, such as food, cannot be repaired or reused; however, other materials, such as wood pallets, can be effectively reused and repaired. By recognising the value and underappreciated versatility of biological materials, businesses can optimise resource use and reduce waste generation, and through this halt biodiversity loss.

Circular business models can turn a linear value chain, in which products are extracted and wasted at the end of their lifetime, into a circular value chain, in which products and materials are recovered through the different stages of the value chain. Many circular opportunities are found in the product use phase.

Three principles for developing circular solutions for nature from biomass

The use of circular solutions for nature holds immense potential for generating value across various sectors and their value chains. By embracing circularity as a force for tackling biodiversity loss, businesses and industries can both reduce their biodiversity

footprint and unlock economic opportunities through the creation of innovative solutions.

All six circular business models introduced in this handbook can make this possible. On top of making the most of these business models, three additional principles targeting biomass are central for harnessing solutions with nature at the heart of them, as biomass accounts for over 90% of total land use-related biodiversity loss (UNEP 2024).

1 Explore underused biomass

Reduce the pressure on the world's limited biomass supply by making the most of currently underused biomass resources to increase overall supply and reduce the need for further land-use change to meet growing demand for biomass.

EXAMPLE: Järki Särki has managed to develop the overlooked and underused roach fish into products that people are keen to eat through clever processing, marketing and design, using a locally abundant resource instead of relying on overfishing. [See the full case.](#)

2 Steer existing bio-based resources towards high-value applications

Pursue options that help maximise the value of biomass, both that of by-products and the main product in favour of long-lasting added value.

EXAMPLE: Chempolis uses cascading biorefining principles to convert low-value agricultural waste, particularly straw, into high-quality materials for a set of different industrial applications. For example straw is currently underutilised and often burned as waste. These materials can serve as substitutes for others with a more significant impact on biodiversity. [See the full case.](#)

3 **Substitute land-intensive and deforestation-related products with alternatives**

Companies can reduce the impact of products, both those that are very land-intensive and those which may have a smaller land-use footprint but which drive deforestation and other forms of habitat loss.

EXAMPLE: Fazer has developed a chocolate bar which substitutes the input of cacao with Finnish malted rye to mimic the aroma of cacao. Cacao drives deforestation and it is responsible for 7-11% of the biodiversity loss associated with Finnish food consumption (Kyttä et al. 2023) [See the full case.](#)

Tips for all companies to start taking action for nature

Master your supply chain: Increase the understanding and visibility of your supply chain, including relevant stakeholders, areas of sourcing and the critical raw materials your company is dependent upon. This will allow companies in any sector to take no-regret, positive actions for nature, such as supporting reforestation and regeneration initiatives in and around critical geographical areas.

Start piloting circular business models: Begin testing different circularity initiatives on a small scale today. This will allow companies to gain early feedback on their readiness and identify further concrete action points for transforming their business models. Hands-on experience of piloting circular solutions also helps companies to work on identifying their most critical biodiversity impacts and setting relevant and realistic targets based on prioritised actions.

Identify and secure quick wins:

For example, by designing out waste, unnecessary packaging and additives. You can also often find development opportunities from material efficiency and waste minimisation.

Engage in transparent communication:

Share information, exchange ideas, foster collaboration and build trust. In addition, disclose relevant information following regulatory requirements, such as the Corporate Sustainability Reporting Directive (CSRD) and the EU Deforestation-free Regulation (EUDR), and market demands, including digital passport initiatives and certifications.

Foster awareness and internal engagement:

Educate employees on the benefits of integrating circular solutions to halt biodiversity loss through workshops, training and internal campaigns. This will promote employee engagement and empowerment with the nature agenda.

INSIGHT

CORBION IS WORKING WITH SCIENCE-BASED TARGETS FOR NATURE AND CIRCULAR SOLUTIONS

Erica Franco works as a Global Marketing Manager at Corbion, one of the examples that qualified for inclusion in Sitra's Circular solutions for nature list. Corbion is also one of the 17 companies participating in the science-based targets for nature validation pilot programme.

**What value has SBTN offered to your work?**

At Corbion, we are constantly looking to the future to understand the impacts our business decisions will generate. SBTN provides a valuable framework for supporting this long-term planning. Second, it enables us to have an overview and a balance in how we approach different environmental impacts, from water use to carbon emissions, resource and land use, and it can serve as an umbrella that brings together methods we are using – such as the Science Based Targets initiative and Carbon Disclosure Project, for climate – while at the same time helping us to increase our ambition level.

What are you hoping for next?

Measurements are key, and we look forward to learning from and contributing to how this discussion develops. We have already conducted comprehensive life-cycle assessments for our operations, but at that time, and in part still today, there was little in terms of a standardised approach for measuring the marine biodiversity impact, for example. We have satellite data for a production facility area going back 20 years. SBTN could help pave the way for a standardised approach.

By substituting inputs from marine industries, such as fish oil, Corbion already offers a tangible circular solution for reducing impacts on nature. Do you have any further targets?

Our land-use footprint is already small; nonetheless, we have a target to ensure 100% of our inputs are verified deforestation-free by 2025 (the level was 92% in 2022). We also develop alternatives for Omega-9 reducing dependency on canola oil. We are not only thinking about our facility but how to help customers become more sustainable.

Step 4 of science-based targets for nature focuses on actually delivering on nature targets. Could circular solutions help meet Corbion's nature targets?

The circular economy is a fantastic tool for mitigating environmental impacts, and we are constantly trying to become more resource-efficient, for example by working with algae strands that give us more DHA (docosahexaenoic acid) from the same volume of algae.

This logic flows from our set-up, which builds on two circular principles. First, we use sugar to produce algae-based ingredients via fermentation. That sugar comes from a sugar mill co-located with our facility in a closed system, similar to an eco-industrial park. Second, bagasse, which is a by-product from the sugar mill, is used as energy to power the sugar mill and our facility. And finally, the co-location allows all the water we use to be repurposed back into irrigation for the sugar cane fields around the same area, helping us to responsibly manage water use and create more value with sustainability.



TOOLKIT

ELABORATE YOUR CIRCULAR OPPORTUNITY

Based on what you have learned in this chapter and in the prior value chain exercise, think about which circular business models are the most relevant for your company and how they can help you to reduce biodiversity impacts. Consider other benefits too, such as reducing the demand for virgin materials or improving resource efficiency.

WHICH CIRCULAR BUSINESS MODELS ARE THE MOST RELEVANT FOR YOUR COMPANY?

- Circular inputs and valorisation**
- Product-life extension**
- Product as a service**
- Sharing platform**
- Resource recovery**
- Regenerative solutions**

HOW COULD THE SOLUTION LOOK LIKE IN PRACTICE?

- Design out** unnecessary packaging, additives or components, and virtualise physical products.
- Source** feedstocks with recycled content or underused biomass.
- Offer** repair and refurbishment services for products reaching the end of their life cycle.
- Partner** with local repair and resale shops to provide customers with convenient options for extending product lifetimes.
- Introduce** product leasing or rental programmes to promote product longevity and reduce overconsumption.
- Create** an online platform for users to share products and resources within a community.
- Minimise** the use of land-intensive and deforestation-related commodities and opt for substitutes where possible, before selecting sustainable sourcing options.
- Increase** the added value of both products and by-products, steering resource use towards high-value applications.
- Implement** closed-loop recycling systems to recover materials from end-of-life products.
- Adopt** farming and forestry practices that drive regenerative outcomes.
- Some other thoughts?** List here!

WHAT KIND OF BENEFITS DO YOU EXPECT TO GET FROM THESE BUSINESS MODELS?

- Reduce** dependency on virgin resources, leading to cost savings and resource efficiency.
- Minimise** waste generation and landfill diversion fees, leading to cost savings.
- Reduce** the environmental footprint (including lower greenhouse gas emissions and pollution) by maximising product use.
- New revenue models** through the sale of recovered materials or by-products.
- Reduce** inventory through sharing premises, rentals and as-a-service models over product ownership.
- Improve** soil health and fertility, leading to increased productivity and resilience to climate change.
- Access** a larger customer base through collaborative consumption models, expanding market reach.
- Increase** resilience to potential supply chain disruptions, market volatility and geopolitical risks.
- Readiness** for mounting legislative requirements (for example, related to corporate responsibility reporting, deforestation risks and product design requirements) and costs (such as carbon and chemical taxes).
- Enhance** brand reputation and customer loyalty.
- Some other benefits?** List here!

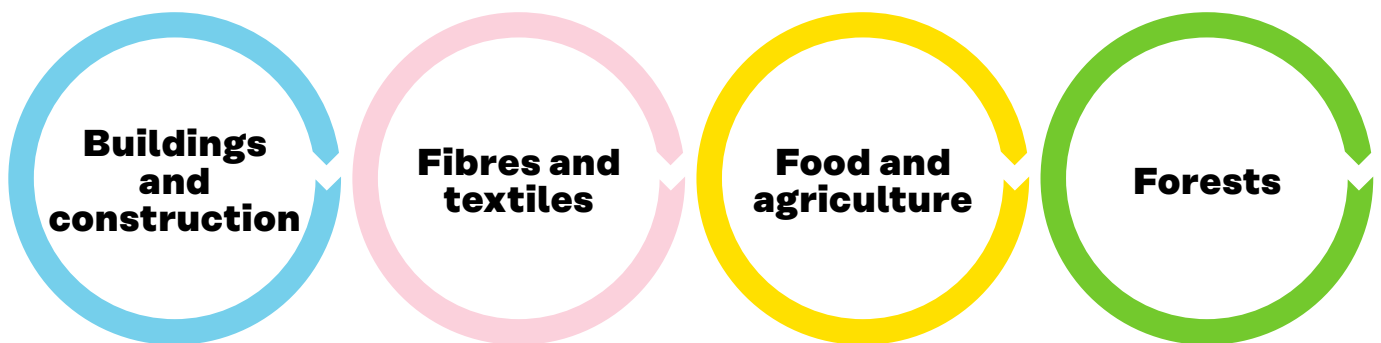
HOW DOES THE SOLUTION REDUCE BIODIVERSITY IMPACTS IN YOUR COMPANY'S VALUE CHAIN?

