

Responding to Nature-related Risks and Opportunities

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EXECUTIVE SUMMARY

The rapid decline in the state of nature poses potential risks to the growth and stability of the global economy, which in turn may affect the financial sector. Global and national policy architecture to address the nature crisis has been fast developing in recent years under the UN Convention on Biological Diversity (CBD), with governments¹ which are CBD parties expected to develop and update National Biodiversity Strategies and Action Plans (NBSAPs) to detail actions to achieve the four goals and twenty-three targets of the Kunming-Montreal Global Biodiversity Framework (GBF). Going into the 16th Conference of the Parties (COP) of the UN CBD in October 2024, signatory governments need to deliver ambitious, detailed, and coherent policies to structurally reorient relationships between nature and economy, in line with global goals to halt and reverse nature loss.

Frameworks, guidance, and tools for private sector action on nature-related priorities reflect approaches that have been developed in the climate sphere. However, **key conceptual and scientific characteristics of nature loss, and actions to abate it, affect how private sector actions on nature can be measured and compared – and the relevance of climate-based approaches.** These include the **non-fungibility** of impacts on nature, and actions taken to address these impacts; the **highly localized characteristics** of nature; the **multitude of metrics and indicators needed** to robustly assess and portray changes in the state of nature; and the **complexity of relationships between nature loss and climate change.**

For goals and targets of the GBF to be achieved, aligned and coordinated actions by different public sector, private sector, and civil society stakeholder groups will be required – a misalignment of expectations for financial institutions, or other actors, may generate risks and lead to frictions. **Governments must play a foundational role, by developing and implementing policies that directly address the drivers of nature loss, and create economically viable opportunities to reduce negative impacts on nature.** The goals of a transition towards a nature-positive economy, which is being proposed as an analogous objective to ‘net zero’ within the nature sphere, will not be achievable without ambitious leadership from governments. Voluntary actions by the private sector can have important impacts on sustainability priorities; however, in the absence of clear policy and price signals, voluntary action on nature-related priorities by private sector actors faces limits. In this context, it is critically important that COP16 discussions on targets relating to finance appropriately reflect **the roles of private financial institutions as supporters of actions to halt and reverse biodiversity loss by their clients, counterparties, and investees – rather than the primary drivers of such actions.**

To help advance dialogue on the role of private financial institutions at COP16, this Discussion Paper examines key open questions in the nature finance sphere. Topics discussed in this paper include:

- **The foundational role for government policy:** Governments must lead with clear and supportive policy signals in order to create enabling conditions for private sector action in line with nature-related goals. These policies must clearly set out expectations for actions to halt and reverse nature loss across geographies and economic sectors, and provide incentives that enable these actions – especially, in sectors with high levels of impact and dependency – to be economically viable. Targeted policy support will be required to enable conservation and restoration activities that may otherwise not have a clear investment return profile. Key policy priorities include: developing,

¹ The UN CBD has near universal participant from governments, except for the United States (which has signed the CBD but not ratified it) and the Holy See. For further information, see the UN CBD [List of Parties](#).

updating, and integrating nature-related policies; developing nature transition pathways for sectors and geographic areas, taking a multi-stakeholder approach; providing appropriate incentives; aligning existing incentives and subsidies with nature-related goals; strengthening and aligning permitting processes; supporting natural infrastructure and nature-based solutions; and supporting data infrastructure. Efforts to establish new market mechanisms will need to proceed carefully and in a high integrity manner.

- **The role for private sector actors:** Corporates require clear policies and supportive enabling conditions to be able to develop robust nature-related strategies to contribute towards the achievement of national policies, in line with the goals and targets of the GBF. Nature-related projects need to be bankable and investable in order for financial institutions to support clients, counterparties, and investees in their efforts to contribute towards nature-related goals. Supporting nature-related activities in different sectors and markets will require different combinations of financial products and services – which also means that ‘what good looks like’ in terms of strategic alignment and capital allocation will vary between financial institutions, depending on their business models and active markets.
- **Nature transition pathways:** The lack of a consistent and universally applicable unit of measurement to assess nature impacts and responses (i.e. the equivalent metric concept to GHG emissions for climate change) presents a significant challenge for companies attempting to assess how their activities may be contributing to global nature-related goals. Furthermore, the potential for economic actors to make ‘transitions’ towards nature-related goals will vary across sectors and geographies, recognizing that some human activities will always have some degree of impact on nature. For a pathway-based model for nature to be feasible, a unified view on the range of actions needed to achieve different GBF goals and targets would need to be in place –with coherent sets of actions specified for different geographies and sectors, a set of relevant indicators based on a common underlying logic, and clear timelines for action. Nature transition pathways would need to be developed nationally and provide an integrated view on society’s dependencies and impacts on nature, bridging both geographic and economic dimensions – and linking conservation and restoration goals with economic activities needed to achieve them. Different types of economic activity in support of nature, from reducing impacts to restoration, should count as contributions. To ensure alignment among stakeholders, efforts to formulate nature transition pathways should seek to clarify how different types of compensatory activities should be considered.
- **Conceptualizing nature-related finance:** Achieving the goals of the GBF will necessitate large-scale capital investments across sectors, and require the use of a diverse array of channels and instruments. Classifying private financial flows as nature-related can support the monitoring of GBF goals and targets; however, the complexity of such an exercise presents challenges, and raises questions about the benefits vs. costs. A clear high-level view on a classification for nature finance may help to provide transparency and avoid misaligned expectations. However, classification alone will not ‘unlock’ additional financing; indeed, key economic factors – including supply and demand dynamics, which are influenced by government policy – will affect the degree to which nature-related economic activities are commercially viable, and therefore investable. A broader perspective on how corporate actors contribute towards different nature-related goals, and how financial institutions are supporting these actions through their business activities and capital allocation, may be helpful. High-level alignment on ‘what counts’ is of paramount importance to ensure that confusion, and the potential for reputational risks, does not arise.

- **Insights from the implementation journey – risk management and business strategy:** Different types of financial institutions have distinct capacities to support nature-related objectives. Recognizing that the concepts, definitions, and approaches for nature-related finance and business strategy differ from approaches for the management of nature-related risks, it is important to avoid the conflation of these distinct but related processes. Risk management activities may not necessarily result in actions that impact nature-related goals – and vice versa, actions to support positive nature-related outcomes may not necessarily reduce risks to financial institutions.
- **Balancing tradeoffs and leveraging synergies:** Tradeoffs between climate and nature priorities pose challenges for private sector action in support of nature and climate goals. However, positive synergies between nature and climate can arise when interventions taken to address nature and climate issues can be positively reinforcing.
- **Responses from supervisors and central banks:** There are open questions on the ways in which prudential authorities could most appropriately consider and potentially respond to nature-related risks – considering the importance of taking a risk-based and empirically robust approach, and the complexities and idiosyncrasies of potential transmission mechanisms from nature to the economy and to the financial system. Nature-related risks differ from climate-related risks; while climate-related approaches can provide a useful starting point, supervisors should avoid the simple extension of those approaches for nature considerations. It would be valuable for central banks and prudential authorities to continue their efforts to strengthen the understanding of the dynamics of nature-related risks to the economy from a macro-financial perspective. International collaboration could help assess aspects of transboundary nature-related risks and nature-climate interactions. Analytical tools such as scenario analysis for nature-related risks could inform broader debate on the appropriate policy responses; however, these efforts are nascent and subject to significant uncertainty. Given the considerable knowledge, data, and methodological gaps at present, it is most helpful for central bank and supervisory engagement to encourage capacity building within the financial sector. Any potential supervisory responses to nature-related issues must remain appropriately focused and risk-based. Importantly, responses by authorities need to be developed in the context of broader government policy.

1. INTRODUCTION AND CONTEXT – AN EVOLVING NATURE FINANCE AGENDA

The rapid decline in the state of nature poses potential risks for the growth and stability of the global economy, which may in turn affect the financial sector. Key indicators² of the state of nature, including biodiversity and ecosystem health, illustrate that anthropogenic impacts on the planet have never been higher. Humanity is consuming resources at 1.71 times the rate that Earth's ecosystems can regenerate, and 3 times higher than what is sustainable for long-term conservation and climate stabilization.³ Anthropogenic pressures on nature, stemming from rapid population growth and expansions of economic activities impact nature – including land use changes, pollution, and GHG emissions – are pushing ecosystems past recovery thresholds, and towards key tipping points – which could lead to large-scale and irreversible changes to natural systems.⁴ The impacts of nature loss and climate change are felt across the world, particularly in vulnerable rural areas of developing economies. Risks stemming from the overuse of stocks and flows of natural capital, including market volatility, distributional impacts, and other disruptions, may damage the financial positions of market actors and governments, with estimates of costs ranging in the trillions.⁵ These impacts could be transmitted to financial institutions through traditional categories of financial risk (e.g., credit risk, market risk, etc.) via increased default rates, collateral value declines, market volatility, insured losses, and inflation shocks.^{6,7}

The reliance of the global economy on nature requires governments and economic actors to make tradeoffs between protecting natural capital and deploying it as an input for economic growth.⁸ As described by the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), nature provides an array of contributions to humanity, in terms of regulation of environmental processes, material contributions including energy and food, and non-material contributions.⁹ The significant reliance on natural capital (e.g. forests, mineral resources) and ecosystem services (e.g. pollination, water, carbon sequestration) as inputs across the economy, the limited substitutability of sources of natural capital, have given rise to tradeoffs between actions to promote economic growth and competitiveness and the need to protect nature and abate negative impacts associated with economic activity. Such tradeoffs are also intertemporal, reflecting tensions between the desire to achieve immediate economic and development objectives and maintain standards of living, versus the need to guard against the systemic economic and social risks associated with declines in the state of nature – and the eventual potential collapse of key ecosystems. This tension is compounded as populations increase and shift in distribution, and is especially acute in economies specialized in sectors with a direct reliance on nature – such as agriculture, forestry, and natural resource extraction.

Individual government tradeoffs on environmental and development priorities may have spillovers across jurisdictional boundaries. Negative impacts on nature, such as the unsustainable use of ecosystem services (e.g. consumption of fresh water) can lead to transboundary spillovers; similarly, actions to conserve and restore nature may require ecosystem-level or regional-level

²Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2019): [Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#).

³Global Footprint Network (2023). [Ecological Footprint](#).

⁴Marsden, L. et al. (2024 April). [Ecosystem tipping points: Understanding risks to the economy and financial system](#), UCL Institute for Innovation and Public Purpose, Policy Report.

⁵For a review of studies estimating the potential financial impact of different nature-related risks, refer to Table 1 of Ranger et al. (2023 December) [The Green Scorpion: The macrocriticality of nature for finance](#).

⁶For an overview of potential relationships between nature-related phenomena and economic risks, and potential transmission channels to the financial system, see NGFS (2024) [NGFS Conceptual framework for nature related risks](#).

⁷For insights on key ecosystem tipping points and their potential systemic relevance, see Marsden, L. et al. (2024 April). [Ecosystem tipping points: Understanding risks to the economy and financial system](#), UCL Institute for Innovation and Public Purpose.

⁸World Economic Forum (2018 October). [Putting price on the value of nature](#)

⁹Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2019): [Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#).

coordination to be effective (e.g. implementation of wildlife corridors). Considering that some ecosystems (e.g. Amazon and Congo basin rainforests) have a significant role for the function and balancing of the global climate system, cooperation to protect key ecosystems can have positive global-level spillovers; similarly, a lack of action could result in serious harm across jurisdictions. Governments need to carefully assess any potential tradeoffs between actions to mitigate climate change (e.g. implementation of renewable energy) and the impacts of such actions on nature – and vice versa.

There’s a growing understanding of the demand for goods and services derived partially or wholly from nature—and the risks associated with nature loss. A growing number of real economy corporates and financial institutions are working to assess how nature-related impacts and dependencies may create risks and opportunities. Within the financial sector, many firms are taking action to address nature-related priorities, through internal processes (such as implementing new policies and frameworks), strategy development, allocating capital, market underwriting, and external engagement (See Box 1). However, the inherent economic and societal dependencies on nature, biodiversity, and ecosystem services, and risks associated with declines in the state of nature may be not easily translatable to individual private sector actors when looking at the typical business planning and investment horizon.

Box 1: Financial sector action in support of nature

Scaling nature-related investment: Many private financial institutions are working to scale up capital in support of nature-related priorities through an array of market vehicles – case studies from IIF member financial institutions on their recent nature-related financing activities are included in the supplemental Annex to this document. Private finance for nature-based solutions in 2022 amounted to USD 35 billion, across themes such as biodiversity offsets and credits, carbon markets, investments in sustainable supply chains, impact investing in forests and land use, agriculture finance, and other themes – however, these flows remain far below levels needed to close global nature-related financing gaps.¹⁰

Nature market development: Research by the IIF has found that biodiversity-related fund markets¹¹ grew to \$90 billion in early 2024, up slightly from \$85 billion in 2022 – and are expected to grow following COP16.¹² Nature-related fund flows turned negative in 2023 and remain negative this year amidst a sharp retrenchment in broader equity fund flows, mostly due to the challenging macroeconomic and geopolitical landscape and broader ‘backlash’ against ESG in some markets. Within global ESG bond and loan markets, the share of ESG debt issuance with a nature-related KPI or within biodiversity-related project categories (such as biodiversity conservation) exceeded 30% in 2024.¹³

Internal training and capacity-building: Several major financial institutions have established nature-related roles within different business areas, or established new teams focused on nature-related issues. Some firms are offering nature-related training to key functions, or across the entire organization.

¹⁰ United Nations Environment Programme (UNEP) (2023 December). [State of Finance for Nature 2023](#)

¹¹ To maintain consistency with market research and data tagging practices, we refer to biodiversity-related markets. However, this term is interchangeable with nature-related markets.

¹² Institute of International Finance (IIF) (2024 August) [ESG Flows and Markets: In Search of Mojo](#)

¹³ Institute of International Finance (IIF) (2024 July) [Sustainable Debt Monitor: Looming U.S. Elections—Crossroads for ESG Markets?](#)

Disclosure: Financial institutions are releasing initial disclosures of information on nature-related impacts, dependencies, risks, and opportunities. Financial sector corporates make up over 25% of the corporate entities across the economy that have committed to implementing the recommendations of the TNFD.¹⁴

Global and national policy architecture to address the nature crisis has developed rapidly in recent years under the UN Convention on Biological Diversity (CBD). In an effort to address nature and biodiversity loss, governments that are Parties of the CBD agreed on the Kunming-Montreal Global Biodiversity Framework (GBF) in 2022, which sets out an overarching set of four goals and 23 targets to orient National Biodiversity Strategies and Action Plans (NBSAPs).¹⁵ GBF targets include halting and reversing biodiversity loss, promoting conservation, restoration, sustainable use of nature, and ensuring equitable sharing of benefits, with the vision of living in harmony with nature by 2050. Under the GBF, there are two targets that focus on how governments should mobilize finance that will be needed to address nature loss, including one to align financial flows with the goals and targets of the framework ([GBF target 14](#)) and another to mobilize \$200 billion annually for biodiversity ([GBF target 19](#)).¹⁶ Target 19 recognizes the importance of governments developing National Biodiversity Finance Plans (NBFs), which are used by a growing number of countries to assess financing needs and potential sources of capital. The GBF also includes a target for governments to encourage and enable large transnational companies and financial institutions to monitor, assess, and disclose nature-related impacts, dependencies, risks, and opportunities ([GBF target 15](#)).

National frameworks and policy measures are essential for translating global goals into actionable strategies tailored to country-specific environmental, social, and economic needs. All 196 signatory parties to the GBF have committed to updating their NBSAPs to reflect the framework's goals and targets. To date, in accordance with Article 6 of the Convention,¹⁷ 194 of 196 (99%) parties have developed at least one NBSAP, and some countries have submitted updated NBSAPs.¹⁸ However, going into COP16, it remains to be seen whether countries will deliver updated NBSAPs in line with CBD expectations and whether updated policies deliver the ambition, scope, and granularity needed to structurally reorient the relationships between nature and the economy¹⁹. Analysis by WWF has concluded that the limited number of updated NBSAPs that have been submitted to date are lacking in a number of critical areas, including frameworks for measuring progress, and cross-agency engagement.²⁰

Since the agreement of the GBF, there has been increasing focus on the role of private financial institutions in supporting nature-related goals. The last two years have seen a rapid proliferation of frameworks, guidance, and tools intended for uptake by financial institutions,²¹ including in the areas of identification and assessment of nature-related dependencies, impacts, risks, and opportunities; nature-related scenario analysis exercises; nature-related business and financing target setting; nature-related transition planning; classification of portfolios and transactions in the context of

¹⁴ Taskforce on Nature Related Financial Disclosures (TNFD) (2024 June). [TNFD adoption now over 400 organisations and new sector guidance released](#)

¹⁵ The UN CBD has near universal participant from governments, except for the United States (which has signed the CBD but not ratified it) and the Holy See. For further information, see the UN CBD [List of Parties](#). Corporates and financial institutions in these jurisdictions may need to take different approaches to assessing how their activities support GBF goals in the absence of NBSAPs, including by assessing other types of nature-related policies.

¹⁶ Global Biodiversity Framework, [2030 Targets](#)

¹⁷ CBD (2022 December). Decision adopted by the conference of the parties to the convention on biological diversity. [15/6. Mechanisms for planning, monitoring, reporting and review](#)

¹⁸ CBD (2024). [National Biodiversity Strategies and Action Plans \(NBSAPs\)](#)

¹⁹ For a summary of NBSAPs submitted to the CBD please refer to: <https://ort.cbd.int/national-targets/analyzer>

²⁰ World Wildlife Fund (WWF) (2024). [NBSAP Tracker](#)

²¹ Some of these materials are intended for corporates broadly, with specific guidance for application by financial institutions.

nature-related goals; and disclosure of information relating to these processes. A core focus of the UN CB COP16 will be on finance, with many stakeholders focusing on actions that private financial institutions can take to align financial flows with the vision and mission of the GBF. In the run-up to COP16 and after, a significant number of proposed frameworks, guidance, and other materials are set to be released, which may lead to new informal and formal expectations for financial institutions. This body of work draws on approaches and concepts developed in the climate sphere. However, as this paper describes, conceptual and scientific differences between climate and nature affect how action by the private sector can be assessed in the context of global goals in these areas.

Considering the urgent need to deliver on the goals and targets of the GBF, **discussion around private sector action in support of nature-related goals—and how they are financed—must recognize the vital role of government policy in making it economically viable to reduce negative impacts and conserve and restore nature.** Debate on the role of private finance in halting and reversing nature reflects the evolution of the agenda around net zero alignment – and recent experience affirms the critical role of government in providing the orientation, rules, and incentives needed to orient the economy. The concept of a transition towards a ‘nature-positive’ economic model across sectors, which is being proposed as an analogous objective to ‘net zero’ within the nature sphere, will not be achievable without ambitious leadership from governments. Voluntary actions by the private sector can have an array of positive effects that stimulate and catalyze action towards global sustainability goals. However, such actions – even when taken by a significant share of institutions – are not enough to catalyze economy-wide changes on their own, and must be accompanied by appropriate government policy frameworks. As experience to date in the net zero transition sphere has illustrated, **private financial institutions are limited in their capacity to directly or indirectly influence – or ‘drive’ – real economy decision-making.**²² Indeed, financial institutions can only meaningfully support sustainability-related economic transformations where there is **sufficient demand for finance and investment from businesses, households, and governments, and where projects are commercially viable, with risk-return tradeoffs that are suitable for different financial sector business models.**²³

Going into COP16, there are several key open questions emerging that are of particular importance in the nature finance debate:

- i) How do the unique characteristics of nature affect the potential to assess and aggregate actions to halt and reverse nature loss, in line with GBF global goals and targets?*
- ii) How should we consider the respective roles and contributions of governments, corporates, financial institutions, and civil society actors (including indigenous peoples and local communities) in achieving GBF goals and targets – and the relationships between public and private action?*
- iii) What types of policies are needed to achieve the goals and targets of the GBF – and create enabling environments for private sector action in line with these goals?*

²² For further information, see: Institute of International Finance (IIF) (2023 October). [The Role of The Financial Sector in the Net Zero Transition: Assessing Implications for Policy, Supervision and Market Frameworks](#)

²³ Institute of International Finance (IIF) (2024 September). IIF Staff Paper: [Resetting the debate on the role of private finance in the net zero transition.](#)

- iv) ***What is needed for private sector action in support of nature-related goals to have the greatest impact, and how could such actions be meaningfully assessed?***
 - a. ***How applicable are different concepts (e.g. ‘nature positive’ transitions) and approaches (e.g. nature pathways) for corporates and financial institutions – and what would need to be in place for a pathway-based model to be actionable?***
 - b. ***How should financial institutions conceptualize how they are scaling up nature-related finance, and what is the role for classification and tracking approaches?***
- v) ***What initial insights are arising from financial institutions’ activities to date, in the areas of nature-related risk management and business strategy?***
- vi) ***How are prudential authorities and central banks considering nature-related risks, and how do they relate to their mandates?***

This paper discusses these questions in turn, providing perspectives from the global financial industry, insights from practice, and suggestions on areas for further work and development. The **Annex** to this document provides case studies of financial institutions’ actions in support of nature-related priorities.

