

Beyond 'Business as Usual': Biodiversity Targets and Finance

Managing biodiversity risks across business sectors

Part of a larger project to enhance the ENCORE tool to enable financial institutions to align their portfolios with biodiversity targets.
Explore the tool: <https://encore.naturalcapital.finance/en>

30 June 2020



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1. Executive summary

Biodiversity underpins all economic activities through the provision of a range of ecosystem services, and it is experiencing dangerous and unprecedented declines due to the current model of economic development. The world's ecosystems have declined in size and condition by 47% globally compared to estimated baselines, and the continued degradation of ecosystem services represents an annual loss of at least US\$479 billion per year. With recent estimates stating that more than half of the world's total Gross Domestic Product is moderately or highly dependent on ecosystem services, these declines in biodiversity are a signal that action needs to be taken to strengthen the global economy's resilience.

Financial institutions are exposed to multiple types of biodiversity-related risk through their various activities, including risk of default by clients, lower returns from investees, and increasing insurance liabilities due to environmental catastrophes. Working with their client and/or customer bases and investees, financial institutions can turn these risks into opportunities by mitigating impacts on and managing investments in biodiversity in a sustainable way.

To achieve international goals to safeguard biodiversity, all actors across society need to set targets to drive action

towards halting and ideally reversing current rates of biodiversity loss. Financial institutions have a key role to play as they can catalyse behaviour changes and influence economic pathways, business models and practices. Individual institutions can do so by setting targets for reducing biodiversity impacts of the companies they lend to or invest in.

This report aims to enable a better understanding of the business sectors¹ and financial mechanisms at risk from the loss of biodiversity and lay the groundwork for biodiversity-related target-setting by the finance sector. It sets out an initial approach to enable financial institutions to set evidence-based biodiversity targets aligned with international policy developments. The approach detailed in this report combines information from scientific literature and key authoritative sources, as well as the knowledge base on the impacts and dependencies of sectors on nature developed for the ENCORE tool (Exploring Natural Capital Opportunities, Risks and Exposure), to identify a set of priority sectors for biodiversity-related target setting.

Key messages

Increased action is needed by financial institutions to contribute to achieving the targets and goals that will be set by the Convention on Biological Diversity (CBD)'s Post-2020 Global Biodiversity Framework at the 15th Conference of the Parties to the CBD.

- Financial institutions can follow a series of steps to work towards creating internal SMART (Specific, Measurable, Ambitious, Realistic and Time-bound) biodiversity targets, which can include:
 - Incorporating biodiversity in their strategies.
 - Incorporating target setting in their plans for implementing actions to address environmental issues and contributing towards global goals.
 - Assessing their exposure to priority sectors as outlined below, where dependencies and/or impacts on biodiversity are high.
 - Exploring setting biodiversity-related targets tailored to their activities and evaluating opportunities to reduce negative impacts and enhance positive impacts on biodiversity through their activities, using goals such as no net loss of biodiversity.

- Financial institutions should focus on target setting for the priority sub-industries below (in alphabetical order):

1. **Agricultural Products** (priority from both impacts and dependencies perspective)
2. **Apparel, Accessories & Luxury Goods** (priority from dependencies perspective)
3. **Brewers** (priority from dependencies perspective)
4. **Distribution** (priority from impacts perspective)
5. **Electric Utilities** (priority from dependencies perspective)
6. **Independent Power Producers & Energy Traders** (priority from dependencies perspective)
7. **Mining** (priority from impacts perspective)
8. **Oil & Gas Exploration & Production** (priority from impacts perspective)
9. **Oil & Gas Storage & Transportation** (priority from impacts perspective)

¹ Throughout this report the word 'sectors' is used as a broad term encompassing economic activities at different levels. The analysis detailed in the report identifies high priority sub-industries (following the Global Industry Classification Standard). These are also referred to as 'high priority sectors'.

2. Introduction

All economic activities depend and impact on biodiversity and the ecosystem services it underpins in multiple ways, either through their direct operations or through their supply chains. This creates an intrinsic link between biodiversity and the institutions financing or underwriting these activities. A major challenge when trying to assess financial risk and ensure business continuity in a time of ecosystem collapse and biodiversity loss is to attain transparency on dependencies and impacts. Biodiversity underpins all natural capital and the goods and ecosystem services that they generate (see Box 1 for definitions of key terms).

This report aims to enable a better understanding of the business sectors² and financial mechanisms at risk from the loss of biodiversity and lay the groundwork for the finance sector to be able to measure its biodiversity-related impact and monitor contributions towards global goals. The report draws on lessons learned from similar developments on climate-related target-setting. Recommendations and an illustrative case-study are provided to inform financial institutions on setting targets related to biodiversity and implementing actions to achieve them. Thus, contributing to global biodiversity goals, and the transition to a more resilient global green economy.

Firstly, the report provides an overview of current trends for financial institutions to integrate biodiversity into decision-making. Secondly, the report outlines a list of priority sectors that have high potential dependencies and impacts on biodiversity, based on an analysis of information collated as part of the [ENCORE](#) (Exploring Natural Capital Opportunities, Risks and Exposure) project (see Box 2). Finally, this report proposes an approach for financial institutions to consider when setting biodiversity-related targets for their organisations. A hypothetical case study is presented, which outlines how this might work in practice for an individual financial institution.

Setting targets to avoid or reduce negative impacts on biodiversity, with the aim of restoring and regenerating biodiversity by transforming business practices within these priority sectors, could enable financial institutions to steer action towards more sustainable business activities. This in turn can contribute to achieving global biodiversity goals for the benefit of nature, human development, and financial institutions.

Box 1: Key terms

Biodiversity is an integral part of natural capital stocks, and underpins the goods and services that they generate.

Biodiversity: the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems ([Convention on Biological Diversity 1992](#)).

Ecosystem services: the flows of benefits to people from ecosystems, commonly divided into the following categories: provisioning, regulating, cultural, and supporting ([Millennium Ecosystem Assessment 2005](#)).

Natural capital: the stock of renewable and non-renewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people ([Natural Capital Coalition 2016](#)).

² Throughout this report the word 'sectors' is used as a broad term encompassing economic activities at different levels. The analysis detailed in the report identifies high priority sub-industries (following the Global Industry Classification Standard). These are also referred to as 'high priority sectors'.

Box 2: About ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure)

ENCORE was developed by the [Natural Capital Finance Alliance](#) in collaboration with [UNEP-WCMC](#). The first phase of work was funded by the Swiss State Secretariat for Economic Affairs (SECO) and the MAVA Foundation. This was undertaken as part of the [Advancing Environmental Risk Management project](#). The aim of the project was to help financial institutions better understand, assess and integrate natural capital risks in their activities. In addition to the development of the knowledge base underpinning ENCORE, this project looked at how financial institutions can apply this information to screen their portfolios for natural capital risk and integrate the insights into their existing risk management processes. Initially, these pilot studies were carried out with banks in Colombia, Peru, and South Africa.

The current phase of work is funded by the [Swiss Federal Office for the Environment \(FOEN\)](#), and aims to further develop [ENCORE](#) to help financial institutions answer the following questions:

- Am I influencing biodiversity through my investment or lending portfolio?
- Am I harming or building the resilience of biodiversity with my investments?
- Is my portfolio in alignment with global/regional biodiversity targets and how much so?

For further information see:

- The ENCORE tool [here](#).
- Exploring Natural Capital Opportunities, Risks And Exposure: A practical guide for financial institutions, available [here](#).
- Integrating Natural Capital in Risk Assessments: A step-by-step guide for banks, available [here](#).

Why is nature important for business and financial institutions?

All businesses depend and impact on biodiversity, the ecosystem services it inherently underpins, and other natural capital assets either directly through their operations or indirectly through their supply chains (Figure 1). Recent estimates state that approximately US\$44 trillion of economic value generation—more than half of the world's total GDP—is at least moderately or highly dependent on ecosystem services (World Economic Forum & PwC, 2020). This dependency might be more obvious for primary industries like agriculture or forestry (e.g. reliance on provision of fibres and other materials from nature, or reliance on a stable climate and natural protection from floods and storms). However, secondary and even tertiary industries like tourism and consumer goods rely heavily on nature through their global supply chains.

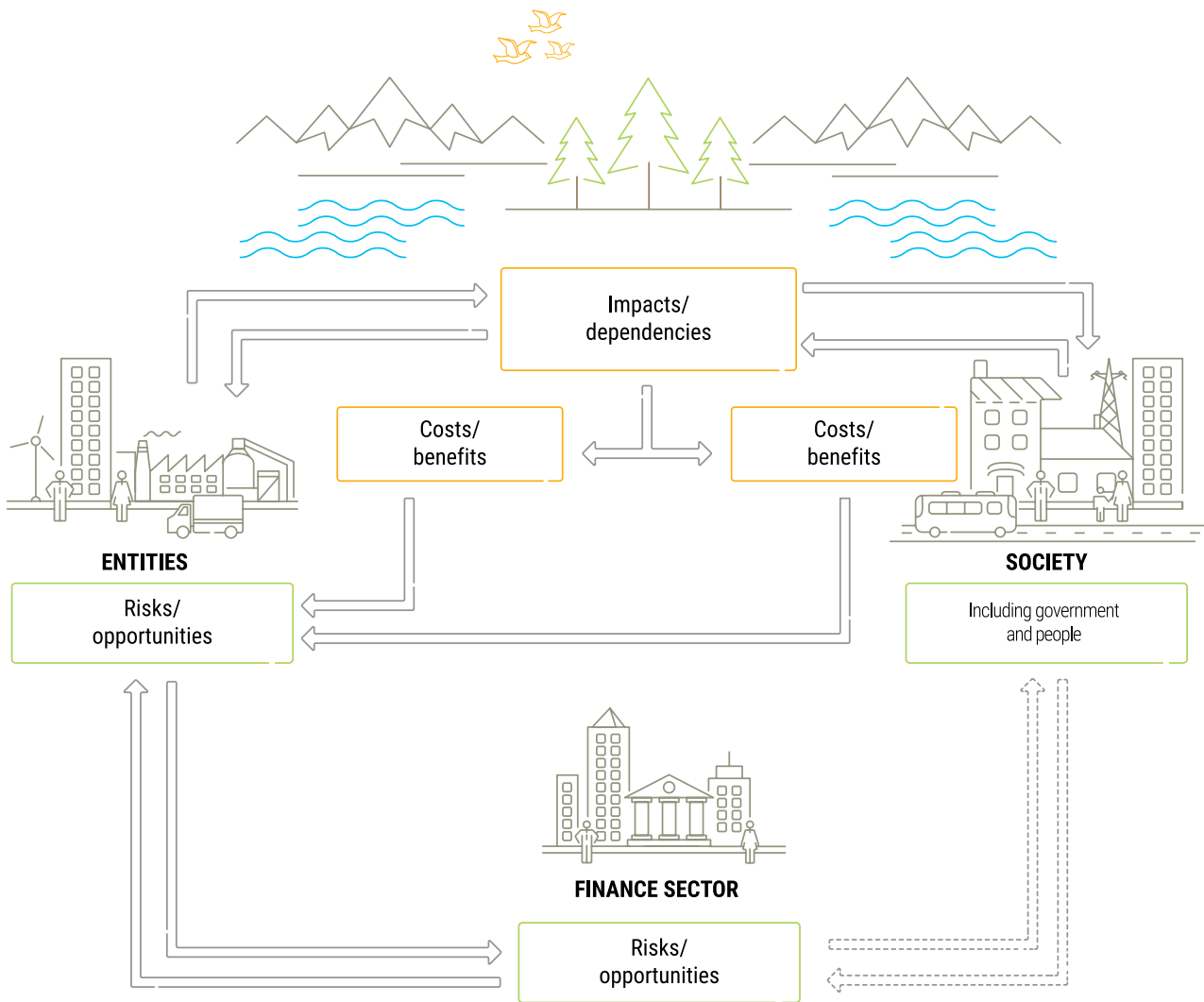


Figure 1. Conceptual model describing how businesses and the markets they operate in, impact and depend on biodiversity and natural capital.