- Increasing** the lifetime, use and circulation of products through circular solutions in order to reduce the demand for new products, virgin resources and associated land use, mitigating habitat destruction and other pressures driving biodiversity loss.
- Substituting** products and other materials that have a high land-use footprint or that are likely to drive deforestation.
- Making use** of underused bio-based products and by-products and valorise these into high-value applications to avoid land-inefficient practices and give us the most value from existing land.
- Implementing** regenerative farming and forestry to enhance soil health and biodiversity, nutrient retention to avoid run-off and other ecosystem services.
- Some other thoughts?** List here!


FOUR KEY SECTORS

CIRCULAR SOLUTIONS FOR NATURE FOR FOUR KEY SECTORS

The following pages will walk you through a selected number of circular economy levers for the identified sectors.



Circular economy levers are outlined for each sector, including a detailed description and applicable circular business model. From each sector one lever is explored in depth with actionable steps, challenges to overcome and key performance indicators.

 *Food and agriculture, buildings and construction, fibres and textiles, and forests drive between 60% and 80% of total terrestrial biodiversity impacts.*

Buildings and construction





Buildings and construction

The buildings and construction sector often operates under a linear model approach, exerting significant pressure on biodiversity, and particularly the use of land. Construction accounts for approximately 60% of the world's material consumption and 53% of global greenhouse gas emissions, with a great part of this environmental impact being attributable to buildings (Holland Circular Hotspot 2022).

Two main critical biodiversity impacts have been identified in the linear value chain of the sector:

1. raw material extraction (mining) and processing;
2. land clearance for the construction process (see value chain below).

This differs from the other sectors where the most significant impacts are caused by land use and land-use change resulting from primary production, through extraction and cultivation.

Making a linear value chain circular

Eleven key circular economy levers have been identified and mapped in the buildings and construction sector's value chain (Figure 4, Table 3). This mapping allows us to visualise how these levers work together to reduce the demand for virgin materials and decrease critical biodiversity impacts as a result.

For the buildings and construction sector (and all four sectors as a whole), the most critical biodiversity impact is located at the beginning of the value chain. It is thus of central importance to focus action on reducing the impacts resulting from resource extraction (from agriculture, forestry and mining, for instance).

However, to reduce the impacts associated with resource extraction, it is important to consider resource-saving solutions across the value chain. Business models focusing further downstream in general have the largest potential to reduce biodiversity impacts from resource extraction, by effectively reducing demand for material throughput and the resource extraction feeding this material flow in the first place.

KPI examples for the buildings and construction sector

Minimise the land-use footprint of buildings

- Land use per person: per m² (density)
- Active building use: per 24 hours and for the year (active use)

Minimise the land-use footprint of the construction materials

- The lifetime of buildings
- Reuse and recycling rates of materials recovered from existing buildings
- Material use per building
- Land-use demand for the material that is sourced

Figure 4. Material flows and avoided use in a circular buildings and construction sector

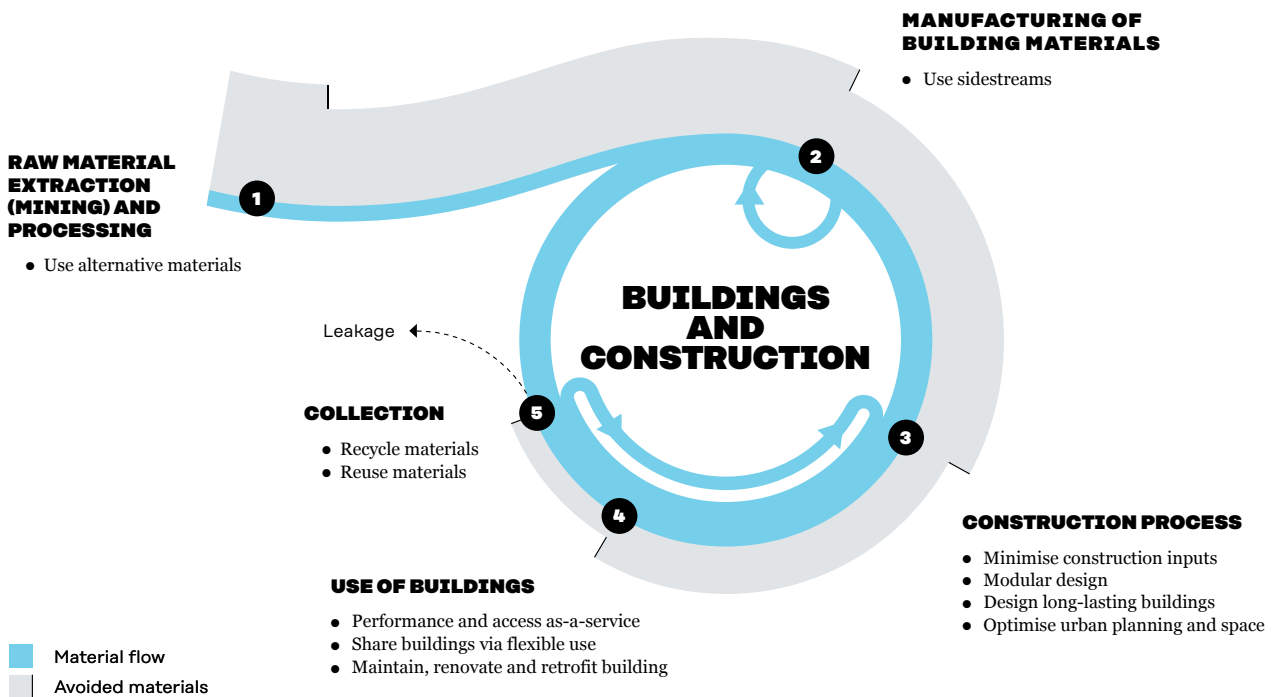


Table 3. Eleven circular economy (CE) levers for the buildings and construction sector

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Minimise construction inputs	Circular inputs and valorisation	Avoid the overuse of building materials, by not using more materials than necessary.	Praeger Richter Architekten designs buildings with thinner walls, using fewer building materials. An added benefit is that more living space is created.
Use side streams and alternative materials	Resource recovery	Use of side streams and alternative raw materials, including recycled aggregates and innovative bio-based composites that meet construction needs while reducing reliance on traditional resource-intensive materials.	Betolar provides a next generation building material, which enables making concrete without cement, reducing the use of virgin raw materials.
Modular design	Circular input and valorisation; Product-life extension	Design and construct buildings with easily replaceable and reusable components, which enables structures to be reconfigured, reducing waste and the need for virgin resources.	Parmaco creates steel cell modules that are energy efficient and can be reused due to their flexible and transferable nature, thereby reducing the demand for virgin raw materials.

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Optimise urban planning and space	Circular inputs and valorisation	Design cities considering the effective use of limited space, embracing vertical and underground construction methods, optimising the urban landscape to manage growth in less space.	Foster+Partners engages in urban spaces optimisation through sustainable urban design. Through its projects, it creates subterranean storage units, connections and service voids, optimising space and reducing resource use for construction.
Performance and access as a service	Product as a service; Sharing platform	Enable access to and functions within a building without the need for ownership of property or assets in order to minimise idle space and equipment.	Combi Works' factory-as-a-service (FaaS) solution provides businesses in the manufacturing industry with access to a network of established factories, decreasing the need for new factories.
Share buildings via flexible use	Product as a service	Turn building spaces into shared use or flexible use (during periods of low occupancy such as weekends), reducing the need for new construction.	VALO Hotel & Work provides a dual-use building that can transform a hotel into an office on demand (in particular during the daytime), raising the facility's usage rates.
Design long-lasting buildings	Product-life extension	Focus on creating structures that are resilient and durable. This is achieved through the selection of durable materials and the maintenance of materials that contribute to extending the life of buildings and structures.	Basilisk Self-Healing Concrete provides products through an innovative technology which can self-repair concrete, enhancing durability and reducing maintenance expenses.
Maintain, renovate and retrofit buildings	Product-life extension	Maximise the life cycles of buildings through comprehensive management, encompassing maintenance, repair, renovations and retrofitting of buildings.	Arup transforms old buildings into functional and sustainable spaces rather than demolishing and rebuilding new ones, extending building longevity.
Reuse and recycle materials	Resource recovery	Incorporate reclaimed, repurposed or recycled material along the buildings and construction value chain, reducing the demand for virgin materials.	The Baltimore Wood Project uses wood from old buildings as a resource in new buildings, giving the wood a second life.

DEEP DIVE

OPTIMISE URBAN PLANNING AND SPACE

Optimising urban planning and maximising space involves city design that considers the efficient use of limited space, embraces vertical and underground construction methods, optimises the urban landscape to accommodate a growing population and facilitates co-existence with natural environments.

BREAKING DOWN THE LEVER

Objective: make efficient use of limited space in urban areas.

The following actions should be considered when addressing urban planning and use of space.

- Optimise the diameter/height ratio of buildings to increase the occupancy rate while limiting the land use needed.
- Explore underground methods and skyscraper use for certain facilities structures (such as parking, energy production, storage).
- Ensure that the biodiverse areas inside the urban areas are preserved.
- Use buildings for different purposes. For instance, office spaces are empty on weekends, when they can be used by communities for commercial and recreational purposes.