2. UNDERSTANDING NATURE

How do the unique characteristics of nature affect the potential to assess and aggregate actions to halt and reverse nature loss, in line with GBF global goals and targets?

While experience in the climate sphere is a logical place to begin thinking about how progress can be made on the achievement of other global-level sustainability goals, there are several key conceptual and scientific characteristics relating to nature loss – and actions to address it – that differ from climate change. These factors have significant implications for how private sector actors take action in support of nature-related goals, and the feasibility of assessing how such actions may be aligned with, or contribute to, GBF goals and targets.

Non-fungibility of nature-related impacts and diversity of dependencies create complexities in solving the nature crisis – and challenges for measuring progress in line with global goals. Nature loss stems from both the consumption of natural capital (e.g. as economic inputs), as well as pollution associated with economic activities. The impacts of economic activities on nature vary significantly across sectors and geographic areas. This differs from anthropogenic climate change, which is primarily a pollution problem, in terms of the emissions of greenhouse gases associated with economic activities – which have the same impact regardless of which sector, or jurisdiction, emitted it. Given the diversity of nature across regions, nature-related impacts associated with economic activities – such as deforestation – can have more or less severe effects on the integrity of ecosystems and the services they provide, such as climate regulation. This means halting deforestation in certain regions can have an outsized benefit for the regenerative capacity of nature. Hence, the negative impacts on nature associated with economic activities, and the positive benefits from preventing further loss or undertaking actions to conserve and restore nature, are not fungible across regions on a like-for-like basis. Similar actions to reduce or mitigate the negative impacts of economic activities may have different levels of contribution (from a nature or biodiversity value perspective) in the context of global goals, depending

on where they are located.²⁴ The entire economy is dependent in some way on nature, but the characteristics of these dependencies (e.g. as a material input, or significant driver of profitability) may vary significantly across sectors – affecting their potential to transition in line with global goals, in a manner which can be consistently assessed.

Nature has highly localized characteristics. Biomes and ecosystems – and impacts upon them – are inherently local, and considerations pertaining to the reductions of negative impacts associated with economic activities, and the potential to transition towards a more nature-positive model, are highly granular and may vary significantly. The opportunity sets associated with the halting and reversing nature loss are varied, localized, and interconnected, requiring specialized and differing approaches from state and non-state actors, including the private sector. This differs from the climate sphere, where private sector actors can anchor their efforts to the common, global, economy-wide objectives of reducing of greenhouse gas (GHG) emissions and removing CO₂ from the atmosphere, towards time-bound goals. These strategies are often globally scalable across geographies with minimal adaptation, allowing corporates to develop uniform approaches that align with their global operations. In the nature sphere, firms’ strategies and approaches need to be tailored to the specific sectoral, ecological, social, and economic conditions of each region in which they operate, and the clients they service. The localized characteristics of nature necessitate granular analysis of impacts and their potential risks, including interconnections within and across ecosystems – along with the array of policy, market, and other factors affecting risk profiles. This contrasts with climate change mitigation, where, for example, greenhouse gas emissions have a clear and uniform impact regardless of their source location.

A multitude of metrics and indicators limits the ability to standardize disclosures. There is a broad range of indicators that may be needed to robustly assess and portray changes in the state of nature in different geographic areas. This diversity makes the process of assessing and measuring the effects of actions taken by private sector actors to contribute towards national and global nature-related goals. The lack of a consistent and universally applicable unit of measurement (similar to GHG emissions) to assess nature impacts and responses presents a significant challenge for companies attempting to aggregate nature-related risks at a portfolio level and in a way that is comparable across different contexts. The diverse range and location-specific nature of the metrics needed to appropriately portray a firm’s exposure to nature-related dependencies, impacts, risks, and opportunities across sectors and geographies make portfolio-level aggregation difficult and potentially less meaningful. This variability complicates the process of analyzing portfolios to identify and assess clients’ and investees’ nature-related dependencies and impacts, creating significant challenges for producing timely, reliable, and comparable disclosures.

Interactions between nature and climate may lead to tradeoffs, and compel an integrated response. Considering that they are mutually reinforcing phenomena, the fundamental relationships between climate change and nature loss necessitate integrated responses from policymakers and market actors.²⁵ Climate change directly impacts nature by altering ecosystems, leading to biodiversity loss and degradation of ecosystem services. Equally, the degradation of natural environments, such as deforestation and land use changes, exacerbates climate change by reducing the planet’s ability to absorb carbon dioxide, thus increasing greenhouse gas concentrations in the atmosphere. Nature plays a critical role in both mitigating climate change and adapting to its impacts. Ecosystems such as oceans, forests, wetlands, and peatlands are vital carbon sinks, absorbing significant amounts of GHGs from the

²⁴ A simplistic example is to consider how the impacts of deforestation may differ - a tree in the Amazon Rainforest is not comparable to a tree in New York City from a biodiversity value perspective, or climate and ecosystem regulating functions.

²⁵ NatureFinance, Potsdam Institute for Climate Impact Research (PIK), the European Central Bank (ECB), University of Minnesota, (2024 February). [Climate-nature scenario development for financial risk assessment](#)

atmosphere; key biodiversity areas (such as the Amazon rainforest) provide critical regulatory functions for the global climate system. Protecting and restoring these ecosystems can significantly contribute to climate change mitigation efforts. Additionally, healthy ecosystems enhance resilience to climate impacts, offering natural solutions to adaptation challenges such as flooding, storm surges, and soil erosion.

Taken together, these factors have several important implications and potential solutions, including:

Aggregation potential and consistency between public and private actions. The diverse nature of the goals and targets of the GBF – in terms of focus areas, scope, structure, and indicators – affect the degree to which different national-level policies can be aggregated or judged as aligned with global goals. Unlike climate change, where the remaining global carbon budget associated with limiting global warming to 1.5 to 2c provides a unified quantitative basis for global economic transition pathways and national policies, there is not yet agreement on the concept of a ‘nature budget’ which could serve an analogous function in the nature sphere – however, thinking is developing in this area.²⁶ Positively, some global goals – for example, to conserve 30% of lands and oceans – can be readily downscaled into policies at the national and local levels (e.g. by establishing protected areas) as a basis upon which private sector actors can orient their strategies and economic activities. For other goals and targets, the lack of comparability/fungibility of actions to achieve them in different geographies or sectors complicates efforts to aggregate at the global level. Learning from climate, it is the purview of sovereign governments to produce ambitious plans that support the global agreement and to translate such plans into clear and consistent policies. In the absence of a scientifically robust aggregation solution, these plans are especially needed at the local level for nature; for instance, governments must decide which lands and oceans must be conserved, and how responsibility is allocated among companies and other stakeholders, in a timely and pragmatic manner. Other GBF targets may require jurisdiction or sector-specific actions to respond to critical issues, such as reducing the loss of areas of high biodiversity importance and high ecological integrity, harmful subsidies, or waste. Taken together with the key factors described above, issues associated with aggregating and comparing actions across geographies and sectors have implications for how the private sector’s response to the GBF can be made more effective and meaningfully evaluated.

Transition potential of different economic actors. The types of economic actions needed to achieve nature-related goals will differ significantly depending on the geographic area in question, the business models of firms, the structure and characteristics of a national economy (in terms of reliance on high-impact sectors), and other macro-level factors. Considering that the viability of some economic activities is wholly contingent upon the use of natural capital as an economic input, firms within these sectors may face material barriers to aligning their strategies and investments with the goals of the GBF. There are indeed actions that can be taken by firms in primary sectors to transition towards less impactful activities; however, such actions may not be universally implementable across ecosystems, or in different markets. Within sectors such as fishing, forestry, or resource extraction, there may be activities with negative impacts on nature that are simply impossible to wholly mitigate – such as harvesting of wild marine fish stocks, or open-pit mining. Achievement of GBF goals and targets may imply that some economic activities may need to be phased out or require compensatory restoration activities to be undertaken in order to be able to continue, as laid out by the mitigation hierarchy. In other cases, there may be important motivations for continuing certain types of highly impacting activities, such as mining of critical materials needed to scale up renewable energy systems – requiring tradeoffs. Policy clarity can

²⁶ In the lead up to COP16, some initiatives have set out proposals for how GBF goals could serve as the basis for a budget-based approach. For examples, see: BioInt (2024) [Biodiversity Briefs #2 Translating Global Goals into Action: A global budget approach](#).

help financial institutions in their engagement work with clients to understand and finance transition strategies in accordance with the likely policy response.

Compensatory potential (e.g. offsetting). The issues of non-fungibility and localization of nature affect how compensatory actions could be undertaken in the instance that negative impacts cannot be mitigated. For example, the loss of a wetland in one region cannot be fully understood to be ‘offset’ by the conservation or restoration of a similar area, in another region due to differences in ecological functions, species diversity, and local community dependencies. Incentives for investing in conservation efforts, including through new market instruments such as biodiversity credits, is an area that requires further work to ensure that these instruments are robust from both methodological and integrity perspectives, that expectations regarding the role of instruments are aligned across stakeholder groups, and that activities taken by the private sector are aligned to with policy goals.

3. THE ROLES OF PUBLIC AND PRIVATE ACTORS

How should we consider the respective roles and contributions of different public and private actors in achieving GBF goals and targets – and the relationships between them?

For collective efforts to achieve nature-related goals to be most effective, we need a common understanding of the roles and capacities of policymakers, corporates, financial institutions, and supervisors and regulators. There are a range of proposals for how action by public and private actors can support nature-related goals being discussed at present. Proposals focused on the role of financial institutions reflect a similar rationale or ‘theory of change’ to that which has emerged in the climate transition sphere, including the idea that ‘nature-positive’ alignment could be analogous to the ‘net zero’ alignment, and the idea that financial institutions’ actions can directly ‘drive’ real-economy decision-making.²⁷ However, as the debate in the net zero transition sphere has shown, there are a number of assumptions underlying these proposals that warrant consideration, particularly regarding the mechanisms through which financial institutions may be able to directly or indirectly influence the actions of their clients, counterparties, and investees. Key issues include:

- **Whether action by the private sector to support the achievement of global goals can, and should, advance independently, in parallel to the development and upgrading of government policies that set rules and expectations for how economic activities should change.** It is evident that the success of private sector efforts is contingent upon action by the government, who must first clarify policy objectives, and incentivize real economy actors to align with those objectives.
- **To what degree, and through what channels, financial institutions are able to significantly influence the decisions of corporate actors in line with nature-related goals.** Experience in the climate sphere has indicated that financial institutions face limitations in their capacity to directly or indirectly influence the actions of clients, counterparties, and investees through commercial relationships.²⁸ The threat of exclusion and divestment can lead to clients either finding financing solutions outside of their traditional sources or being faced with a higher cost of capital to transition away from harmful activities. Furthermore, there is an array of exogenous factors

²⁷ Reviewing different proposals, it appears that a number assumptions regarding the impact of financial institutions business activities and portfolio allocation on real economy outcomes are reflect those underlie expectations regarding net zero alignment. For further information, see: IIF (2024) IIF Staff Paper: [Resetting the debate on the role of private finance in the net zero transition](#).

²⁸ For further information, see: IIF (2023). [The Role of The Financial Sector in the Net Zero Transition: Assessing Implications for Policy, Supervision and Market Frameworks](#)

(e.g., relative economics of high-impact vs. low-impact activities or technologies; availability of alternative sources of capital; competitive impacts) that directly affect corporate decision-making.

- **If the business case for financing and investments in a nature-positive transition across sectors and markets is strong enough**, leading to increasing demand for nature-related products and services from financial institutions. Some nature-related projects, including conservation and restoration, may often be barriers from a commercialization perspective. Opportunities must be commercially viable to be pursued by companies, and for the financial sector to facilitate them, they must be identifiable, bankable, and investable.

A misalignment of expectations for corporates, financial institutions, or other actors may create risks and lead to frictions. **For the greatest likelihood of successful achievement of the goals of the GBF, aligned and coordinated actions by different public, private, and civil society stakeholder groups will be required** – which ideally should proceed in a sequenced manner.

- **Governments** must lead the way by developing and implementing clear national-level policies to translate commitments encapsulated within NBSAPs and NBFPS into action on the ground, addressing the two key pillars of: i) conserving and restoring nature, and ii) reducing negative impacts on nature (via transition of the economy). These policies must clearly set out expectations for actions to halt and reserve nature loss across geographies and economic sectors, and provide incentives that enable these actions – especially, in sectors with high levels of impact and dependency – to be economically viable. Governments also need to cultivate public support for these policies and ensure that these policies do not create undue distributional impacts. To appropriately balance environmental and developmental priorities, governments should engage closely with **civil society stakeholders**, including **indigenous peoples and local communities (IPLCs)**, indigenous government authorities, and other relevant groups. Further discussion on the types of policies that may be needed is provided in section 4.
- **Corporates** can develop nature-related transition strategies on the basis of these policies and evolving market practices, in line with the concept of a mitigation hierarchy – focusing on minimizing negative impacts on nature, and where possible, scaling up ‘nature-positive’ activities within their remit. The implementation of nature transition strategies may require corporates to make changes in business models, technologies, operations, and supply chains, which may affect their financing needs and capacity to service existing financing arrangements, alongside other factors. Such actions must be commercially viable in order to guard against major impacts on profitability and competitiveness. As companies take action, consumers can shift behavior in response to policies, incentives, and market-based action, by changing preferences towards nature-positive products, services, and firms. Building blocks for corporate nature strategies, including transition pathways, are discussed in section 5.1.
- **Financial institutions** can take action at multiple levels to support their clients’, counterparties’, and investees’ efforts to contribute to nature-related goals through the provision of financial products, services, and advisory, ensuring appropriate instruments are designed and priced according to the needs of the corporates and the level of risk. Discussion on what is needed to scale nature-related finance and views on proposed frameworks for the assessment of financial institutions’ activities, are discussed in section 5.2. Lessons from financial institutions’ implementation activities are provided in section 6; case studies illustrating how financial institutions are scaling up capital for nature are provided in the Annex to this document.

- **Central banks and supervisors** can take action by assessing how nature-related risks may be relevant to the prudential and monetary mandates, assessing the potential relevance of nature-related risks to individual financial institutions, and at the systemic level, examining how nature-related risks may affect the macroeconomy. **Global authorities** can take action by considering where standard-setting could be necessary to support alignment and address potential risks of fragmentation. Views on proposed approaches and priorities are provided in section 7.

4. FOCUS ON POLICY FOUNDATIONS: PROVIDING THE ORIENTATION AND INCENTIVES NEEDED FOR TRANSFORMATION

What types of policies are needed to achieve the goals and targets of the GBF – and create enabling environments for private sector action in line with these goals?

As previously stated, governments must lead with clear and supportive policy signals in order to create enabling conditions for private sector action in line with nature-related goals. While the GBF provides a global-level umbrella to signal support for nature conservation and restoration, it is evident that the potential success of private sector action in support of nature-related goals is fundamentally reliant upon national-level policy implementation. In the absence of clear policy and price signals, voluntary action to conserve and restore nature by private sector actors faces limits, as market actors pursuing strategies aligned with nature-related objectives may be outcompeted by other non-aligned actors. Without clarity on how governments will implement their commitments through national-level policies, corporates' and financial institutions' efforts in support of the GBF could diverge from governments' ambitions.

To meet their commitments under the GBF, governments should develop and implement legislative, policy, and regulatory measures that can directly address nature loss, including through actions to conserve and restore nature in line with the concept of a 'mitigation hierarchy'. Legislative actions and policies to directly address nature loss and support its restoration – including the establishment of conservation projects, revisions of natural resource and land use permitting frameworks to better balance economic development and conservation priorities, or the introduction of limitations or moratoria on certain types of economic activities (such as deforestation of primary forests) – are likely to be the most direct channels through which governments can send signals across the economy.

Notable steps are being taken in some jurisdictions to conserve and restore nature through the introduction of new legislation and policy, including, for instance, the EU Nature Restoration Law,²⁹ the UK's Biodiversity Net Gain approach,³⁰ Brazil's implementation of the Plan to Protect and Combat Deforestation in the Amazon (PPCDAM)³¹ and actions to restore degraded agricultural land, China's conservation efforts³² to help recover wildlife populations, among others. Beyond direct impacts on nature in a given area, the economy-wide signaling effects of such action is important, in making clear that boundaries for economic activity must be respected and adhered to.

²⁹ European Commission (2024) [Nature Restoration Law](#)

³⁰ UK Government Department of Environment, Food, and Rural affairs (2023) [Biodiversity Net Gain](#)

³¹ The PPCDAM first launched in 2004 and resulted in \$3.9 billion in fines, 700 arrests, and the seizure of one million cubic meters of timber and 11,000 properties, curbing deforestation by 76% in five years, with support of other complementary initiatives, such as the REDD mechanism. See: United Nations Environment Programme (UNEP). [The rise of environmental crime: A growing threat to natural resources peace, development and security.](#)

³² See: Government of China (2021): [Protection efforts see Tibetan antelope population rebound](#)

In many cases, targeted policy support will be required to enable conservation and restoration activities that may otherwise not have a clear investment return profile – including the provision of incentives, the establishment of blended finance vehicles and other structures, and the creation of new markets. To ensure clarity for economic actors, nature conservation and restoration goals should be clearly linked to other efforts to create enabling conditions for nature-related action across the economy, accompanied by measures that make investment in nature conservation and restoration activities more attractive for the private sector. Efforts to establish new market mechanisms, such as compliance markets for nature and biodiversity credits, will need to proceed carefully, and in a high integrity manner.

NBSAPs must be substantiated through the implementation of policies that provide clarity around priorities and strengthen the business case for nature-related investments across the economy – including by internalizing nature-related externalities. In the climate sphere, the Paris Agreement signaled governments’ commitment to take action on climate change, with the focus then shifting to signatories’ establishing investable Nationally Determined Contributions (NDCs) in order to direct private sector action to make progress on the Agreement’s goals. However, experience in the multilateral climate negotiation process has shown that high-level government commitments do not automatically translate into the lasting government policy needed to support economy-wide transformation.³³ The need for governments to set a clear orientation for action on nature loss is especially important given the inherently local, integrated, and multi-stakeholder aspects of relationships between human and natural systems. Until governments indicate which geographic areas or ecosystems are most critical to preserve, and action is taken to correct for market failures and deliver the incentives needed to strengthen the business case for projects and investments that reduce impacts, independent private sector action is unlikely to be sufficient to catalyze economy-wide changes at the speed and scale necessary.

Recognizing this, **it is critically important that NBSAPS and other government commitments are ambitious and broad enough to cover the necessary spectrum of activities, while also granular enough to address the localized aspects of such activities.** Policies need to provide the right incentives, clarity, and certainty to send strong economic signals regarding the importance of conservation and restoration goals, strengthen the competitiveness of new innovative projects and business models, and where needed, enable the creation of new markets and instruments that can create revenue streams for nature-related investments. While it is positive that more countries are expected to submit updated NBSAPs and NBFPS, the robustness of these plans from an ambition perspective – and their market relevance for corporates and investors – remains contingent on full implementation.

Resolving the lack of clarity regarding the types of economic changes that will need to occur for GBF targets to be achieved – and the indicators that will be used to assess progress – is a key priority for national governments to deliver at COP16. Discussions on ‘headline indicators’ for GBF goals and targets are of particular significance – considering that a consistent view of the actions needed, and how progress will be monitored, will have important implications for companies’ efforts to develop nature-related transition strategies. An example of this is GBF target 7.2 relating to halving the *risks* associated with the use of pesticides, which does not specify a

³³ Institute of International Finance (IIF) (2023 April). [IIF’s Public Comment Letter on the TNFD Nature-related Risk and Opportunity Management and Disclosure Framework – Beta v0.4](#)

quantitative target for the reduction of the use of pesticides at a global level.^{34,35} National-level policies that may be developed in line with this target may vary, requiring market actors to make subjective judgments on what types of transition pathways for pesticide use in the agriculture sector could be considered as GBF aligned. It is critically important that discussions on indicators for targets relating to finance, including the D.3 indicator on ‘Private funding (domestic and international) on conservation and sustainable use of biodiversity and ecosystems’, **appropriately reflect the roles of private financial institutions as supporters of actions to halt and reverse biodiversity loss by their clients, counterparties, and investees – rather than the primary drivers of such actions**, recognizing the capacities and limitations associated with different types of commercial relationships.

4.1 KEY POLICY PRIORITIES

Developing, updating, and integrating nature-related policies: To structure their NSBAPs effectively, governments should perform an initial baseline assessment with the goal of mapping the policies in place, identifying the gaps that need to be addressed by new measures, and the stakeholders that will be involved at each implementation step. It is important that governments effectively align and integrate NBSAPs with existing legislation, climate policies (including Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and other measures relevant to environmental priorities.