Source: Natural Capital Coalition *et al.* (2018)

Biodiversity loss is inherently linked to climate change and achieving global goals for addressing one cannot go without achieving those for the other. Healthy, biodiverse, and therefore resilient ecosystems play a key role in preventing disruption to society and the markets within which businesses operate. For example, tidal ecosystems like mangroves that play a crucial role in mitigating the impacts on human society of extreme weather events such as floods and storms. Restoring and conserving biodiversity is critical for achieving climate mitigation and adaptation, economic welfare and societal well-being. Conversely, climate change impacts on biodiversity will affect its ability to provide crucial ecosystem goods and services upon which many people and businesses depend, such as water and food. In addition, climate change will affect ecosystem stability and resilience, and this is already being seen in agricultural systems that are becoming less resilient to threats such as pests and diseases (IPBES, 2019).³ As a result, biodiversity loss has become a systemic risk of yet unknown magnitude and there is at present too little action aiming to tackle both the interlinked biodiversity and climate crises. The loss of ecosystem services can have disproportionate effects on certain members of society, notably women and young girls as they are more reliant on and play a key role in managing biological resources such as fuel, water and food (World Economic Forum & PwC, 2020). As a result, women remain one of the poorest groups within society who are far less resilient to loss or reduction of ecosystem services and the impacts of climate change (UN Environment Programme *et al.*, 2020; see also Box 3).

3 The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES); <https://ipbes.net/>

Box 3: The role of gender equality in achieving the global biodiversity goals

It must be recognised that gender is a key consideration in achieving global goals under the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change (UNFCCC), the Sustainable Development Goals (SDGs), and the Paris Climate Agreement.

Actions of financial institutions to manage nature need to include those to empower women and other vulnerable groups who are both disproportionately affected by the loss of nature and play a key role in its conservation (CBD, UNCCD, UNFCCC, 2012; Clabots & Gilligan, 2017; FAO, 2014; International Labour Organisation, n.d.; UN Women, 2020). Not doing so would contribute to their continued marginalisation, meaning they would not be empowered to contribute towards actions to meet global biodiversity goals. There are several ways in which financial institutions can promote gender equality:

- Develop policies that target groups who rely on nature for their livelihood (particularly women as well as indigenous people, family farmers, pastoralists and fishers) to enable them to have secure and equitable access to economic benefits (e.g. markets, financial services, non-farm employment), social benefits (e.g. opportunity for knowledge-exchange, inputs, and resources) and physical benefits (e.g. land and resource; UNEP, 2019).
- Tailoring financial services that specifically aid women's economic empowerment, such as providing access to capital, leadership training, market access, networks and business management skills. This results in the promotion of women-owned or women-led SMEs.

Global and national level figures on the scale of biodiversity loss are alarming. Ecosystems have declined in size and condition by 47% globally compared to estimated baselines, with the trend continuing, and rates of species extinction are accelerating (IPBES, 2019). Most recent studies show that in a business as usual scenario, the continuous degradation of ecosystem services will represent an annual loss in Gross Domestic Product (GDP) of at least US\$479 billion per year (Johnson *et al.*, 2020). Biodiversity loss resulting from human activities such as land use change can increase the probability and spread of diseases. The economic consequences of this are made apparent by current global challenges posed by the spread of Covid-19. Biodiversity degradation and ecosystem collapse are therefore considered among the top five global risks to society in the coming 10 years, according to the latest Global Risks Report 2020 (World Economic Forum, 2020), and have been described as systemic risks (PwC & WWF, 2020; De Nederlandsche Bank & PBL Netherlands Environmental Assessment Agency, 2020). At this scale, almost all businesses are exposed to risks arising from biodiversity loss, which increases uncertainty of the prospects for business performance and continuity.

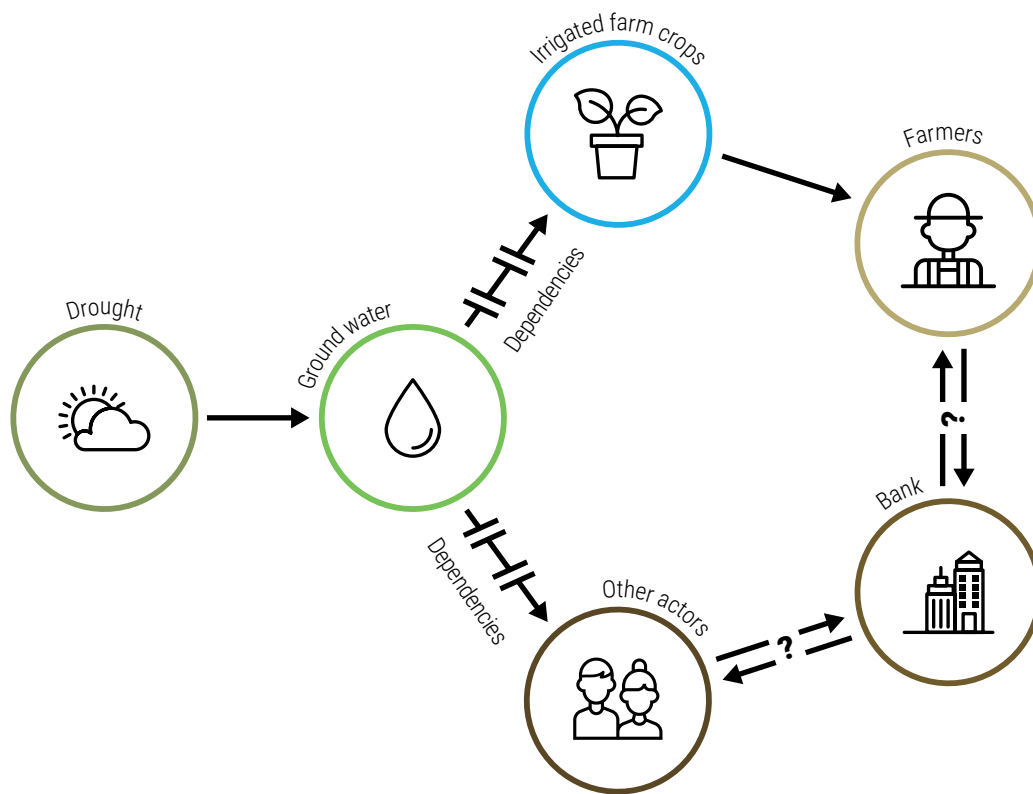


Figure 2. How the loss of ecosystem services translates into business and finance risks.

Source: Adapted from NCFA and UNEP-WCMC, 2018

For financial institutions specifically, the Organisation for Economic Co-operation and Development (OECD) stated that biodiversity loss has a severe impact on the sector’s performance, increasing both its operating cost and risks (OECD, 2019). As illustrated in Figure 2, although the finance sector has limited direct dependencies and impacts on biodiversity, it is exposed to them indirectly through loans, investments and underwriting activities (AXA & WWF, 2019; NCFA & UNEP-WCMC, 2018).

These risks arise in four major categories: legal & regulatory, market, physical, and reputational risks (McCraine *et al.*, 2019). Examples for each of these risks are provided in Figure 3 below, specifically how they relate to financial institutions. These four categories of risk have also been referred to as transition risks in some frameworks, such as the Task Force on Climate-related Financial Disclosures (TCFD).⁴

4 See: <https://www.fsb-tcfd.org/about/>

Legal & regulatory risks

In instances where biodiversity loss occurs due to lack of enforcement of regulation, risks to financial institutions arise from non-compliance of the businesses they lend to, invest in, or insure. Another source of risk is where companies might be found to be non-compliant as regulations become stricter or enforcement improves. For example, a client defaulting due to a loss of licence to operate arising from failure to comply with environmental regulations. Furthermore, actions that lead to a loss of biodiversity and ecosystem services, can disproportionately impact certain members of society such as women, and can be considered contra to equality laws.

Market risks

Risks arising from changes in market trends, thus affecting the credit rating of companies. For example, a shift in customer preference towards more sustainable products or access.

Physical risks

Risks arising from destruction of infrastructure, halting production processes and hence disrupting revenue streams. For example, coastal flooding, resulting from vegetation clearance, which damages production facilities.

Reputational risks

Risks arising from the way a company's biodiversity-related activities or overall brand are perceived by key stakeholders (e.g. customers, shareholders, society). For example, impacts leading to greater poverty and marginalisation of vulnerable groups or increased gender inequality, which result from a company's mismanagement of biodiversity.

Figure 3. Examples of biodiversity-related risk to financial institutions (adapted from McCraine *et al.* 2019).

Financial institutions need to understand their exposure to biodiversity-related financial risks through their sector-specific finance activities to identify opportunities for mitigation. Suitable risk mitigation can in turn lead to opportunities by enhancing biodiversity through financial mechanisms such as conservation or ecosystem restoration financing. A further way new policies can support biodiversity conservation is through specifically targeting those members of society who rely heavily on nature for their livelihood and play a key role in its management, to enable them to secure and gain equitable access to financial services, resources, markets and opportunities to employment outside of farming (UN Environment Programme, 2019; see Box 3). Other financial instruments such as green bonds, impact investing and blended finance have also experienced considerable growth, and have potential to be expanded and scaled up to address biodiversity loss. With the necessary knowledge and using instruments such as those highlighted above, the finance sector has the ability to: 1) finance the transition to biodiversity-neutral sectors; and 2) allocate financial assets to biodiversity-related business opportunities.

Market signals to address biodiversity

Over the past two decades and especially since the adoption of the Paris Agreement on Climate Change in 2015, there has been a growing focus in the finance sector on incorporating climate change into financial risk assessment, decision-making, and disclosure. While the sector is starting to proactively manage climate change-related risks and align portfolios with a low-carbon, climate-resilient economy, biodiversity dependencies and impacts are not often considered systematically across portfolios. For banks, currently, consideration may be limited to the application of the International Finance Corporation Performance Standard 6 (IFC PS6) on biodiversity management (International Finance Corporation, 2012) and the Equator Principles for project finance transactions, which focus predominantly on impacts rather than dependencies. However, recent developments as outlined below provide new momentum for the finance sector to become a critical enabler of transformative change towards halting or reversing current rates of biodiversity loss at a more strategic level. Additionally, the need to move from safeguards and interventions that focus on reducing biodiversity negative impacts towards those that focus on increasing biodiversity positive impacts is covered in further detail in Section 4.

Developments in global policy

The upcoming Convention on Biological Diversity's 15th Conference of Parties (CBD COP 15) will determine the Post-2020 Global Biodiversity Framework to be adopted by countries. While the wording of the new Framework and exact targets are yet to be decided, it is looking likely that there will be a commitment towards no net loss of biodiversity by 2030, with a possible focus on species and ecosystems. It is also expected that the new Framework will contain commitments to develop a variety of regulatory levers as well as a call for all actors across society, including businesses and financial institutions, to contribute through their interactions with nature (World Economic Forum & PwC, 2020). This should of course also actively involve women, youth, local communities and vulnerable groups to ensure their voices are heard and their knowledge about biodiversity is included (Convention on Biological Diversity, 2019b).

