

The TNFD Nature-related Risk & Opportunity Management and Disclosure Framework



Beta v0.1 Release

**A Prototype for Consultation
with Market Participants**

March 2022

Foreword

With half of the world's GDP moderately or highly dependent on nature and its services, financial institutions and businesses can no longer afford to overlook nature in strategy, risk management and capital allocation decision making.

The size and frequency of nature-related losses, and related impact on economies and societies is becoming clearer every year. Encouragingly, so too is understanding that nature-related risk is as great a challenge as climate risk. As such, the release of this first beta version of the TNFD framework could not be more timely.

Since the official launch of the Taskforce on Nature-related Financial Disclosures in June 2021, we have seen the momentum in the market behind the urgent need for action on managing nature-related risk grow.

We are delighted with how our 34 Taskforce Members representing the market have stepped up to create this risk management and disclosure framework. This first prototype framework, now open for feedback from market participants, is an important step by the market to tackle the risk of nature loss, incorporating nature-related risk and opportunity analysis into the heart of corporate and financial decision making.

The ongoing input of leading science bodies is critical to ensure that the TNFD framework is science-based. Our framework also builds upon existing standards, data and research, and it has been created for future alignment with the global baseline for sustainability standards and other frameworks that are currently being developed.

The scope and workplan for the TNFD was set out back in June 2021 after a nine-months preparatory phase of the Informal Working Group, and we are pleased to see the beta release as a first milestone delivery building on that plan. The framework is anchored by three core components: foundational concepts and definitions; disclosure recommendations aligned to the Task Force on Climate-related Financial Disclosures (TCFD); and 'how to' guidance for nature-related risk and opportunity analysis.

We look forward to receiving your input on our framework as we continue our work. We believe that the open innovation approach we are taking, encouraging market participants to support development of the framework through an iterative process over the next 18 months, will give us the best chance to provide the market with a relevant, usable and robust final framework and set of recommendations in late 2023.

We would like to thank all market participants and stakeholders that have contributed to this beta release: the 34 Members of the Taskforce for their hard work, the 13 core knowledge partners for their technical support; our founders and funders represented on the TNFD Stewardship Council; and the now over 300 members of the TNFD Forum for their participation in our mission.

It is only through joint efforts, collaboration and broad, global support that we get closer to achieving TNFD's ultimate aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes.

Elizabeth Mrema & David Craig

Co-Chairs, Taskforce on Nature-related Financial Disclosures (TNFD)



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Executive Summary

Why nature-related risk and opportunity management matters

More than half of the world's economic output – US\$44 trillion of economic value generation – is highly or moderately dependent on nature¹. Yet most companies, investors and lenders today inadequately account for nature-related risks and opportunities in their decisions. The Taskforce on Nature-related Financial Disclosures (TNFD) was established in response to the growing appreciation of the need to factor nature into financial and business decisions.

The TNFD is a global, market-led initiative with the mission to develop and deliver a risk management and disclosure framework for organisations to report and act on evolving nature-related risks, with the ultimate aim to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. The TNFD framework is intended for use globally by corporates and financial institutions of all sizes.

Our approach to developing the TNFD framework

The Taskforce is developing the TNFD framework through an open innovation approach with market participants and with the benefit of the expertise provided by a global network of knowledge partners from science, standards, data, technology, finance, business, policy and regulation.

This document and the accompanying online portal represent an initial beta version (v0.1) of the TNFD framework. It represents the beginning of the TNFD's consultation and pilot testing with market participants. This feedback and testing approach will inform subsequent releases of beta versions through 2022 and 2023 before the Taskforce launches its final recommendations in late 2023.

As such, this beta release is open for feedback from market participants and the TNFD welcomes contributions through its online platform. By taking this open innovation approach, the TNFD aims to ensure its final recommendations are both science-based and practical to implement by market participants globally, thereby advancing approaches to factor nature into financial and business decision making.