Developing national nature-related transition pathways for key sectors and geographic areas, taking an integrated, multi-stakeholder approach: Governments should take responsibility for the development of nature transition pathways. Such pathways would need to provide both geographic and economic views on changes needed across landscapes and sectors to enable the achievement of nature-related policy goals. To enable comparability and alignment across jurisdictions, national-level pathways would ideally be built upon a coordinated, global view on the types of economic transitions needed to achieve GBF, curated by an intergovernmental authority (e.g. IPBES). Of course, there are important conceptual questions on how global-level targets or transition pathways could be down-scaled to national levels, considering the diversity of GBF targets, and the specificity of actions that may need to be taken depending on the country’s natural capital base, economic structure, and level of development. To help inform pathway development and ensure alignment across economic actors, governments could consider convening multi-stakeholder processes to surface, and bridge, the different needs and constraints of corporates, financial institutions, consumers, and key stakeholder groups who may be engaged in stewardship of natural capital – importantly, indigenous peoples and local communities (IPLCs). When developed with the buy-in of multiple stakeholder groups, transition-related policies and incentives – such as standards for the environmental performance of assets or products, or subsidies for residential energy efficiency investment – are more likely to successfully catalyze widespread changes in investment behavior. Further discussion of the importance of such pathways, and their relevance for private financial institutions, is provided in section 5.1.

³⁴Convention on Biological Diversity (CBD) (2024). [GBF Target 7](#). ‘Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution.’

³⁵ As identified by [UN-WCMC](#), the key issues associated with the [7.2 headline indicator](#) - Aggregated Total Applied Toxicity (ATAT) - include its non-cumulative and non-dynamic nature, lack of consideration for pesticide mixture effects, omission of illegal pesticide use, exclusion of obsolete pesticide stocks, and neglect of risk mitigation measures. Additionally, this indicator fails to account for sub-lethal effects on non-target species, cascade effects, biodiversity gradients, and impacts on coastal and marine habitats, which limits its ability to fully capture the pervasive and complex effects of pesticides on biodiversity and ecosystems.

Providing incentives to enable nature-related transitions: Governments need to provide incentives that shift the relative economics of high vs. low-impact activities across the economy, and where needed, shift the geographic distribution of such activities. Governments can directly tackle issues of nature-related externalities through the introduction of new fiscal measures, utilizing revenues to provide targeted support for the introduction of new technologies and changes in business practices that otherwise would not be currently economic. Subsidies and public financing mechanisms may be needed to enable restoration projects and other activities that might not present a sufficiently robust business case autonomously.³⁶ Other types of fiscal instruments and policy measures may be needed to address demand-side changes across the economy. In this regard, governments could consider how to approach demand-side dimensions of nature loss and incentivize consumers towards lower-impact choices.

Aligning existing incentives and subsidies with nature-related goals: The elimination or reallocation of subsidies that result in environmental degradation, especially in agriculture, fisheries, and forestry, is a key priority for governments – and is reflected directly within Target 18 of the GBF.³⁷ Estimates of annual expenditure on EHS range as high as USD 2.6 trillion, 2.5% of 2023 Global GDP,³⁸ of which USD 940 billion is spent across agricultural, fisheries, and forestry sectors;³⁹ however, robust estimation of the total value of subsidies is challenging due to data gaps and market fluctuations.⁴⁰ National-level reviews of subsidies, starting with defining the scope of incentives, can be a helpful first step towards subsidy reform.⁴¹ Governments should engage with businesses and affected communities to develop phased approaches to reducing EHS that ensure that distributional impacts are controlled for and that there is clarity across the economy on how incentive structures will change.⁴²

Strengthening and aligning permitting processes with respect to nature-related priorities: Permitting processes, including for economic activities that rely on nature (e.g. natural resource extraction) or negatively impact nature (e.g. land use conversion), is an important tool that governments could leverage to steer economic activities towards lower-impact pathways. Permitting decision processes in natural resource sectors may only account for the impact of the project in question but fail to include the cumulative impact of other projects in the same ecosystem. To address this issue, governments could assess options to strengthen existing rules or introduce requirements pertaining to conservation and restoration goals and provide support measures or incentives to mitigate impacts on the competitiveness of affected sectors. Taking a landscape-level approach can help strengthen the coordination and alignment of policies affecting different actors.

Supporting natural infrastructure and nature-based solutions (NbS): Recognizing the benefits that nature provides from a climate mitigation, resilience, and adaptation perspective, governments can take an array of actions to support the maintenance of nature as ‘infrastructure’, and

³⁶ Business for Nature (2024 July). [Recommendations to governments: The policies, legislation, regulation and incentives needed to create a nature-positive economy.](#)

³⁷ See for example: Business for Nature (2024 July). [Recommendations to governments: The policies, legislation, regulation and incentives needed to create a nature-positive economy](#); Business for Nature (2023 November). [Recommendations to governments: How to implement Target 18 of the Global Biodiversity Framework](#); Center for Global Commons (2023 December). A discussion paper [Financing nature: a transformative action agenda.](#)

³⁸ Koplow and Steenblik (2024 September). [Protecting Nature by Reforming Environmentally Harmful Subsidies: The Role of Business.](#) Earth Track, p.15.

³⁹ See the recent estimates of environmentally harmful subsidies by sectors: Fossil fuels \$1,050 Billion, Non-energy mining \$40 Billion, Agriculture \$610 Billion, Fisheries \$55 Billion, Forestry \$175 Billion, Transport \$180 Billion, Water \$390 Billion, Construction \$150 Billion, Plastics \$30 Billion

⁴⁰ Center for Global Commons (2023 December). A discussion paper [Financing nature: a transformative action agenda.](#) p.40.

⁴¹ Business for Nature (2023 November). [Recommendations to governments: How to implement Target 18 of the Global Biodiversity Framework.](#) p.10.

⁴² See for example: Business for Nature (2023 November). [Recommendations to governments: How to implement Target 18 of the Global Biodiversity Framework.](#)

develop policies and financial mechanisms to support the scaling up of NbS.⁴³ Examples include the USA’s recognition of coral reefs as ‘national infrastructure’,⁴⁴ and the inclusion of NbS within funding mechanisms of the Inflation Reduction Act (IRA), and the Federal Emergency Management Agency (FEMA).⁴⁵ Blended finance and other forms of public-private finance should be promoted and further expanded, together with de-risking measures such as guarantees or first-loss provisions.⁴⁶

Supporting data infrastructure for nature: Action to improve the availability and quality of data on nature-related data to enable a wider range of public and private investments is emerging as a cross-cutting priority for governments. The challenge is compounded by the variety and location-specific nature of metrics required to monitor biodiversity, calling for investment in new technologies such as remote sensing capabilities and cost-effective on-site data acquisition tools.⁴⁷ Governments should invest in state-of-nature data collection to enable such information to be more readily applicable by private sector action, and such data should be treated as a global public good.⁴⁸ Support should be provided for the creation of a nature data infrastructure, including through metadata standards and licensing, and data visualization; In this context, efforts within the private sector to establish a global nature-related public data facility should also be supported.⁴⁹ Governments and other authorities should seek to support corporates in their efforts to build capacity to gather and manage nature-related data and take steps towards communicating information on their nature-related impacts, dependencies, risks, and opportunities.

5. CONCEPTUALIZING PRIVATE SECTOR ACTION FOR NATURE

What is needed for private sector action in support of nature-related goals to have the greatest impact, and how could such actions be meaningfully assessed?

The GBF underscores a ‘whole-of-society’ approach, indicating that all actors must act together to reach its goals. Under the GBF, signatory countries have made commitments to ‘halt and reverse biodiversity loss by 2030’, and that by 2050, biodiversity is ‘valued, conserved, restored and widely used, maintaining ecosystems services, sustaining a healthy planet and delivering benefits essential for all people’. Linked to the GBF’s overarching goal, several initiatives have proposed definitions for a ‘nature-positive’ economy to serve as a unifying goal to orient action across the private sector, including the Nature Positive Initiative,⁵⁰ IUCN,⁵¹ SBTN,⁵² WWF,⁵³ and others.^{54,55,56,57} Varying in their formulations, these definitions reference similar goals, including halting and reversing nature loss

⁴³ United Nations Environment Programme Finance Initiative (UNEP FI) (2024 August). [G20 recommendations: advancing a nature-positive economy and just transition](#) and World Economic Forum (2024 June) CEO Briefing - [Financing the Nature-Positive Transition: Understanding the Role of Banks, Investors and Insurers](#). p.7

⁴⁴ U.S. Coral Reef Task Force (USCRTF) (2023). [USCRTF Resolution 47.2 Coral Reefs as National Natural Infrastructure](#)

⁴⁵ Federal Emergency Management Agency (FEMA) (2024). [Funding Nature-Based Solutions](#)

⁴⁶ Business for Nature (2024 July). [Recommendations to governments: The policies, legislation, regulation and incentives needed to create a nature-positive economy](#). p.15 and World Economic Forum (2024 June) CEO Briefing - [Financing the Nature-Positive Transition: Understanding the Role of Banks, Investors and Insurers](#). p.5.

⁴⁷ Center for Global Commons (2023 December). A discussion paper [Financing nature: a transformative action agenda](#). pp. 36-37.

⁴⁸ Finance for Biodiversity Foundation (2024 April). [Aligning Financial Flows with the Global Biodiversity Framework: Translating Ambition into Implementation](#). p.9.

⁴⁹ Task Force on Nature-Related Financial Disclosures (TNFD) (2023 August). [Findings of a high-level scoping study exploring the case for a global nature-related public data facility](#)

⁵⁰ The Nature Positive Initiative (2023). [The Definition of Nature Positive](#)

⁵¹ The International Union for Conservation of Nature (IUCN) (2023). [Nature positive for business: Developing a common approach](#)

⁵² Science Based Targets Network (SBTN) (2023). [SBTN Glossary of Terms](#)

⁵³ World Wildlife Fund (WWF) (2023). [Why we need a nature positive future for the ocean](#)

⁵⁴ Taskforce on Nature Related Financial Disclosures (TNFD) (2023 September). [Recommendations of the Taskforce on Nature-related Financial Disclosures](#)

⁵⁵ Cambridge Institute of Sustainability Leadership (CISL) (2022). [Nature based solutions for the finance sector](#)

⁵⁶ Business for Nature (2022). [How business and finance can contribute to a nature positive future now](#)

⁵⁷ Joint Nature Conservation Committee (JNCC) (2022). [Nature positive 2023](#)

(by 2030), leading to enhancements in the state of nature by 2050. However, there are open questions regarding the suitability of ‘nature-positive’ as a goal towards which corporates or financial institutions should seek to align business activities and portfolios, or as a yardstick to assess alignment with the goals of the GBF.

Delivering the transition from today’s highly impactful economy to one that results in improvements in the state of nature will require significant enhancements in resource efficiency, implementation of new innovative technologies, and shifts in the underlying valuation of ecosystem services. **However, at present, there is no consensus on what the dynamics of a transition towards nature-positive outcomes should look like in different sectors and markets – nor is there a clear understanding of where different financial institutions should focus their actions, in terms of sectors, ecosystems, or specific GBF goals and targets.** Nature-related transitions will differ significantly depending on a firm’s business model, local market context, and its dependencies and impacts; some initiatives have offered perspectives on the types of priority sectors or sensitive locations that may be most important from a nature perspective⁵⁸. Nature-related activities in different sectors and markets will require different combinations of financial products and services, meaning that ‘what good looks like’ in terms of strategic alignment and capital allocation will vary between financial institutions, depending on their business models and active markets.

Additionally, as noted above, while individual actions to reduce GHG emissions or remove them from the atmosphere can be linked to the achievement of global climate goals, actions to halt and reverse nature loss cannot be measured using a single fungible metric and cannot be readily aggregated in the context of GBF goals and targets. Recognizing this, some stakeholders consider that **the concept of a nature-positive economic transition may be more suitable as a goal towards which corporate actors may contribute**, as opposed to something that can be advanced via a certifiable claim by an individual firm, or associated with a specific product.⁵⁹ Considering this aggregation challenge, there are many open questions regarding how private sector actors could meaningfully classify activities, or financial portfolios, as being ‘aligned’ with GBF goals and targets.

5.1 NATURE TRANSITION PATHWAYS

How applicable are different concepts (e.g. ‘nature positive’ transitions) and approaches (e.g. nature pathways) for corporates and financial institutions – and what would need to be in place for a pathway-based model to be actionable?

In the climate sphere, sectoral transition pathways – which set out the range of actions required from different economic actors for sustainability-related goals to be achieved – serve as a key link to connect private sector action with national policies and global goals. **However, the direct transposition of a climate-based model of sectoral pathway development, aggregation, and monitoring may prove highly complex to meaningfully implement at present**, considering the gaps and barriers described above, and the open questions on how to address issues of non-fungibility, localization, and diversity of metrics and indicators.

⁵⁸ See for example, Business for Nature (2024 February). [Sector Actions Towards a Nature-Positive Future: Supplementary Resource on GBF and SDG Mapping](#)

⁵⁹ This issue is addressed in a recent paper by Booth et al. (2024) [Operationalizing transformative change for business in the context of Nature Positive](#), who observe that ‘emerging definitions and principles outlined above suggest that an individual company or product cannot claim to be Nature Positive itself but rather can contribute toward a global Nature Positive goal (...) because nature recovery on a global scale requires actions and outcomes both within and beyond the contemporary attributable footprint of an individual company’s value chain.’

For a pathway-based model for nature to be applied in a similar way net zero pathways, a **unified view on the types of actions needed to halt and reverse nature loss across different geographies and sectors would need to be in place**, which could be used to downscale global-level shifts into integrated national-level pathways:

- As a foundation, a core set of **globally oriented, science-based expectations** for the types of economic transitions needed to achieve the goals of the GBF would need to be developed by a single intergovernmental authority (in this case, IPBES), with regular updating and revision to reflect the state of nature and account for relationships between nature and climate change.
- On this basis, governments would **develop national-level nature transition strategies** with detailed and time-bound pathways, which would provide insights on the types of sectoral changes needed in different ecosystems or bioregions. These would need to both reflect the unique characteristics of natural capital within a jurisdiction, as well as economic and social conditions.
- Over time, **corporates' actions in line with nature pathways** could be assessed together at the economy-wide level, and integrated with data on geographic transitions, to inform the assessment of progress towards national policy goals, in line with GBF goals and targets.

To be meaningful, **nature transition pathways would need to be developed nationally and provide an integrated view on society's dependencies and impacts on nature, bridging both geographic and economic dimensions – and linking conservation and restoration goals with economic activities needed to achieve them.** This could involve information on several key topics:

- i) Changes needed to reduce impacts on nature resulting from existing economic activities (e.g. actions to reduce consumption or mitigate pollution, or while retaining the overall business model of an activity);
- ii) Changes needed to transform business models towards lower-impact models (e.g. introduction of new technologies to enhance the efficiency of the use of natural capital);
- iii) Factors that affect the distribution of economic activities (e.g. introduction of new conservation-related policy measures).

Detailed information on how technologies and processes will need to change can maximize the business relevance of national pathways. Pathways would ideally contain information on the expectations for how technology mixes or business activities will shift, and over what timeframes, in order to enable economic actors to anticipate when investments, purchasing decisions, and supply chain changes need to be delivered. In the climate sphere, some governments have begun to provide detailed pathways with information on expectations for technology change, such as Japan's Pathways for Green Transformation.⁶⁰

Different types of economic activity in support of nature – from reducing impacts through restoration – should 'count' as contributions. It may be necessary to conceive of nature-related activities across a spectrum, in line with the concept of a mitigation hierarchy to prioritize action to address nature loss – recognizing that there are practical factors that impose limits on the potential for certain types of economic activities to meaningfully 'transition'. Efforts to formulate views on nature-related transitions will need to contend with the reality that some economic activities may never be able

⁶⁰ Japan's Cabinet Secretariat; Financial Services Agency; Ministry of Finance; Ministry of Economy, Trade and Industry; Ministry of the Environment (2023 November). [Climate Transition Bond Framework](#)

to fully align with the goals of a ‘nature-positive’ economy, or reach a point of ‘nature neutrality’, in the absence of compensatory activities. In sectors or geographies where there is a lack of alternatives that could be pursued that could enable a full, near-term shift towards a ‘nature positive’ model, action to reduce negative impacts to the greatest extent possible should be considered as making a positive contribution towards nature-related goals.

To ensure alignment amongst stakeholders, efforts to formulate transition pathways should seek to clarify how different types of compensatory activities should be considered.

From a geographic perspective, transition pathways should also provide insights on the relative ‘natural value’ of different ecosystems, including intact ecosystems where human intervention has been limited, to limit the potential that reductions of impacts associated with economic activities in a given geographic area to lead to an increase of such impacts in another area.

As progress towards the development of nature pathways advances, a number of options could be considered as a near-term way forward:

- **Mandating the location of economic activities and introducing new standards:** Governments could set clear mandates to limit the incursion of economic activities in areas of special natural significance, for instance, intact ecosystems where human intervention has been limited, or in areas of high biodiversity value. The delineation of these areas could leverage analysis undertaken at national or global levels (e.g. by IPBES or conservation organizations). Should no alternatives be available, standards could be designed to limit negative impacts on the basis of the mitigation hierarchy. Of course, such an approach would require provisions to manage significant or undue impacts on key sectors, or national economic competitiveness – and in the case of emerging market countries with globally significant ecosystems under their jurisdiction, intergovernmental financing mechanisms would likely be required.
- **Developing high-level ‘nature roadmaps’, leveraging resources developed by market-based and civil-society initiatives:** Governments could leverage the work of different initiatives seeking to scope out nature transition pathways in different sectors, such as BFN’s sector actions for a nature-positive future⁶¹ and WWF-UK’s work on national nature-positive pathways.⁶² These types of resources provide useful insights on the dynamics of nature-related transitions in different sectors, and ways in which corporates could begin to develop nature-related transition strategies. They also illustrate the issues associated with developing a meaningful view on pathways that reflect geographic and sectoral specificities – and attest to the challenge of formulating pathways that could be used to benchmark companies’ progress towards GBF goals in a comparable manner (similar to emissions-based pathways for climate). However, contributions such as these could help to assess ways in which a pathway-based approach could be made actionable.

5.2 EFFORTS TO SCALE UP NATURE-RELATED FINANCE

How should financial institutions conceptualize how they are scaling up nature-related finance, and what is the role for classification and tracking approaches?

Achieving the goals of the GBF will necessitate large-scale capital investments across sectors and require the use of diverse channels and instruments. As flows of finance for nature

⁶¹ Business for Nature (2024 February). [Sector Actions Towards a Nature-Positive Future: Supplementary Resource on GBF and SDG Mapping](#)

⁶² World Wildlife Fund - United Kingdom (WWF-UK) (2024 October). [National Nature-positive pathways to guide policy and private sector action](#)

have grown, and understanding of nature financing needs has deepened, there has been increasing interest amongst stakeholder groups in how private financial institutions are scaling up nature-related finance – with an array of definitions and frameworks being proposed.

Multiple initiatives have undertaken work to develop frameworks for classifying nature-related finance, in the context of the goals of the GBF. Frameworks for classifying nature-related finance released to date include the IDB Options for Considering Nature-positive Finance Tracking and Taxonomy⁶³ (IDB 2022); MDB Common Principles for Tracking Nature-Positive Finance⁶⁴ (MDBs 2023); the IFC Biodiversity Finance Reference Guide⁶⁵ (IFC 2023); and most recently, the FfB/UNEP-FI Report Finance for Nature Positive: Building a Working Model⁶⁶ (FfB/UNEP-FI 2024). At COP16, other frameworks, including for nature-related transition planning (from the TNFD) and for the consideration of nature in the context of climate transition plans (from GFANZ), may provide additional perspectives on different types of financing strategies that could be considered as relevant to nature. In parallel, some financial institutions are considering how to develop their own classification approaches for nature-related financial products and services, from both top-down (portfolio-level) and bottom-up (instrument-level) views.

However, **while establishing a common understanding and level of transparency regarding nature-related finance could support the monitoring of GBF goals and targets, the complexity of such an exercise presents an array of challenges and raises questions regarding benefits and costs.** There may be benefits for market participants and other stakeholders that will result from more transparency on how financial institutions' capital allocation may support nature-related goals. Nonetheless, experience in the climate sphere illustrates that efforts to classify financial flows are not without challenges, and may lead to costs, risks, and potentially unintended consequences. There is some concern amongst financial institutions that some proposals for classifying nature-related finance advanced to date are complex, will be difficult to implement, and may not be fully reflective of how different types of financial institutions are most likely to make a positive contribution towards nature-related goals.

A review of resources published to date, summarized in Box 2 below, indicates that there are a number of common elements emerging across proposed classification frameworks – in terms of overarching goals and concepts – which provide a foundation for firms to begin thinking about how to assess the relationships of capital allocation activities to nature. Key differences – including approaches to classifying economic activities, overlapping views on how finance should be categorized, intended applications, and need for subjective judgment – may affect the relevance of frameworks for private financial institutions, in terms of their applicability for business decision-making. The promulgation of multiple sets of guidance for similar activities may also result in overlap and fragmentation. Reputational risks stemming from the perceived misclassification of nature-related finance resulting from the presence of multiple frameworks in place (without clear alignment) could potentially disincentivize efforts to scale up capital in support of nature-related goals.