While the integration of principles for sustainable management of natural resources and biodiversity has been part of international project finance for several years through mechanisms like the IFC Performance Standard 6 or the Equator Principles, these aspects are now finding their way into other mainstream finance instruments. This comes with an increasing focus on going beyond simply reducing negative impacts to increase positive impacts on biodiversity. In jurisdictions such as the European Union (EU), biodiversity is being incorporated into economic and finance sector policymaking. The EU Green Deal to make Europe climate neutral by 2050, presented in December 2019, acknowledges that biodiversity loss poses a major global risk and sets out a roadmap for transitioning the EU's economy by turning climate and environmental challenges into opportunities. A related investment plan aims to mobilise at least €1 trillion of sustainable investments over the next decade. Most recently, in May 2020 the EU released a new Biodiversity Strategy for 2030, which includes legally binding targets for restoration of carbon-rich habitats and states these will be among the top five key fiscal recovery policies (European Commission, 2020a).

Additionally, the European Commission (EC)'s Action Plan on Sustainable Finance sets out actions to scale up financing that takes due account of environmental and social considerations in investment decision-making, including climate change mitigation and adaptation, air and water pollution, resource depletion, and biodiversity loss. Building on experience of integrating climate change into decision-making, the EU Action Plan includes the development of a classification, or 'Taxonomy', to provide clarity on which economic activities can

be considered sustainable based on screening criteria, thresholds and metrics for activities that can make a substantial contribution to climate change mitigation or adaptation, while at the same time not having any detrimental effects on the protection and restoration of biodiversity and ecosystems (European Commission, 2020a). An International Platform on Sustainable Finance (IPSF), supported by the EU Green Deal, aims to scale up the mobilisation of private capital towards environmentally sustainable investments globally by strengthening international cooperation in areas such as taxonomies (European Commission, 2019, 2020b). These taxonomies are important as they help ensure the effectiveness and robustness of green finance.

The European Commission is taking a step-by-step approach, starting with a taxonomy on climate change mitigation and adaptation activities and some environmental activities, before expanding it to other environmental and social issues. This approach was underlined at the last G7 conference in France in August 2019, stating that biodiversity will be the next frontier for policymaking and regulations in the finance sector (PwC & WWF, 2020). Following the G7 conference, French president Emmanuel Macron and Chinese president Xi Jinping announced the "Beijing Call on Biodiversity Conservation and Climate Change" in November 2019. Both countries expressed the need to align financial flows with a low-carbon future pathway and the conservation and sustainable use of biodiversity (PwC & WWF, 2020).

Besides the actions being taken, the understanding of the biodiversity and finance nexus is still limited. Nevertheless, significant research efforts are underway such as the UK Government's "Dasgupta Review on the Economics of Biodiversity" (Dasgupta, 2020), which assesses the economic benefits provided by biodiversity, and the economic costs and risks of biodiversity loss globally. The first interim report (published in April 2020) frames the loss of nature as an asset management problem (Dasgupta, 2020). This review is just one of multiple reports published over the past two years, addressing biodiversity's importance for businesses and financial institutions. This growing body of research will have a significant impact on the upcoming Convention on Biological Diversity's 15th Conference of Parties (CBD COP 15).

Developments in the finance sector

Assessing and mitigating risks provides the foundations for integrating biodiversity considerations into decision-making in the finance sector. Presently, there is still a lack of clarity about the magnitude of the financial risks associated with biodiversity loss, the sectors and industrial processes most affected, and the best approaches to measure biodiversity-related risks for the finance sector (PwC & WWF, 2020). However, biodiversity-related risks are moving higher up the agenda and businesses are shifting their attention to more biodiversity-positive practices. The finance sector can make use of and accelerate this momentum, and understand how its activities are exposed to sectors with high dependencies and impacts on biodiversity. For institutional investors, this would fall in line with financial institutions' fiduciary duty, which requires them to incorporate Environmental, Social and Governance (ESG) issues in their activities and decision-making processes (UNEP FI, 2019).

Recent years have seen the emergence of a series of initiatives that encourage financial institutions to integrate biodiversity risks and opportunities into their decision-making processes. These initiatives include for example the EU Business and Biodiversity Platform's Finance and Biodiversity Community of Practice, the Global Impact Investing Network, the Natural Capital Finance Alliance, or the UN Environment Programme Finance Initiative (UNEP FI)'s Positive Impact Initiative and Principles for Responsible Banking. With the emergence of these initiatives comes the first evidence of how the finance sector can be and is taking action.

The Central Bank of the Netherlands became the first to start actively measuring the impacts that biodiversity-related financial risks have on the Dutch financial sector, with a first study on results published in June 2020 (De Nederlandsche Bank & PBL Netherlands Environmental Assessment Agency, 2020). The Bank is a member of the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), which unites a large group of central banks to share best practices and contribute to the development of environment and climate risk management in the financial sector and to mobilise mainstream finance to support the transition toward a sustainable economy.⁵

A wealth of data, tools, frameworks and other resources have been or are being developed to support financial institutions in assessing biodiversity-related risks, and reporting on their efforts to mitigate and manage these risks. Data, tools and other resources such as ENCORE and the [Integrated Biodiversity Assessment Tool \(IBAT\)](#) are also being developed to support financial institutions in better assessing biodiversity-related risks. Many businesses have adopted the Task Force on Climate-related Financial Disclosure (TCFD)'s framework for reporting on governance, strategy risk management, metrics and targets relevant to climate-related risks and opportunities. Frameworks like these have great potential to be applied to manage biodiversity risks and opportunities (World Economic Forum & PwC, 2020), and a Task Force on Nature-related Financial Disclosures (TNFD) aims to build on lessons from implementation of the TCFD recommendations by developing an approach for disclosure on biodiversity. However, disclosure alone is not enough to integrate biodiversity into financial decision-making across portfolios. While existing efforts by the finance sector have predominantly focussed on risks, there is increasing recognition of the need to go beyond this to measure the impacts of financial flows on biodiversity (see Section 4 for further detail).

The first step towards this includes establishing a shared understanding of the value of biodiversity and knowing where the most significant risks and opportunities lie within current financing activities. Based on an improved understanding of the baseline, meaningful biodiversity targets for the finance sector can be developed and mechanisms towards mitigating unsustainable business activities can be adapted. Increased action is needed by all actors across society to meet the targets and goals set out under the Paris Climate Agreement and those that will be set by the Convention on Biological Diversity's Post-2020 Global Biodiversity Framework. Alongside governments and civil society, the finance sector and businesses will play a pivotal role in collectively tackling the climate and biodiversity crises and strengthening the resilience of the financial system.

5 <https://www.ngfs.net/en>

3. Priority sectors for biodiversity target-setting by financial institutions

Which sectors impact and depend heavily on biodiversity?

The first step towards setting biodiversity-related targets within the finance sector is for institutions to gain an understanding of where the highest risks and largest impacts lie within their current activities. This will allow individual organisations to prioritise action to mitigate these risks. An analysis was conducted to identify priority sectors in terms of their potential dependencies and impacts on biodiversity. The analysis identifies these priority sectors based on their inherent reliance on ecosystem services that are underpinned by biodiversity, and their direct impacts on biodiversity.⁶ It is proposed that financial institutions can prioritise these sectors when setting biodiversity-related targets.

Methodology overview

The methodology underpinning the priority sector analysis was developed by UNEP-WCMC and subsequently reviewed by key external experts. While a summary is provided here, further details are available in Annex 1.

The priority sector analysis was based on potential dependencies and impacts information collated as part of the ENCORE project, as well as additional desk-based research combining information from authoritative external references, namely the Global Assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) and the Global Environment Outlook by the United Nations Environment Programme (UN Environment Programme, 2019). Finally, the assessment was refined using information on financial flows into these sectors to identify those that would warrant the most attention from financial institutions.

The assessment used the Global Industry Classification Standard (GICS; as currently included in the ENCORE tool) to break down the global economy into distinct components. This includes 11 sectors, 138 sub-industries from GICS, and 86 production processes⁷ mapped to the latter, which were classified by UNEP-WCMC when developing the ENCORE tool to fully capture the dependencies of all economic activities on natural capital. To identify high priority sectors in terms of their potential dependencies and impacts on biodiversity specifically, scores were derived at the production process level.

6 Biodiversity is an integral part of natural capital stocks, and underpins the goods and services that they generate. Biodiversity: means the variability among living organisms, including diversity within species, between species and of ecosystems.

7 Sub-industries from GICS were broken down into production processes to capture potential dependencies and impacts within each process, which may not be captured at the sub-industry level. For example, the agricultural products sub-industry includes nine processes, such as 'large-scale irrigated arable crops' and 'small-scale livestock (beef and dairy)', with potentially different dependencies and impacts.

The methodology followed a three-step process:

- Firstly, reviewing the sources listed above to identify suitable criteria to use in the assessment (i.e. what makes a production process high priority in terms of its potential dependencies or impacts on biodiversity). See Annex 1 for further information on the criteria used for this assessment.
- Secondly, assigning scores for "materiality of dependencies"⁸ on ecosystem services provided by biodiversity (i.e. they are provided directly or indirectly by ecosystems, species, and/or genes) and "intensity of impacts"⁹ directly on biodiversity for each production process. Dependencies were assessed through the 21 ecosystem services included in ENCORE,¹⁰ which are grouped into four categories according to the function they provide for production processes (see Figure 4 below). Ecosystem services in the direct physical input category were double weighted to reflect the heavy dependence of production processes on these services. Impacts were assessed based on seven criteria derived from literature on the major human-induced impacts on biodiversity (see Figure 5 below).



Figure 4. Categories of ecosystem services considered in the dependencies materiality component of the methodology. All ecosystem services, including those currently in ENCORE, are underpinned by biodiversity.

8 'Materiality' of dependencies represents the importance of ecosystem services provided by biodiversity for a production process. For further information see Annex 1 and <https://encore.naturalcapital.finance/en/data-and-methodology/materiality>.

9 Intensity' here represents the combined assessment of how avoidable, regular and spatially explicit a potential impact might be (see Annex 1 for further details).

10 All ecosystem services, including those in ENCORE, are underpinned by biodiversity. This assumes that biodiversity also underpins ecosystem services such as surface water provision and ground water provision. For example, water provision requires suitable vegetation structure, or maintenance of soil quality requires certain species that play a key role in decomposition and fixing processes.

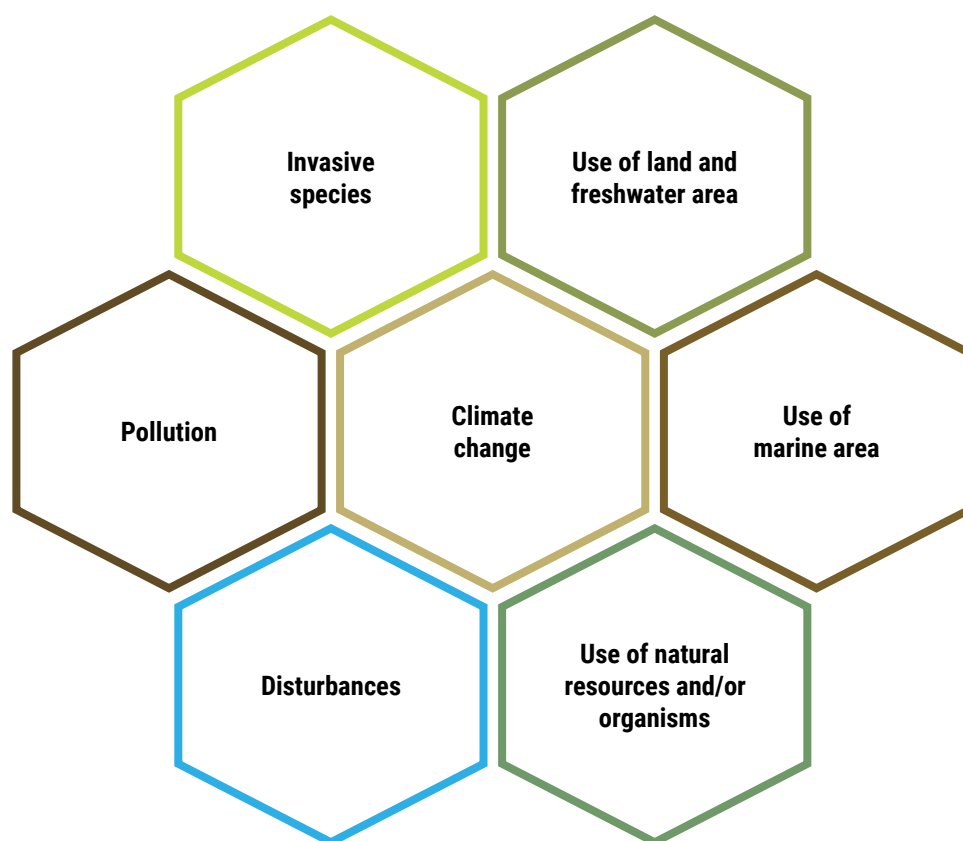


Figure 5. List of major direct drivers of biodiversity loss forming the criteria for the impacts intensity component of the methodology (drawn from ENCORE; IPBES, 2019; Natural Capital Coalition, 2016).