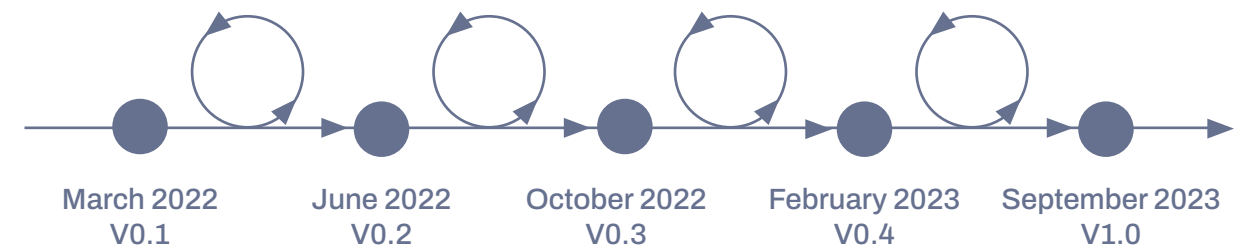


Figure 1: Timeline for releases of beta versions of the TNFD framework

Market participants have been clear in advocating for a nature-related risk management framework that is consistent with the emerging global baseline for sustainability reporting. As such, the TNFD has set out to build upon the approach taken by the Task Force on Climate-related Financial Disclosures (TCFD) and align with the emerging global baseline for sustainability standards currently under development by the International Sustainability Standards Board (ISSB) with the flexibility for those who want to disclose, or are required to disclose, to a materiality threshold additional to the global baseline to do so.

Overview of the first beta version of the TNFD framework

The TNFD framework seeks to provide recommendations and guidance on nature-related risks and opportunities relevant to a wide range of market participants, including investors, analysts, corporate executives and boards, regulators, stock exchanges and accounting firms.

The framework is being developed following the TNFD principles to be market usable, science-based, purpose driven, integrated and adaptive, globally inclusive, and embracing a full approach to nature-related risks and employing an integrated approach to climate- and nature-related risks.

The first beta version of the TNFD framework includes three core components:

- A.** An outline of fundamental concepts and definitions for understanding nature that the TNFD recommends market participants use when assessing and disclosing their nature-related risks and opportunities;
- B.** TNFD's draft disclosure recommendations for nature-related risks and opportunities; and
- C.** Guidance for corporates and financial institutions to undertake nature-related risk and opportunity assessment and incorporate into their enterprise strategy and risk management processes to inform a range of corporate and capital allocation decisions, including those relating to reporting and disclosure.

Additional elements will be added in future beta versions of the framework (see next figure).