Box 2: Comparing frameworks and proposals for classifying nature-related finance

Scope of nature positive activities: Frameworks vary in how they consider different economic activities in the context of nature-related goals. For instance, The (MDBs 2023) definition of nature-

⁶³ Inter-American Development Bank (IDB) (2022 November). [Options for Considering Nature-positive Finance Tracking and Taxonomy](#). Technical Note no. IDB-TN-02566 prepared by Trinomics and the CPI.

⁶⁴ Multilateral Development Banks (MDB) (2023). [MDB Common Principles for tracking nature-positive finance](#)

⁶⁵ International Finance Corporation (IFC) (2023 May) [Biodiversity Finance Reference Guide](#)

⁶⁶ United Nations Environment Programme Finance Initiative (UNEP FI) and the Finance for Biodiversity Foundation. (2024). [Finance for Nature Positive: Building a Working Model](#)

positive finance, focuses primarily on investments that have clear, measurable outcomes for biodiversity, such as the protection, restoration, or sustainable use of ecosystems.⁶⁷ The (IFC 2023) framework takes a broader view, covering both primary investments in conservation and those with biodiversity co-benefits – implying that activities that contribute to biodiversity, even if they are not directly focused on conservation, can still be classified as biodiversity finance.⁶⁸ The (FfB, UNEP FI 2024) framework expands the scope by offering a model that integrates broader financial practices and encourages financial institutions to play a more active role in reducing harmful financial flows.⁶⁹ When developing a definition of nature-positive investments, the (FfB, UNEP FI 2024) framework emphasizes the importance of aligning with global biodiversity goals, delivering measurable positive outcomes for nature, avoiding significant harm, considering biodiversity loss drivers, and focusing on sensitive locations. The (IDB 2022) framework highlights the need to incorporate concepts like ecosystem integrity, distinguish between nature-positive and safeguard activities, and ensure alignment with broader frameworks such as the Global Biodiversity Framework.

Links to Taxonomies and frameworks: Frameworks reference a broad array of different market-based and official sector frameworks relevant to nature, including product standards, national-level sustainability taxonomies, as well as offerings from NGOs and multilaterals, as a basis for classifying nature-related economic activities and financial instruments. (FfB, UNEPFI 2024) references taxonomies like the BIOFIN Global Biodiversity Expenditures Taxonomy, GIIN, and national taxonomies from Singapore, China, Brazil, the EU, as well as an array of market-based frameworks and guidance (including ICMA Green Bonds Principles, ICMA guidance relating to blue finance). The (IFC 2023) framework references the Green Bond Principles, Green Loan Principles, and the Kunming-Montreal Global Biodiversity Framework. The (IDB 2022) framework references the EU Taxonomy, the Global Biodiversity Framework, the Common Principles for Climate Adaptation Finance Tracking, and methodologies like the OECD DAC Rio markers and BIOFIN. The (MDBs 2023) framework draws on taxonomies and frameworks from the IUCN, TNFD, OECD, and the EU Sustainable Finance Taxonomy.

Intended applications and users: Frameworks vary in their intended user groups. (IDB 2022) targets both public and private institutions, offering an array of tools for tracking, scoring, and reporting nature-positive investments. (IFC 2023) provides a strategic view for policymakers and financial institutions to guide the development of biodiversity finance taxonomies and policies. The (MDBs 2023) framework is tailored for multilateral development banks, with the aim of enabling them to track and report on nature-positive contributions, with relevance for other stakeholders like capital markets and public budget holders. (FfB, UNEP FI 2024) focuses primarily on private financial institutions like banks, asset managers, and asset owners. Although they all aim to foster nature-positive finance, the key differences lie in the depth of their tracking mechanisms, with (IDB 2022) and (MDBs 2023) frameworks providing more detailed guidance for monitoring nature-positive activities.

Screening Criteria: To assess whether a project can be considered nature-positive, the (IFC 2023) framework suggests evaluating biodiversity co-benefits, conservation and restoration efforts, incorporation of nature-based solutions, alignment with biodiversity regulations, and mechanisms for impact measurement and reporting. The (IFC 2023) framework's criteria include ensuring that investment activities and project components have clear biodiversity protection, conservation, and

⁶⁷ Multilateral Development Banks (MDB) (2023). [MDB Common Principles for tracking nature-positive finance](#) p. 2

⁶⁸ International Finance Corporation (IFC) (2023 May) [Biodiversity Finance Reference Guide](#) p. 8

⁶⁹ United Nations Environment Programme Finance Initiative (UNEP FI) and the Finance for Biodiversity Foundation. (2024). [Finance for Nature Positive: Building a Working Model](#). p.12

restoration strategies, with defined success measures. The (FfB, UNEP FI 2024) framework recommends applying a taxonomy to identify qualifying activities, screening for risks that may harm biodiversity, and ensuring measurable positive outcomes, benchmarked against business-as-usual scenarios and aligned with the Global Biodiversity Framework. The (MDBS 2023) framework focuses on selecting projects that protect, restore, or enhance sustainable nature use, ensuring they meet three eligibility criteria: making a substantive contribution to nature, having measurable positive outcomes, and avoiding significant adverse environmental impacts.

Measurement approaches: The (FfB, UNEP FI 2024) framework proposes a measurement approach using a dashboard of diverse indicators aligned with established initiatives like TNFD and IUCN to monitor, verify, and report on nature-positive contributions. The (IFC 2023) framework emphasizes gathering data for impact reporting, defining impact indicators with stakeholders, and using site-specific and third-party verified indicators. The (MDBs 2023) framework suggests comparing expected intervention outcomes to baseline states at relevant spatial scales. The (IDB 2022) framework proposes using a scoring system, applying coefficients to project components, and using both qualitative and quantitative methods to assess ecosystem integrity contributions.

Tracking and reporting: To track and report nature-positive finance, the (IFC 2023) framework suggests gathering data for impact reporting, defining impact indicators with stakeholders, using certification systems or ICMA Handbook indicators, developing site-specific indicators, and ensuring biodiversity and social impact reporting with potential third-party verification. The (MDBS 2023) framework recommends conducting ex-ante tracking of expected contributions, avoiding double counting by tracking direct financial commitments, using a conservative assessment approach, ensuring detailed identification of qualifying finance, and separately tracking overlapping climate and nature-positive finance. The (FfB, UNEP FI 2024) framework advises financial institutions to create a dashboard of diverse indicators for monitoring, verification, and reporting (MRV), ensuring traceability of funds and alignment with frameworks like TNFD and IUCN's Measuring Nature Positive.

Double counting: The (IDB 2022) framework highlights the issue of double counting when nature-positive finance overlaps with climate finance, recommending that projects delivering co-benefits be tracked separately to prevent overreporting. The (IFC 2023) framework addresses double accounting by emphasizing the need for clear guidelines, transparency in reporting, and the use of standardized methodologies, along with coordination among entities to avoid counting the same environmental benefits multiple times. The (MDBS 2023) framework suggests tracking overlapping nature-positive and climate finance flows separately and transparently tagging projects that qualify for both categories to ensure accuracy in reporting.

Expectations for private financial institutions: Under the (FfB, UNEP FI 2024) framework, financial institutions are expected to develop and implement strategies that align with the GBF, avoid financing activities harmful to nature, engage with companies to phase out negative impacts, set reduction targets for impact drivers, support biodiversity conservation and restoration efforts, and ensure the traceability of funds while monitoring positive outcomes. According to the (IFC 2023) framework, financial institutions should establish a biodiversity finance framework with clear distinctions for biodiversity-related activities, obtain independent third-party reviews where possible, ensure compliance with biodiversity regulations, and implement robust impact measurement and reporting systems to track the effectiveness of their biodiversity finance initiatives.

A clear high-level view on nature finance classification may help to provide transparency and avoid misaligned expectations. Considering the complexity and diversity of actions to address nature loss and progress nature-related transitions, it is understandable that frameworks proposed to date for classifying nature-related finance vary significantly. As some recently released and forthcoming frameworks have not yet been ‘market-tested’ by financial institutions, it remains to be seen whether these proposals are relevant and helpful from a strategic and operational perspective – in terms of how financial institutions consider nature within existing sustainable finance frameworks or apply existing market-based standards to structure nature-related financial products.

It may be helpful to take a broader perspective to classify how corporate actions contribute towards different nature-related goals, and how financial institutions are supporting these actions through their business activities and capital allocation. A higher-level, harmonized approach could help reduce the complexity and operational burden of maintaining alignment with nature-related goals, and hopefully could help enable a basis for alignment of expectations. Key principles encapsulated within the GBF – including the ‘mitigation hierarchy’ – could help orient corporate actions, and by extension, inform expectations for financial institutions’ strategies and activities. A high-level framework for assessing financial institutions’ nature-related capital allocation could hypothetically be based on two pillars:

- **Supporting nature conservation and restoration:** financial products, services, markets underwriting, and other business activities that specifically enable the conservation and restoration of nature.
- **Supporting economic contributions towards nature-related goals:** financial products, services, markets underwriting, and other business activities that broadly contribute towards the avoidance and minimization of negative impacts on nature, and other activities undertaken by economic actors to enhance the state of nature.

Other business activities that financial institutions undertake to **support system-level changes** in line with nature-related goals – such as client advisory, shareholder engagement, and policy advocacy – can have an important role in helping to catalyze change. However, as such activities are often diffuse, and hard to link concretely to economic outcomes, integration into a quantitative classification framework may be challenging.

For nature-related finance classification to be meaningful and robust, several key issues in the broader ecosystem of private sector action (and measurement of that action) will need to be resolved. These stand as key priorities for public-private collaboration.

- **There would need to be clarity on the approach taken by governments to implement their high-level nature-related commitments in order to guide private sector action.** As discussed at the start of this section, policies and enabling conditions will be essential for real economy companies to pursue nature-related activities that are commercially viable.
- **Methodologies and data for measuring corporate contributions towards nature-related goals will need to be developed and market-tested.** The current lack of agreement on a common set of approaches and methodologies complicates efforts to measure and monitor finance in support of nature-related transitions; this issue is compounded by data gaps.⁷⁰ For instance, there are

⁷⁰ As the TNFD notes, ‘there is currently no consensus or established methodology for measuring ‘contributions to nature positive outcomes’ by a business or financial institution’. See TNFD (2024 June). [Additional guidance for financial institutions, Version 2.0](#)

many open questions on what models of biodiversity accounting might be most appropriate for measuring positive contributions to nature-related outcomes. A stock-based approach (e.g. taking a point-in-time measurement of the level of biodiversity in a given area, accounting for natural variations) could be undertaken to assess the impacts of changes in economic activities between two given points in time; alternatively, a more forward-looking view could examine the potential future impacts of economic activities (positive or negative) over the lifetime of a product, or an economic asset.⁷¹ Timely clarification of what types of approaches may be suitable for assessing the positive contributions of economic activities (either through abatement of negative impacts, or efforts to enhance the state of nature) could support financial institutions' ability to evaluate the strategies of their clients.

- **A high-level alignment on ‘what counts’ is of paramount importance to ensure that confusion doesn’t arise.** Considering that there are open questions regarding the feasibility for all economic sectors to meaningfully and successfully deliver actions across levels of the mitigation hierarchy (including restoration and offsetting) and that such may not be universally implementable across markets, it is important to recognize that activities which contribute toward nature-related goals may range across a spectrum of impact – and that all progress should be recognized as in line with GBF goals and targets. Recognizing this, it is important to positively consider the progress made across the first stages of the mitigation hierarchy. More broadly, while establishing a common understanding of nature-related outcomes is important, **the provision of definitions and measurements will not drive capital allocation by private financial institutions alone.** Indeed, key economic factors – including supply and demand dynamics, which are significantly influenced by government policy – will affect the degree to which nature-related economic activities are commercially viable, and therefore investable.
- **To enable nature-positive finance to scale, frameworks should enable firms to ‘learn by doing’ and provide flexibility to develop and adapt their approaches over time.** Priorities for future work in this regard include: resolving questions on approaches to integrating nature-related considerations into financial models; capacity building; managing costs associated with the implementation of new measurement and reporting systems; current levels of maturity of sustainability-linked products; difficulties associated with outcome measurements (particularly in the case of general-purpose financing), and challenges associated with performing due diligence.

Box 3: Nature-related Markets and Instruments

Nature finance needs are significant – and could present major economic opportunities.

Nature-positive economic alternatives could unlock \$10 trillion⁷² in opportunities. Current financing for NbS, estimated at \$200 billion annually, must nearly triple to \$542 billion by 2030 and quadruple to \$737 billion by 2050 to meet global targets.⁷³ Restoration-focused NbS will demand over \$177 billion annually by 2030 due to widespread ecosystem degradation. Scaling up capital for EMDEs is a critical priority. Currently, most nature finance remains concentrated in advanced economies, while EMDEs, despite facing the greatest biodiversity loss and 60% debt distress,⁷⁴ continue to be underfunded.

⁷¹ This framing draws on insights from Joshua Berger on biodiversity accounting, and CDC Biodiversité (2024). [Global Biodiversity Score: Accounting for Positive and Negative Impacts throughout the Value Chain.](#)

⁷² Center for Global Commons (2023 December). A discussion paper [Financing nature: a transformative action agenda.](#) p.5

⁷³ United Nations Environment Programme Finance Initiative (UNEP-FI). (2023). [State of Finance for Nature 2023: The Big Nature Turnaround - Repurposing \\$7 Trillion to Combat Nature Loss.](#)

⁷⁴ Center for Global Commons (2023 December). A discussion paper [Financing nature: a transformative action agenda.](#) p.8

Mobilizing capital for nature requires leveraging diverse channels and instruments, including capital markets vehicles like debt and equity instruments, nature markets such as carbon and biodiversity credits, and innovative financial approaches that blend public and private financing⁷⁵. Capital markets vehicles, including debt instruments like Sustainability-Linked Bonds (SLBs) and Loans (SLLs) which offer flexibility by linking financing to sustainability targets, are driving the market expansion and promoting nature-positive investments.⁷⁶ Equity investments in ESG-focused companies are also gaining momentum, with thematic private equity funds, venture capital, and ETFs supporting biodiversity and sustainability, providing crucial capital for green technologies and sustainable businesses.⁷⁷ However, it is important to note that not all nature-related finance may be labeled as such; a significant amount of the capital needed to enable the transition of high-impact sectors may be provided through general-purpose financing vehicles.

Environmental market instruments, including carbon and biodiversity credits, are crucial for nature-positive investments. Carbon credits enable companies to offset emissions by funding reforestation and renewable energy, supporting both carbon reduction and biodiversity conservation. The global carbon market reached approximately \$950 billion in 2023, marking a 2% increase from the previous year.⁷⁸ Despite past issues related to quality assurance and greenwashing in voluntary markets, carbon markets remain an essential tool for achieving climate mitigation goals; global standards for market integrity developed by the Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Market Initiative (VCMI) are considering dimensions of how VCM projects may interact with nature, and how such credits should be considered in the context of private sector climate action. **Biodiversity credits**, though still in development, offer a promising financial tool for incentivizing the protection and restoration of ecosystems. With frameworks in place in at least 115 countries,⁷⁹ biodiversity credit markets have the potential to grow by 100-fold this decade,⁸⁰ and drive investment in natural capital, provided that clear methodologies and regulatory frameworks are established.⁸¹ Some countries, such as Colombia, are working to support the development of methodologies and standards for biodiversity credit markets.

Markets for biodiversity credits, which are currently at a nascent stage, could potentially offer a new channel to leveraging private sector financing to protect and restore nature – provided that they develop with integrity. Integrity concerns – including with respect to credit structuring mechanisms, delineation of baselines, assessing impacts, and monitoring – are currently a barrier to financial institution engagement. Environmental regulations and courts have started holding users of carbon and nature credits to a high level of accountability, regardless of the thorough due diligence conducted by companies to mitigate risks in the short to mid-term. Given that the impacts on communities and ecosystems may take 10-15 years to fully materialize, the absence of legal certainty for users, combined with court rulings that overlook the best efforts made by buyers and users, could hinder the market’s ability to scale. Addressing critical design challenges, such as credible measurement and monitoring, scaling sustained demand, ensuring a high integrity supply, securing equitable distribution of rewards, and maintaining robust governance, is essential for the effective

⁷⁵ For an overview of nature-related financial instruments, see Table 1 in UBS (2024) [Bloom or Bust: How aligning technology and finance can help address biodiversity challenges](#).

⁷⁶ See for example S&P Global (2024 February). [Sustainability Insights Research: Latin American Bond Issuance to Rise In 2024](#)

⁷⁷ World Wildlife Fund - France (WWF France), AXA. (2019). [Into the Wild: integrating nature into investment strategies](#). p.24

⁷⁸ Reuters (2024 February). [LSEG - Global carbon markets value](#)

⁷⁹ The International Union for Conservation of Nature (IUCN) (2019). [World View - A Snapshot of National Biodiversity Offset Policies](#)

⁸⁰ World Economic Forum (WEF). (2023 December). [Biodiversity Credits: Demand Analysis and Market Outlook](#)

⁸¹ Center for Global Commons (2023 December). A discussion paper [Financing nature: a transformative action agenda](#). p.13

growth of biodiversity credit markets.⁸² Initiatives on nature credits, including the Biodiversity Credit Alliance, are working to establish global standards to ensure their credibility and prevent greenwashing.

Innovative financial approaches, such as blended finance and debt-for-nature swaps, play a critical role in mobilizing capital for nature-positive projects. Blended finance can help to de-risk investments by using public funds to attract private capital, especially in high-risk sectors, while debt-for-nature swaps enable developing countries to reduce debt in return for environmental conservation commitments.

6. THE ROLE OF PRIVATE FINANCIAL INSTITUTIONS

What initial insights are arising from financial institutions' activities to date, in the areas of nature-related risk management and business strategy?

The financial sector's broad engagement across the economy means that banks, investors, and insurers have a key role to play in contributing to efforts to ensure that ecosystem services and natural capital are maintained and utilized in a sustainable manner, in line with the goals of the GBF. The financial sector is not as directly reliant upon nature as an input as other sectors are for generating profit. However, financial institutions are indirectly reliant on the contributions of ecosystem services to the business activities of their clients, counterparties, and investees, particularly in sectors such as agriculture, food, and other nature-dependent industries. The retail segment may also be greatly impacted by natural and climate physical risks. It is evident that the long-term success of the financial sector is contingent upon the continued provision of ecosystem services, which enable the economy to function smoothly and underlie the growth and profitability of non-financial corporates.

Different types of financial institutions have distinct capacities to support clients' activities in pursuit of nature-related goals. The specific set of financial services relevant for sustainability-related transition activities in the economy varies by sector, along value chains, and across different markets.⁸³ As such, while there are some common priorities that may be relevant for all financial institutions, a given nature-related financial activity may be more or less relevant, depending on a financial institution's business model, and the business models and geographic locations of its clients. For example, financial institutions may differ in how they engage with their clients, with some engaging directly and others generally engaging through intermediaries or brokers. Additionally, the way engagement approaches are implemented can vary across asset classes; for instance, direct or majority equity ownership enables more influence; strategies and engagement mechanisms will differ for public debt, private equity/credit, or insurance.

Recognizing that the concepts, definitions, and approaches for nature-related finance differ from approaches for the management of nature-related risks, it is important to avoid the conflation of these distinct, but related processes. Within financial institutions, risk management involves a number of approaches to identify, assess, monitor, and manage financial risks that may result from nature-related phenomena; considering that financial institutions are not directly exposed to such risks through their operations or business activities, the majority of these risk exposures

⁸² Nature Finance. (2023 June). [Harnessing Biodiversity Credits for People and Planet](#). p.6

⁸³ Institute of International Finance (IIF) (2023 October). [The Role of The Financial Sector in the Net Zero Transition: Assessing Implications for Policy, Supervision and Market Frameworks](#)

are indirect (e.g. via portfolio allocations across the economy). Nature-related risks may therefore have varying levels of materiality for different types of financial institutions and may not have a first-order impact on financial risks. To date, nature-related risk management processes have often been focused on reputational risks through policy prohibitions and enhanced sector or topic reviews (see section 6.1). Risk management processes should not be conflated with the firm’s impact on nature, which pertains to how business activities contribute to either negative or positive nature-related outcomes in the economy, via commercial exposures across sectors. However, it’s important to recognize the feedback loop between the two: the impacts a firm has on nature can also influence nature-related risks. These impacts can be considered as transition risks, with dependencies being physical risks, and there are potential transmission channels between the two.