- Thirdly, the list of highest ranked production processes for both impacts and dependencies was aggregated to the sub-industry level. The financial flows into these sub-industries were then analysed using the [MSCI All-Country World Index \(ACWI\)](#), the leading global equity index followed by financial institutions. The ACWI reflects the performance of companies with large- and mid-cap stocks within 49 markets (23 developed and 26 emerging). The resulting list of highest priority sub-industries thus accounts for the financial value of sub-industries to financial institutions.

Results

The results presented below are subject to certain key limitations as stated in Annex 1.

Dependencies

Using the approach described above, the sub-industries shown below form the highest priority from a potential dependencies perspective (alphabetical order). These sub-industries are rated highest priority for two reasons. Firstly, one or more of their production processes have very high or high dependence on multiple ecosystem services provided by biodiversity (e.g. animal-based energy, fibres and other materials, soil quality, etc.). Secondly, they receive significant financial flows when compared to other sub-industries in the MSCI All-Country World Index. The high dependence of these production processes on biodiversity (through the ecosystem services it provides) exposes them to a greater degree of risk arising from its loss.

Priority sub-industries from a dependencies perspective. See Annex 2 for further information on the justifications for the ratings of the highest priority sub-industries.

- Agricultural Products¹¹
- Apparel, Accessories & Luxury Goods
- Brewers
- Electric Utilities¹²
- Independent Power Producers & Energy Traders

An example for the Electric Utilities sub-industry is that the production process 'hydropower production' depends on the following ecosystem services, which are underpinned by biodiversity: climate regulation, flood and storm protection, mass stabilisation and erosion control, surface water provision, and water flow maintenance.

The analysis also revealed that Distillers & Vintners, Forest Products, and Water Utilities had substantially high potential dependencies on biodiversity. However, these were removed from the high priority list as financial flows into these sub-industries were much lower than others.

Impacts

Using the approach described above, the sub-industries shown below form the highest priority from a potential impacts perspective (alphabetical order). These sub-industries are rated highest priority for two reasons. Firstly, one or more of their production processes have potential impacts on biodiversity with very high or high intensity, particularly through their use of land, freshwater and marine area.¹³ Secondly, they receive significant financial flows when compared to other sub-industries in the MSC All-Country World Index.

Priority sub-industries from an impacts perspective. See Annex 2 for further information on the justifications for the ratings of the highest priority sub-industries.

- Agricultural Products
- Distribution¹⁴
- Mining¹⁵
- Oil & Gas Exploration & Production
- Oil & Gas Storage & Transportation

An example for the Distribution sub-industry is that the production process 'distribution' has potentially very highly intense impacts on biodiversity through the atmospheric pollutants it emits, its high potential for spreading invasive species, and its typically high levels of noise or light disturbances. A further example for Oil & Gas Storage & Transportation is the production process 'Oil & gas transportation' that has potentially highly intense impacts on biodiversity through its use of terrestrial, freshwater and marine areas, its emissions of atmospheric pollutants, and its high potential for spreading invasive species.

The analysis also revealed that Airport Services, Marine Ports & Services, and Oil & Gas Drilling had potentially highly intense impacts on biodiversity.

It should be noted that other sub-industries may also have significant impacts in coming years as they grow in scale in line with potential future investments and development priorities. For example, the 'construction' production process rated lower than others in the priority sub-industries proposed above due to its lower scores for impacts on biodiversity compared to other production processes. However, sub-industries involving the 'construction' production process, still have potential for highly intense impacts on biodiversity through construction's use of terrestrial, freshwater and marine areas, as well as pollution and facilitating the spread of invasive species. See Annex 1 for further information on the scope and timelines included in the methodology.

11 Which includes the following production processes: aquaculture, freshwater wild-caught fish, large-scale irrigated arable crops, large-scale livestock (beef and dairy), large-scale rainfed arable crops, saltwater wild-caught fish, small-scale irrigated arable crops, small-scale livestock (beef and dairy), and small-scale rainfed arable crops.

12 Which includes the following production processes: electric/nuclear power transmission and distribution, hydropower production, infrastructure holdings, and nuclear and thermal power stations.

13 Additional factors contributing to higher priority ratings for several of these production processes include disturbances to species populations, pollution and contributions to climate change.

14 Covers the following sub-industries from GICS: Distributors, Food Distributors, Health Care Distributors, and Technology Distributors.

15 Covers the following sub-industries from GICS: Aluminium, Coal & Consumable Fuels, Copper, Diversified Metals & Mining, Gold, Precious Metals & Minerals, and Silver

4. Using priority sectors to inform biodiversity target-setting by financial institutions

What do biodiversity targets look like for financial institutions?

Internal biodiversity-related targets for financial institutions can take several forms and there are multiple ways in which institutions can set these targets to contribute towards those agreed by countries on the global level. Examples of global goals can include the UN Sustainable Development Goals (SDGs) 14 'Life below water' and 15 'Life on land' (which underpin the other SDGs), and biodiversity targets under the Convention on Biological Diversity—the Post-2020 Global Biodiversity Framework that will be negotiated at the 15th Conference of the Parties. These biodiversity specific goals should be considered in conjunction with the other goals, particularly SDG 1 'No Poverty', SDG 4 'Quality Education', SDG 5 'Gender Equality' and SDG 8 'Decent Work and Economic Growth', all of which ensure all actors within society have equal rights, access and control over natural resources that provide economic benefits. This highlights the cross-cutting role of social equity in sustainable development and nature conservation (International Labour Organization, n.d.). Specific examples on how global goals have been used already by leading financial institutions are outlined in subsequent sections. Financial institutions can contribute to goals at varying levels (see Figure 6). For example, as well as contributing directly to global goals such as the SDGs, financial institutions can contribute to national goals identified in one or more National Biodiversity Strategy and Action Plans (NBSAPs).¹⁶ Alignment with, and monitoring and evaluating progress towards, globally and nationally recognised biodiversity goals, not only provides an opportunity for financial institutions to strengthen their role in society and reduce their reputational risk, it can also increase their competitive advantage within the sector.

Reporting against global and national goals, can be challenging for financial institutions, as many of these frameworks are not designed for non-state actors. For example, the SDGs 14 and 15 ('Life Below Water' and 'Life on Land', respectively), which focus on the protection of biodiversity and ecosystem services within the marine and terrestrial environments, include indicators to create, measure and track progress that would be difficult for non-state actors to use (United Nations Statistics Division, 2020). Despite this, the United Nations Global Compact with KPMG created an SDG Industry Matrix, to highlight opportunities for the Financial Services industry, which focus on increasing market potential, and reacting to societal demands and policy initiatives, to align with the SDGs. Examples of these opportunities include: 1) increasing access of financial services and products for small and medium enterprises (SMEs) involved with positive business actions contributing towards the SDGs; 2) investing, financing and insuring renewable energy projects and other infrastructure projects; 3) assessing risk and developing pricing models that incentivise sustainable living and production; and 4) influencing ESG practices of clients and investee companies (UN Global Compact and KPMG, 2016). Positive Impact Finance can also be used to deliver a positive impact on the economy, society and the environment once any potential negative

¹⁶ NBSAPs are the instrument used by State Parties to set nationally relevant targets and implement the global goals for biodiversity.

impacts have been duly identified and mitigated.¹⁷ However, it is important to recognise that alignment with global or national goals does not automatically drive the behavioural and systemic change needed by financial institutions. When setting biodiversity-related targets and reporting on progress towards them, financial institutions will also need to be ambitious and proactive, bringing clarity on how this is transforming current economic models to operate within the regenerative capacity of the planet, and driving alignment with global goals.

Although these examples do not explicitly include the actions needed to achieve the biodiversity focussed SDGs 14 ('Life Below Water') and 15 ('Life on Land'), the activities can be adapted for financial institutions and their biodiversity-related projects and/or engagement opportunities. Actions to implement targets can include sector-specific criteria to reduce negative impacts on biodiversity, and investments in projects or funds that contribute to ecosystem resilience. For example, the [Land Degradation Neutrality \(LDN\) Fund](#), an impact investment fund created to invest in projects that reduce or reverse land degradation, is linked to both the Land Degradation Neutrality Convention and UN SDG 15. Mirova, a subsidiary of Natixis Investment Managers, created the fund in partnership with the Secretariat of the UN Convention to Combat Desertification (UNCCD) to promote sustainable land use practices that result in positive biodiversity and socio-economic impacts and financial returns through a blended finance model (Natixis, 2020). For financial institutions a practical approach can be to focus on internal biodiversity targets (see Figure 6 – Company Led frameworks), such as no net loss or net gain of biodiversity within their activities, and align these activities with global biodiversity goals.

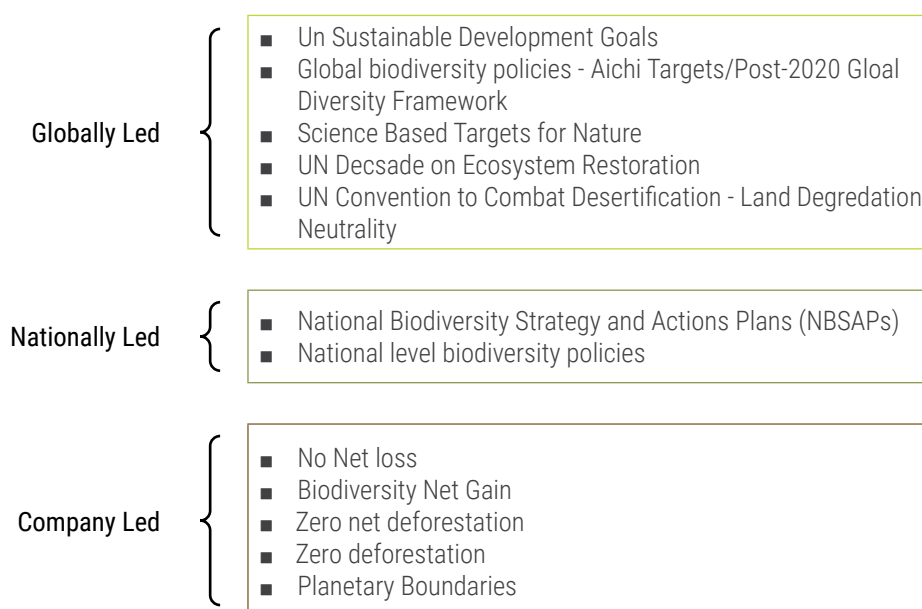


Figure 6. Global, National and Company led frameworks to inform the creation of biodiversity targets¹⁸

More information on global, national and company-led frameworks and examples on how to mainstream global biodiversity goals within the private sector can be found within the Biodiversity Guidance to accompany the Natural Capital Protocol—Application Guidance (under public consultation) and the Mainstreaming international biodiversity goals for the private sector—Joint Nature Conservation Committee (Smith *et al.*, 2018).