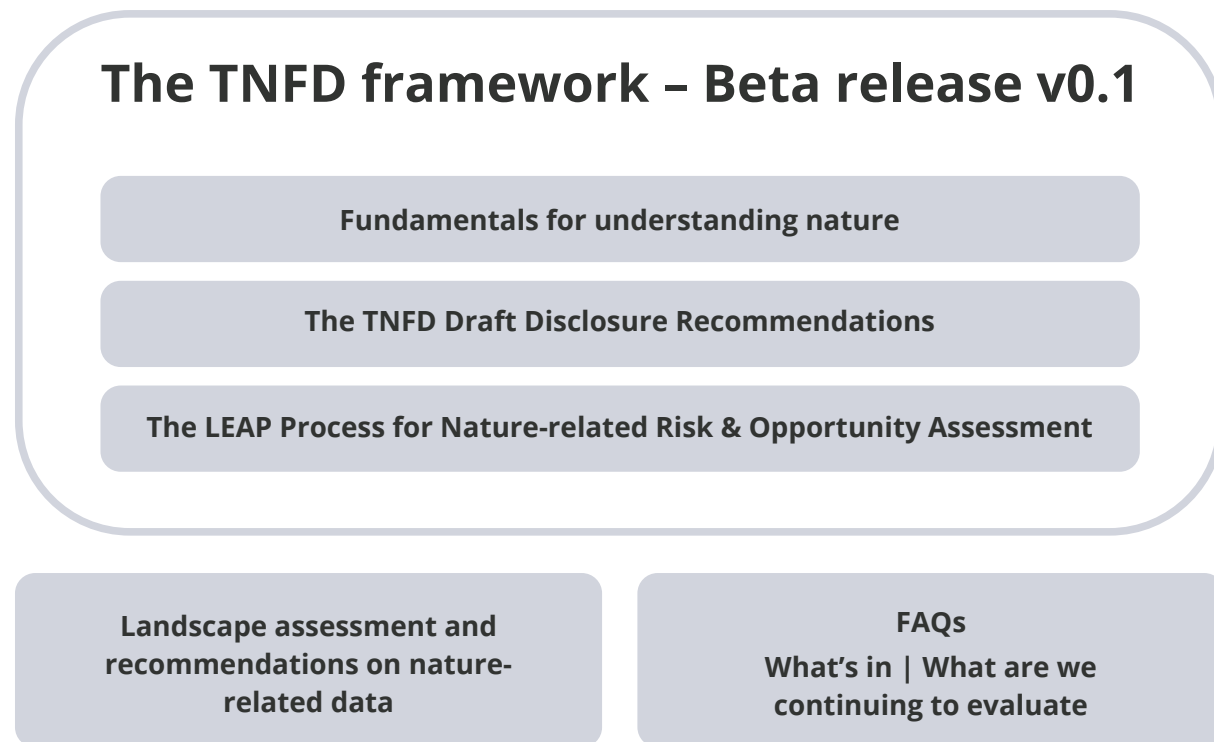


Figure 2: Core components of the TNFD framework

A. Fundamental concepts and definitions for understanding nature

The TNFD's fundamental concepts and definitions for understanding nature draws on the most authoritative science- and consensus-based existing definitions. The TNFD recommends market participants use these building blocks and language system when assessing, managing and disclosing nature-related risks and opportunities.

TNFD's definitions of nature

The TNFD defines nature as a construct of four **realms** – Land, Ocean, Freshwater and Atmosphere². These provide an entry point for understanding how organisations and people depend on and impact **natural capital**, which the TNFD defines as natural resources that combine to yield a flow of benefits to people. Just as in the financial world, where assets exist that give rise to flows of revenue, nature consists of stocks of environmental assets that give rise to associated flows of benefits to people and the economy.

The TNFD defines **environmental assets** as the naturally occurring living and non-living components of the Earth, for example, forests, wetlands, coral reefs and agricultural areas. Ecosystems are an important part of these assets, and the TNFD defines them as a dynamic complex of plants, animals and microorganisms, interacting with each other and their non-living

environment. They support the provision of ecosystem services, which deliver benefits (the goods and services that are ultimately used by people and society) to business. **Biodiversity** is an essential characteristic of nature that is critical to maintaining the quality, resilience and quantity of ecosystem assets and the provision of ecosystem services that business and society rely upon.

TNFD's definitions of dependencies and impacts

The TNFD defines **dependencies** as ecosystem services that an organisation relies on for their business processes to function, such as a clean and regular water supply. Organisations also have **impacts** on environmental assets and ecosystem services that may be positive or negative. Short-term impacts on nature can result in changes in the quality and resilience of environmental assets, which in turn create medium- and long-term risks for organisations, given their dependencies. In short, today's nature impacts can create tomorrow's **nature-related risks** and opportunities.

TNFD's definitions of nature-related risks and opportunities

The TNFD defines nature-related risks as the potential threats posed to an organisation linked to its and other organisations' dependencies on nature and nature impacts. These can derive from physical, transition and systemic risks. In addition to shorter-term financial risks (deemed material today), the TNFD's definition of nature-related risks includes longer-term risks presented by nature-related dependencies and nature impacts.

This complex interplay of dependencies and impacts over multiple time periods can result in earnings and cashflow vulnerability that transmits into a broader range of financial risks, including market, credit and liquidity risks. An organisation's actions to manage these issues – through, for example, governance, strategy and risk management – can give rise to financial opportunities. Failure to take actions to manage these issues can create risks linked to, for example, asset devaluation, supply chain resilience, reputation and license to operate, and shifting demands. These risks and opportunities for corporates translate into financial risk for financial institutions.