Furthermore, it is important to recognize that risk management activities may not necessarily result in actions that impact nature-related goals – and vice-versa, actions to support positive nature-related outcomes may not necessarily reduce risks to financial institutions. As has been illustrated in the climate sphere, actions to achieve positive impacts on environmental outcomes have not been proven to have a clear relationship to reductions in financial risks, nor vice-versa.⁸⁴ There may be instances where a corporate’s negative impact on nature may not immediately result in risks crystallizing, due to the policy landscape and market dynamics. As is the case with climate, it is not clear that actions taken by financial institutions to reduce nature-related risk exposures at the portfolio level will necessarily lead to positive impacts on economic outcomes.⁸⁵ The nature sphere faces an additional burden of complexity stemming from the localized nature of ecosystem impacts, and potential for the migration of highly impactful activities across geographies. This issue is especially important to consider in relation to nature-related metrics for financial institutions, disclosures, and the potential use cases for this information by different stakeholder groups.⁸⁶

Much of the thinking on how financial institutions should approach nature-related priorities is based on the body of approaches, frameworks, and tools that have been developed in the climate risk and net zero transition sphere. Experience in the climate sphere is a logical place to begin thinking about how progress can be made on the achievement of global-level sustainability goals. **However, there are important conceptual and scientific differences between the climate and nature spheres which complicate efforts to apply the same tools.** These are summarized in Table 1.

Key Factors	Climate	Nature
Links between economic	Primary global carbon sinks (e.g. the atmosphere and oceans) are common resources. Economic activities which create GHG	Nature is a global public good that society tangibly interacts with; however, natural resources (e.g. land areas) may be owned or managed by public or

⁸⁴ For further discussion of these relationships, see Section 2.3 of Institute of International Finance (IIF) (2023 October). [The Role of The Financial Sector in the Net Zero Transition: Assessing Implications for Policy, Supervision and Market Frameworks](#)

⁸⁵ For further discussion on relationships between financial sector actions and real economy outcomes, see Institute of International Finance (IIF) (2024 September). IIF Staff Paper: [Resetting the debate on the role of private finance in the net zero transition](#).

⁸⁶ For example, in the context of climate, there is a build consensus that metrics based financed emissions may not be appropriate as proxies for risk. Institute of International Finance (IIF) (2023 October). [The Role of The Financial Sector in the Net Zero Transition: Assessing Implications for Policy, Supervision and Market Frameworks](#) .

<p>activities and global goals</p>	<p>emissions are (at least in theory) traceable to individual firms or activities. Economic actors have a range of opportunities to reduce GHG emissions, depending on cost-based and technological barriers and constraints. There is a comparatively clear relationship between action taken by economic actors and progress towards global climate mitigation goals, considering that emissions (as measured in terms of CO₂e) can be considered fungible.</p>	<p>private stakeholders. In some countries, various levels of government own the natural resources and manage economic activities which may use natural resources, through policy, regulations, and permitting. Economic actors may have varying degrees of capacity to reduce negative impacts on nature, depending on their business models. Nature-related impacts associated with economic activities are highly localized and vary in significance depending on a variety of contextual factors. Actions to address nature-related risks, reduce impacts, or protect or restore nature are as such not fungible, complicating the process of concretely linking actions taken by economic actors to global nature-related goals and targets.</p>
<p>Policy architecture: Relationships between global goals and national-level policies</p>	<p>There is a more established and comprehensive policy framework for climate-related considerations, with consensus on a global goal with comparatively clear implications for economic transformation, and well-defined pathways supported by international agreements.</p>	<p>The GBF provides a set of goals and targets but lacks a single, unifying global goal with a clear indicator that is relevant for all economic actors (similar to GHG emissions). The development of clear and consistent national-level policies (NBSAPs) is at an earlier stage. Furthermore, not all countries are CBD parties.</p>
<p>Reliability and comparability of metrics, suitability of metrics for different use cases</p>	<p>Scope 1 and 2 GHG emissions have become well-established measures of climate impact, although the availability and quality of emissions data is still imperfect. Measurement of climate-related financial risks is still being developed. There is recognition building that emissions-based metrics (such as financed emissions) do not serve as an accurate proxy for financial risks.⁸⁷</p>	<p>Nature-related impacts (e.g., biodiversity loss, water pollution) are diverse and context-specific, making standardization difficult. Some stakeholders argue that nature and biodiversity value is measurable using a broad array of metrics and methodologies; however, the decision-usefulness of this information (and feasibility of such analysis) is not yet proven.</p>
<p>Potential to undertake</p>	<p>Climate scenario analysis is becoming more established, with</p>	<p>Scenario analysis for nature-related risks is at an early stage, complicated by the</p>

⁸⁷ For an analysis of issues associated with emission-based metrics, see Institute of International Finance (IIF) and WTW (2023) [Emissions Impossible: Quantifying Financial Risks Associated with the Net Zero Transition](#).

<p>forward-looking analysis (e.g. scenario analysis)</p>	<p>standardized pathways and scenarios available for assessing risks (e.g., IPCC and NGFS scenarios). However, it is still a complex exercise in which modelling can have a range of objectives and use different modelling assumptions and data.</p>	<p>complexities of ecosystems, localized nature of impacts, lack of standardized scenario sets, and other factors. Further, efforts to meaningfully model interactions between climate change and nature loss are highly complex and may require granular and bespoke scenarios for different sectors or ecosystems.</p>
<p>Integration into financial institutions' internal processes</p>	<p>Given the work over the past several years to develop a conceptual understanding of the potential financial risks and opportunities associated with climate, and the growing availability of data and metrics, many FIs have been able to establish some practices for integrating climate risks into financial decisions and reporting, but capacity building is ongoing, and approaches continue to mature and evolve with growing experience and evidence.</p>	<p>At this time, integrating nature-related considerations can be even more challenging compared to climate due to the nascent state of conceptual understanding, data, and methodologies. There is a significant need for capacity building.</p>
<p>Dependence on External/Third-Party Data from Real Economy Companies</p>	<p>Climate disclosure is increasingly widespread in certain but not all markets, with progress towards the implementation of global climate disclosure standards (e.g., IFRS S2). However, there is fragmentation in requirements across jurisdictions, and gaps and inconsistencies in data disclosed by corporates persist. For this reason, many financial institutions still refer to data from third parties (including proxies).</p>	<p>At present, considering gaps in data disclosed by corporates, financial institutions have to rely heavily on data from third parties to assess nature-related impacts and dependencies—which can be costly, can lack transparency, and adds complexity. External data is often fragmented, outdated and needs to be collected from various sources leading to challenges in data accuracy and availability.</p>
<p><i>Source: IIF, 2024.</i></p>		

As described above, conceptual and scientific differences between the climate and nature spheres affect the transferability of approaches being proposed for financial institution uptake. Nature and climate, while interconnected, exhibit distinct characteristics that complicate adapting the approaches from the climate sphere into the nature sphere in terms of strategy, risk management, and metrics. From a strategic perspective, nature-related activities and achievement of relevant objectives will need to vary significantly across sectors and geographies. The inherent complexity

of natural systems and the highly localized nature of impacts require diverse and nuanced approaches to risk management.

Considering these factors, it is important to recognize that efforts to implement new frameworks, develop capacity, and over time fully integrate nature as a core strategic priority and risk management consideration will be complex – and may need to follow different pathways. The following sections discuss key differences and priorities for action.

6.1 RISK MANAGEMENT APPROACHES

Transaction-level diligence vs. integrating into risk frameworks

Financial institutions have been incorporating environmental and social (E&S) risk assessments into their transaction-level diligence for years, primarily from a reputational risk standpoint. There is now an ongoing shift in the way that industry and regulators are thinking about environmental risks and impacts in an effort to start thinking about integrating these risk factors to support the assessment and management of traditional financial risks (e.g., through credit assessments, portfolio assessments, stress testing, etc.) However, thinking within financial institutions around this integration is still at a very early stage and faces a number of challenges, as described in more detail below.

Ultimately, managing nature-related financial risks as a part of firms' integrated risk management framework will require a different approach from that used for climate-related financial risks due to their localized, complex, and interconnected nature. Nature-related risks are deeply tied to specific locations and ecosystems, making it challenging to aggregate them at the portfolio-level. Nature-related risk management will require more granular approaches that are capable of addressing the diversity and interconnectedness of nature-related risks. Without such tailored approaches, institutions may risk underestimating or mismanaging the complex dynamics at play in natural systems.

Metrics: Lack of a Single and/or Unifying Organizing Metric

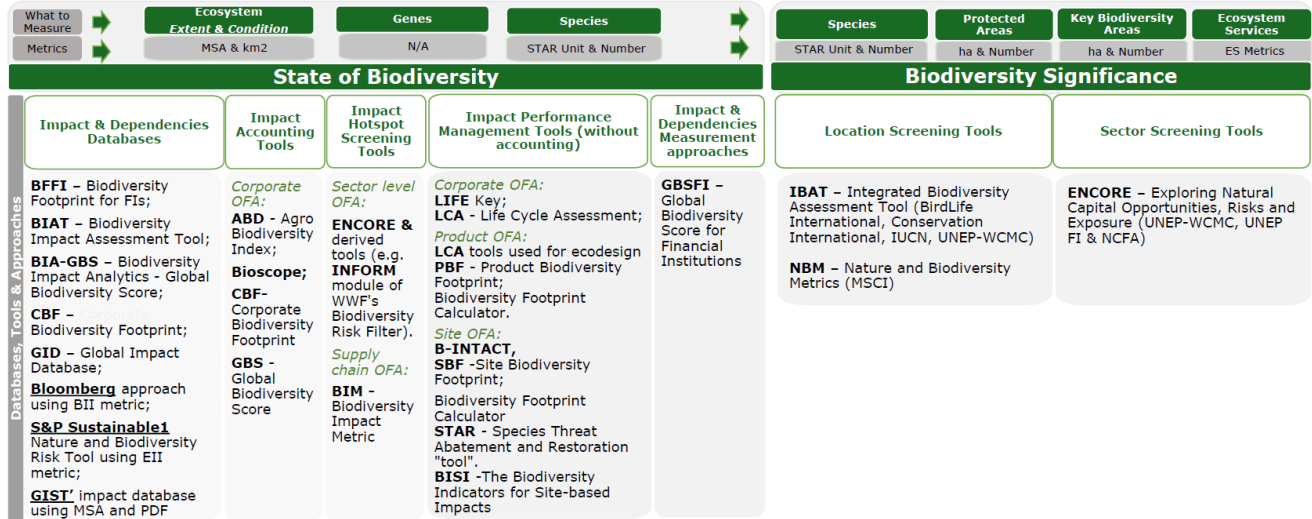
Progress towards developing a broadly agreed set of common methodologies and metrics for assessing nature-related dependencies and impacts has been ongoing, with multiple efforts underway, yet these discussions remain unresolved. (see Figure 1).

The identification of metrics for various nature-related issues and approaches for calculating and disclosing them will need significant market testing to determine if the proposed metric(s) are decision-useful, practical, and material. It is imperative to balance practicality, comparability, and complexity to produce decision-useful metrics for users and to avoid information overload in disclosures, which can ultimately render them less effective. The TNFD's global core metrics, of which 9 of the 14 are focused on impact drivers of biodiversity loss, could potentially form the basis of a standardized set of metrics for corporate over time – recognizing that not all of these metrics may be suitable for financial institutions.⁸⁸ However, given the different approaches, data, and methodologies used by different institutions, it should be expected that some issues with comparability will persist, particularly as these metrics are still nascent in their application. To help address this issue,

⁸⁸ For further information on the suitability of Taskforce on Nature Related Financial Disclosures (TNFD) guidance for financial institutions, please refer to Institute of International Finance (IIF) (2024) [Public Comment Letter on the TNFD Sector Guidance: Additional Guidance for Financial Institutions, Version 1.0](#)

action at the global level – including by the ISSB – could help harmonize views on the relevance and suitability of different nature-related metrics in the context of global sustainability reporting standards (for further discussion, see section 7).

Figure 1: Mapping Selected Metrics, Databases, Tools & Approaches in the Nature Sphere



Source: IIF, 2024.

Adapted from: [Bridging Finance And Nature](#)

In light of these challenges, it is important that financial institutions are granted a certain level of discretion in deciding when, how, and to what extent to aggregate nature-related metrics. This discretion would allow institutions to tailor their reporting to reflect the specific context and nature of their portfolios. As methodologies for calculating and aggregating nature-related metrics continue to evolve, this flexibility will enable institutions to adapt and refine their approaches over time.

The specificity of nature-related risks requires nature-related financial risk assessments to be calibrated locally, representing the specific circumstances of natural assets and their linkages with people and the economy at a micro and macro-scale. For financial institutions, the need for localized analysis means that traditional sector-level reporting may not be capable of capturing the full scope of nature-related risks. However, this shift presents significant challenges, particularly when it comes to global financial institutions aggregating data at the portfolio level and integrating nature-related risks into common risk frameworks.

Data

Data issues present some of the most significant challenges to effectively incorporating nature-related risks into financial institutions’ broader risk management frameworks. While the quality and coverage of climate-related data have improved dramatically over the past decade, enabling more sophisticated risk assessment and scenario analysis, nature-related data are diverse, profuse, unorganized, fragmented, and inconsistent. Major data gaps remain, resulting in reliance on proxy data, third-party sources of data, and estimates.

A primary challenge is obtaining detailed asset location data (e.g., locations of direct operations) **and comparable data from value chain partners** (e.g., location of supplier interactions with nature). These data are vital for identifying dependencies and impacts on nature given the location-

specific nature of the analysis, particularly within value chains (e.g., land used or changed; resources extracted; pollutants emitted and etc.), which are key to assessing nature-related risks. Obtaining data on the locations of productive assets can be more challenging. For companies to fully assess the dynamics of nature-related risks, it may be necessary to use both ‘micro’ data, which quantifies the relationship between dependence and influence within natural capital in the company’s value chain, and ‘macro’ data, which quantifies the relationship between the impairment of natural capital and indicators such as economic growth and productivity. Unlike climate data, which can often be aggregated at global or national levels, nature-related data is inherently site-specific, reflecting the unique characteristics of individual ecosystems and their interactions with local communities and economies. This site-specific nature complicates efforts to standardize data collection and reporting practices, leading to significant variability in the quality and completeness of the data available to financial institutions.

Leveraging and converting nature-related data into actionable insights for informed decision-making is an emerging frontier for financial institutions. More work is needed to understand the practical utility of certain data for different business applications. Developing internal expertise to translate data into actionable insights should help uncover the different potential use cases and benefits of nature-related data, such as gaining a competitive advantage, reducing reputational and litigation risks, making nature-resilient site selection decisions, and building resilient supply chain partnerships. Key priorities for further work include gathering ‘proof points’ to strengthen the links between natural capital, financial risks, and valuation, developing methodologies to incorporate nature-related factors as variables in macroeconomic analysis, and fostering consensus amongst public and private actors on these approaches.

Scenario Analysis

While scenario analysis is becoming a commonly used – albeit still challenging to apply and interpret⁸⁹ – tool for financial institutions and supervisory authorities to assess the potential materiality of forward-looking risks in the climate sphere,⁹⁰ the use of scenario analysis in the nature sphere is still nascent. The development of a similar framework of methodologies and data for nature-related scenario analysis is in its infancy, yet several promising efforts are underway. Designing meaningful nature-related scenarios is challenging, due to the complexities and interconnectedness of ecosystems, the absence of a single metric to measure nature-related changes and risks, the lack of clear science-based pathways for nature, and the limited substitutability of nature. Furthermore, there are important open questions on the ways in which different types of nature-related risks could crystallize as market shocks.

Given the lack of a single and/or unifying organizing metric and clear science-based pathway and objective, the development of nature-related scenarios is a challenging endeavor. While the GBF provides a set of global goals and targets, the incorporation of these into scenario analyses is still at an early stage and marred by complexity, as acknowledged by the TNFD.⁹¹ Even with a high-level normative global goal in place (encapsulated within the GBF), without a clear roadmap for how national governments plan to achieve their nature-related commitments (and the

⁸⁹ For a discussion of the current state of the art and open questions in the banking sector, see IIF/ISDA (July 2024). [Comments on BCBS Discussion paper on Climate Scenario Analysis](#).

⁹⁰ In the climate sphere, the methodological and data foundations for scenario analysis are becoming more established, with standardized scenario sets available from entities like the IEA, IPCC, and the NGFS. However, there are still an array of important methodological challenges inherent in climate scenario analysis, including downscaling of global values to national contexts.

⁹¹ Taskforce on Nature Related Financial Disclosures (TNFD) (2023 September). [Guidance on scenario analysis, v1.0](#)

implications for key sectors), it is unclear how financial impacts could be modeled to assess nature-related risks at the portfolio level accurately.

Another primary challenge in developing nature-related scenarios is the need for localization. Nature-related scenarios must account for highly specific local conditions, which can vary dramatically from one region to another. For example, the degradation of a coral reef in Southeast Asia has vastly different implications compared to deforestation in the Amazon Rainforest. These localized impacts introduce a high degree of variability and uncertainty, making it difficult to create standardized scenarios that can be broadly applied across different geographic regions and that may enable financial institutions to draw generalizable conclusions about nature-related risks. Furthermore, as WWF-EU⁹² highlights, the non-linear nature of ecosystem processes, and the presence of uncertain tipping points make assessments of potential scenarios for nature-related risks even more uncertain. For instance, the loss of a keystone species—an organism that plays a crucial role in maintaining the structure of an ecosystem—can set off a cascade of negative effects that extend beyond the immediate area, potentially disrupting ecosystems and the human economies that depend on them. These unpredictable dynamics make it challenging to assess potential outcomes using traditional scenario analysis tools. As TNFD⁹³ discusses, nature-related scenarios’ outputs may not capture the impact of all the driving forces that could affect an organization. This limitation necessitates the supplementation of scenario outputs with additional variables or data sources to fully understand the risks and opportunities.

The existing frameworks for assessing climate risks do not encompass the full spectrum of considerations necessary for a comprehensive approach to nature-related risks. While some of the methodologies for nature-related risk assessment demonstrate compatibility with established climate risk assessment practices, approaches often overlook cascading and compounding risks. Responding to these challenges, the GFI’s report on ‘Assessing the Materiality of Nature-Related Financial Risks for the UK’⁹⁴ highlights that the benefits of exploring narrative scenarios examining a wide array of nature-related phenomena, combining these with model-based projections, and informing analysis with expert judgment.

Considering the nascent stage of development and application of nature-related scenarios, their current utility cannot be equated with that of the more established climate-related scenarios and emissions pathways. In the climate sphere, the approaches of financial institutions, central banks, and supervisors to examining climate risks have been greatly advanced by the development of standardized climate scenarios, including those produced by the NGFS, which are based on a common scientific understanding of the established metrics and pathways for climate transition. These scenarios offer a tangible, common starting point for identifying and assessing the financial implications of climate change.

The lack of a global set of high-level nature scenarios with associated transition pathways creates barriers for both private and public sector actors seeking to develop scenario analysis frameworks and methodologies.⁹⁵ While the International Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has made significant steps forward towards a global assessment of biodiversity and ecosystem services, there are important methodological and data gaps

⁹² World Wildlife Fund EU (WWF-EU) (2022 December). [When finance talks nature](#)

⁹³ Taskforce on Nature Related Financial Disclosures (2023 December). [Discussion paper on Conducting advanced scenario analysis](#)

⁹⁴ Green Finance Institute (GFI) et al. (2024 April) [Assessing the Materiality of Nature-Related Financial Risks for the UK](#)

⁹⁵ Taskforce on Nature Related Financial Disclosures (2023 September). [Guidance on scenario analysis, v1.0](#)

that would need to be addressed to translate this material into scenarios that could be applicable for the purposes of forward-looking risk assessment, either by firms or supervisors.

It is difficult to extract nature-related risk factors from climate change scenarios, due to the extremely complex transmission channels of natural capital to corporate activities, and the scientific basis for accurately assessing the financial impact is insufficient. To take advantage of the currently available scenarios, it is important to recognize the high level of uncertainty and engage with stakeholders to avoid misunderstanding and misalignment in views on the potential use cases of any disclosed information resulting from these analyses.

There is a risk that nature-related scenario analysis, no matter how high level or preliminary, may create a misperception of the magnitude of risks due to high levels of uncertainty and a false sense of precision, or that they may be otherwise misleading. Financial institutions recognize the importance of appropriately addressing nature-related financial risks and the challenges associated with doing so in a robust manner. Failure to appropriately manage environmental issues can directly impact a financial institution's reputation, its clients' operations and long-term economic viability, and the communities and environment in which a financial institution and its clients operate. However, it may be premature to suggest that nature-related scenarios could currently perform a role in the nature sphere equivalent to the role that climate-related scenarios and emissions pathways currently serve for climate.