CHALLENGES TO OVERCOME

- Adapting existing infrastructure to support taller or underground buildings may require updates to transport, facilities and utilities, among other things.
- Preserving the identity of neighbourhoods while introducing taller or underground structures requires community engagement. This will avoid community resistance to changes that alter their skyline.
- Ensuring stability and safety in tall buildings and underground spaces may pose challenges related to structural integrity, geological stability and emergency evacuation procedures.

Fibres and textiles





Fibres and textiles

The traditional linear model of production and consumption in the fibres and textile sector has led to concerns regarding its impact on biodiversity loss. Only close to 1% of the material used to produce clothing is recycled. Annually, over US\$500 billion is lost due to short product lifetimes, underutilisation and insufficient reuse and recycling practices (Ellen MacArthur Foundation 2017).

The levers presented below (Figure 5, Table 4) are primarily directed towards natural fibres, as the focus is on addressing land-use change pressures, although the pollution and greenhouse emissions associated with the manufacturing and dyeing processes are also significant drivers of biodiversity loss in the sector, in particular if aquatic biodiversity is taken into account. From this perspective, synthetic fibres also generate significant burdens for nature.

With reference to natural fibres, the most critical biodiversity impacts are associated

with the land use responsible for providing the fibres. For synthetic fibres, the land-use footprint of the material provision accounts for a relatively smaller share of the biodiversity impacts compared to natural fibres.

Making a linear value chain circular

In spite of the differences between different fibres' relative impacts, it is important to note that all of the circular levers apply to companies working with natural fibres, synthetic fibres or a combination of the two (except regenerative agriculture, which only applies to natural fibres).

All nine levers (Figure 5, Table 4) help reduce the demand for resources and the land-use footprint as well as the pollution and climate pressures driving biodiversity loss.

KPI examples for the fibres and textiles sector

Minimise the input of virgin fibres into the economy

- Garment usage rate
- Recycled content in clothes

Figure 5. Material flows and avoided use in a circular textiles and fibre sector

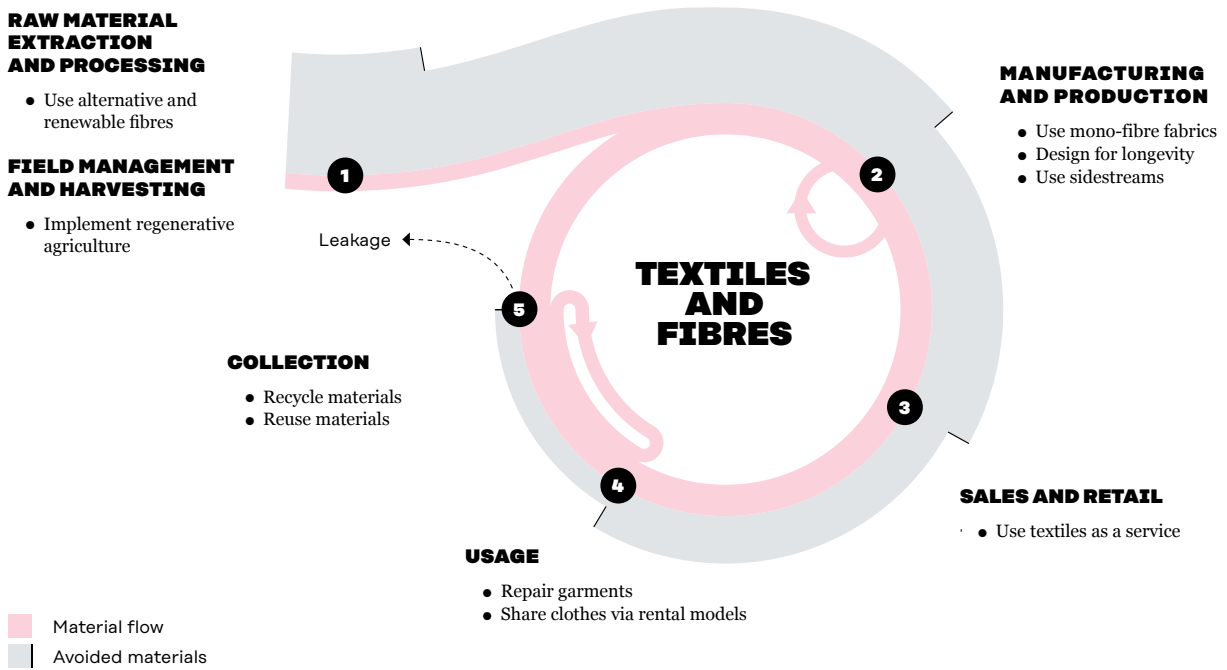


Table 4. Nine circular economy (CE) levers for the textiles and fibers sector

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Implement regenerative agriculture	Regenerative solutions	Cultivate fibres through farming practices that drive regenerative outcomes, enhancing soil health, carbon content and biodiversity as well as nutrient retention and other ecosystem services.	Kering , a global luxury group, supports the uptake of regenerative agriculture through a fund which aims to transform one million hectares of land into regenerative agricultural spaces by 2026.
Use alternative and renewable fabrics	Circular inputs and valorisation	Employ materials derived from non-land-intensive resources or innovative substitutes, for example through the use of underused biological feedstocks that do not compete for land, fast-growing crops or through the use of recycled content.	Patagonia has used hemp fibre in its garments since 1997 as it is a tough and fast-growing crop that provides durable fibres and reduces the demand for land.

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Use mono-fibre fabrics	Circular inputs and valorisation	Use textiles composed of a single type of fibre, making them easily separable and recyclable, enabling a more efficient recycling process that can better retain the value of fabrics and reduce the demand for raw materials.	Asket produces functional garments from pure traceable organic or recycled fibres without using blends of different materials.
Design for longevity	Circular inputs and valorisation; Circular design	Design products to last, using fibres and textiles with durable characteristics (long fibres and stress point reinforcement) and clear labelling for care and use.	Reima designs and manufactures children's clothes to last in the long term by using protective and non-toxic high-quality materials.
Repair garments	Product-life extension	Extend the lifetime of clothing items through mending and patching rather than discarding them when they are damaged or not wanted, reducing waste.	FabPatch offers customised textile repair patches that can be attached onto clothes to patch holes and cover stains.
Share clothes via rental models	Product as a service	Allow customers to access and wear clothing for a limited period, reducing the need to buy clothes.	Rent the Runway is a fashion rental platform that allows customers to rent designer clothing and accessories rather than purchasing them, reducing waste and the demand for virgin raw materials.
Use textiles as a service	Product as a service	Offer access to textiles as a service instead of ownership to ensure higher usage rates (less idling) of clothes and optimal maintenance	Lindström provides organisations with workwear, carpets and other textiles as a service, enabling optimal maintenance, repair and longer life cycles for the textiles, allowing customers to focus on their core activities.

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Resell second-hand clothes	Product-life extension	Provide opportunities to buy second-hand clothing, extending the lifespan of products. Companies can create their own systems to resell these products and repair them if necessary.	Emmy is an online marketplace for pre-owned, premium clothing, which helps reduce idle garments, low usage rates and demand for virgin raw material.
Recycle fibres	Circular design	Create a continuous cycle of resource use, product manufacturing and material recovery. In this system, materials from the textiles sector are collected after their initial use, processed and then reintegrated into the manufacturing process to create new products.	Rester helps recover and transform textile waste into new fibres, reducing the use of virgin raw materials. By teaming up with Lindström, Rester has also been able to source a homogeneous feedstock, which allows for higher quality recycling, which in turn can be offered to the company, effectively closing the loop.

DEEP DIVE

DESIGN FOR LONGEVITY

Design for durability includes products that are designed to last via modular design (unisex, adaptable use) and the use of fibres and textiles with durable characteristics (long synthetic fibres, high weights and tight weaves in fabrics, stress point reinforcement). It also involves multiseason, versatile design and using clear labelling for care and use.

BREAKING DOWN THE LEVER

Objective: aim to reduce the use of virgin materials and avoid waste generation through long life cycles.

The following actions should be carried out.

- Identify the average number of years your company's products remain in use before being discarded.
- Choose materials that can resist damage and are of good quality.
- Reinforce stress points in clothing to extend lifespan.
- Design products that are desirable to consumers over time.
- Conduct stress-testing on your product's resistance to different environments and uses, and ensure your consumers are educated on appropriate use (such as via labelling or campaigns).

CHALLENGES TO OVERCOME

- Prevailing consumer preference for fast fashion over durable products, driven by price considerations.
- Changing consumer behaviour regarding the use of garments, such as taking proper care of clothes and maintenance practices that can contribute to longevity, and consumer resistance to changing behaviour when it comes to garment use.
- Developing clothes that are durable can be costly and will require innovative techniques that enhance durability without compromising style and comfort.

Food and agriculture





Food and agriculture

The conversion of land to agricultural practices remains a significant driver of biodiversity loss and land degradation. Conserving biodiversity while meeting the needs of human populations for food and agriculture is a major challenge.

On a global scale, agricultural land encompasses roughly five billion hectares, accounting for 38% of the earth's total land surface. Within this expanse, approximately one third is allocated for cropland, and the remaining two thirds are designated as meadows and pastures, serving as areas for grazing livestock (FAO 2020).

For this handbook, agriculture encompasses large and small-scale crop production and livestock farming. We acknowledge that these sub-sectors have great differences; the application and challenges of the eight identified levers would greatly depend on each sub-sector and the local conditions.

Two critical biodiversity impacts have been identified for the sector:

1. livestock farming
2. field management and harvesting of crops.