Nature-related opportunities, not only nature-related risks, are core to the TNFD framework. The TNFD defines nature-related opportunities as activities that create positive outcomes for organisations and nature by avoiding or reducing impact on nature or contributing to its restoration. Nature-related opportunities can occur: i) when organisations mitigate the risk of natural capital and ecosystem services loss; and ii) through strategic transformation of business models, products, services and investments that actively work to halt or reverse the loss of nature, including by implementation of nature-based solutions (or support for them through financing or insurance).

B. TNFD draft disclosure recommendations

In response to clear calls from market participants for a consistent and integrated approach to sustainability reporting, the TNFD's draft disclosure recommendations explicitly build on those already recommended by the TCFD. They follow the TCFD's four pillars of disclosure: governance, strategy, risk management and metrics and targets.

By aligning the TNFD's recommended disclosures closely to those of the TCFD, the TNFD intends to facilitate and encourage a move towards integrated disclosures.

The draft recommendations also include four general requirements that disclosures should be based on:

- assessment of nature-related dependencies and nature impacts;
- consideration of location;
- consideration of capabilities for nature-related risk and opportunity assessment and management; and
- a statement of the scope of disclosures and what will be covered in future disclosures.



Figure 3: TNFD draft disclosure recommendations

C. A nature-related risk and opportunity assessment approach – Introducing LEAP

Based on feedback from market participants that practical guidance would be helpful to enable more organisations to incorporate nature considerations into enterprise and portfolio risk management process, the TNFD has developed a first version of an integrated nature-related risk and opportunity assessment process, called LEAP (Locate, Evaluate, Assess, Prepare).

The LEAP approach is voluntary guidance intended to support internal nature-related risk and opportunity assessments within corporates and financial institutions, which should in turn inform strategy, governance, capital allocation and risk management decisions, including disclosure decisions aligned with the TNFD's draft disclosure recommendations.

The LEAP approach involves four core phases of analytic activity:

- **Locate** your interface with nature;
- **Evaluate** your dependencies and impacts;
- **Assess** your risks and opportunities; and
- **Prepare** to respond to nature-related risks and opportunities, and report to investors.

The core audiences for this first prototype of the LEAP approach are financial report preparers and users (e.g. investors, creditors and insurers), as well as risk management and operations teams. LEAP is designed to enable a wide range of corporates – publicly listed or privately held, multinational or a small to medium size enterprise – to undertake a structured, step-wise and science-based assessment of nature-related risks and opportunities through an understanding of their nature-related dependencies and nature impacts.