¹⁷ See <https://www.unepfi.org/positive-impact/positive-impact/>

¹⁸ Please note this is a non-exhaustive list and some of these frameworks are currently being developed (information adapted from the Biodiversity Guidance to accompany the Natural Capital Protocol - Application Guidance, Capitals Coalition and Cambridge Conservation Initiative, under public consultation).

Advancing approaches for financial institutions to develop biodiversity targets

As referred to in Section 2, multiple initiatives are underway, which financial institutions can use to support them in setting internal biodiversity-related targets. As well as global, national and company led frameworks, financial institutions can build on well-recognised performance standards to identify and manage ESG risk and create their internal targets. The International Finance Corporation's Performance Standard 6 (IFC PS6), a globally recognised standard used by banks, defines responsibilities for identifying biodiversity risk and impacts and approaches towards three main outcomes: 1) protecting and conserving biodiversity; 2) maintaining ecosystem services; and 3) sustainably managing living natural resources. While IFC PS6 does not state how individual organisations should set targets at the institutional level, the outcomes as outlined above can inform biodiversity target-setting and can be achieved through approaches such as no net loss or net gain (both of which are included in IFC PS6 for certain components of biodiversity).

All 105 financial institutions that have adopted the Equator Principles, a risk management framework for determining, assessing and managing environmental and social risk in project finance, should apply the IFC Performance Standards for projects above US\$10 million in total capital and project-related corporate loans of US\$50 million or more (Equator Principles, 2020). While the Equator Principles have mainly been adopted by banks as a risk management framework applicable to project finance, they have been expanded to other project-related transactions based on the magnitude of potential environmental and social risks and impacts, including those related to biodiversity.

Safeguards are also established through other standards of multilateral financial institutions, such as those of the [African Development Bank](#), [Asian Development Bank](#), [European Bank for Reconstruction and Development](#), [European Investment Bank](#), and the [World Bank](#).

Further voluntary frameworks for the finance sector to accelerate sustainable finance are: the Principles for Responsible Banking, the Principles for Sustainable Insurance, and the Principles for Responsible Investment (see Box 4). More than 175 banks with over one-third of global banking assets (US\$47 trillion) have signed the **Principles for Responsible Banking**, launched in 2019 to provide a framework for a sustainable banking system. Principle 1 ('Alignment'), concentrates on aligning strategies to the SDGs, Paris Climate Action, and relevant national and regional frameworks. Principle 2 ('Impact and Target Setting'), focusses on increasing positive impacts, managing risks to people and the environment from activities, and creating and publishing targets. The UN-supported **Principles for Responsible Investment (PRI)**, established by UNEP FI and the UN Global Compact in 2006, are now adopted by half the world's institutional investors (representing US\$83 trillion). The PRI provide six actions for incorporating ESG issues within investment activities. The **Principles for Sustainable Insurance**, launched in 2012, are structured similarly with four main principles, applied by one-quarter of the world's insurers (25% of world premium).

Each of these three frameworks can provide the basis for action on biodiversity. There is a growing trend towards incorporating biodiversity-related risks within existing Environmental, Social and Governance (ESG) processes, investment decision-making and reporting, which encourage financial institutions to integrate biodiversity risks and opportunities into their decision-making. Signatories can set internal biodiversity targets to support implementation of the Principles. Financial institutions can work towards no net loss and net gain where appropriate.

Box 4: Principles for the finance sector

The Principles for Responsible Banking

Principle 1: Alignment

We will align our business strategy to be consistent with and contribute to individuals' needs and society's goals, as expressed in the Sustainable Development Goals, the Paris Climate Agreement and relevant national and regional frameworks.

Principle 2: Impact & Target Setting

We will continuously increase our positive impacts while reducing the negative impacts on, and managing the risks to, people and environment resulting from our activities, products and services. To this end, we will set and publish targets where we can have the most significant impacts.

Principle 3: Clients & Customers

We will work responsibly with our clients and our customers to encourage sustainable practices and enable economic activities that create shared prosperity for current and future generations.

Principle 4: Stakeholders

We will proactively and responsibly consult, engage and partner with relevant stakeholders to achieve society's goals.

Principle 5: Governance & Culture

We will implement our commitment to the Principles through effective governance and a culture of responsible banking.

Principle 6: Transparency & Accountability

We will periodically review our individual and collective implementation of these Principles and be transparent about and accountable for our positive and negative impacts and our contribution to society's goals.

For further information see [here](#).

The Principles for Sustainable Insurance

Principle 1:

We will embed in our decision-making environmental, social and governance issues relevant to our insurance business.

Principle 2:

We will work together with our clients and business partners to raise awareness of environmental, social and governance issues, manage risk and develop solutions.

Principle 3:

We will work together with governments, regulators and other key stakeholders to promote widespread action across society on environmental, social and governance issues.

Principle 4:

We will demonstrate accountability and transparency in regularly disclosing publicly our progress in implementing the Principles.

For further information see [here](#).

The Principles for Responsible Investment

Principle 1:

We will incorporate ESG issues into investment analysis and decision-making processes.

Principle 2:

We will be active owners and incorporate ESG issues into our ownership policies and practices.

Principle 3:

We will seek appropriate disclosure on ESG issues by the entities in which we invest.

Principle 4:

We will promote acceptance and implementation of the Principles within the investment industry.

Principle 5:

We will work together to enhance our effectiveness in implementing the Principles.

Principle 6:

We will each report on our activities and progress towards implementing the Principles.

For further information see [here](#).

Financial institutions can contribute to global and national biodiversity goals by setting biodiversity-related targets and internalising biodiversity-focussed frameworks, such as no net loss in natural and critical habitats, biodiversity net gain, zero deforestation, or zero net deforestation. For financial institutions, no net loss or biodiversity net gain aims to balance or increase (respectively) biodiversity after an investment decision and/or engagement has been made. Detailed guidance on how this can be achieved is under development (see following sections). Financial institutions committing to zero deforestation provide investments or opportunities where a forest area is maintained and is not cleared or converted to another land type. Alternatively, for zero net deforestation, financial institutions provide investments or opportunities where the forest area is converted and replanted elsewhere (Bregman *et al.*, 2015).

These frameworks (e.g. Box 5) can be used to integrate biodiversity within financial institutions' internal Environmental Social Governance (ESG) policies, financing decisions, and engagement strategies to help achieve biodiversity targets, while also creating new opportunities. For example, for biodiversity net gain, ASN Bank created a sustainability policy on biodiversity to ensure "all investments and loans of ASN Bank result in positive effect on biodiversity in 2030". ASN's investment in Finance in Motion's [Eco.Business Fund](#) aims to provide finance towards businesses that promote biodiversity conservation, the sustainable use of natural resources and climate change adaptation and mitigation. For zero net deforestation, the [Royal Bank of Scotland \(RBS\)](#) has adopted the Soft Commodities Compact initiative to transform soft commodity supply chains and achieve net zero deforestation in four commodities: soy, palm oil, beef and PP&T (paper, pulp and timber). For these commitments, there is a need for standards and effective implementation of these policies to ensure they result in tangible biodiversity benefits. Much like ASN's approach to biodiversity net gain (Berger *et al.*, 2018), use of quantitative targets makes it easier to track and measure progress. Financial institutions should aim to create targets that are SMART (Specific, Measurable, Ambitious, Realistic and Time-bound), which means these should be linked to quantitative commitments. Targets such as these have been suggested to be integrated within the Post-2020 Global Biodiversity Framework under the Convention on Biological Diversity (Convention on Biological Diversity, 2019a).

Box 5: No net loss and net gain of biodiversity

No net loss: "The point at which project-related impacts on biodiversity are balanced by measures taken to avoid and minimize the project's impacts, to undertake on-site restoration and finally to offset significant residual impacts..." (IFC, 2012).

Net gain: "Additional conservation outcomes that can be achieved for the biodiversity values for which the critical habitat was designated. They can be achieved through the development of a biodiversity offset or implementation of programs [...] to enhance habitat, and protect and conserve biodiversity" (IFC, 2012).

How does the analysis of high priority sectors help financial institutions in setting biodiversity targets?

Linking to the above initiatives and potential approaches for setting internal biodiversity-related targets, financial institutions can use the proposed priority sectors as a starting point for action. The priority sub-industries presented in the previous section all have potentially high material dependencies and/or potentially high intensity impacts on biodiversity as well as a large listed component. This therefore makes them likely to be material from a financial perspective to institutions, including banks, investors, and insurers, and means that activities—loans, investments, or insurance—expose financial institutions to biodiversity-related risk.

Financial institutions can use the list of priority sectors for biodiversity to start systematically assessing biodiversity risks and opportunities within their own activities. Once financial institutions have identified, set and published targets to address biodiversity, they will need to: 1) strengthen criteria in their safeguards, standards and policies; 2) further engage with client and/or customer companies to ensure standards and criteria to safeguard biodiversity are being met; and 3) collaborate under initiatives working to advance biodiversity goals, such as those listed above.

Methodologies are currently being developed for financial institutions to set measurable and actionable targets for biodiversity and demonstrate their contributions towards global biodiversity goals. For example, the ENCORE biodiversity module due to be released in late 2020, which is being developed to allow financial institutions to assess the current and potential future alignment of their activities with global biodiversity goals.

Some financial institutions have already developed their own methodologies and risk assessments to identify the impacts of their activities on the natural environment. For example, in 2019 BNP Paribas Asset Management committed to further enhancing an organisation-wide approach and associated targets for managing natural capital. The firm integrated natural capital into its ESG scoring system for companies in the food retail sector by applying the Natural Capital Protocol (BNP Paribas Asset Management, 2019; Natural Capital Coalition, 2018). This allowed application of a bonus/malus system based on companies' performance against environmental-related criteria.

The steps presented in Box 6 and illustrated in Figure 7 provide an example of how a financial institution can establish baselines to create internal biodiversity targets focusing on the priority sectors relevant to their activities. This is adapted from the recommendations of the draft Biodiversity Guidance to accompany the Natural Capital Protocol (developed by the Capitals Coalition and the Cambridge Conservation Initiative, under public consultation), Business Planning for Biodiversity Net Gain: A Roadmap (Business and Biodiversity Offsets Programme, 2018), and A Framework for Corporate Action on Biodiversity and Ecosystem Services (UN Global Compact and IUCN, 2012).

Box 6: Proposed approach for financial institutions to set a biodiversity target, using a hypothetical case study.

User profile: Private bank

Organisational focus: Full portfolio

Products and services:

- Project finance (loans to public and private sector, including Small and Medium-sized Enterprises – SMEs)
- Guarantees (partial credit)
- Corporate loanbook

Environmental, Social, Governance priorities

- Actively engaging in global sustainability initiatives
- Align with global environmental goals (e.g. Paris Climate Agreement, Sustainable Development Goals), and specifically the upcoming goals under the Post-2020 Global Biodiversity Framework
- Signatory to the Principles for Responsible Banking

Action plans

- Set organisation-wide policies for engagement with sectors on sustainability issues, particularly relating to biodiversity
- Increase access of financial services and products for SMEs involved in biodiversity-positive business actions
- Invest in biodiversity-positive activities such as wildlife conservation or renewable energy

Step 1:

Map exposure to priority sub-industries

The bank refines the list of high priority sub-industries in the context of their activities and assesses debt exposure within each sub-industry. This allows the bank to identify the sub-industries to focus on most urgently. It is suggested that this should be up to five sub-industries in the first year, expanding to more as the bank progresses through each sub-industry. The bank can use the ENCORE biodiversity module (due to be released in late 2020) to assess the current and potential future alignment of its portfolio with global biodiversity goals. The bank may include biodiversity target setting in its self-assessment using the Principles for Responsible Banking reporting template.