As with the other sectors, while the largest biodiversity impacts occur when cultivating the resources, the circular levers that reduce these impacts the most can be found further downstream.

Making a linear value chain circular

Eight circular economy levers have been identified (Figure 6, Table 5). In the case of livestock farming, it is critical to ensure that solutions prioritise seeking alternative sources of protein, given the high impact of intensive and extensive livestock farming.

Since the scale of the change is big, it's crucial to assess and manage the impacts carefully, to ensure that the transition is fair and just.

KPI examples for the food and agriculture sector

Minimise the land-use footprint of food.

Globally, the largest biodiversity impact is tied to land-use change, driven by increasing volumes and land-use demand. In countries where limited land-use change takes place, the land-use management practices become relatively more important compared to volumes.

- Total land use footprint per kilogram of food. (This can be weighted to account for the nutritional value of the food.)
- The share of deforestation-free commodities. (Some commodities have a modest land-use footprint but drive an outsized share of biodiversity loss. Substitutes can help halt growing global demand for these commodities, and where not possible, compliance with the EUDR (supported by high-quality "first mile" data) is essential.)
- Food waste and loss rate

Figure 6. Material flows and avoided use in a circular food and agriculture sector

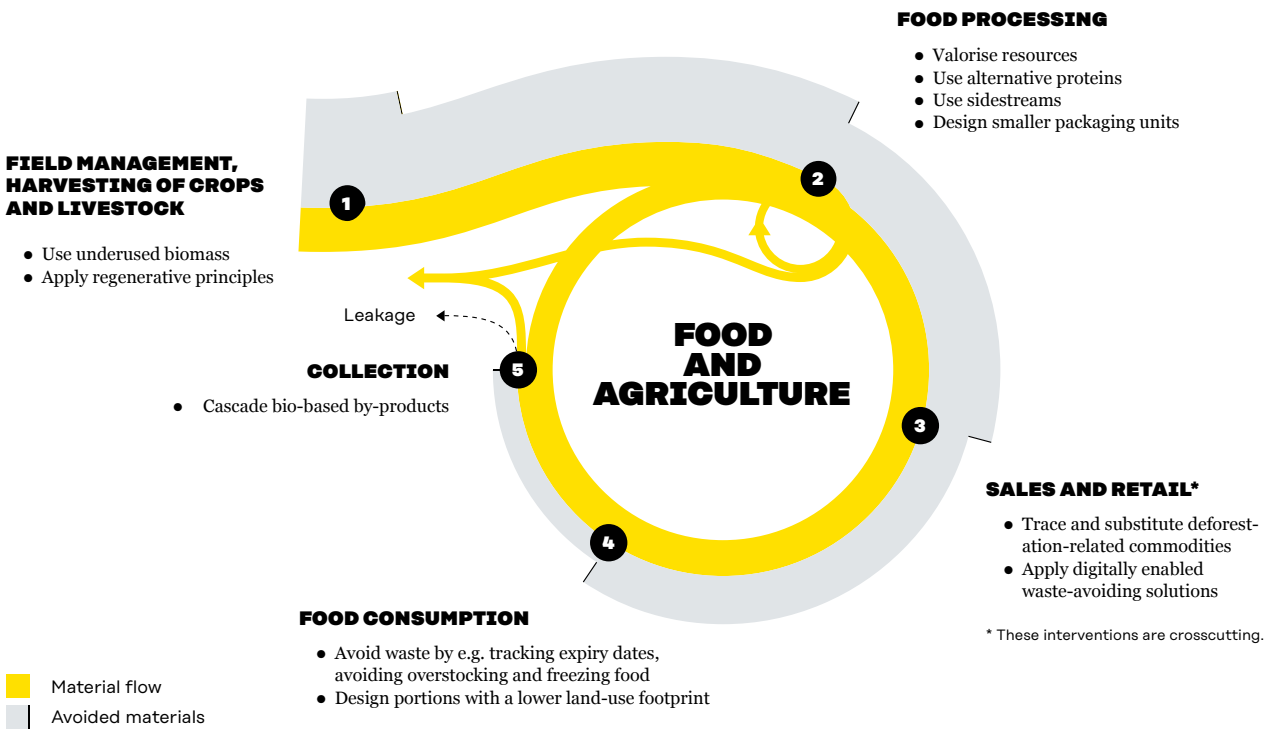


Table 5. Eight circular economy (CE) levers for the food and agriculture sector

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Implement regenerative agriculture	Regenerative solutions	Use farming practices that drive regenerative outcomes, enhancing soil health, carbon content and biodiversity as well as nutrient retention and other ecosystem services. Some examples include agro-ecological and organic farming principles, no-till methods, cover crops and agroforestry.	Unilever adopts polyculture strategies as a regenerative agricultural practice to improve soil resilience and reduce land use.
Use alternative protein sources	Circular inputs and valorisation	Substitute conventional animal products with alternative protein sources that require fewer resources (land, water, energy and antibiotics) and reduce impacts on nature.	Axfood launched a mince-meat made of beef and vegetables, with a high protein content, on a large scale. Adding an alternative protein source reduces the demand for raw materials (in this case, beef) and land use.

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Use underused biomass	Circular inputs and valorisation	Make use of overlooked and currently unharvested locally abundant resources that can substitute other resources that require agricultural land or other land use or extraction of ecosystems. Examples include unused biomass left on fields, food processing by-products, reeds, algae, shells, unused fish stocks and other resources.	Järki Särki has helped bring the roach fish back onto people's plates. Using new processing technology and slick product design, Järki Särki has made use of a locally abundant but unused resource, thereby helping to reduce overfishing of marine species.
Valorise resources	Circular inputs and valorisation	Recover waste, by-products and low-value resources and products and transform them into high-value inputs for the same or other sectors. Valorisation supports designing and planning resource usage in a way that extracts more value from the same use of land.	Hailia turns fish that was previously largely used for feed into high-value products for human consumption, reducing demand and the overexploitation of other fish species.
Trace and substitute deforestation-related commodities	Circular inputs and valorisation	Develop and source substitutes for soft commodities associated with deforestation, for which there is growing global demand that causes significant biodiversity loss through production taking place in global biodiversity hotspots	VTT has developed lab-grown coffee, sidestepping the need for the sustainable sourcing of coffee in the first place.
Design smaller packaging	Circular inputs and valorisation	Provide food products in sensibly dimensioned portions (such as by using smaller packaging), helping consumers avoiding overdosage and excessive calory intake.	Migros makes it possible to use less coffee per cup, by avoiding overdosage through standardised, packaging-free coffee balls, which can enable lower impacts – with the caveat that the solution is confined to their own brewing device.

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Digitally enabled life-extending solutions	Resource recovery	Harness digital solutions and data to minimise food waste and loss across the value chain, predicting shelf life and informing solutions such as life-extending packaging, more refrigeration, freezing and making excess food available to other organisations and consumers.	Winnow develops technology based on an AI-enabled tool that automatically tracks food waste, cuts and saves time – enabling restaurants to make better decisions, leading to higher efficiencies and reducing food waste.
Cascade bio-based by-products	Resource recovery	Make use of biological resources through cascading principles, extracting and refining valuable resources from field residues; process side streams and food waste, turning these resources into feedstocks for the chemical industry and fibres where possible, or soil-enhancing additives, feed and energy where more high-value applications are not possible, for example in wastewater treatment.	PeelPioneers use orange peel that is usually incinerated, turning the peel into high-quality ingredients for the food industry. Volare use black soldier flies to produce an alternative protein to high deforestation-related commodities (soy and meat), reducing land use. Klimis produces barbecue briquettes made from olive stones, which provide a sustainable source of natural energy and valorise the use of food waste.

DEEP DIVE

EXPLORE ALTERNATIVE PROTEIN SOURCES

Substituting conventional meat and dairy products with alternative proteins plays an important role in addressing biodiversity and land use. This lever reduces the dependency on overexploited and high-risk deforestation commodities (meat) using, for example, lab-based meat substitutes, insects or algae to produce protein for human consumption.

BREAKING DOWN THE LEVER

Objective: reducing the dependency on existing land use or using underused resources.

The following actions should be carried out.

- Define your company's protein sources.
- Develop supply chain visibility (such as for the sourcing region).
- Investigate the application of alternative protein sources for your company.
- Conduct a pilot test for the selected alternative protein sources.
- Analyse the costs and benefits of alternative sources.
- Adapt and innovate the sourcing, production, retail and marketing of these new products.
- Engage in consumer awareness campaigns to generate buy-in for alternative, protein-based products.

CHALLENGES TO OVERCOME

- Investing in research and innovation for alternative protein sources. This includes exploring new technologies, optimising production processes and conducting comprehensive studies on the nutritional value and environmental sustainability of alternative proteins.
- Encouraging consumers to use alternative protein sources as substitutes for traditional meat and dairy products.
- Encouraging livestock farmers to make the transition to alternative incomes (ensuring a "just transition").
- Establishing new supply chains and infrastructure for alternative protein production can be complex and costly.
- Meeting regulatory standards and obtaining certifications for alternative protein products can be challenging.

Forests





Forests

Forests harbour the widest diversity of terrestrial species on our planet. However, there was a net loss of forest of 420 million hectares between 1990 and 2020, contributing to biodiversity loss and land degradation (FAO 2022). The activities within the forest sector, such as pulp and paper, bioenergy and use of wood-based products, significantly contribute to this decline in biodiversity. The impact is profound as it disrupts ecosystems and threatens the habitats of numerous species through land use and land-use change.

For this handbook, the forest sector includes all activities related to wood-based products, from forestry practices to processing, use and management of the wood products. However, wood for construction is covered separately in the buildings and construction sector.