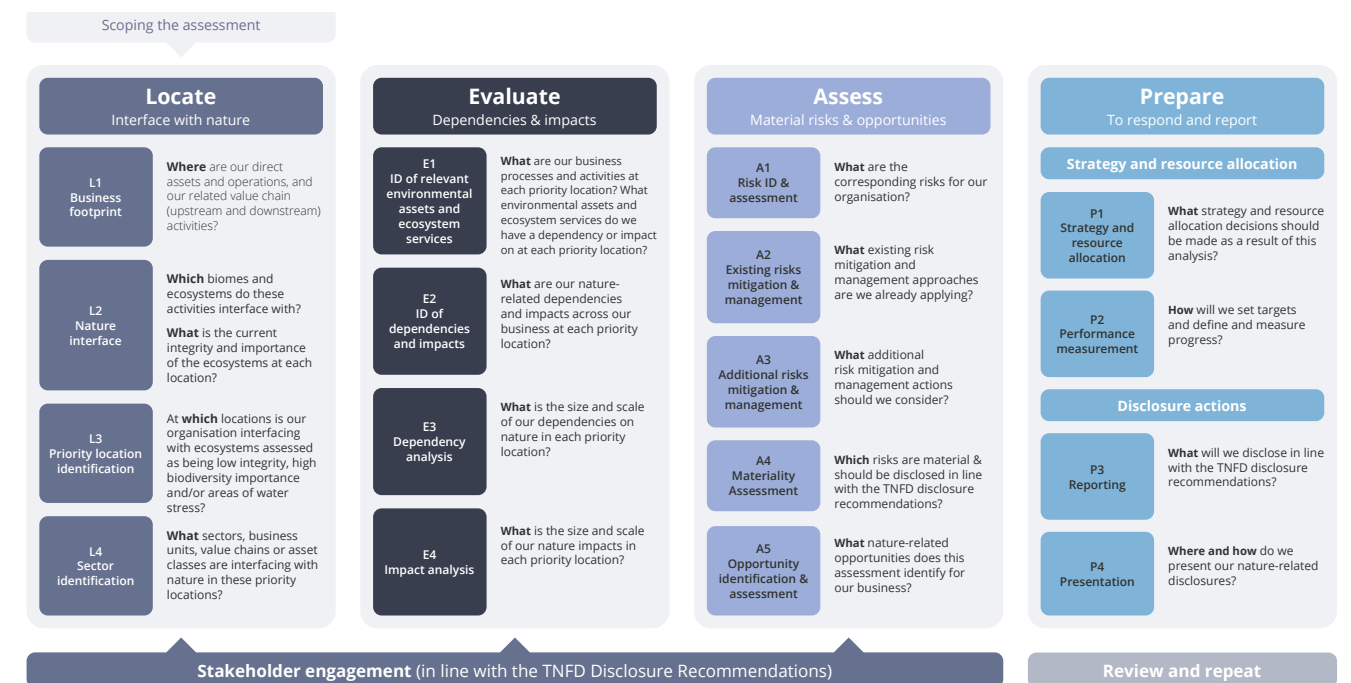


Figure 4: The LEAP approach

The TNFD recognises that some organisations may already be using their own proprietary process for assessment, and may therefore not consider nature-related risks and opportunities in the exact same step-wise process outlined in LEAP. The LEAP approach is built around discrete, analytic components that the TNFD believes need to be undertaken for a robust assessment of nature-related risks and opportunities, based on an understanding of nature-related dependencies and impacts. While the LEAP approach is voluntary guidance, the TNFD believes it is critical that any similar approach used by analysts and preparers includes the same components and considerations.

The TNFD also recognises that the scope and type of analysis is different for financial institutions, depending on the type of financial institution, asset class or product type, sector, geography or investment theme, for example. The Taskforce has outlined in this first beta version of the framework a version of the LEAP approach for financial institutions that will be further developed and refined. The Taskforce welcomes feedback from financial institutions as the TNFD continues to develop LEAP for this sector.

Priority areas for further framework development

Further work is underway by the Taskforce on the following areas, which will be part of future releases. They include the links to, and complex interplay with, climate (the climate-nature nexus), scenario development, the scope of disclosures, social dimensions, defining nature-positive, data and metrics, and sector-specific guidance.

Engage – Co-create the TNFD framework

Nature-related risks and opportunities must become part of the broader risk management and valuation calculus for corporates and financial institutions. The TNFD invites market actors, policy makers, regulators, scientists and other stakeholders to test and provide feedback on this first beta version of the TNFD framework on the TNFD's interactive online platform.



1. Why nature-related risk and opportunity management matters

Nature underpins the global economy. More than half of the world's economic output – US\$44 trillion of economic value generation – is highly or moderately dependent on nature³. Our economies are embedded within nature, not external to it⁴. Yet most corporates, investors and lenders today are inadequately accounting for nature-related risks and opportunities. Corporates are failing to consider how their supply chains, operations and enterprise values depend on, and impact, nature. In turn, lenders and investors are not assessing nature-related risks and opportunities across their loan books and investment portfolios.

The natural world is in crisis, with nature deteriorating worldwide at a faster pace than any time in human history. That means many of nature's vital services that benefit people are also declining⁵. Continuing along the current path of underinvestment in nature presents extreme risks and uncertainty for our economies, financial systems and society⁶. We are already operating outside the safe zones for four of the nine planetary boundaries, processes that are critical for maintaining the Earth's stability⁷.

The impacts of extreme weather events and biodiversity loss are now second and third behind climate change as the most severe risks identified by global executives for the next decade⁸. These risks are also interlinked: we cannot mitigate – and adapt to – the adverse impacts of climate change without investing in nature's capacity to store carbon and support resilient societies.