Step 2:

Materiality assessment of biodiversity-related risks

Using the refined list in Step 1, the bank identifies specific sub-industry production processes that have the highest risk for biodiversity and could in turn pose significant risk to the bank. This provides an indication on the financial activities upon which a biodiversity target should be prioritised. Information to support this step can be found in [ENCORE](#), which details the potential dependencies and impacts of all economic activities on nature.

Step 3:

Review current global biodiversity goals

The bank compiles a list of biodiversity-relevant goals (see Capitals Coalition & Cambridge Conservation Initiative,

under public consultation) to which it wishes to contribute (e.g. no net loss, net gain) and assesses whether alignment with global biodiversity frameworks is possible (e.g. the Post-2020 Global Biodiversity Framework of the CBD). This should consider information on major drivers of biodiversity loss from authoritative sources such as the IPBES. The bank then identifies the scope of their biodiversity target (e.g. ecosystems, species, ecosystem services), and where it will be considered (e.g. individual project lending, funds, assets, insurance premiums, or all activities).

Step 4:

Set targets and establish a monitoring and evaluation framework

The bank sets and publishes SMART targets for avoiding and reducing the most biodiversity-negative impacts and working towards restoring and regenerating biodiversity within its portfolio. Where appropriate, the bank consults relevant experts to determine suitable timeframes for the targets to measure changes in biodiversity. The bank then monitors and tracks progress towards its biodiversity commitment at appropriate intervals and levels using Key Performance Indicators (KPIs) to demonstrate its progress. For example, if the bank provides funds for project-based conservation, lending requirements should ensure the client provides relevant site-based information of the area of biodiversity conserved or gained. Such measurement approaches are increasingly available to financial institutions (Lammerant *et al.*, 2019). For zero net deforestation projects, satellite monitoring is an affordable way to track deforestation activities (Bregman *et al.*, 2015).

Step 5:

Implement changes in financing activities

The bank adapts its lending requirements (e.g. due diligence criteria), sector-level policies, and strengthens its client/customer engagement procedures to meet its newly set targets. Depending on the type of financing, activities may include screening, disclosure requirements, criteria on environmental impacts, and/or loan conditions for positive biodiversity performance (BBOP, 2018).

Step 6:

Report on progress

The bank publishes its progress report, with intended next steps in the coming one to five years. The Global Reporting Initiative has created a biodiversity reporting document that can be used by financial institutions as a framework to report on biodiversity targets (Global Reporting Initiative, 2007). The creation of Technical Notes 5 of the BBOP Business Roadmap demonstrate how the GRI criteria can relate to no net loss and biodiversity net gain targets (BBOP, 2018). Additionally, the bank may want to consider linking to the TNFD (currently in development).

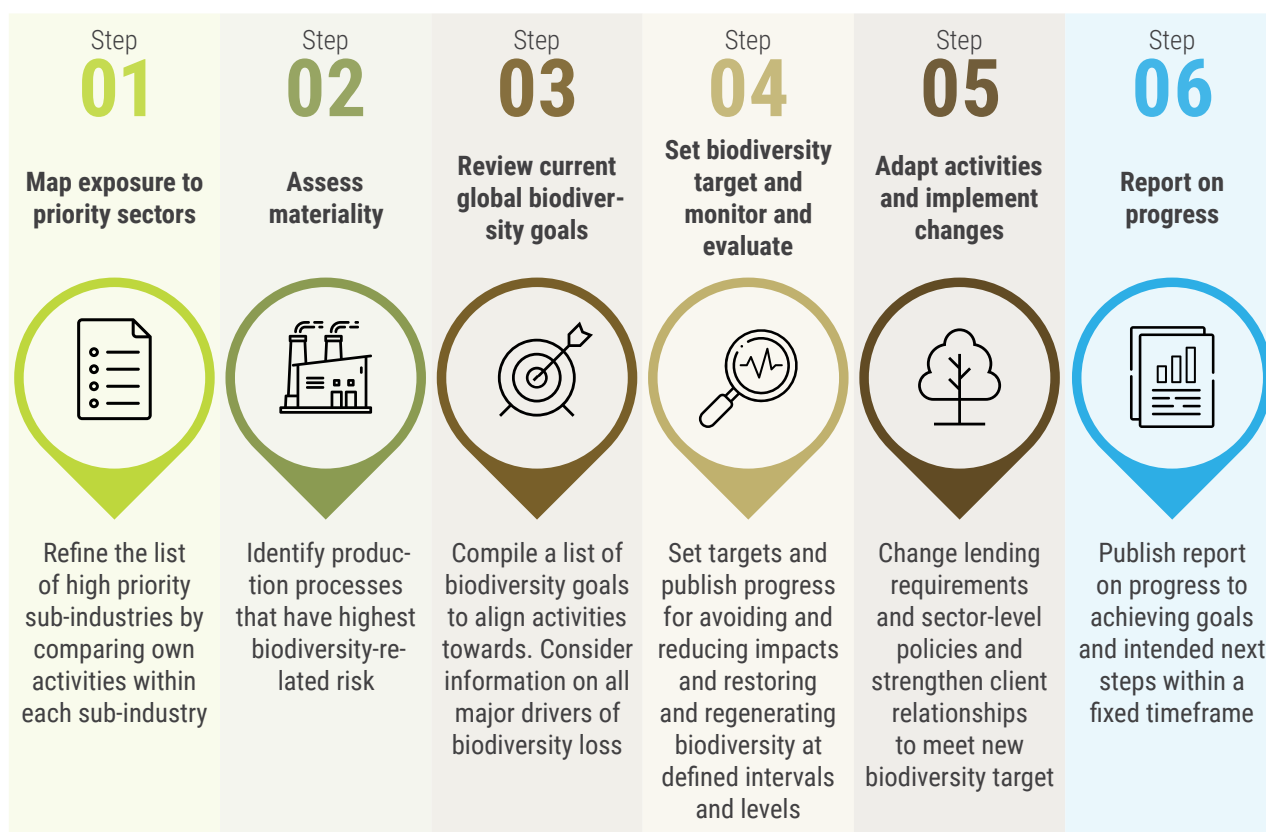


Figure 7. Proposed steps to create a biodiversity target for a financial institution using the list of high priority sub-industries. Please note the process should be non-linear and iterative.

While this report focuses on the finance sector, the [BBOP Business Roadmap, 2018](#), the draft Biodiversity Guidance to accompany the Natural Capital Protocol (Capitals Coalition & Cambridge Conservation Initiative, under public consultation), and the upcoming interim guidance from the [Science Based Targets Network](#) provide detailed guidance for a broader group of actors and sectors. These cover how to plan, implement, assess and update a biodiversity commitment to support the development of an internal biodiversity target. Additional guidance specific to the finance sector is under development by UNEP FI's Principles for Responsible Banking working group on target setting.

5. Summary of next steps and further resources

To strengthen biodiversity management practices and set biodiversity-related targets, it is proposed that as a first step financial institutions target the following high priority sub-industries:

1. **Agricultural Products** (priority from both impacts and dependencies perspective)
2. **Apparel, Accessories & Luxury Goods** (priority from dependencies perspective)
3. **Brewers** (priority from dependencies perspective)
4. **Distribution** (priority from impacts perspective)
5. **Electric Utilities** (priority from dependencies perspective)
6. **Independent Power Producers & Energy Traders** (priority from dependencies perspective)
7. **Mining** (priority from impacts perspective)
8. **Oil & Gas Exploration & Production** (priority from impacts perspective)
9. **Oil & Gas Storage & Transportation** (priority from impacts perspective)

Financial institutions can follow the series of steps outlined in the previous section to work towards setting and reporting on internal SMART (Specific, Measurable, Ambitious, Realistic and Time-bound) biodiversity targets. Target setting by financial institutions should be in line with timeframes for global goals and be supported by other actions such as:

- Incorporating biodiversity in their strategies.
- Incorporating target setting in their plans for implementing actions to address environmental issues and contributing towards global goals.
- Assessing their exposure to priority sectors as outlined above, where dependencies and/or impacts on biodiversity are high.
- Evaluating opportunities to reduce negative impacts and enhance positive impacts on biodiversity through their activities, using goals such as no net loss of biodiversity.

Additionally, while significant gaps remain, the landscape of available biodiversity data is rich. Multiple general and issue- or sector-specific portals, platforms and tools focussed on biodiversity are available and provide information that can support financial institutions with understanding how, why and where biodiversity-related risks might occur within their activities (Table 1 on page 26). Financial institutions can, for example, use decision-support tools such as ENCORE to identify the potential highly material dependencies and/or intense impacts of businesses on biodiversity. Furthermore, the soon-to-be-released ENCORE biodiversity module will enable financial institutions to identify how they might contribute to the yet-to-be-agreed targets in the Post-2020 Global Biodiversity Framework.

Multiple technical resources are already available, and initiatives underway, to support financial institutions in this process (e.g. see also the Banking Environment Initiative¹⁹ and the Investment Leaders Group²⁰). Furthermore, additional resources are being generated as scientific methodologies and data develop. The Science Based Targets Network is working to develop guidance to support companies and cities with setting scientifically robust targets for biodiversity. This will consider how individual organisations can set targets to avoid or reduce negative impacts and work towards restoring, regenerating and transforming business practices and city plans. Interim guidance will be released by the Science Based Targets Network later in 2020. UNEP FI will release guidance for banks to set targets on biodiversity in 2021.

19 <https://www.cisl.cam.ac.uk/business-action/sustainable-finance/banking-environment-initiative>

20 <https://www.cisl.cam.ac.uk/business-action/sustainable-finance/investment-leaders-group>

Once targets have been set, actors will need to implement actions to meet them, and track and report on progress using relevant measurement approaches. A further source of support on biodiversity measurement approaches lies in the Aligning Biodiversity Measures for Business collaboration. This body of work is creating consensus and finding common ground among different biodiversity measurement approaches, which can be used by financial institutions to quantify biodiversity performance on the ground (Lammerant *et al.*, 2019).

In terms of next steps following target setting, existing guidance on targets such as no net loss and biodiversity net gain (Business and Biodiversity Offsets Programme, 2018), and zero net deforestation (Bregman *et al.*, 2015) emphasises the need for a 'foot printing' stage, where the associated impacts and dependencies on biodiversity and forests are identified and can consequently link to potential biodiversity risks and opportunities. Further interpretation of the results should be considered within each specific client/customer or project to create an appropriate and SMART biodiversity target. In particular, this should consider appropriate timeframes over which biodiversity changes could occur. Within this process, financial institutions develop their own internal frameworks to create, set and measure progress towards their biodiversity targets. This is necessary as the biodiversity risk and opportunities differ between each type of financial institution and their corresponding activities.

Additionally, while the development of biodiversity targets are emerging on a topic-specific basis (e.g. see the Land Use Finance Project coordinated by UNEP-WCMC and the UNEP Climate Finance Unit's team on Environment & Social Impact²¹ or the Soft Commodities Compact,²² which is sector-specific), there is currently no overarching body to facilitate knowledge transfer for setting and implementing biodiversity-specific activities. Therefore, there is an urgent need for banks, investors and insurers to adopt standardised frameworks that are aimed at setting credible targets to address biodiversity loss. These will help avoid duplication when creating frameworks for biodiversity-related target-setting and encourage learning and uptake within the finance sector.