The two most critical biodiversity impacts in the sector are tied to forest use

and management and timber harvest. This is different from the fibres and textiles and the food and agriculture sectors, in which the most central biodiversity impacts from a global perspective are found in the first part of the value chain, driven by changes in land use to provide large volumes of resources. By contrast, in the forest sector, the resource volumes and the management practices used to provide the resources drive impacts of a similar order of magnitude.

Making a linear value chain circular

Eight circular economy levers were identified for the forest sector (Figure 7, Table 6).

Applying these levers will help shift the linear value chain in a more circular direction, reducing the pressures on biodiversity in the sector.

KPI examples for the forest sector

Minimise the resource and land-use footprint of forest products

The footprint here factors in international trade flows, with the goal of reducing growing competition for limited global biomass resources, deforestation and pressures on forests globally. Very limited land-use change takes place in Nordic forests.

- Wood product lifetimes (for example, a reused Christmas tree means less land use per tree)
- Carbon storage in products (how much carbon is stored for how long)
- Recycling rate of wood-based materials
- Volume of non-wood biomass extracted and valorised, measured in relation to land use avoided in other sectors (such as mushrooms in the food sector)

Regenerative outcomes in forests

Regenerative outcomes as well as the practices that can deliver them vary widely according to location.

- Disturbance of the soil
- Run-off: kilograms of nitrogen and phosphorous in discharged water
- Amount of dead wood, dying trees and retention trees
- The proportion of forests with different age structures
- Share of domestic trees used and diversity of trees used (deciduous trees in boreal forests)
- Connectivity

Figure 7. Material flows and avoided use in a circular forest sector

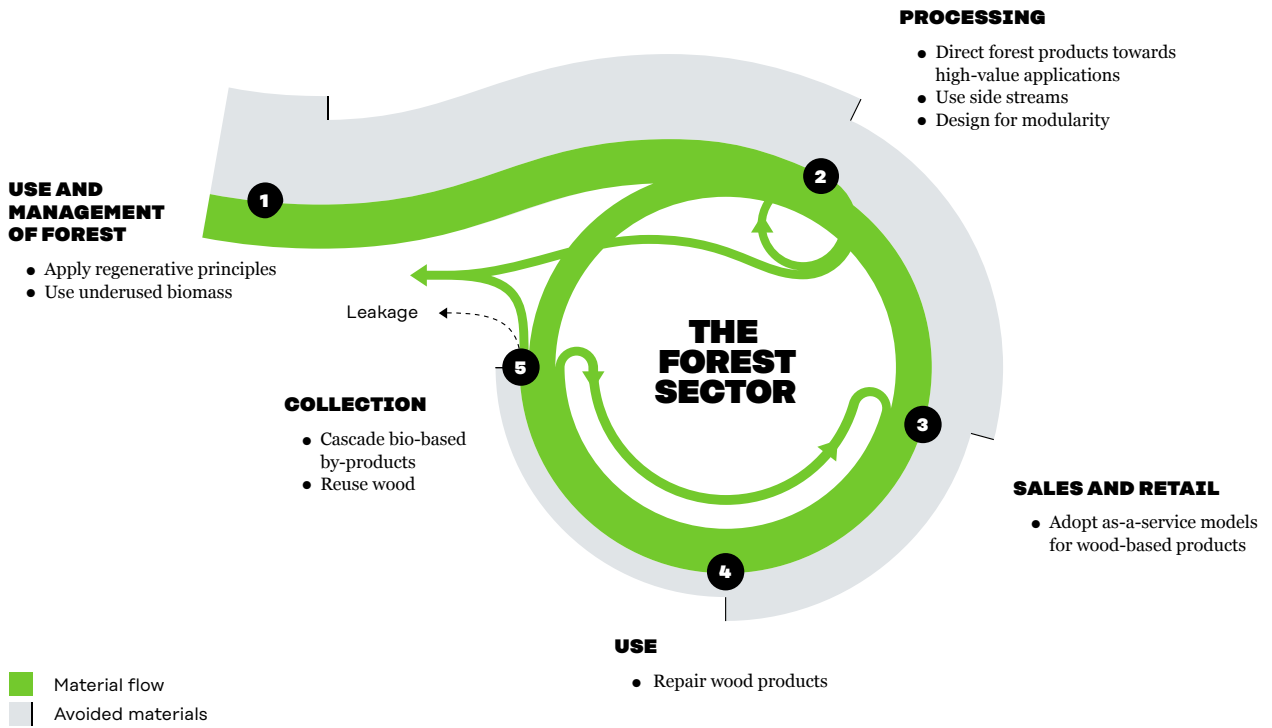
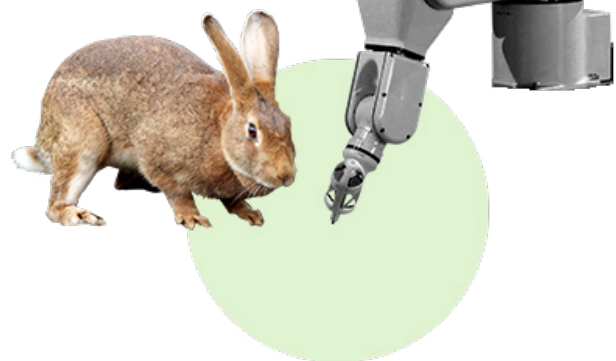


Table 6. Eight circular economy (CE) levers for the forest sector

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Adopt regenerative forestry	Regenerative solutions	Implement forest management practices that drive regenerative outcomes, enhancing soil health, retaining nutrients and avoiding run-off, while reducing the need for external inputs by harnessing natural regeneration and other ecosystem services that help build a more resilient forest.	Arvometsä uses regenerative forestry principles focused on continuous cover forestry, enabling a less homogeneous forest with less disturbance to forest soils and effective harnessing of natural regrowth and other ecosystem services, as well as more consistent revenue streams.
Direct forest products towards high-value applications	Circular inputs and valorisation	Valorise both wood and non-wood forest products. These undergo only limited value-added processing today, with considerable untapped potential for further valorisation and potential to reduce the land-use footprint of other industries.	Lumene creates value from overlooked ingredients (such as wild cloudberries), which can be valorised in their cosmetics products, thereby valorising non-wood forestry products.
Use underused forest biomass resources	Regenerative solutions	Make use of forest resources other than wood that can be used as alternatives for high-impact products in other industries (like sap, truffles, herbs and mushrooms and other forms of biomass), providing more consistent, parallel revenue streams.	Nordic Koivu provides consumers and industry with beverages and functional ingredients made from birch sap available all year.
Design for modularity	Product-life extension	Design and produce wood products with a focus on modularity to extend the lifespan and versatility of wood-based products, by allowing components to be added, removed or repaired, according to need.	Encore provides customers with loading pallets, for which damaged parts can be replaced, instead of replacing the whole pallet. The pallets are also offered as an as-a-service solution.
Adopt as-a-service models for wood-based products	Product as a service	Rental services allow products to be used multiple times, avoiding single use as well as additional purchases when short-term access could suffice.	Vuokrapuu offers a Christmas tree rental service with the goal of replanting the tree afterwards, extending the tree's lifetime use.

CE LEVER	CE BUSINESS MODEL	DESCRIPTION	EXAMPLES
Repair wood products	Product-life extension	Adopting a wood repair business model involves the provision of services for repairing and refurbishing wooden products. This includes the gluing and clamping of pieces, restoring finishing and structural repairs.	Bona offers filler to help repair and renovate wooden floors, as well as other products to help extend their lifetimes.
Implement closed-loop recycling systems	Resource recovery	A closed-loop recycling system refers to a resource recovery approach, which helps ensure that the products sold on the market can be collected, recycled and made into new products for the same company or an ecosystem partner.	IKEA designs many of its wood-based products from particle board, which the company also collects and uses as a feedstock in new particle board, allowing for a closed-loop system.
Cascade used wood and side streams	Resource recovery	Cascade forest industry side streams, as well as used wood unfit for direct reuse, steering the biomass towards its maximum value, for example as feedstocks for the chemical, pharmaceutical, food and fibre industries, and where not possible, towards soil-enhancing additives and bioenergy.	Innomost replaces fossil and palm oil-based ingredients with wood-based side streams that serve as multifunctional ingredients for cosmetic products.



DEEP DIVE

DIRECT WOOD-BASED PRODUCTS TO HIGH-VALUE APPLICATIONS

Direct wood by-products, waste and low-value products from logging and processing activities to high-value inputs for other sectors. This lever replaces low-value applications, such as energy production, with higher-value applications for cosmetics, fashion and construction, among other things.

BREAKING DOWN THE LEVER

Objective: create more value and new innovations from low-value wood-based products, by-products and waste streams.

The following actions should be carried out.

- Identify and categorise different types of wood by-products and waste generated during processing and manufacturing, understanding the potential for revalorisation.
- Invest in research and development for innovative products that can be manufactured using recovered, wood-based materials.
- Engage in multisectoral innovation projects to explore different wood-based applications and reprocessing techniques.
- Create and expand markets for non-wood forestry products by collaborating with local businesses, markets and industries.

CHALLENGES TO OVERCOME

- Adapting and developing technologies to valorise resources can be associated with an increase in cost and complexity. This includes investing in the research and development of innovative processing methods, machinery and materials to extract maximum value from wood by-products.
- Building stakeholder buy-in and development of a new market for valorised products can be difficult. Convincing stakeholders of the economic viability requires targeted marketing education and engagement efforts.
- Managing the complexity of the supply chain, especially if multiple stakeholders are involved in the collection and processing of wood by-products.



TOOLKIT

IDENTIFY THE MOST RELEVANT CIRCULAR ECONOMY LEVERS

Based on what you have learned in this chapter, consider what the most relevant circular economy levers are for your company. Think how you could integrate them into your operations across the value chain.