Leading market players and governments recognise the need for urgent action to halt and reverse nature loss. Later this year, governments will negotiate a global set of nature goals under the Global Biodiversity Framework under the authority of the UN Convention on Biological Diversity (CBD). The CBD's draft framework highlights that the business and finance community have a critical role to play. Many corporates and financial institutions are now committing to science-based nature targets as well as climate targets. A growing number of organisations are recognising that nature must be factored into all decision-making, including financial, economic and business decisions⁹.

“

A move to ultimately mandatory standards [for nature-related risks] is appropriate. The Taskforce on Nature-related Financial Disclosures, which is a voluntary process, could ideally provide some basis for this.

Mark Carney

UN Special Envoy for Climate Action and Finance



2. Introducing the TNFD framework

The Taskforce on Nature-related Financial Disclosures (TNFD) was established in response to the growing appreciation of the need to factor nature in financial and business decisions. The TNFD is a global, market-led initiative with the mission to develop and deliver a risk management and disclosure framework for organisations to report and act on evolving nature-related risks and opportunities, with the ultimate aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes.

The TNFD framework is intended for use globally by corporates and financial institutions of all sizes. The TNFD follows in the footsteps of the work of the Task Force on Climate-related Financial Disclosures (TCFD) on climate risk management and disclosures, but focuses on ensuring that nature-related risks and opportunities are effectively understood and communicated by corporates to the financial community. The TNFD’s work is a part of the wider system of activities that are shaping markets and economies to be sustainable. The Taskforce is committed to ensure that its process and the TNFD framework are complementary to these wider developments.

The TNFD framework is being developed by the Taskforce, which sits at the heart of the TNFD initiative. The Taskforce is made up of 34 senior executives drawn from corporates, financial institutions and market intermediaries around the world and led by the TNFD Co-Chairs, Elizabeth Mrema and David Craig¹⁰. Collectively, the Taskforce Members represent institutions with a combined market capitalisation of over US\$3.1 trillion, over US\$18.3 trillion in assets under management and a footprint in over 180 countries. A global network of 13 core knowledge partners, including leading global scientific, conservation and standards development bodies, have also contributed to the development of specific aspects of the framework¹¹.

2.1. Developing the TNFD framework – Our approach

The TNFD has set out to accelerate action by developing and promoting the adoption of an integrated risk management and disclosure framework. The framework will be directly usable and valuable to financial report preparers and users, aggregate the best metrics, data and tools already existing or in development in the market, and follow a science-based approach. To

achieve this, the TNFD is adopting an open innovation approach centered around feedback and pilot testing with market participants and supported by expert input from a wide range of knowledge and implementation partners.

This release of a first beta version (v0.1) of the TNFD framework is intended to start a dialogue with a broad cross-section of market participants about how best to assess and respond to nature-related risks in a manner that is both science-based and practical to implement. Subsequent releases of the beta framework will be released through 2022 and 2023, before the launch of the Taskforce’s final recommendations in September 2023 (see figure below).

The TNFD invites market participants and other stakeholders, including policy makers, regulators, scientists, conservation organisations and local and Indigenous peoples’ organisations, to provide feedback on the beta version of the TNFD framework through the TNFD’s interactive online platform (see section 7 for detailed guidance on how to get involved).