Multiple positive steps have already been taken by financial institutions to mitigate the risks of biodiversity loss and maximise the opportunities of good biodiversity management. However, there is a pressing need for scale in mainstream finance where capacity and awareness may be lacking. The finance sector needs to strengthen risk management and develop opportunities to align portfolios with global biodiversity goals, to fulfil its critical role in contributing to halting and reversing the current global crisis facing nature and society.

21 See: <https://www.unenvironment.org/resources/newsletter/environment-social-impact-meet-climate-finance-units-team-es>

22 See: <https://www.cisl.cam.ac.uk/business-action/sustainable-finance/banking-environment-initiative/programme/restore-nature/soft-commodities>

Table 1. Overview of portals, platforms and tools aimed at, or potentially relevant for, the finance sector (based on a non-exhaustive desk-based review of publicly available information).

Portal/platform/tool	Provided by	Service provided
Critical Habitat Layer IFC Performance Standard 6	UNEP-WCMC	Identifies areas of likely or potential critical habitat, as defined by the International Finance Corporation Performance Standard 6 (IFC PS6).
ENCORE	UNEP-WCMC & NCFA	Online source of information on the potential dependencies and impacts on natural capital of all economic activities.
Flood and Drought Monitor	UNEP, DHI, International Water Association	Provides tools to support planning for flood and drought events.
Forest Report	Map Hubs	Provides automated deforestation monitoring across supply chains for companies and investors.
Global Footprint Network – Finance for Change Initiative	Global Footprint Network	Provides environmental risk data and analysis to support investment decisions, credit ratings and country risk assessments.
Global Forest Watch Pro	World Resources Institute	Provides data and tools for monitoring forests.
Green Infrastructure Support Tool	The Earth Genome	A tool to support corporate decisions on water use.
Integrated Biodiversity Assessment Tool (IBAT)	IBAT Alliance	Portal compiling globally authoritative geospatial data on biodiversity (species, Key Biodiversity Areas, protected areas) in an easy-to-use online decision support and mapping tool.
Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST)	Natural Capital Project	Free, open-source models used to map and value the goods and services from nature. Enables users to assess trade-offs associated with alternative management choices and to identify areas for investment in natural capital.
Ocean+	UNEP-WCMC	Provides access to Ocean+ Habitats —an authoritative database on the known extent of ecologically important ocean habitats—and Ocean+ Library , which contains the latest data and online resources on ocean biodiversity.
OPAL (Offset Portfolio Analyzer and Locator)	Natural Capital Project	Enables users to estimate the impacts of development activities on terrestrial ecosystems and related ecosystem services, and to select mitigation measures.
Open Data Cube	Six partners from across government and research	Provides tools for accessing, managing, and analysing large quantities of Earth observation (GIS) data.
Picterra	Picterra	Provides machine-learning powered tools to transform raw image data into structured data and meaningful insights.
Trase	Stockholm Environment Institute, Global Canopy	Provides insights into flow of products between producer countries and consumer countries for supply chains of certain key commodities.

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6. Annex 1.

Detailed methodology for priority sector analysis

Dependencies

The 21 ecosystem services included in ENCORE are grouped into four categories according to the function they provide for production processes (see below). All ecosystem services currently in ENCORE are underpinned by biodiversity (i.e. they are provided directly or indirectly by ecosystems, species, or genes).

1. Direct physical input (example ecosystem service: fibres and other materials)
2. Enabling production (e.g. soil quality)
3. Mitigating direct impacts (e.g. bio-remediation)
4. Protecting from disruption (e.g. flood and storm protection)

To identify priority sectors in terms of their dependence on biodiversity, scores were derived for each production process using ratings of the materiality of ecosystem services as detailed in ENCORE.

Materiality of ecosystem services for production processes were assessed in a previous phase of work on ENCORE. This was conducted by PwC and was based on sector-specific research and expert interviews. Two main components were considered in the materiality assessment:

1. How significant is the loss of functionality in the production process if the ecosystem service is disrupted?
2. How significant is the financial loss due to the loss of functionality in the production process?

Further details on this materiality assessment can be found on ENCORE [here](#).

In this analysis, materiality ratings for the direct physical input category were double-weighted to recognise their importance for production processes (compared to ecosystem services in the non-direct inputs categories; 2-4 in the list above).

The following scores were assigned for criteria 1-4 based on the information available in ENCORE:

- **Very High materiality (VH):** the loss of functionality is severe **and** the expected financial impact is severe.
- **High materiality (H):** the loss of functionality is severe and/or the financial impact is moderate, or vice-versa. Production is disrupted and/or financial loss is non-negligible.
- **Medium materiality (M):** the loss of functionality is moderate or the financial impact is moderate. Production is disrupted or financial loss is non-negligible.
- **Low materiality (L):** very small or limited loss of functionality and/or very small or limited financial loss. The production process can continue without changing and/or there is very limited or no financial loss.
- **Very Low materiality (VL):** very small or limited loss of functionality **and** very small or limited financial loss. The production process can continue without changing and there is very limited or no financial loss.
- **Not applicable (NA):** the production process has no recorded dependence on ecosystem services underpinned by biodiversity.

Impacts

To identify high priority sectors in terms of their potential impacts on biodiversity first suitable criteria to use in this assessment were identified. For this a short (non-exhaustive) desk-based review was conducted of existing sources in the scientific and grey literature that provide an indication of the greatest threats to biodiversity.

The main references of relevance, which were used in the assessment were the [IPBES Global Assessment](#) and the [UN Environment Programme Global Environment Outlook 6](#). These were combined with the information collected through extensive scientific literature searches on business impacts on natural capital, conducted under the previous phase of ENCORE work. From this was obtained the following list of major impacts on biodiversity:

1. Use of land and freshwater area
2. Use of marine area
3. Use of natural resources and/or organisms
4. Pollution (e.g. solid waste, water, soil and air pollutants, excluding atmospheric pollutants)
5. Climate change (i.e. emission of atmospheric pollutants)
6. Invasive species (i.e. sector is typically involved in their spreading)
7. Disturbances (e.g. noise and light pollution).

The above impacts formed the criteria used in the assessment. The threats were then linked to economic activities by scoring production processes on a scale from Very Low to Very High intensity of impacts for each of the criteria (see list below). Information from the previously compiled database of industry impacts on biodiversity was used to inform which rating to assign for each production process-impact criterion combination. Where a production process was not deemed to contribute to an impact it was assigned a value of 'Not Applicable'. The following scores were assigned for criteria 1–7 based on information available in the scientific and grey literature:

- **Very High intensity:** potentially operationally and financially impossible to redesign the project/site to avoid the impact, it is expected to occur in large volumes/areas continuously throughout the project life cycle, and in all locations where the production process takes place.
- **High intensity:** the impact is potentially very costly to avoid and/or it is expected to occur at regular intervals throughout the project/site life cycle and/or it is expected to occur in all locations where the production process takes place.
- **Medium intensity:** the impact can potentially be avoided at a considerable cost, or it is expected to occur at regular intervals throughout the project/site life cycle or it is expected to occur in most locations where the production process takes place.
- **Low intensity:** the impact can potentially be avoided at a moderate cost and/or it is expected to occur a small number of times throughout the project/site life cycle, and/or it is expected in a small number of locations where the production process takes place.
- **Very Low intensity:** the impact can potentially be avoided at a small cost and it is expected to occur only a small number of times throughout the project/site life cycle, and it is expected to occur in only a very small number of locations where the production process takes place. (e.g. less than 10% of scenarios).

Scoring and ranking

The score for each production process was calculated based on the sum of Very Low to Very High ratings assigned for each criterion. Summing ratings provided a means to account for all criteria on a linear scale. Scores were kept separate for dependencies and impacts.

For dependencies, scores falling under the “Direct physical input” category were double-weighted. All criteria were weighted equally for the impact scores calculation as it was not possible to quantifiably compare the intensity of each impact against others for all production processes. Once scores were derived for each production process these were ranked to obtain two separate ‘top 10’ lists for dependencies and impacts, this was used to obtain the list of highest priority sectors to focus on.

Financial flows into priority sectors

The first steps of the priority sector analysis described above yielded the list of sub-industries detailed in Table 2 below.

Table 2. Highest priority sub-industries based on their potential dependencies and impacts on biodiversity.

Rank	Priority from dependencies perspective	Priority from impacts perspective
1	Agricultural Products	Marine Ports & Services
2	Apparel, Accessories & Luxury Goods	Agricultural Products
3	Brewers	Airport Services
4	Distillers & Vintners	Oil & Gas Exploration & Production
5	Electric Utilities	Mining ²³
6	Forest Products	Oil & Gas Storage & Transportation
7	Independent Power Producers & Energy Traders	Oil & Gas Drilling
8	Renewable Electricity	Distribution ²⁴
9	Textiles	
10	Water Utilities	

Using data derived from the MSCI All-Country World Index (ACWI), which is the leading index followed by financial institutions, the various sub-industries were assessed on the following criteria:

- Market capitalisation of listed companies;
- Annual revenue of listed companies;
- Major private companies involved in the sub-industry (by revenue);
- Geographic listing of listed companies.

These criteria were chosen as they help assess the materiality of sectors to financial institutions, to understand whether banks or investors would have more leverage, and to identify in which countries the key financial influencers were likely to be based.

²³ Covers the following sub-industries from GICS: Aluminium, Coal & Consumable Fuels, Copper, Diversified Metals & Mining, Gold, Precious Metals & Minerals, and Silver

²⁴ Covers the following sub-industries from GICS: Distributors, Food Distributors, Health Care Distributors, and Technology Distributors

The financial flows analysis suggested that Distillers & Vintners, Forest Products, Water Utilities, Airport Services, Marine Ports & Services, and Oil & Gas Drilling would no longer be priority sub-industries from the perspective of a financial institution, whereas the other sub-industries would be of interest due to their larger market capitalisation and revenues. As a result, the final list of high priority sub-industries is as follows:

- **Agricultural Products** (priority from both impacts and dependencies perspective)
- **Apparel, Accessories & Luxury Goods** (priority from dependencies perspective)
- **Brewers** (priority from dependencies perspective)
- **Distribution** (priority from impacts perspective)
- **Electric Utilities** (priority from dependencies perspective)
- **Independent Power Producers & Energy Traders** (priority from dependencies perspective)
- **Mining** (priority from impacts perspective)
- **Oil & Gas Exploration & Production** (priority from impacts perspective)
- **Oil & Gas Storage & Transportation** (priority from impacts perspective)

Limitations

This analysis was intended to help define which sectors should be the focus for financial institutions when setting biodiversity-related targets. While this analysis is based on scientifically robust information, it was not intended to be exhaustive. As a result several limitations are outlined below.

Current frameworks in analysis

The ratings assigned to production processes' impacts and dependencies in this analysis are based on available information within the scientific and grey literature. As such the ratings solely consider present-day policy, legal and regulatory frameworks (e.g. the current costs of biodiversity impact mitigation/avoidance). These will likely change in future when frameworks require more biodiversity positive practices, in line with the globally agreed policy goals. The biodiversity risks arising from sub-industries' impacts and dependencies will likely change in turn.

Geographic scope

The methodology is appropriate at a global scale, and as such is not tailored to individual national socio-economic or environmental conditions. The top 10 highest priority production processes may not be the same in different areas of the world based on the local socio-economic and environmental conditions within each country. This may warrant further attention by financial institutions when they delve into the specifics of setting targets that consider national circumstances.