WHAT ARE THE MOST RELEVANT CIRCULAR ECONOMY LEVERS FOR YOUR COMPANY? CHOOSE YOUR SECTOR AND SELECT THE MOST RELEVANT LEVERS.

Buildings and construction:

- Minimise construction inputs
- Use side streams and alternative materials
- Modular design
- Optimise urban planning and space
- Performance and access as a service
- Share buildings via flexible use
- Design long-lasting buildings
- Maintain, renovate and retrofit buildings
- Reuse and recycle materials

Textiles and fibres:

- Implement regenerative agriculture
- Use alternative and renewable fabrics
- Use mono-fibre fabrics
- Design for longevity
- Repair garments
- Share clothes via rental models
- Use textiles as a service
- Resell second-hand clothes
- Recycle fibres

Food and agriculture:

- Use regenerative agriculture
- Use alternative protein sources
- Use underused biomass
- Valorise resources
- Trace and substitute deforestation-related commodities
- Design smaller packaging
- Digitally enabled life-extending solutions
- Cascade bio-based by-products

Forests:

- Adopt regenerative forestry
- Direct forest products towards high-value applications
- Use underused forest biomass resources
- Design for modularity
- Adopt as-a-service models for wood-based products
- Repair wood products
- Implement closed-loop recycling systems
- Cascade used wood and side streams

KEEP THESE IN MIND WHEN YOU ARE DEVELOPING YOUR SOLUTIONS FURTHER.

Use the levers to address your critical biodiversity impacts:

- Define how the selected circular economy levers reduce pressures on your critical biodiversity impacts.
- Focus on levers based on their potential impact, feasibility and alignment with your company's strengths and goals.
- Prioritise solutions that actively help reduce demand for virgin natural resources.
- Define metrics to quantify the impact of the circular levers selected.

Focus on the value chain:

- Remember that circular solutions in your direct operations may not capture the full extent of a company's biodiversity footprint.
- Know your value chain and identify the places and opportunities for circular solutions.
- Adopt circular levers across the entire value chain to tackle the critical biodiversity impacts across the whole value chain.

Act according to the AR3T framework:

- Identify which principle of the AR3T framework your solution contributes to: avoid, reduce, regenerate or transform.
- Implement the solutions in a hierarchical manner according to AR3T framework.
- Start acting immediately and identify circular solutions that can be implemented right away.

STEP 3

DESIGN THE TRANSFORMATION JOURNEY

This chapter outlines the road map for designing a company's circular transformation journey confined within nature's boundaries by first analysing specific capabilities and the readiness within the company, key elements for transforming business models and collaborative aspects that can deliver effective outcomes. The goal is to draw out important principles for tackling pressures on nature and kick-starting this transformation journey.

Step

3

AFTER READING THIS CHAPTER YOU WILL:

- approach business model transformation as a prerequisite for nature work and understand the three reasons why you should not wait to adopt circular solutions;
- understand the three-pronged outcomes of effective collaboration with stakeholders throughout the value chain;
- be able to anchor the transformation journey in the firm's reality, based on its readiness, leveraging key capabilities;
- become aware of challenges and pitfalls you may face when delivering on nature targets through circular solutions;
- identify the next steps for a business transformation for nature action.

 *Transformational change requires both ambition and long-term commitment from companies.*

Begin the business model transformation

To respond to the triple environmental crisis and ensure long-term viability and resilience, companies need to adopt future-proof business models. Fundamental to this transformation is the shift towards circular business models. The implementation of circular business models is often easier for early-stage companies than for big corporations, so businesses face different journeys.

Circular solutions help generate more value from the resources that we have, and when business model transformation is linked to nature, the imperative becomes even more pronounced. In a scenario where nature is conserved, an annual gain of US\$490 billion would be generated compared to a business-as-usual scenario (Johnson et al. 2020).

Companies can generate additional stakeholder support by strengthening their biodiversity and circular economy actions – especially when combined, unlocking synergies between the two; nature goals can be reached more effectively through circular solutions, and by prioritising the circular solutions most central from a nature perspective, a new dimension of benefits can be delivered by circular solutions.

By understanding their impacts and dependencies on nature, companies have a springboard from which they can move forward, guided by an urgency for action, as well as guidance on wherein the most critical areas for action lie. By coupling these insights with an understanding of where the companies are in practice, they can make informed decisions and strategically allocate resources and implement measures to mitigate their impacts most effectively.

Transformational change requires both ambition and long-term commitment from companies. However, the transformation journey need not be excessively difficult. Nor does it require a long time horizon before tangible results can be generated. Many necessary actions can be called “no-regret actions” – actions that either deliver results at a low cost or are inescapable due to rising legislative pressure.

Visibility of supply chains and their impacts on nature are a case in point. Despite data gaps and limited standardised metrics, companies can already build effective structures for capturing and responding to their most critical impacts, and it is important to already have these structures set up as biodiversity data becomes easier to translate and as gaps are being plugged at a fast pace.



Three reasons for not waiting to pilot and adopt circular solutions

1 Many circular solutions offer quick wins with short payback times, for example by virtualising products or by designing out unnecessary additives, packaging and other materials. Such solutions should be made the most of and sequenced in order to help rally the organisation around a series of quick wins.

2 Working on circular solutions early helps companies identify what work they need to do to assess their present and future impacts and dependencies – by developing an understanding of the type of circular solutions that are implementable and the materials to which they apply. For example, where recycling can be done with a very limited loss of quantity and quality, there is less of a need to assess nature impacts compared to materials that are difficult to recycle or substitute.

3 The transition to a circular economy requires a palette of different solutions. Some of the business models take time to implement, especially for larger corporations with far-reaching operations built around the linear economy. By beginning to pilot circular solutions early on, valuable feedback on different business models can be generated, allowing for more iterations and the time to rework value chains, get partners up to speed and rally the organisation in a circular direction.



Collaborate – for higher ambitions and effective outcomes

Companies have a clear role to play in driving the transformation of the entire system. Understanding the impact of activities at different stages of the value chain is critical to driving transformation. But businesses cannot do this alone.

When it comes to protecting our planet's ecosystems, collaboration is not just a good idea, it is our best chance of success. We need an all-hands-on-deck approach – bringing together governments, non-governmental organisations, scientists, communities and businesses from all sectors – to work on new solutions to the pressing problems we face.

The fate of our ecosystems and the species they support depends on our ability to work together effectively, with systemic solutions at the forefront; the circular economy itself builds on systems thinking and it draws upon insights from nature, where there is no waste, only food for other organisms.

In the scope of this handbook, it is important to emphasise the need for collaboration that spans the value chain. Each stakeholder, from producer to distributor to consumer, has a piece of the puzzle. By working together, stakeholders can use their collective knowledge and resources to address the root causes of biodiversity loss. This collaboration is not just about short-term gains, but about paving the way for a more sustainable future.

Companies face challenges related to a lack of data to meet European legislation and investor demands. Collaboration and partnership in supply chains is necessary to obtain data on the impacts of activities or products throughout their life cycle. Promot-

ing transparency and traceability is essential to address these impacts and close the loop on products and materials. In this regard, blockchain can provide a reliable flow of data from one company to another or others about the products or services provided – such as information about their origin, logistics, certification or other aspects that may be relevant for traceability.

Integrating circularity measures with other nature solutions frameworks also increases the effectiveness of efforts to achieve nature goals. By working with these frameworks, circular economy interventions can be strategically aligned with conservation priorities. For example, the nature solutions framework includes the conservation, restoration and sustainable management of ecosystems, where circularity can play an important role in closed-loop natural resource flows. Payments for ecosystem services can also create synergies between circularity and conservation efforts.

Participation in business networks further strengthens the impact of circularity and conservation initiatives. Beyond sharing experiences and best practices, business networks provide a platform to collectively address common challenges. By aligning with sectoral initiatives committed to advancing circularity and biodiversity conservation, companies can catalyse transformative change and accelerate progress towards shared goals.

In addition, active engagement in initiatives that advocate ambitious biodiversity and circularity policies reinforces the commitment of companies to achieving positive outcomes for nature. This may involve engaging with policymakers, industry associations and civil society organisations to advocate the adoption of policies and regulations that incentivise this business action approach.

Identify key capabilities

Throughout this handbook, we have emphasised the interconnectedness of nature and the circular economy, and in particular how circular solutions are key for delivering on nature targets. Success depends on a set of factors, including human capital and upskilling, use of digital tools and a shift in mindset.

From a corporate perspective, it is important that the leadership is committed to and involved in driving the company's nature action forward, showing motivation and interest in working on the company's relationship with biodiversity and integrating circular economy principles to help mitigate its impacts.

Additionally, understanding supply chain dynamics is critical. By and large, nature work is supply chain work, and as a first step, companies should assess whether they have adequate human and technical resources and whether key members of their personnel have a collective understanding of nature, the circular economy and innovation, and supply chain management. These considerations will help companies to identify opportunities for circularity within their operations and supply chains.

It is essential to build a multidisciplinary team of skilled professionals, including supply chain management specialists and experts in nature and the circular economy – for which innovation-related capabilities are highly important in order to adapt circular business models, from product design to new models based on access over ownership. This team should be able to apply and integrate knowledge into an operating model that leverages all skillsets in a seamless fashion. In addition, the use of technology and data analytics will enable the team to collect and analyse data for informed

decision-making and track progress towards nature targets.

Finally, it is crucial to understand the fundamental reasons and motivators behind various operations, such as profit models, to identify practical and effective solutions that can challenge the modus operandi and benefit organisations in the long term.