6.2 BUSINESS STRATEGY

An increasing share of the global financial sector is taking action to assess the strategic relevance of nature – including the goals and targets of the GBF – for their business models. As described above, achievement of nature-related goals will require both sectoral and systemic changes, which may be complex to implement and hard to replicate across jurisdictions. These changes might include altering land use practices across sectors, transforming agricultural systems, or restructuring supply chains to be more sustainable. This differs from climate change, where significant gains can be achieved through the implementation and scale-up of existing technologies. Considering this, corporates and financial institutions are not readily able to simply apply their existing climate-related strategies to the nature sphere; instead, they must develop new, context-specific approaches that address the unique challenges and opportunities presented in the nature sphere. As such, implications of a transition to meet nature-related goals could have an array of fundamental impacts on the commercial viability of a client's, counterparties', or investee's economic activities, in terms of changes to supply chains, impacts on the costs associated with different activities, and other factors – which all may impact cash flow, and therefore financing needs. However, as such impacts may vary by jurisdiction and market context, responses to nature-related priorities by clients, counterparties, and investees can result in both the creation of new risks and opportunities from a financial perspective – requiring specific responses from financial institutions.

Most financial institutions are still in the early stages of considering nature as part of organizational strategy and business planning and conceptualizing how to reflect a diverse range of nature-related goals into client advisory, capital allocation, or other business activities. Some banks are developing bespoke approaches to analyze the relationship between their clients' corporate activities and natural capital from the perspectives of dependence and impact on nature. Some investors and asset managers are beginning to consider nature-related criteria in the context of fund strategies, particularly within ESG-focused portfolios. As an initial step towards

developing nature-related financing strategies, some firms are using forward-looking information (e.g. GBF targets, frameworks for nature scenarios) to inform internal views of the economic shifts in different sectors and markets. However, without clarity on how global goals will be translated into regulations, there is limited ability to assess entity-specific risk or economic incentive to take nature-enhancing actions.

Target Setting and Transition Planning

Setting strategic targets related to nature presents a distinct set of challenges for financial institutions compared to setting climate-related targets. It is increasingly recognized that the multidimensional and complex nature of biodiversity and ecosystems, make it challenging to identify, set, and achieve specific clear-cut targets for nature and biodiversity.⁹⁶ As discussed in section 2, the non-fungibility of nature-related impacts means that the same actions may result in different outcomes, depending on where they are undertaken. This poses challenges for meaningfully aggregating impacts and thus for setting targets and assessing progress against them. Orienting business strategy towards supporting a suite of high-level goals and target commitments on nature is very different than setting business strategy in alignment with a clear science-based imperative to transition to one defined, quantitative end goal of net zero by 2050. Without a clear national-level policy framework, there will not be clarity on the pathways that corporates will need to follow to achieve targets; furthermore, without regulatory action to address the issue of unpriced externalities, it is not clear that nature-positive economic activities which have direct higher costs (yet lower impacts) would be able to outcompete high-impact activities (which have direct lower costs). In this regard, it is challenging for financial institutions to robustly set targets, considering the contingency on the introduction of significantly more ambitious government policies and corporate commitments, and an information architecture that could enable some aggregation of the progress of portfolio companies in the context of different nature-related goals.

It is likely that as corporates better understand nature-related risks and opportunities, develop their own nature-related transition strategies in response to nature-related pathways, and are incentivized to take action, opportunities for financing nature-related goals will grow – and demand for financing and investment for such activities will increase. This being said it is important to note that corporate nature-related transition plans are not a prerequisite for the extension of nature-related or general-purpose financing, nor do financial institutions consider the presence or intention to develop such a plan a consistently robust indicator of the credibility of a firm's nature-related strategy.

Considering these issues, it is important that discussions on expectations for nature-related strategies – particularly any proposals relating to setting nature-related targets and considering nature in the context of transition planning – recognize that there are key limitations to the direct transferability of a climate-based model in the nature sphere. This is particularly important when thinking about the potential use cases for disclosed information, considering that nature-related disclosure approaches are still at an early stage (Box 4).

Box 4: Nature-related Disclosure

Initial nature-related disclosures released by some financial institutions over the past 12 months indicate that a variety of approaches are emerging, yet generally are at early stages. Financial Institutions' disclosure practices show a varied approach among institutions

⁹⁶ World Wildlife Fund EU (WWF-EU) (2022 December). [When finance talks nature](#)

regarding nature-related risks and impacts. Climate change is considered a key factor among nature risk drivers, including deforestation, water scarcity, biodiversity loss, pollution, and resource exploitation. This suggests that firms are more familiar and better equipped to deal with climate-related risks compared to other nature-related risks. Some financial institutions are integrating⁹⁷ nature-related risk disclosures within other sustainability-related disclosures, while others opt for publishing standalone⁹⁸ reports dedicated to nature-related risks and impacts.

Expectations for financial institutions’ nature-related disclosures are expanding in many jurisdictions – and risk outpacing the rate of industry implementation, capacity-building efforts, and market testing. Financial institutions are increasingly required⁹⁹ and encouraged to incorporate nature-related risks and opportunities into their disclosures and decision-making processes. This can involve guidance or expectations regarding adherence to voluntary standards, and the application of specific methodologies and tools designed to assess and manage nature-related impacts.

6.3 UNDERSTANDING INTERACTIONS BETWEEN NATURE AND CLIMATE – TRADEOFFS AND SYNERGIES

Tradeoffs between climate and nature priorities (e.g., renewable energy production and nature-related dependencies and impacts) can pose challenges for private sector action in support of nature and climate goals. Climate-positive actions are not necessarily nature-positive and can inadvertently harm nature;¹⁰⁰ for example, the mining of minerals and metals necessary for clean energy technologies, such as batteries and solar panels, can lead to significant environmental degradation and biodiversity loss. Similarly, large-scale reforestation with non-native species or monocultures, and the expansion of bioenergy crops can lead to biodiversity loss and ecosystem degradation.

Tradeoffs between nature and climate goals may have important social implications. Key examples include issues relating to the implementation of NbS projects seeking to originate carbon credits, such as enclosure and land tenure issues. There may be social tensions or sensitivities relating to investments in support of the climate transition (e.g. new infrastructure) and the impact this may have on nature. Therefore, it may be helpful for an international authority to set out guidance on how such issues could potentially be addressed in an integrated manner through government policies. Within the private sector, efforts to consider the integration of climate and nature in the context of risk management or strategy would ideally provide a unified view on the processes through which climate, nature, and social tradeoffs could be approached – particularly when thinking about progress on decarbonization can be accelerated, with the least impact on nature.

Conversely, synergies between nature and climate can arise when interventions taken to address nature and climate issues can be positively reinforcing. Nature-based solutions that prioritize ecosystem health and biodiversity can provide effective climate mitigation and adaptation benefits while also delivering co-benefits for nature conservation. For instance, transforming the land

⁹⁷ For example, UBS’s [Climate and Nature Report 2023](#), The Norinchukin Bank’s [Climate & Nature Report 2024](#), SMBC’s [Sustainability Report 2024](#), Resona Asset Management’s [Integrated TCFD/TNFD report 2022](#), Oxbury Bank’s [Integrated TCFD/TNFD report 2024](#), Taaleri Bioindustry [Integrated TCFD/TNFD report 2023](#)

⁹⁸ See for example MUFG’s [TNFD Report](#), ING’s [Nature Publication](#), AP7’s [Nature/TNFD report 2024](#), Manulife Investment Management’s [Nature/TNFD report 2023](#), Tokio Marine Holdings’ [Nature/TNFD report 2024](#)

⁹⁹ Jurisdictional requirements such as the EU [SFDR](#) and [CSRD](#), [EUDR](#) and [Article 29 of the French Energy and Climate Law](#).

¹⁰⁰ For an analysis of interactions between climate and nature, see UBS Asset Management & Planet Tracker (2024) [Climate Meets Nature: Integrating Biodiversity into the Energy Transition](#).

sector and deploying measures in agriculture, forestry, wetlands, and bioenergy could feasibly and sustainably contribute to the reduction of carbon dioxide.

At present, there are significant gaps that affect the capacity of financial institutions to assess how nature-climate interactions may affect risk profiles or business opportunities.

Subjective judgments are required in the absence of clear protocols that could be applicable across sectors and geographies. By developing common approaches to quantifying the impact of climate change on natural capital, it may be possible to establish a common understanding of the impacts on risks to corporates, counterparties, and investees stemming from disruptions to ecosystem services or other nature-related economic inputs. Efforts to develop unified global datasets for nature (including the work of the TNFD) would help enable the achievement of this goal, should they be able to address climate-nature interactions at both firm and system levels – in terms of the relationships between corporate activities and natural capital, and linking to indicators such as economic growth and productivity. Similarly, work to develop integrated climate-nature scenarios should help strengthen the analytical foundations of this realm of analysis.

The integration of nature-related issues into an assessment of climate risks and business strategy approaches is emerging as a priority, including in the context of transition plans;¹⁰¹ however, significant work remains.

Relationships between nature and climate are complex, and while synergies may exist between actions to address one or the other priority, there may not be a direct, one-to-one correlation between actions that have positive impacts on nature and actions that reduce GHG emissions. This challenge is compounded by the lack of consensus regarding calculation and estimation methodologies, which results in the absence of clear metrics and scenarios, makes it very difficult to define key factors to be considered when examining interactions between nature-related and climate-related objectives and impacts. Recognizing these issues, it is likely that companies and financial institutions will require time to better understand how these issues manifest and interact within their portfolios.

7. THE ROLE OF CENTRAL BANKS AND SUPERVISORS¹⁰²

How are prudential authorities and central banks considering nature-related risks, and how do they relate to their mandates?

Nature-related risks, like climate-related risks, can drive the financial and non-financial risks that financial institutions need to manage, making them relevant to microprudential authorities. To the extent that nature-related risks may lead to significant macroeconomic impacts, there is also the potential for second-round effects on the financial system (for example, if a pandemic stemming from zoonotic disease transmission were to interrupt economic activity in a region or globally). For these reasons, financial sector prudential authorities may seek to question or explore whether nature-related risks could be material within the scope of their microprudential or macroprudential mandates. Separately, central banks are exploring the links between nature-related risks, the economy, and monetary policy.¹⁰³ While these risks may be relevant to supervisors from a risk monitoring and management perspective, it is important to recognize that the tools with the most direct impact on nature-

¹⁰¹ Notable here is work being undertaken by Glasgow Financial Alliance for Net Zero (GFANZ) on the consideration of nature in net zero transition plans, which is expected to be released for consultation in October 2024.

¹⁰² With thanks to Katie Rismanchi (Deputy Director, Regulatory Affairs, IIF) for her contribution to this section.

¹⁰³ At the global level, the Network for Greening the Financial System (NGFS) has been exploring this: [Task force ‘Biodiversity Loss and Nature-related Risks’ Mandate – April 2022 / April 2024](#)

related risk mitigation across the economy are squarely within the remit of governments rather than prudential authorities. This issue is especially acute in the nature sphere, considering that direct actions to halt and reverse nature loss may require careful balancing of economic and environmental tradeoffs.

In July 2024, the Financial Stability Board (FSB) published a global stocktake of regulatory and supervisory initiatives related to nature-related financial risks.¹⁰⁴ The FSB report indicates that authorities are analyzing or assessing the issues differently, partly reflecting the nascence of the topic in a financial system and regulatory context, the complexity of the issues, and differences in existing approaches to climate-related risks. Many authorities have not yet established a firm enough evidence base to explore a specific supervisory or regulatory approach to nature-related risks. For example, the FSB report indicates that the Japanese FSA and Bank of England have not determined that nature-related risks are material and relevant to their prudential mandates (in contrast to their assessments of climate-related financial risks). On the other hand, some authorities have taken steps to consider nature-related risks in the context of their supervisory and prudential mandates, including by developing microprudential risk management expectations or requirements for nature-related risks or broader environmental risks beyond climate; issuing guidance or requirements on disclosure of nature-related risks; considering nature-related risks in supervisory risk assessments; exploring or monitoring the potential risks as part of supervisory data collection exercises or scenario analysis (see Box 5).

Authorities exploring nature-related risks are doing so from different starting points, reflecting their existing approaches relating to sustainability factors – including climate risks. Two different approaches are emerging:

- i) An ‘umbrella approach’, viewing nature-related or environmental risks as an overarching category, of which climate change and climate-related risks are a sub-component. This is reflected in the work of the NGFS,¹⁰⁵ which has set out a conceptual framework for nature-related risks; and in some jurisdictions – including at the EU level¹⁰⁶.
- ii) A ‘discrete approach’, examining specific nature-related risks, separately or in addition to climate-related risks. Some jurisdictions have had supervisory expectations or disclosure requirements pertaining to environmental risks in place for some time, while separately considering climate-related risks. Others have started with a focus on climate-related risks and are expanding, or planning to expand, to nature-related risks – for example, the ISSB in its approach to disclosure standards.¹⁰⁷

Within either type of approach, some authorities are emphasizing the importance of taking an integrated view to examine interconnections between nature-related and climate-related risks¹⁰⁸. Some recent examples of this can be found in proposals relating to climate transition planning, where financial institutions are expected to consider broader nature-related dimensions that may affect the achievability of climate transition plan goals.¹⁰⁹

¹⁰⁴ Financial Stability Board (FSB). (2024 July). [Stocktake on Nature-related Risks Supervisory and regulatory approaches and perspectives on financial risk](#)

¹⁰⁵ Network for Greening the Financial System (NGFS) (2024) [Conceptual Framework for Nature-related Financial Risks](#).

¹⁰⁶ European Central Bank (2020) [Guide on Climate and Environmental Risks: Supervisory Expectations relating to Risk Management and Disclosure](#).

¹⁰⁷ International Financial Reporting Standards (IFRS). [IFRS Foundation work plan](#)

¹⁰⁸ Swiss Financial Market Supervisory Authority (FINMA) (2024) [Circular on Nature-related Financial Risks](#)

¹⁰⁹ For example, The Monetary Authority of Singapore (MAS) (2023) [Proposed Guidelines for Financial Institutions on Transition Planning for a Net Zero Economy](#) specify that financial institutions should consider environmental risks beyond climate-related risks in their transition planning, holistically consider the important inter-dependencies between climate and nature as well as the potential tradeoffs such as environmental degradation arising from the pursuit of climate solutions.

Examining the Relevance of Nature-Related Risks to Prudential Authorities' Mandates and Toolkits

There are open questions on the ways in which prudential authorities could most appropriately consider and potentially respond to nature-related risks – considering that the transmission mechanisms of these risks may differ from the climate context. Revisiting the IIF's conceptual framework for climate-related financial risks (IIF 2021), there we suggested that prudential authorities should consider 'resilience' and 'system-wide alignment' objectives – but avoid pursuing an 'active transition' objective of using prudential tools to regulate and incentivize the financial system to actively steer the low-carbon transition of key sectors in the real economy, via the provision and pricing of financial products and services.¹¹⁰

In the case of nature-related risks, the 'resilience' objective is equally relevant – but there are important nuances that need to be factored in when thinking about relationships between nature-related risks to the economy, and risks to financial institutions. As noted by the IMF, nature-related risks may be more acute and nearer-term than climate-related risks (including due to the risk of significant ecosystem tipping points), and the uncertainty may be even greater – considering that there are key knowledge gaps relating to ecosystem functioning and biosphere processes, earth system dynamics, and relationships between nature and the economy.¹¹¹ However, owing to the conceptual and scientific specificities of nature (described in Section 2), the characteristics of nature-related risks to the economy, and their potential transmission channels to the financial system, may vary significantly and idiosyncratically. As such, it may be harder to draw a line between nature-related risks facing corporates and potential financial risks facing financial institutions. For example:

- **Physical risks:** the dimensionality of nature-related risks is greater, and the relevant risks are best identified at a geographically local level, so it can be harder to generalize the measurement of nature-related physical risks.
- **Transition risks:** In the case of climate-related risks, a company's GHG emissions and an FI's financed emissions can be a crude proxy for its exposure to climate-related transition risks (although these metrics have significant issues).¹¹² However, as described in Section 2, there is not a single global indicator of nature impact and therefore nature-related sensitivity to transition risk. Nor is there as clear an indication (at this time) of how certain economic activities or policies may need, or may be expected, to change in response to nature-related risks.

The objective of fostering 'system-wide alignment' (which the IIF proposed in the climate sphere) may not be as applicable in the nature-related sphere, for several reasons.

- **The first issue relates to the dynamics of change in the economy that will be required for nature-related goals to be achieved, to the potential distribution of related risks to economic actors, and the likelihood of such risks transmitting to financial institutions.** As described in Section 2, as human societies will always need to consume natural capital in some ways, many economic activities may be expected to continue (*ceteris paribus*) in a way that has an ongoing impact on the natural environment to some degree. There is not yet clarity on the ways in

¹¹⁰ Institute of International Finance (IIF) (2021) Prudential Pathways: [Industry Perspectives on Supervisory and Regulatory Approaches to Climate-Related and Environmental Risks](#).

¹¹¹ International Monetary Fund (IMF) (2024 October) [Embedded in Nature: Nature-Related Economic and Financial Risks and Policy Considerations](#).

¹¹² For a discussion of some of the conceptual issues with using financed emissions as a measure of transition risk see Institute of International Finance (IIF) and WTW (2023) [Emissions Impossible: Quantifying Financial Risks Associated with the Net Zero Transition](#) and [IIF \(2024\) IIF/ISDA Respond to BCBS Consultation on Disclosure of climate-related financial risks](#).

which economies and regions may need to transition in order for the goals and targets of the GBF to be achieved – while ‘nature-positive’ may be a helpful aspirational concept, the lack of a single unifying ‘budget-based’ goal (or set of such goals) and related metrics complicates the potential to conceptualize a clear directional pathway to which regulated financial institutions would need to adapt to stay aligned with economic demand.

- **This is not to say that transition risks do not exist in the nature space.** As the NGFS has articulated, transition risks can arise through misalignment with actions aimed at protecting or reducing the negative impact on nature, or related to policy uncertainty. Some activities would need to be phased out in order for significant nature-related risks to be averted; these activities are identifiable at a relatively local level because they are highly geographically dependent. However, as is the case in the climate sphere, factors relating to financial institutions’ commercial engagements with clients – including the structure and tenor of financial products (e.g. loans) to corporates, the potential to reprice financial products and services, and the use of insurance solutions – may affect the degree to which a given nature-related risk to a corporate, sector, or geographic area manifests as a financial risk to a financial institution’s balance sheet.

As is the case in the climate sphere, if prudential authorities seek to drive an ‘active transition’ it is not clear that this would lead to positive impacts in the nature sphere – nor outweigh the potential risks of unintended consequences. The suite of tools available to supervisors and central banks is not the most effective instrument set to directly respond to nature-related risks or to encourage nature-positive activities, particularly considering that the mitigation of risks may require actions that go outside of the boundaries of the financial system and the economy.

Exploratory Supervisory Analysis of Nature-Related Risks – What Are We Learning?

Some central banks and supervisors are beginning to examine how the impacts of nature-related risks facing the economy may affect the financial system through exposure assessments and scenario-based analysis, with a view to assessing potential microprudential impacts and macroprudential implications. Some central banks and other authorities have conducted scenario analysis exercises to evaluate the potential financial risks associated with nature loss and ecosystem degradation, over near-term and long-term timeframes. Initial assessments of the direct and indirect exposures of financial institutions to nature have been focused on the portfolio allocations to clients with high levels of dependency and impact, for example, research by De Nederlandsche Bank,¹¹³ Banque de France,¹¹⁴ and Bank Negara Malaysia.¹¹⁵ Such analysis can be a helpful first step in raising awareness and catalyzing capacity building within financial institutions – however, as experience in the climate sphere has illustrated, there are important nuances that need to be factored in when exploring the channels through which such portfolio exposures could crystallize as financial risks – either in terms of credit risk, market risk, or other risks.¹¹⁶

¹¹³ De Nederlandsche Bank (DNB) and Planbureau voor de Leefomgeving (PBL) Netherlands Environmental Assessment Agency. (2020 June) [Indebted to nature Exploring biodiversity risks for the Dutch financial sector](#). Authored by Van Toor et al.

¹¹⁴ Banque de France et.al (2021 August). [A ‘Silent Spring’ for the Financial System? Exploring Biodiversity-Related Financial Risks in France](#). p.55

¹¹⁵ World Bank (WB) and Bank Negara Malaysia (BNM) (2022 February). [An Exploration of Nature-Related Financial Risks in Malaysia](#). p.50

¹¹⁶ By virtue of diversification needs, market dynamics, and demand, financial institutions portfolios are likely to be reflective of nature-related exposures across the economy, yet these exposures may not be reliable indicators of financial risks. For further information, see: Institute of International Finance (IIF) (2023 October). [The Role of The Financial Sector in the Net Zero Transition: Assessing Implications for Policy, Supervision and Market Frameworks](#)

Box 5: Summary of select scenario-based analytical exercises by central banks and supervisors

Netherlands (De Nederlandsche Bank - DNB): DNB was the first central bank to quantify the extent to which financial institutions are exposed to risks from biodiversity loss. In the June 2020 report '[Indebted to nature Exploring biodiversity risks for the Dutch financial sector](#)', the authors used the ENCORE database to analyze financial institutions' holdings of loans, shares, and bonds. The study found that 36% of the investments of Dutch financial institutions are highly or very highly dependent on one or more ecosystem services. This translates to €510 billion of the €1,400 billion of investments analyzed being at risk due to the loss of ecosystem services. The highest dependence was on ecosystems providing groundwater and surface water.¹¹⁷ Other research by DNB has examined nature-related risks in its own investment portfolio, utilizing the LEAP approach from the TNFD.¹¹⁸ Their research has highlighted the lack of a one-for-one relationship between climate-related and nature-related risks: an improvement in climate-related aspects of investments does not necessarily translate to lower nature-related financial risks. This suggests that it is important to take an integrated approach to nature and climate-related risks, and consider potential tradeoffs in their respective risk management.