Spatial characteristics relating to biodiversity

At this stage the methodology for identifying priority sectors does not consider spatial characteristics such as location (or hotspots) of biodiversity threats/pressures or presence of sensitive biodiversity features. It is particularly important to recognise that the global scale of this assessment may hide fine scale impacts and biodiversity sensitivities. On-the-ground contexts will determine the real intensity of impacts. For example, an impact on a small natural or semi-natural area that encompasses the last habitat of an endangered species will be much higher in intensity than an impact within an already modified area that is not particularly important for any endangered species.

Relative contributions of drivers of biodiversity loss

This analysis did not examine the relative contributions of different drivers of biodiversity loss, or the contributions of production processes to each of these.

Spatial extent of economic activities and risk in supply chains

Weighting results by Gross Value Added (GVA) was tested for each sector to account for the spatial footprint of each sector compared to others. While it yielded interesting insights into biodiversity-related risks at the consumer end of value chains, it was deemed through reviews to not reflect the reality of biodiversity risks occurring on the ground, particularly for impacts on biodiversity. In fact, it skewed the results as higher value goods occur at final product stages of supply chains, whereas raw materials where the most biodiversity-related risk occurs are lower in value or under-priced in current economic systems.

Future analyses may aim to assess the direct spatial footprint of all sectors to better understand where the highest biodiversity-related risks lie (both in terms of dependencies and impacts).

Additionally, it may be useful to refine the GVA-weighted approach to explore how biodiversity-related risks are distributed across supply chains. This has recently been done for dependencies, using data from ENCORE and Global Multi-Regional Input-Output models, and could be expanded to include impacts as well.

Indirect and cumulative dependencies and impacts

This analysis only considers potential direct dependencies and impacts of production processes on biodiversity. As such indirect and cumulative dependencies and impacts are excluded. This is not to say that these should not be considered carefully by financial institutions in their decision-making.

7. Annex 2.

Justifications for ratings of highest priority sub-industries for dependencies and impacts

Dependencies – Materiality ratings

Each justification below is presented in the format of production processes grouped under their associated Sub-industries. Production processes are listed in order from highest priority to lowest priority.

Sub-industry: Agricultural Products

■ **Small-scale irrigated arable crops**

Very high materiality identified from direct physical input (animal-based energy, ground water and surface water); in enabling production (pollination, soil quality, water flow maintenance, and water quality); and in protection from disruption (climate regulation, disease control, flood and storm protection, erosion control, and pest control).

■ **Large-scale irrigated arable crops**

Very high materiality identified from direct physical input (ground water); and in protection from disruption (flood and storm protection, and erosion control). High materiality identified from direct physical input (surface water); in enabling production (pollination, soil quality, water flow maintenance, and water quality); and in protection from disruption (buffering and attenuation of mass flows, climate regulation, disease control, and pest control).

■ **Small-scale rainfed arable crops**

Very high materiality identified from direct physical input (animal-based energy); in enabling production (pollination, soil quality, and water flow maintenance); and in protection from disruption (climate regulation, disease control, flood and storm protection, erosion control, and pest control). High materiality identified in protection from disruption (buffering and attenuation of mass flows).

■ **Small-scale livestock (beef and dairy)**

Very high materiality identified from direct physical input (fibres and other materials, ground water, and surface water); in enabling production (water quality); and in protection from disruption (flood and storm protection). High materiality identified in enabling production (soil quality, and water flow maintenance); and in protection from disruption (climate regulation, and disease control).

■ **Large-scale rainfed arable crops**

Very high materiality identified in protection from disruption (flood and storm protection, and erosion control). High materiality identified in enabling production (pollination, soil quality, and water flow maintenance); and in protection from disruption (buffering and attenuation of mass flows, climate regulation, disease control, and pest control).

■ **Large-scale livestock (beef and dairy)**

Very high materiality identified from direct physical input (fibres and other materials, ground water, and surface water). High materiality identified in enabling production (soil quality). Medium materiality identified in enabling production, mitigating direct impacts, and protection from disruption.

■ **Aquaculture**

Very high materiality identified in direct physical input (fibres and other materials). High materiality identified in enabling production (water flow maintenance, and water quality); and in protection from disruption (climate regulation, flood and storm protection, and erosion control).

■ **Freshwater wild-caught fish**

Very high materiality identified from direct physical input (surface water); in enabling production (nursery grounds for fish populations and water quality); and in protection from disruption (buffering and attenuation of mass flows, and climate regulation).

Sub-industry: Apparel, Accessories & Luxury Goods

■ **Natural fibre production**

Very high materiality identified from direct physical input (ground water and surface water). Medium materiality identified from direct physical input (genetic materials); in enabling production (water flow maintenance); and in protection from disruption (flood and storm protection).

Sub-industry: Brewers

■ **Alcoholic fermentation and distilling**

Very high materiality identified from direct physical input (ground water and surface water). Medium materiality identified from direct physical input (genetic materials); in enabling production (soil quality, water quality and water flow maintenance); and in protection from disruption (flood and storm protection).

Sub-industry: Electric Utilities

■ **Hydropower production**

Very high materiality identified from direct physical input (surface water); in enabling production (water flow maintenance); and in protection from disruption (climate regulation). High materiality identified in protection from disruption (flood and storm protection, and mass stabilisation and erosion control).

Sub-industry: Independent Power Producers & Energy Traders

■ **Hydropower production**

Very high materiality identified from direct physical input (surface water); in enabling production (water flow maintenance); and in protection from disruption (climate regulation). High materiality identified in protection from disruption (flood and storm protection, and mass stabilisation and erosion control).

The following additional sub-industries and production processes were identified as high priority based on their potential dependencies on biodiversity. However, they were subsequently removed from the high priority list when combined with information on financial flows (see below).

Sub-industry: Distillers & Vintners

■ **Alcoholic fermentation and distilling**

Very high materiality identified from direct physical input (ground water and surface water). Medium materiality identified from direct physical input (genetic materials); in enabling production (soil quality, water quality and water flow maintenance); and in protection from disruption (flood and storm protection).

Sub-industry: Forest Products

■ **Small-scale forestry**

Very high materiality identified from direct physical input (animal-based energy, fibres and other materials, ground water and surface water); in enabling production (water flow maintenance); and in protection from disruption (climate regulation, disease control, erosion control, and pest control).

■ **Large-scale forestry**

Very high materiality identified from direct physical input (fibres and other materials, ground water and surface water); and in protection from disruption (climate regulation, flood and storm protection, and erosion control). High materiality identified in enabling production (pollination, soil quality, and water flow maintenance); and in protection from disruption (disease control and pest control).

Sub-industry: Water Utilities

■ **Water services (e.g. waste water, treatment and distribution)**

Very high materiality identified in direct physical input (ground water and surface water); and in enabling production (water flow maintenance). High materiality identified in enabling production (water quality). Medium materiality identified in enabling production (soil quality); in mitigating direct impacts (bio-remediation and filtration); and in protection from disruption (climate regulation, and flood and storm protection).

Dependencies – Financial flows

The dependency sub-industries identified in the previous steps of the methodology were analysed based on their market capitalisation and revenue (in US\$m) for listed companies within the MSCI ACWI. This helped refine the list of priority sub-industries based on the financial flows they are currently receiving, which highlights those that are currently of highest interest to the finance sector.

Impacts – Intensity ratings

Each justification below is presented in the format of production processes grouped under their associated Sub-industries. Production processes are listed in order from highest priority to lowest priority.

Sub-industry: Agricultural Products

■ **Large-scale livestock (beef and dairy)**

Very high intensity due to impacts associated with use of land & freshwater (extensive areas of land cleared for production, and large water footprint), use of natural resources (intrinsic use of animals, which form part of biological diversity), pollution (water and soil pollutants), and climate change (emission of greenhouse gases, mainly methane).

■ **Small-scale livestock (beef and dairy)**

Very high intensity due to impacts associated with climate change (emission of greenhouse gases, namely methane). High intensity due to impacts associated with use of land & freshwater (use of large areas of land and large water footprint), use of natural resources (intrinsic use of animals, which form part of biological diversity), and pollution (water and soil pollutants). Low intensity due to impacts associated with invasive species (potential for livestock to spread pests).

Sub-industry: Distribution²⁵

■ Distribution

Very high intensity due to impacts associated with climate change (emission of greenhouse gases from vehicles and vessels), invasive species (high potential for spread of invasive species from movement of vehicles and vessels), and disturbances (noise pollution from vehicles and vessels). Medium intensity due to impacts associated with pollution (emission of non-GHG air pollutants, water and soil pollutants).

Sub-industry: Mining²⁶

■ Mining

Very high intensity due to impacts associated with use of land & freshwater (direct use of natural habitats throughout operations) and pollution (emissions of water and soil pollutants, and solid waste). High intensity due to impacts associated with climate change (emission of greenhouse gases) and disturbances (seismic activity affecting species).

Sub-industry: Oil & Gas Exploration & Production

■ Oil and gas exploration surveys

Very high intensity due to impacts associated with use of land & freshwater, use of marine area, pollution (non-GHG air pollutants, water and soil pollutants, and solid waste), and disturbances (noise and light pollution).

Sub-industry: Oil & Gas Storage & Transportation

■ Oil and gas transportation

Very high intensity due to impacts associated with climate change (emission of greenhouse gases through production). High intensity due to impacts associated with use of land & freshwater, use of marine area, and invasive species (high potential for spreading of invasive species through transportation).

The following additional sub-industries and production processes were identified as high priority based on their potentially highly intense impacts on biodiversity. However, they were subsequently removed from the high priority list when combined with information on financial flows (see below).

Sub-industry: Airport Services

■ Airport services

Very high intensity due to impacts associated with pollution (emission of non-GHG air pollutants, water and soil pollutants, and solid waste), climate change (emission of greenhouse gases by vehicles and airplanes), invasive species (spread of invasive species through cargo and luggage), and disturbances (noise and light pollution).

25 Covers the following sub-industries from GICS: Distributors, Food Distributors, Health Care Distributors, and Technology Distributors

26 Covers the following sub-industries from GICS: Aluminium, Coal & Consumable Fuels, Copper, Diversified Metals & Mining, Gold, Precious Metals & Minerals, and Silver

Sub-industry: Marine Ports & Services

■ Marine ports and services

Very high intensity due to impacts associated with use of marine area (required for port establishment and operations), climate change (emission of greenhouse gases from vehicles and vessels), and disturbances (significant continuous noise pollution in and around ports). High intensity due to impacts associated with use of land & freshwater (required for port establishment and operations) and pollution (water and soil pollutants, and solid waste).

Sub-industry: Oil & Gas Drilling

■ Oil and gas drilling

Very high intensity due to impacts associated with use of land & freshwater, use of marine area, and disturbances (noise and light pollution). High intensity due to impacts associated with pollution (non-GHG air pollutants, water and soil pollutants, and solid waste).

Impacts – Financial flows

The impact sub-industries identified in the previous steps of the methodology were analysed based on their market capitalisation and revenue (in US\$m) for listed companies within the MSCI ACWI. This helped refine the list of priority sub-industries based on the financial flows they are currently receiving, which highlights those that are currently of highest interest to the finance sector.

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About the UN Environment Programme World Conservation Monitoring Centre

The UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) is a global Centre of excellence on biodiversity. The Centre operates as a collaboration between the UN Environment Programme and the UK-registered charity WCMC. Together we are confronting the global crisis facing nature.

For more information, visit: unep-wcmc.org

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About the Natural Capital Finance Alliance

The Natural Capital Finance Alliance (NCFA) is a finance sector led initiative, providing expertise, information and tools on material aspects of natural capital for financial institutions. The NCFA secretariat is run jointly by the UN Environment Programme Finance Initiative and Global Canopy. They work to support financial institutions in integrating natural capital considerations into decision-making.

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Additional contributions

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