Overcoming typical challenges

To unlock the benefits of the circular economy in addressing biodiversity loss, it is essential to consider potential challenges that may surface. A comprehensive approach involves anticipating and addressing challenges that may arise, ensuring that business benefits are created and actively enhancing and preserving nature. Here, we present some challenges that your company may find helpful to consider.

Data availability and supply chain visibility

The lack of data and visibility to truly understand and address biodiversity loss impacts that occur beyond your operations is needed to understand your impacts (Fripp et al. 2023) and close the loop of products and materials (Santana and Ribeiro 2022). While data and visibility are important enablers to understand impacts and measure progress, the approach presented in this handbook invites companies to start the nature journey with the best available data. In case company-specific data cannot be obtained, sector averages data (high-level value chains) can be used. This approach should be engaged in parallel with technology tools and efforts to increase the level of understanding of value chain activities and stakeholders involved.

Financial resources

As seen in Step 2 of this handbook, the greatest impacts on biodiversity are often situated either upstream or downstream in relation to the company's position in the value chain, yet it is the company itself that controls the most significant financial resources available to support biodiversity (Deutz et al. 2020). Mitigating this challenge is embedded in the use of circular economy levers with a value chain perspective. This approach allows financial resources and efforts at different stages of the value chain to be channelled to address biodiversity loss impacts directly or indirectly in other parts of the value chain.

Network and systemic action

Fostering partnerships and collaboration in complex value chains with little visibility can reduce internal traction and progress. Producers, manufacturers and retailers must come together in a shared commitment to simultaneously integrate circular solutions. Establishing clear communication channels, sharing best practices and developing joint

initiatives can bridge financial, data and resource gaps, creating a more cohesive and effective approach to nature-oriented action.

Consumer behaviour

The behaviour of customers and end-users is critical to a well-functioning circular economy and to ensuring that these models have the desired impact on biodiversity loss hotspots. Increasing the efficient use of products and materials is the first step towards reducing land-use pressure.

Regulatory challenges

The regulatory landscape is changing, with an increased focus on preserving nature. Companies should adjust their practices to comply with the new European frameworks, which require reporting on impacts and dependencies, as well as taking the value chain into account (CSRD). Additionally, they should ensure that their supply chains do not contribute to deforestation or forest degradation (EUDR), while improving traceability and transparency through Digital Product Passports (ESPR).



INSIGHT

**REIMA IS TAKING CONCRETE STEPS
TOWARDS TRANSFORMATIVE CHANGE**

Can you have your cake and eat it too? In other words, can you still grow your business if you keep the clothes sold in use and sell fewer and fewer garments? Sissi Penttilä, Sustainability Specialist at Reima, a children's activewear brand, explains how you can.



“The problem we’re facing is that our consumption rate is too fast and, in particular, we are using too much land to produce our resources. We need to reduce this resource use, of both non-renewable and renewable resources. With circular business models, we are able to keep our resources in use and thereby reduce resource extraction and land use, allowing us to preserve more of the world’s nature.

To truly transform businesses’ relationship with the resources at large, a range of interventions are needed, from legislation to finance, not to mention the engineering needed to actually provide the textile materials. And to figure out any business, there is no silver bullet, you need to get busy and do it yourself! Trial and error. Many times over. Fostering a circular mindset takes time and it is often easier in younger companies with a clean slate. Therefore, collaboration is vital for larger companies.

Reima has for example teamed up with Menddie – a repair service – as well as with Emmy – a platform for second-hand clothes. To enable such partnerships, trust is a precondition. An open dialogue on how to share the costs and benefits can of course facilitate partnerships, as many companies have legitimate fears that repair or resale will cannibalise their sales. However, both our approach and experience run contrary to this. We see repair and resale as an opportunity. If people want to repair their clothes, they will find a solution even if we don’t offer it. But if we do, we tap into a new market, for which we at the same time help train a growing segment of future circular consumers. It is free PR. It is also a question of quality assurance. Our partnerships with Menddie and Emmy demonstrate that the quality of our garments is high enough to be repaired and even reused – Emmy is selective about what garments they accept.

Reima is just one company, and transformative change requires more parties to work together over time, but partnerships – which may require a small leap of faith – are an important step, not least for reuse and repair, as we cannot simply recycle our way out of this crisis. If we think of our textiles economy as a cake, the problem today is that reuse and repair are only the tiny cherry on top. The rest is virgin fibre, and today we’re adding more and more cake base in this fast-growing cake, when what we actually need is many more cherries and much less dough. That way, the cake could both be smaller and more wholesome.”



TOOLKIT

KICKSTART THE TRANSFORMATION JOURNEY

Based on what you have learned in this chapter, consider concrete action points that could help you start the transformation journey. This toolkit also invites you to honestly reflect about potential challenges as well as possible solutions.

DO YOU THINK YOUR COMPANY HAS REALISED THE FULL POTENTIAL OF CIRCULAR BUSINESS MODEL TRANSFORMATION?

- Yes, our company is as circular as it is possible to be** – Splendid! Many companies would undoubtedly like to learn your secrets. Remember, however, that the circular economy is at least as much as a journey as it is a destination.
- No, our company can become (even) more circular!** – Congratulations. You're just like (virtually) everyone else. Consider the following:
 - **Identify possible quick wins** in the company to help motivate people to commit to the circular journey. Perhaps there are resources that are idle most of the time that could be shared, or which could be accessed as a service. Perhaps some packaging or parts of a product are in fact redundant and could be designed out. Perhaps part of a waste stream could easily be reduced in a short time, enabling cost savings.
 - **Start piloting solutions** that inform how nature targets can be set. Perfect information with granular data on nature impacts is only useful if you also develop a plan for tackling the impacts. Such a plan can also help you understand where in the supply chain you need more information, steering this mapping process in a more cost-effective way. On top of that, some circular business models are more difficult to introduce for certain companies, requiring a testing phase, a few rounds of iteration, as well as some time for people in the company to warm up to the idea and learn new skillsets. Therefore, it pays off to start piloting sooner rather than later, even if only part of a company's business is concerned.

DO YOU THINK YOUR COMPANY HAS THE NECESSARY RESOURCES TO DEVELOP CIRCULAR SOLUTIONS?

- Yes, our company has the necessary resources** – Amazing! Having the necessary resources to develop the selected circular solutions is crucial before implementing it.
- No, our company does not have the all the necessary resources** – Consider the following:
 - Assess the company's existing resources, including financial, human, technological and infra-structural resources.
 - Evaluate the skills and expertise available within your organisation to assess whether they are aligned with the requirements of the circular solution. Skills of particular importance include data management to help track material flows, supply chain management, material science, product design and maintenance, as well as softer skills that are conducive both to co-creative processes with people from varied backgrounds and to learning new skillsets.
 - Review the company's existing technology infrastructure and capabilities to determine if they are sufficient to support the development and implementation of the selected circular solutions. If not, invest in existing or new technologies to enable circular practices. Often existing systems can be rewired to accommodate linear functions, such as take-back schemes in lieu of linear sourcing patterns.

DOES YOUR COMPANY HAVE OPPORTUNITIES TO COLLABORATE WITH SUPPLIERS AND PARTNERS TO DEVELOP CIRCULAR SOLUTIONS?

- Yes, our company has identified opportunities to collaborate with suppliers and partners to develop circular solutions** – Great! Perhaps you have not, however, considered the full potential of collaboration.
- No, our company has not yet explored opportunities to collaborate with suppliers and partners for circular solutions** – Consider the following:
 - Develop an atmosphere of trust among suppliers and other partners. Data is the oil of the circular economy. To allow this data to flow seamlessly among different companies, trust-based, long-term partnerships can help companies track resource flows and work toward common goals.
 - Identify relevant partners from varied backgrounds, with complementary capabilities, expertise and resources that can enhance the development and implementation of circular solutions. Often someone's waste or underused asset can be used by someone else to generate more value. Also, all companies cannot have fully vertically integrated operations for all circular business models, such as repair and refurbishments, insurance for sharing etc., and partnerships can allow each respective company to focus on their core competence.
 - Define the roles and responsibilities for each partner to ensure clarity and accountability within the collaboration. Define clear expectations and, if possible, use metrics to track the effectiveness of the collaborative efforts.
 - Team up with similarly ambitious companies through industry initiatives. This can make it possible to lower some of the risks related to progressive target-setting, pool resources and increase collective industry resolve in favour of more ambitious industry targets. By working together with industry partners, companies also stand a better chance at advocating for a more ambitious regulatory environment which tends to favour ambitious companies.

WHAT ARE THE MAIN CHALLENGES YOU FACE, AND HOW CAN THESE BE OVERCOME?

- Data availability and supply chain visibility
- Financial resources
- Network and systemic action
- Consumer behaviour
- Regulatory challenges
- Path dependency
- Customer demand
- This list is not exhaustive. I think it is even more important to mention...

Summary

Congratulations on completing this handbook! We hope that it has offered valuable insights, practical examples and useful tools to enhance your understanding and help you develop the skills to tackle nature loss through circular solutions.

Now is the time to transform your business model – as next steps, we recommend the following.

Companies can initiate pilot projects to test and validate circular solutions in real scenarios. Pilot projects enable the identification of challenges and the refinement of strategies and demonstrate the feasibility and benefits of circular solutions for nature. They can be conducted across various aspects of the business, including product design, supply chain optimisation and waste management.

Once the effectiveness of circular solutions has been demonstrated through pilot projects, companies can scale up implementation across their operations and supply chains. Integrating circular principles into core business processes, strategies and decision-making frameworks is essential for embedding sustainability and driving long-term impact.

Next to that, defining clear key performance indicators (KPIs) is crucial for both measuring progress and evaluating the impact and effectiveness of circular initiatives. KPIs will allow continuous improvement and are vital for advancing circularity and achieving nature targets over time.