France (Banque de France): The Banque de France has explored biodiversity and nature-related risks by assessing the dependency of financial institutions on ecosystem services. The study - '[A 'Silent Spring' for the Financial System? Exploring Biodiversity-Related Financial Risks in France](#)' - found that 42% of securities held by French financial institutions are issued by non-financial corporations are highly dependent on ecosystem services. The total terrestrial biodiversity footprint associated with these securities equates to a loss of at least 130,000 km² of 'pristine' nature.¹¹⁹

UK (GFI, ECI, University of Reading, UNEP-WCMC, NIESR): The report - '[Assessing the Materiality of Nature-Related Financial Risks for the UK](#)' - analyses the impact of the degradation of natural ecosystems, both domestically and internationally, and highlights the significant impact of nature-related risks on the UK economy and financial system. The report develops three narrative scenarios incorporating chronic and acute risks to evaluate potential GDP impacts using the National Institute Global Econometric Model (NiGEM). It provides empirical evidence that nature degradation poses substantial risks, comparable to climate risks, and highlights that the deterioration of the UK's natural environment could lead to an estimated 12% loss to GDP.¹²⁰

Europe (European Central Bank, Nature Finance, PIK, University of Minnesota): This report on '[Climate-nature scenario development for financial risk assessment](#)'¹²¹ examines approaches to developing integrated climate-nature scenario narratives, and a modeling infrastructure combining macroeconomic and biophysical models. The project contributes to providing a comprehensive understanding of integrated climate- and nature-related economic and financial risks focusing on the

¹¹⁷ De Nederlandsche Bank (DNB) and Planbureau voor de Leefomgeving (PBL) Netherlands Environmental Assessment Agency. (2020 June) [Indebted to nature Exploring biodiversity risks for the Dutch financial sector](#). Authored by Van Toor et al.

¹¹⁸ De Nederlandsche Bank (DNB) (2024) [Nature-related financial risks in our own account investments: An exploratory case study and deep dive in electric utilities](#)

¹¹⁹ Banque de France et al (2021 August). [A 'Silent Spring' for the Financial System? Exploring Biodiversity-Related Financial Risks in France](#). p.55

¹²⁰ The report was developed by the Green Finance Institute in collaboration with the Environmental Change Institute at the University of Oxford, the University of Reading, the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), and the National Institute of Economic and Social Research (NIESR). Green Finance Institute (GFI) et al. (2024 April) [Assessing the Materiality of Nature-Related Financial Risks for the UK](#)

¹²¹ Nature Finance, Potsdam Institute for Climate Impact Research (PIK), the European Central Bank (ECB), University of Minnesota, (2024 February). [Climate-nature scenario development for financial risk assessment](#) _p.9

agriculture and land use sector, examining the degradation of ecosystem services through indicators such as pollination sufficiency and soil erosion levels.

Malaysia (Bank Negara Malaysia): Conducted in collaboration with the World Bank, the study [An Exploration of Nature-related Financial Risks in Malaysia](#) assessed nature-related financial risks using the ENCORE database. The study found that 54% of the commercial loan portfolio analyzed is channeled to sectors that depend to a high extent on ecosystem services. Dependencies on ecosystem services that stand out are surface water (29%), climate regulation such as carbon storage (26%), and flood and storm protection (16%).¹²²

Brazil (World Bank): The World Bank study [Nature-Related Financial Risks in Brazil](#) used the ENCORE database to link ecosystem services to Brazil's economic sectors and determine bank credit exposures to those sectors. The study found that 46% of Brazilian banks' non-financial corporate loan portfolio is concentrated in sectors highly or very highly dependent on one or more ecosystem services. A collapse in ecosystem services could increase the cumulative long-term rate of corporate non-performing loans by 9 percentage points.¹²³

Hungary (OECD): The 2024 study on '[Assessing nature-related risks in the Hungarian financial system: Charting the impact of nature's financial echo](#)' assesses nature-related risks in the Hungarian financial system by employing a structured methodology that includes an impact and dependency assessment to identify key economic sectors and natural capital assets crucial to the financial system. It uses exploratory scenario analysis, focusing on a severe drought scenario, to evaluate the direct and indirect economic impacts on Hungary, revealing a potential reduction in GDP by 4% to 7% and significant impacts on sectors like agriculture and manufacturing. The results indicate increased non-performing loans and potential cost-push inflationary pressures, highlighting the financial system's exposure to transition risks due to its lending portfolio's impact on ecosystem service.

Mexico (Bank of Mexico): The study assessed the dependencies and impacts of the Mexican banking sector on ecosystem services using the ENCORE database. The analysis found that more than one-third (36.5%) of banking sector lending is to subindustries that are highly or very highly dependent on one or more ecosystem services. The largest sectoral exposures are to oil and gas drilling, electric utilities, diversified support services, and agricultural products.¹²⁴

Implications for Authorities and Standard-Setters

Some of the issues addressed in this Discussion Paper have implications for financial authorities' and standard-setters' responses to nature-related risks, as summarized below.

Nature-related risks differ from climate risks, and supervisors should avoid the simple extension of climate-related approaches to consider nature. The main rationale for prudential authorities to consider nature-related risks would stem from a resilience perspective. However, the measurement of potential nature transition and nature physical risk drivers is even more complex and less geographically generalizable than in the case of climate-related risk drivers. While climate-related risks interact with nature-related risks, they have fundamentally different characteristics that impact

¹²² World Bank (WB) and Bank Negara Malaysia (BNM) (2022 February). [An Exploration of Nature-Related Financial Risks in Malaysia](#). p.50

¹²³ World Bank (WB) Finance, Competitiveness and Innovation Global Practice (2021 August). [Nature-Related Financial Risks in Brazil](#).

¹²⁴ Network for Greening the Financial System (NGFS) and the International Network for Sustainable Financial Policy Insights, Research, and Exchange (INSPIRE) (2022 March.) [Central banking and supervision in the biosphere: An agenda for action on biodiversity loss, financial risk and system stability](#) _p.38

their potential transmission mechanisms to financial institutions and the degree to which they may be relevant to prudential authorities. This suggests that while providing a useful starting point, supervisors should avoid the simple extension of climate-based approaches to consider nature – and that prudential authorities should not simply ‘add on’ nature-related risks to existing expectations or requirements.

Central banks and prudential authorities should continue efforts to strengthen understanding of the dynamics of nature-related risks to the economy, from a macro-financial perspective. Supervisory efforts should be focused on enhancing understanding of the key channels through which different types of nature-related risks could be transmitted from the economy to the financial system, and how these may be exacerbated by climate change. Indeed, the impacts of some nature-related risks on key sectors (e.g. for instance, a failure of natural pollination leading to major reductions in agricultural productivity) could have a significant economy-wide impact (e.g. stemming from changes in the availability and cost of food), thereby impacting macroeconomic indicators such as inflation. In this regard, while direct exposures to nature-sensitive sectors (e.g. agricultural loans) may be limited or concentrated within a select set of financial institutions, the impacts of nature loss could be felt broadly across the entire economy. Analytical exercises that account for nature-related risks and feedback mechanisms could strengthen the understanding of the potential implications of nature-related risks across the economy, and usefully inform broader debate on the appropriate policy responses including by monetary and prudential authorities. To help encourage alignment and limit the risk of duplication, authorities across the world should continue to coordinate and pool their efforts where possible as they develop research and approaches, as well as engage with the financial sector.

Given the significant knowledge, data, and methodological gaps that affect financial institutions’ capacity to enhance nature-related risk management, engagement from central banks and supervisors should encourage capacity building within financial institutions. For example, while many banks have been managing aspects of nature-related risks at the transaction level through traditional due diligence for some time, greater research is needed to enhance the understanding of nature-related risk management at the portfolio level, including the most appropriate data, metrics, and methodologies.

Supervisory responses – including the use of prudential tools – must remain risk-based. It is important for authorities and financial institutions to understand the potential risk transmission channels from climate-related and nature-related risk drivers. However, the use of the prudential toolkit should be reserved for cases of addressing evidenced resilience-related financial risks to FIs and/or financial stability. Capacity building, risk identification, and risk management are appropriate foundational steps to explore and address resilience objectives. As part of this, regulatory authorities could provide clear guidance on how financial institutions can balance climate and nature priorities, including when the two could be in conflict (also recognizing the need to avoid legal or reputational risks for the financial sector). Prudential authorities can support financial institutions in these efforts through top-down or collaborative exploratory scenario analysis exercises such as those described in Box 5, which have proven to be informative in the climate space. The ISSB could consider how to build on the work of the TNFD and reflect firms’ experience and challenges with TNFD reporting, in its research process on nature-related issues.

In all of this work, international collaboration could help assess aspects of transboundary nature-related risks and nature-climate interactions. Cross-border research and analysis through forums such as the NGFS, FSB, and IMF are valuable and could serve as a useful platform in this regard.

Responses by authorities need to be developed in the context of broader government policy. It is important that authorities consider the FSB’s message that actions to manage nature-related financial risks to be *‘set within a context of an overall strategy, extending beyond the financial sector, to manage nature degradation as a whole’*.¹²⁵ As is the case with climate-related risks, and perhaps even more so in the nature sphere, reducing nature-related risks at their source requires appropriate jurisdictional and local government policies. Financial regulators are not able to, and should not try to, compensate for a lack of such policies.

¹²⁵ Financial Stability Board (FSB).(2024 July). [Stocktake on Nature-related Risks Supervisory and regulatory approaches and perspectives on financial risk](#) Page 33.

FOCUS ON DEFORESTATION

Why is this a critical issue?

Deforestation, as a main driver of biodiversity loss and climate change, poses a critical risk to the global environment and economy, with significant implications for financial institutions. Deforestation may impact financial institutions through various channels leading to potential economic losses, including negative returns on investments, defaults on loans, as well as through increased reputational risks.

What are the recent trends?

In 2023, the world saw a mixed picture in the battle against deforestation. Notably, Brazil and Colombia achieved remarkable reductions in primary forest loss, with Brazil reducing it by 36% and Colombia by 49%. Despite promising developments in Brazil and Colombia, high deforestation rates persist overall, highlighting that the world is falling far short of its targets. In 2023, global deforestation increased, falling short of the 10% annual reduction needed to achieve zero deforestation by 2030. Global deforestation rates in 2023 were 2% higher than the average rate from 2018-2020, with total tropical primary forest loss at 3.7 million hectares, equivalent to losing almost 10 football fields of forest per minute.¹²⁶ All this forest loss resulted in the emission of 2.4 gigatonnes of carbon dioxide in 2023, nearly half the annual fossil fuel emissions of the United States.

What actions are financial institutions taking?

Barclays - Forestry and Agricultural Commodities Policy

In April 2023, Barclays significantly updated its Forestry and Agricultural Commodities Statement. The updated Statement now covers clients involved in South American beef production or primary processing and enhances the existing requirements for clients involved in soy and palm oil. Among other criteria, the Statement requires that these clients commit to having fully traceable and deforestation-free commodity supply chains by the end of 2025 – a position aligned with industry good practice guidance such as the Accountability Framework Initiative¹²⁷ and Agriculture Sector Roadmap for 1.5°C¹²⁸. In addition, the Statement requires that clients prohibit the production or primary processing of soy or beef from deforested areas of the Amazon, in recognition of the critical nature of this biome to biodiversity and climate objectives.

BNP Paribas - Policy to Combat Deforestation in the Amazon and Cerrado

BNP Paribas has implemented a restrictive policy to address deforestation in Brazil's Amazon and Cerrado regions, particularly focusing on beef and soybean production. The bank requires clients involved in these sectors to achieve zero deforestation by 2025 and demonstrate full traceability of their supply chains.¹²⁹ Key conditions of the policy include: i) no financing for clients sourcing beef or soy from land cleared after 2008 in the Amazon or after January 1, 2020, in the Cerrado; ii) full traceability of beef and soy supply chains by 2025, and iii) Encouragement for clients to adopt more sustainable farming practices, including animal welfare standards. Additionally, BNP Paribas uses its investor

¹²⁶ World Resources Institute (WRI) (2024 April). [Forest Pulse: The Latest on the World's Forests](#)

¹²⁷ See: [Accountability Framework Initiative](#)

¹²⁸ See: [Agriculture Sector Roadmap for 1.5°C](#)

¹²⁹ BNP Paribas. [restrictive policy to fight deforestation in the Amazon and the Cerrado regions](#)

influence to drive change, having signed the Cerrado Manifesto to prevent deforestation and supporting the Investor Statement on deforestation and fires in the Amazon.

Goldman Sachs - Forest restoration project

In 2021, Apple and Conservation International partnered with XIG Imprint, the impact investment unit within Goldman Sachs XIG, to launch The Restore Fund, which invests in forestry carbon sequestration that support biodiversity, water quality, and job creation in local communities.¹³⁰ The fund invested in a reforestation strategy in Brazil's Cerrado region, which the world's most biologically diverse savanna. Collaborating with BTG Pactual Timberland Investment Group (TIG), the project calls for half of TIG properties to be allocated to ecosystem conservation and restoration initiatives, while the other half is used for commercial tree farming and carbon sequestration. XIG Imprint has invested in a 35,000-hectare portfolio which according to biodiversity assessments supports over 297 species of plants and animals.

Nomura –Investment in a Forestry Fund

In January 2023, Nomura acquired shares of New Forests, one of the leading forestry asset management companies in the world and the largest one in Asia Pacific with AU\$ 11.7 billion in assets under management across over 1.3 million hectares (as of the end of December 2023)¹³¹. In addition to investing in stable forestry resources through its forestry funds under management, New Forests also supplies certified forest products and targets development of the environmental value of forests such as the organization of carbon credit funds with a focus on the CO2 absorption function.

UBS – Engagement with Bunge

In 2023, UBS-AM engaged with Bunge, a global agribusiness company, to address deforestation and land conversion risks in its soy and palm oil supply chains, particularly in the Cerrado, Brazil. The company committed to being deforestation-free by 2025, but UBS-AM pushed for an earlier cutoff date and stronger assurances that its policies do not incentivize deforestation. UBS-AM met with Bunge representatives five times and joined a coalition of 16 investors, co-filing a resolution requesting Bunge confirm whether its policies contribute to deforestation. Despite Bunge's acknowledgment of the risk, it did not adopt an earlier cutoff date. UBS-AM will continue discussions with Bunge in 2024 to track progress on deforestation and human rights commitments.¹³²

UBS – Non-compliance with the standards of the RSPO

UBS was negotiating a new relationship with a corporate client involved in palm oil production, a sector responsible for over 50% of tropical deforestation, which contributes significantly to biodiversity loss and up to 20% of global GHG emissions. Deforestation also causes societal issues, including violent conflicts. As per UBS's standards, clients in the palm oil sector are required to manage environmental and social challenges and be members of the Roundtable on Sustainable Palm Oil (RSPO). UBS conducted due diligence on the client, which included research and engagement with external experts and NGOs. Since the client was not an RSPO member, UBS agreed to conditionally onboard them, provided they met RSPO membership requirements within a predefined period. When the client failed to comply within the given timeframe, UBS exited the relationship, aligning with its sustainability standards for palm oil operations.¹³³

SMBC – direct investments in forests

¹³⁰ Goldman Sachs (2024). [2023 Sustainability Report](#). p.55.

¹³¹ Nomura (2024). [Nomura Sustainability Report 2024](#). p.20

¹³² UBS (2023). [Stewardship annual report – UBS Asset Management](#). p 111

¹³³ UBS (2023). [Sustainability Report 2023 Supplement](#). p. 49

In May 2024, SMBC acquired approximately 220 hectares of forest in Kanagawa Prefecture, Japan. This forest hosts a diverse ecosystem, including rare species, and we aim to strengthen our efforts towards achieving nature-positive outcomes through the conservation and restoration of these ecosystems. Specifically, SMBC is considering a wide range of uses, including: (1) conservation and restoration of biodiversity based on vegetation surveys, (2) creation of forest-derived credits, (3) establishment of an environmental education site, and (4) revitalization of the forestry industry.¹³⁴

The Norinchukin Bank – Forestry cooperative networks and client brokerage

The Bank launched a new project in 2023 to originate credits in cooperation with forestry cooperative networks with the aim of strengthening the reforestation cycle.¹³⁵ The credits are awarded to forest owners engaging in appropriate forest management and can be used for reforestation and forest maintenance. The Norinchukin Bank acted also as an intermediary for sales of the credits to clients.

Zurich – Supporting forest restoration in Brazil

Zurich partners with the non-profit Instituto Terra to help restore 700 hectares of nature in Brazil's Atlantic Forest over a 8-years period.¹³⁶ Instituto Terra was founded by Brazilian photographer Sebastião Salgado with the purpose of reclaiming a small portion of the Mata Atlântica, which had almost entirely vanished after decades of exploitation. The grant provided by Zurich to support the project covers the planting of 1,000,000 trees to support the reforestation effort. Thanks to the reforestation effort, more than 250 native animal species have returned to the area.

FOCUS ON SUSTAINABLE AGRICULTURE

Why is this a critical issue?

Ecosystem degradation and biodiversity loss are driven by unsustainable agricultural practices, including land use change resulting from agricultural expansion, excessive use of water resources, and pollution from synthetic fertilizers and pesticides.¹³⁷ Sustainable management of agriculture, aquaculture, fisheries, and forestry is urgent to conserve and restore biodiversity while maintaining nature's contributions to people, including ecosystem functions and services. Agricultural productivity and economic viability are entirely dependent on natural ecosystems, including fertile soils, pollination services, water supply, and agrobiodiversity. These critical ecosystem services are under threat globally, with 75% of global food crops depending on animal pollination and one-third of the world's soils already degraded. Sustainable practices can deliver benefits to production systems, such as enhanced soil fertility, erosion control, and reduced pest outbreaks, contributing to food security and sustainable livelihoods.¹³⁸

Sustainable agriculture is essential to mitigate biodiversity loss, which is currently driven by land-use changes for agricultural expansion. Conventional practices such as tillage, excessive use of fertilizers, pesticides, and antibiotics in livestock not only harm biodiversity but also reduce the long-term productivity of ecosystems. By integrating practices like crop diversification, livestock integration, and agroecology, sustainable agriculture promotes greater resilience and productivity. This reduces pressure on forests and other ecosystems, allowing space for conservation and restoration.

¹³⁴ SMBC (2024). [Sustainability Report 2024](#). p. 45

¹³⁵ The Norinchukin Bank (2024). [Climate & Nature Report 2024](#). p.40.

¹³⁶ Zurich (2024). [Zurich Forest Project](#)

¹³⁷ Center for Global Commons (2023 December). A discussion paper: [Financing nature: a transformative action agenda](#). P. 67

¹³⁸ FAO and UNEP. 2020. The State of the World's Forests 2020. [Forests, biodiversity and people](#).

Additionally, sustainable farming contributes to climate change mitigation and adaptation, while supporting the health and well-being of rural communities through cleaner and more diverse environments.¹³⁹

What are the recent trends?

Unsustainable agricultural practices contribute to climate change through emissions of carbon dioxide and methane, particularly from food transportation and waste disposal. Approximately one-third of all food produced globally is wasted, further exacerbating the environmental footprint of agriculture. Agriculture has historically driven 70% of losses in terrestrial biodiversity and been the primary contributor to the deforestation of natural habitats, significantly impacting native biodiversity and ecosystem services.¹⁴⁰ Agriculture accounts for 70% of total global water consumption, with 40% lost due to inefficient irrigation and water management practices.

About 15% of the world's peatlands have been drained for land development and agriculture.¹⁴¹ The collapse of tropical peatlands introduces significant financial risks: more frequent flooding and crop losses reduce revenues, lowering the ability of companies to repay debt and decreasing collateral values, increasing credit risk. Market values of securities linked to government or commodity producers may sharply decline due to fires and flooding in key regions like Indonesia. Increased frequency and intensity of fires lead to higher insurance claims from agricultural producers and health-related claims, raising underwriting risks.¹⁴²

What actions are financial institutions taking?

Barclays – Supporting soil through technology investment

Regenerative agricultural practices have significant potential to support climate change mitigation and enhance the resilience of food value chains through improved soil health. Accurate measurement of soil carbon is a factor constraining the growth of regenerative practices in UK agriculture, where Barclays has a strong presence. The market for accurate and scalable solutions is nascent and a lack of primary data from direct measurement limits progress.

In 2023 Barclays' Sustainable Impact Capital¹⁴³ invested in Agricarbon,¹⁴⁴ a UK-based company that has developed market-leading technology for direct measurement of soil carbon, to address this gap in the market. Agricarbon's end-to-end measurement service – which involves automating lab-based processes, including elemental analysis – provides accurate and cost-effective direct measurement at scale. The service generates the substantial, high quality primary datasets that are necessary to quantify the soil carbon benefits of regenerative agriculture. Agricarbon has grown rapidly since its commercial launch in 2021, and the company already serves an international client base including some of the world's largest food and beverage companies, carbon project developers, and natural capital asset managers.

Barclays Sustainable Impact Capital has a mandate to invest up to £500m of the Bank's own capital in sustainability-focused start-ups by the end of 2027, helping accelerate the transition towards a low-

¹³⁹ Secretariat of the Convention on Biological Diversity (2020). [Global Biodiversity Outlook 5](#).

¹⁴⁰ Taskforce on Nature Related Financial Disclosures (TNFD) (2024 June) [Additional Sector Guidance Food and Agriculture](#). p. 7

¹⁴¹ See: Edwards, Theuerkauf (2022 June). [Peatlands, Which Can Help Fight Against Climate Change, Face Many Threats](#)

¹⁴² Marsden, L., Ryan-Collins, J., Abrams, J., and Lenton, T. (2024). [Ecosystem tipping points: Understanding risks to the economy and financial system](#). UCL Institute for Innovation and Public Purpose, Policy Report 2024/03

¹⁴³ For more information on Barclays SIC, see: <https://home.barclays/sustainability/addressing-climate-change/financing-the-transition/sustainable-impact-capital/>

¹⁴⁴ For more information on Agricarbon, see: <https://www.agricarbon.co.uk/>

carbon economy. As at the end of 2023, 21 investments have been made, deploying over £138m since 2020. Following investment, companies are offered access to the Bank's wider ecosystem of support, including access to the bank's incubator programmes, sector specialists and international client base.

MUFG – Projects in sustainable agriculture and to solve nutritional issues

MUFG signed an MoU in March 2024 with AEON AGRI CREATE Co., Ltd. to combine their respective networks to explore, accumulate and explore new promising technologies in sustainable agriculture.¹⁴⁵ MUFG also collaborates with the Japanese Ministry of Health, Labour and Welfare, and the National Institute of Health and Nutrition to prepare Japan's Nutritional Profile, while consulting with clients of major food companies.¹⁴⁶

The Norinchukin Bank – Agriculture carbon credit solutions

The Norinchukin Bank entered a business partnership agreement with Faeger Co. Ltd., a company developing carbon credit solutions for agriculture.¹⁴⁷ The purpose of the partnership is to support the creation of carbon credits to decarbonize the agricultural sector, with a focus on methane emissions reduction via mid-season rice paddy drainage and carbon credit conversion.

Nomura – supporting decarbonization in farming

Nomura Securities and Nomura Farm Hokkaido cooperating with the startups TOWING Ltd and Sagri Co Ltd launched an experiment to decarbonize agriculture using emerging technologies. A cutting-edge soil improvement material is used to convert chemical fertilizers into organic fertilizer, reducing environmental impacts and improving productivity.¹⁴⁸

FOCUS ON WATER SCARCITY

Why is this a critical issue?

Water scarcity is an escalating global challenge, which threatens human health, economic stability and sustainability of ecosystems. Water scarcity impacts key economic sectors like agriculture, manufacturing, and utilities. Agriculture relies on water for irrigation and soil quality, manufacturing requires water for processes, and utilities need it for cooling power stations. Limited water supply can disrupt production, raise operational costs, and drive-up consumer prices, affecting the broader economy.¹⁴⁹ The global water crisis poses a significant threat to over 50% of global food production and is projected to reduce countries' GDPs by an average of 8% by 2050. Low-income countries are expected to face even greater economic impacts, with potential GDP losses of up to 15%.¹⁵⁰ Water crises also drive biodiversity loss as ecosystems reliant on freshwater degrade, impacting nature's ability to provide essential services like water purification and carbon sequestration.

What are the recent trends?

Water is under increasing pressure due to population growth, urbanization, and climate change. Only 0.5% of the world's freshwater is accessible, with the rest locked in glaciers, ice caps, or too polluted or

¹⁴⁵ MUFG (2024) [MUFG TNFD Report](#) (2024) p.33.

¹⁴⁶ MUFG (2024) [MUFG TNFD Report](#). p.34.

¹⁴⁷ The Norinchukin Bank (2024). [Climate & Nature Report 2024](#). p.37.

¹⁴⁸ Nomura (2024). [Nomura Sustainability Report 2024](#). p.45.

¹⁴⁹ Green Finance Institute (GFI) et al. (2024 April) [Assessing the Materiality of Nature-Related Financial Risks for the UK](#). p. 3

¹⁵⁰ Global Commission on the Economics of Water (2024 October). [The Economics of Water: Valuing the Hydrological Cycle as a Global Common Good](#)

costly to extract. Despite some progress, 2 billion people still lack access to clean drinking water, and 2.4 billion live in water-stressed countries. By 2050, demand for water is expected to outstrip supply by 56%, potentially affecting 31% of global GDP, or \$70 trillion, through risks to corporate profits, jobs, and food security. In terms of financial risks, according to Ceres analysis¹⁵¹ 50% of holdings across four major indices (S&P 500, MSCI Emerging Markets, MSCI World, Russell 3000) face medium to high water risks, highlighting that water can be a very material issue for investment portfolios. Notably, MSCI Emerging Markets has the highest exposure to water risk.¹⁵²

What actions are financial institutions taking?

BBVA - New sustainable loan focused on reducing water footprint

BBVA has launched the world's first syndicated 'water footprint' loan, designed to help companies reduce their water usage, with Iberdrola being the first to utilize this product. The €2.5 billion loan, led by BBVA and involving 24 financial institutions, focuses on water-related sustainability metrics, particularly for industries with high water usage such as energy, agriculture, and textiles.

BBVA Mexico - acting as joint bookrunner for the first blue bond for water infrastructure and water use efficiency

BBVA Mexico acting as joint bookrunner, in partnership with Desarrollos Hidráulicos de Cancún (DHC), issued its first blue bond focused on improving water infrastructure and providing clean drinking water to local communities. The bond, valued at MXN 1.4 billion with a three-and-a-half-year term, received a credit rating of HR AA+ from HR Ratings and AA+ (mex) from Fitch Ratings. This initiative is part of BBVA's broader efforts to expand its Blue Economy products. As part of the BBVA Group's long-term strategy, the bank aims to mobilize €300 billion towards sustainable projects between 2018 and 2025.

FOCUS ON OCEAN AND MARINE HEALTH

Why is this a critical issue?

Ocean and marine health have significant socio-economic impact, as ocean and marine ecosystems play crucial role in supporting economic activity and boosting ecosystem, services, which are essential for various industries, including fisheries, tourism, and other sectors. Taking an example, coral reefs play a critical role in supporting tourism, protecting coastlines from floods, and sustaining fish stocks. Hence, coral reef die-offs could have widespread impacts, such as reduced tourism lowers property values, the collapse of fish stocks diminishing revenues, decreasing weakened coastal flood protection doubles the risk of flood damages.¹⁵³

What are the recent trends?

Latest indicators regarding ocean and marine health highlight several critical issues. Marine ecosystems have declined in species diversity, with significant impacts on seabirds, marine mammals,

¹⁵¹ See: Ceres analysis at <https://www.ceres.org/water>

¹⁵² See: Responsible Investor article on Ceres analysis at <https://www.responsible-investor.com/ceres-water/>

¹⁵³ Marsden, L. et al. (2024 April). [Ecosystem tipping points: Understanding risks to the economy and financial system](#), UCL Institute for Innovation and Public Purpose, Policy Report.

fishes, and turtles.¹⁵⁴ Coral reefs are projected to decline by 70-90% with a global warming of 1.5°C above pre-industrial levels, and by more than 99% with warming of 2°C. Over 30% of fish stocks are fished at unsustainable levels, while pollution from fertilizer run-off and sewage contributes to algal blooms, anoxic conditions, and acidification. Additionally, around 8 million tonnes of plastic enter the ocean annually, impacting roughly 500 marine species, with climate change further worsening ocean warming, acidification, and biodiversity loss.¹⁵⁵ Ocean warming, driven by increased greenhouse gases, has intensified marine heatwaves, raised North Atlantic wave heights by up to 20 cm per decade, strengthened hurricanes, and affected marine life, including deep-sea species down to 6,000 meters. Additionally, reduced phytoplankton growth, ocean acidification, and a 2% loss of dissolved oxygen since the 1950s are further disrupting marine ecosystems.

What actions are financial institutions taking?

Barclays - Investment in ecological marine construction technology start-up

Barclays is supporting EConcrete,¹⁵⁶ a company addressing environmental challenges in the coastal and marine construction industries, improving ocean health and coastal resilience. Through its £500 million Sustainable Impact Capital mandate Barclays is helping EConcrete scale its innovative solutions to enhance concrete marine infrastructure to support biodiversity.

BBVA - Blue Bond Colombia (BBVA-IFC)

\$100 million in 2 emissions in collaboration with IFC to be used to support initiatives related to the protection of the country's water resources. Funds are used to finance projects for the construction of water and sewage treatment plants, ocean preservation, and the protection of lakes, moorlands, and mangroves.

MUFG – support for blue finance projects

MUFG supports numerous 'blue finance' projects focused on the sustainable use of ocean resources, including blue bonds for land-based salmon agriculture, projects related to marine and coastal protection, biodiversity and ecosystem restoration.¹⁵⁷ Water resource conservation is also an area of focus, with financing provided to water treatment businesses or employed for the maintenance of sewerage facilities and the construction of a plant that will use seawater (rather than scarcer fresh water) for mining.

FOCUS ON WASTE MANAGEMENT

Why is this a critical issue?

Improper waste management practices contribute to the degradation of natural habitats and have a detrimental impact on biodiversity. Pollution from waste, including toxic waste, results in air, soil, and water pollution, damaging and reducing biodiversity.¹⁵⁸ For example, plastic pollution in marine and aquatic environments has severe consequences for marine biodiversity, with global externalities from plastics pollution estimated at \$139 billion annually, 10% of which this cost arises from its adverse

¹⁵⁴ European Environment Agency (EEA) (2024). [European Climate Risk Assessment](#). p. 64

¹⁵⁵ The Organisation for Economic Co-operation and Development (OECD) (2019). [Biodiversity Finance and the Economic and Business Case for Action](#). p. 20

¹⁵⁶ See: [EConcrete](#)

¹⁵⁷ MUFG (2024). [MUFG TNFD Report](#). p.29.

¹⁵⁸ World Bank (2020). [Mobilizing Private Finance For Nature](#). p. 31

effects on marine biodiversity.¹⁵⁹ The discharge of untreated wastewater and the application of mineral nitrogen fertilizers to crops contribute to land degradation and the emergence of oxygen-depleted 'dead zones' in aquatic environments, unable to support life.

What are the recent trends?

Marine plastic pollution has increased tenfold since 1980.¹⁶⁰ Inadequate disposal of plastic waste, which is prevalent in many countries in South Asia and Sub-Saharan Africa, leads to pollution of rivers and oceans. Furthermore, over 80% of the world's wastewater is discharged untreated into biodiversity-rich freshwater and coastal ecosystems, which is then used to irrigate cropland, exacerbating the issue. According to World Economic Forum,¹⁶¹ improving solid waste management could generate an additional \$305 billion in revenue by 2030 through increased collection and recycling. The global waste management market, valued at \$330 billion in 2017, could more than double¹⁶² by 2030 with investments, especially in South Asia, East Asia, the Pacific, and Sub-Saharan Africa.¹⁶³

What actions are financial institutions taking?

Goldman Sachs - Advisory for environmental services firm acquisition

Goldman Sachs served as the exclusive financial advisor to Milestone Environmental Services, one of the largest independent energy waste sequestration companies in the US, which was acquired by SK Capital Partners in 2023.¹⁶⁴ Thanks to its waste management infrastructure Milestone is able to permanently store hydrocarbon waste deep below the surface, which GHG reduces emissions in the atmosphere as well as ground and water contamination. These services are instrumental in helping Milestone's clients in the oil and gas sector achieve their carbon reduction goals, and the acquisition will ensure that the company is able maintain and expand its offering of alternative sustainable solutions.

HSBC - Landfill waste reduction project in the Philippines

In 2023, HSBC provided a green loan worth USD 24.5 million to a subsidiary of Prime Infrastructure Capital, a firm specialized in sustainable infrastructure for water distribution and waste management.¹⁶⁵ The funding will result in the acquisition and enhancement of a waste management facility in Cebu, Philippines. Improvements to the original facility allow it to recycle domestic and industrial waste, with a future expansion in the works to turn organic and agricultural waste into sustainable fuels. The end result will include a material reduction in the quantities of waste stored in landfills, leading to a marked reduction in methane emissions.

OTHER NATURE-RELATED ACTIVITIES

BBVA - Biodiversity Bond Colombia (BBVA-IFC)

¹⁵⁹ WEF (2020). [New Nature Economy Report II, The Future of Nature And Business](#). p. 22

¹⁶⁰ WWF (2022 May). [A biodiversity guide for business](#). p. 13

¹⁶¹ WEF (2020). [New Nature Economy Report II, The Future of Nature And Business](#). p. 22

¹⁶² Allied Market Research (2019). [Waste Management Market by Waste Type \(Municipal Waste, Industrial Waste, and Hazardous Waste\) and Service \(Collection and Disposal\): Global Opportunity Analysis and Industry Forecast, 2018–2025](#).

¹⁶³ World Bank (2019). [What a Waste 2.0](#)

¹⁶⁴ Goldman Sachs (2024). [2023 Sustainability Report](#). p.57.

¹⁶⁵ HSBC (2024). [Environmental, social and governance review](#). p.62.

BBVA and IFC, a member of the World Bank Group, announced the world's first biodiversity bond in the amount of \$50 million. The resources will be used to finance projects focusing on reforestation, the regeneration of natural forests on degraded land, mangrove conservation or restoration, climate-smart agriculture, wildlife habitat restoration, among others. BBVA Colombia is the issuing bank, with IFC acting as structurer and investor.

Bank of America – Debt-for-nature swap for the Gabonese Republic

BofA acted as initial purchaser, structuring agent, dealer-manager and bookrunner on the first-ever debt-for-nature transaction in Continental Africa, which refinanced \$ 500 million of sovereign debt belonging to the Gabonese Republic.¹⁶⁶ The US International Development Finance Corporation extended \$ 500 million worth of political risk insurance, which resulted in an Aa2 investment grade rating, lowering interest rate payments. The Gabonese Republic will contribute \$ 125 million in new funding for nature and ocean conservation, in line with its commitment to protect 30% of its lands, freshwater systems and oceans by 2030.

HSBC - Ecosystem restoration in Mainland China

As part of its 2021 commitment to invest RMB 100 million over five years to support climate initiatives in mainland China, HSBC cooperated with environmental NGOs to support biodiversity through a variety of ecosystem restoration projects.¹⁶⁷ HSBC provided 'Nature-based Solutions' funding for a series of pilot projects across four Chinese provinces which aim to restore forestry and wetlands, enhance biodiversity and maintained balanced ecosystems.

JPMorganChase - Voluntary carbon markets projects

In 2023, JPMorganChase supported two improved forest management (IFM) initiatives through the purchase of carbon credits: the projects are in Durango State, Mexico and in Maine, U.S.A.¹⁶⁸ Both rely on nature-based solutions to capture more carbon emissions and support local biodiversity. The project in Durango State encompasses over 240,000 acres of pine-oak forests under the collective ownership of local rural communities. Sustainable forest practices are used to enhance biomass growth and increase carbon sequestration. At the same time, the project is the second largest employer in its municipality and has produced other positive developments for local biodiversity, including watershed protection and the restoration of native vegetation. Likewise, the Maine project aims to increase carbon capture by extending forest harvest rotations over 50,000 acres of forest. The initiative directly benefits local wildlife, enriching the forest's biodiversity potential.

MUFG - nature-related risk management case studies: offshore wind power and airport land development projects

In its TNFD report, MUFG introduces two case studies outlining their nature-related risk management project with regard to two infrastructure projects: the construction of multiple offshore wind power facilities, and the development of an airport platform.¹⁶⁹

MUFG – support to nature-related startups (Ex: Biome Inc.)

MUFG invests in startups in areas such as biodiversity data visualization as well as new technologies to reduce impact on forests, oceans and farmlands.¹⁷⁰ Biome Inc., one of these startups, developed a unique platform to collect real-time biodiversity data via smartphones. The Biome App allows users to identify plants and animals belonging to more than 100,000 species. Biome used the data to create the

¹⁶⁶ Bank of America (2024). [Annual Report 2023](#). p.42.

¹⁶⁷ HSBC (2024). [Green Nature](#)

¹⁶⁸ JPMorganChase (2024). [2023 Environmental Social Governance Report](#). p.37.

¹⁶⁹ MUFG (2024). [MUFG TNFD Report](#). p.44.

¹⁷⁰ MUFG (2024). [MUFG TNFD Report](#). p.26.

largest real-time biological database in Japan, counting more than 6.5 million species. Thanks to collaborations with the University of Tokyo and Kyoto University, advanced analytical techniques enable Biome to investigate the status of thousands of species in each region, supporting nature-positive action.

MUFG – Consulting to clients on natural capital management

Starting from April 2024, MUFG provides a ‘TNFD Initial Support Tool’ to help clients diagnose and visualize issues related to natural capital management.¹⁷¹ Since 2022, MUFG has been collaborating with Tokio Marine & Nichido Co. to provide TCFD disclosure consulting services and plan to develop similar TNFD disclosure support.

MUFG – Food-X Project Team

The Food-X Project Team is an initiative aiming to solve social issues related to food. The project will connect various stakeholders involved in food-related issues, from clients and startups to academia. As part of these efforts, the Bank will become an innovation partner of Next Prime Food, a consortium launched to accelerate the development of new businesses and support the growth of food tech-related technologies.¹⁷² Since 2021, MUFG has held an annual ESG Accelerator Program to support venture companies since 2021. Venture companies trying to achieve sustainable food and biodiversity are subject to this program in 2024. The Bank also sponsored SKS Japan, a food tech event held in July 2023.

Standard Chartered – University expansion in Angola offering capacity-building for nature-related sectors

Standard Chartered facilitated a \$ 73 million social loan for the expansion of the University of Namibe in Angola. The project aims to establish a university campus offering professional training programs for fishery, technology and nature.¹⁷³

Standard Chartered – Research on nature-based solutions adoption

Standard Chartered sponsored research by the Imperial College London’s Centre for Climate Finance and Investment to explore the potential and of nature-based solutions and the challenges to their widespread adoption.¹⁷⁴

SMBC - Natural Capital Management Promotion & Analysis Loan

SMBC launched the ‘Natural Capital Management Promotion & Analysis Loan’ In April 2024. SMBC and Japan Research Institute diagnose and analyse our customers’ initiatives and information disclosure related to natural capital management, offering a loan product that provides feedback on future challenges, proposed measures, and case studies of initiatives. Through this loan, we support our clients’ initial steps towards natural capital management and TNFD disclosure and contribute to the realization of a nature-positive future.

The Norinchukin Bank – Visualizing the relationship between nature and value chains using trade statistics

To improve the accuracy of value chains’ impact on nature, which is often performed only at the economic sector level, the Bank partnered with Think Nature Inc. to apply the LEAP approach more accurately to financial institutions’ portfolios.¹⁷⁵ Exploiting big data methodologies, Think Nature

¹⁷¹ MUFG (2024). [MUFG TNFD Report](#). p.23.

¹⁷² MUFG (2024). [MUFG TNFD Report](#). p.32.

¹⁷³ Standard Chartered (2024). [2023 Sustainable Finance Report](#). p.7.

¹⁷⁴ Standard Chartered (2021). [Unlocking the potential of nature-based solutions](#)

¹⁷⁵ The Norinchukin Bank (2024). [Climate & Nature Report 2024](#). p.68.

developed unique conservation metrics, such as a Mean Species Abundance (MSA) parameter, to analyze the importance of nature at various levels of the value chain. This analysis enabled the Norinchukin Bank to visualize connections to value chains in areas with high conservation priority and to develop nature-related strategies.

UBS – Galp Energia

UBS engaged with Galp, an energy supplier focused on the energy transition, to address its governance, sustainability, and decarbonization efforts. UBS initiated six meetings in 2023, engaging with senior leaders, including the board chair, CEO, and sustainability experts. The discussions focused on board evaluation, governance improvements, and enhancing sustainability reporting, especially regarding natural capital, biodiversity, and water targets. UBS also encouraged Galp to improve its energy transition communication, develop a 'nature-positive' action plan, and get decarbonization targets verified by the Science Based Targets initiative (SBTi). As a result, Galp is revising its board evaluation framework, succession planning, and reporting, with plans to enhance its natural capital policy and environmental management systems in 2023. UBS will continue to engage in 2024 to further support Galp's ambition in the energy transition and governance.¹⁷⁶

¹⁷⁶ UBS (2023). [Stewardship annual report – UBS Asset Management](#). p 23