Finally, companies should regularly review their strategies, practices and metrics, incorporating lessons learned from past experiences and evolving best practices. This iterative approach will allow companies to adjust to changes and unlock new opportunities for innovation.

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Tiivistelmä

Luontokadon pysäyttäminen ei odota. Yritysten toiminta on täysin riippuvaista luonnon tarjoamista resursseista ja palveluista. Tulevaisuudessa yritysten liiketoiminnan tulee vahvistaa luontoa sen sijaan, että se heikentäisi sitä.

Tämä on käsikirja luontoa vahvistavan kiertotalousliiketoiminnan kehittämiseen. Käsikirja sisältää tietoa, esimerkkejä ja työkaluja, joiden avulla yritykset voivat hyödyntää kiertotaloutta liiketoiminnan luontovaikutusten pienentämiseen.

Käsikirja kuvaa kiertotalouden merkityksen luontokadon pysäyttämisessä. Sen jälkeen se käy läpi kolme askelta luontoa vahvistavan kiertotalousliiketoiminnan kehittämiseen:

- 1.** tunnista kriittiset luontovaikutukset yrityksen arvoketjussa;
- 2.** hyödynnä kiertotalousratkaisuja näiden vaikutusten taklaamiseen;
- 3.** suunnittele muutosmatka kohti kiertotaloutta.

Tämä käsikirja tukee yrityksiä tunnistamaan ja priorisoimaan keskeisimmät luontovaikutuksensa. Erityisen tärkeää on tunnistaa yritysten luontovaikutusten taustalla olevat luontokadon paineet. Lähes kaikkia luontokadon paineita voidaan pienentää siirtymällä pois kestäväntömistä lineaarisista tuotanto- ja kulutustavoista kohti kiertotaloutta.

Kiertotalouden keskeisenä periaatteena on luoda enemmän arvoa siitä, mitä meillä jo on. Näin uusia luonnonvaroja tarvitaan vähemmän, jolloin luonnolle jää enemmän tilaa. Tämän vaikutuksesta luontoon kohdistuvat paineet pienenevät. Jos kiertotaloutta hyödynnetään täysimääräisesti luontoon voimakkaasti vaikuttavilla toimialoilla, sillä voidaan hillitä luontokatoa merkittävästi.

Käsikirja esittelee kuusi kiertotalouden liiketoimintamallia. Näiden liiketoimintamallien avulla yritykset voivat kehittää kiertotalousratkaisuja, jotka pienentävät luontovaikutuksia yrityksen koko arvoketjussa.

Käsikirjan oppeja voivat isossa kuvassa hyödyntää kaikkien toimialojen yritykset. Käsikirja rajautuu tarkemmin neljään luontoon voimakkaasti vaikuttavaan toimialaan: rakennukset ja rakentaminen, kuidut ja tekstiilit, ruoka ja maatalous sekä metsäsektori. Käsikirjassa perehdytään syvällisemmin näiden alojen näkökulmasta tärkeimpiin luontokatoa hillitseviin kiertotalousratkaisuihin. Samalla käsikirja antaa yrityksille konkreettista tietoa ja esimerkkejä, joiden avulla kiertotalousratkaisut voidaan viedä yrityksen toiminnassa käytäntöön.

Käsikirjan lopussa hahmotellaan muutosmatka kohti kiertotalouden mukaista liiketoimintaa. Käytännössä tämä tarkoittaa esimerkiksi liiketoimintamallien muutosta, kumppanuuksien tunnistamista ja kyvykkyyksien kehittämistä.

Käsikirjassa kuvattujen askelten avulla yritykset voivat löytää uusia arvonluonnin mahdollisuuksia, sekä samalla hillitä luontokadon etenemistä.



Tämä käsikirja auttaa yritystäsi:

1. ymmärtämään kiertotalouden merkityksen luontokadon pysäyttämisessä;
2. hahmottamaan, miten kiertotalous tuo konkreettisia liiketoimintahyötyjä;
3. tunnistamaan ja priorisoimaan merkittävimmät luontovaikutukset;
4. valitsemaan tehokkaimmat kiertotalousratkaisut luontovaikutusten vähentämiseksi;
5. käynnistämään liiketoimintamallin muutoksen kohti luontoa vahvistavaa kiertotaloutta.



Kenelle käsikirja on suunnattu?

1. Yrityksissä toimiville työntekijöille ja johtajille, jotka työskentelevät kestävyuden, toimitusketjujen hallinnan tai liiketoiminnan kehittämisen parissa.
2. Yrityksille, joilla on jo aiempaa kokemusta luontotyöstä ja jotka:
 - a) ovat kiinnostuneita asettamaan tai ovat jo asettaneet luontotavoitteita (esimerkiksi tieteeseen perustuvat luontotavoitteet tai muut luontotavoitteiden asettamisen kehikot)
 - b) haluavat siirtyä sanoista tekoihin ja alkaa toteuttaa luontotavoitteitansa.
3. Yrityksille, jotka toimivat seuraavilla luontoon voimakkaasti vaikuttavilla toimialoilla: ruoka ja maatalous, rakennukset ja rakentaminen, kuitu- ja tekstiiliala sekä metsäsektori.
4. Kaikille yrityksille, haluavat tuottaa enemmän lisäarvoa vähemmällä resursseilla ja samalla hillitä luontokatoa.

Sammanfattning

Denna praktiska handbok innehåller en omfattande guide för företag som vill integrera cirkulära affärsmodeller i sin verksamhet för att effektivt ta itu med förlusten av biologisk mångfald.

Handboken beskriver först hur cirkulär ekonomi och biologisk mångfald hänger ihop, och därefter presenteras en trestegsmetod för åtgärder som utgår från att:

- 1.** identifiera kritisk påverkan på den biologiska mångfalden i värdekedjan;
- 2.** använda cirkulära lösningar för att hantera denna påverkan;
- 3.** utforma den cirkulära omvandlingsresan.

Naturen och den biologiska mångfalden spelar en central roll för samhället, men den biologiska mångfalden har minskat dramatiskt till följd av mänskliga aktiviteter. Detta innebär betydande risker för företagen och undergräver deras verksamhet och leveranskedjor i stort.

I den här handboken hjälper vi företag att identifiera och prioritera sin mest kritiska påverkan på den biologiska mångfalden. För att hantera denna påverkan på den biologiska mångfalden är det väsentligt att minska de bakomliggande tryck som driver förlusten av biologisk mångfald, så som ökad landanvändning. Detta kräver en omställning från dagens linjära produktions- och konsumtionssystem till system som ger oss mer värde från det vi har för att hjälpa oss att minska resursanvändningen och trycket på naturen.

Cirkulära lösningar är viktiga verktyg för att möjliggöra denna omvandling. Sex cirkulära affärsmodeller presenteras för att vägleda företag i att formulera vilka cirkulära lösningar som kan hantera deras kritiska påverkan på den biologiska mångfalden.

Även om handboken kan tillämpas på företag i alla sektorer, fokuserar den på fyra markintensiva sektorer: byggnation och fastigheter, fibrer och textilier, livsmedel och jordbruk samt skogssektorn. Den fördjupar sig i de cirkulära lösningar som är mest relevanta för att hantera förlusten av biologisk mångfald. Lösningarna är skräddarsydda specifikt för dessa sektorer, och de förser företagen med handlingsbara strategier för deras respektive värdekedjor.

Handboken avslutas med att utforma omvandlingsresan genom att ta tillvara på företagens olika styrkor, direkt komma igång med omvandlingen av affärsmodeller och utforma nya samarbetsinsatser för effektiva resultat.

Genom att följa de beskrivna stegen kan företagen spela en avgörande roll för att frigöra nya möjligheter till värdeskapande och skydda den biologiska mångfalden.



Denna handbok kommer att hjälpa dig att:

- 1.** förstå sambandet mellan den cirkulära ekonomin och biologisk mångfald, och vilken roll cirkulära lösningar spelar för att hantera förlusten av biologisk mångfald;
- 2.** upptäcka hur cirkulära lösningar fungerar som ett verktyg för värdeskapande, konkurrenskraft, innovation och resursoptimering;
- 3.** identifiera de mest kritiska effekterna på den biologiska mångfalden och prioritera åtgärder på dessa platser
- 4.** välja de mest effektiva cirkulära lösningarna för att minska de identifierade kritiska effekterna på den biologiska mångfalden;
- 5.** att direkt komma igång med omvandlingen av din affärsmodell till att bli naturpositiv.



Vem bör använda denna handbok?

- 1.** Denna handbok riktar sig främst till anställda inom organisationer med ansvar för hållbarhet, supply chain management och innovationsledning, samt till personer inom företagsledningen som vill främja lösningar som ger dem mer värde från befintliga resurser och minskar trycket på naturen.
- 2.** Stora företag med etablerade initiativ som fokuserar på naturåtgärder, inklusive företag som är:
 - a)** intresserade av att utforska eller redan arbetar med naturmål (till exempel vetenskapligt baserade mål för naturen (SBTN) eller är SBTN-anpassade)
 - b)** redo att gå vidare till genomförandefasen för att nå satta naturmål.
- 3.** Företag som är verksamma inom sektorer med betydande inverkan på den biologiska mångfalden, t.ex. livsmedel och jordbruk, byggnation och fastigheter, fibrer och textilier samt skogssektorn, med sikte på att utveckla disruptiva affärsmodeller för en växande marknad.
- 4.** Alla företag som vill utforska hur cirkulära lösningar kan hjälpa dem att skapa mer värde ur befintliga resurser och hitta konkurrenskraftiga naturinsatser.

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