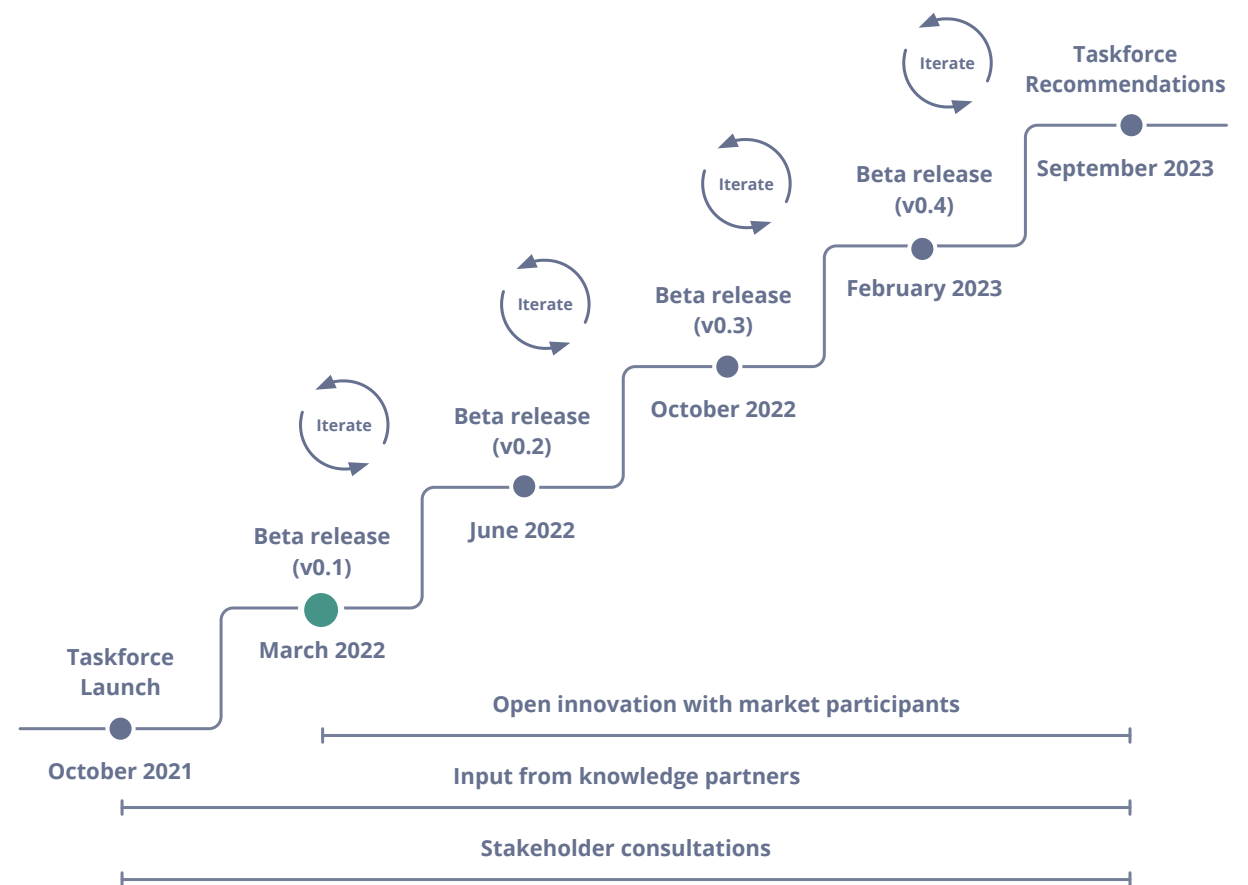


Figure 5: Open innovation timeline for developing the TNFD framework

Market participants have also been clear in advocating for a nature-risk assessment framework that is consistent with the emerging global baseline for sustainability reporting. As such, the TNFD has set out to build upon the approach adopted by the TCFD and align with the emerging global baseline for sustainability standards currently under development by the International Sustainability Standards Board (ISSB).

2.2. The TNFD framework – An overview

The TNFD framework seeks to provide recommendations and guidance of relevance to a wide range of market participants, including investors, analysts, corporate executives and boards, regulators, stock exchanges and accounting firms. It has been developed following the TNFD principles of being market usable, science-based, purpose driven, integrated and adaptive, and globally inclusive, while embracing a broad approach to nature-related risks and employing an integrated approach to climate- and nature-related risks.

The beta version of the TNFD framework includes three core components:

- A.** An outline of fundamental concepts and definitions for understanding nature that the TNFD recommends market participants use when assessing and disclosing their nature-related risks and opportunities;
- B.** TNFD's draft disclosure recommendations for nature-related risks and opportunities; and
- C.** Guidance for corporates and financial institutions to incorporate nature-related risk and opportunity assessment into their enterprise strategy and risk management processes to inform a range of corporate and capital allocation decisions, including those related to reporting and disclosure.

All components of the beta version of the framework are available in full on the TNFD's interactive online platform.

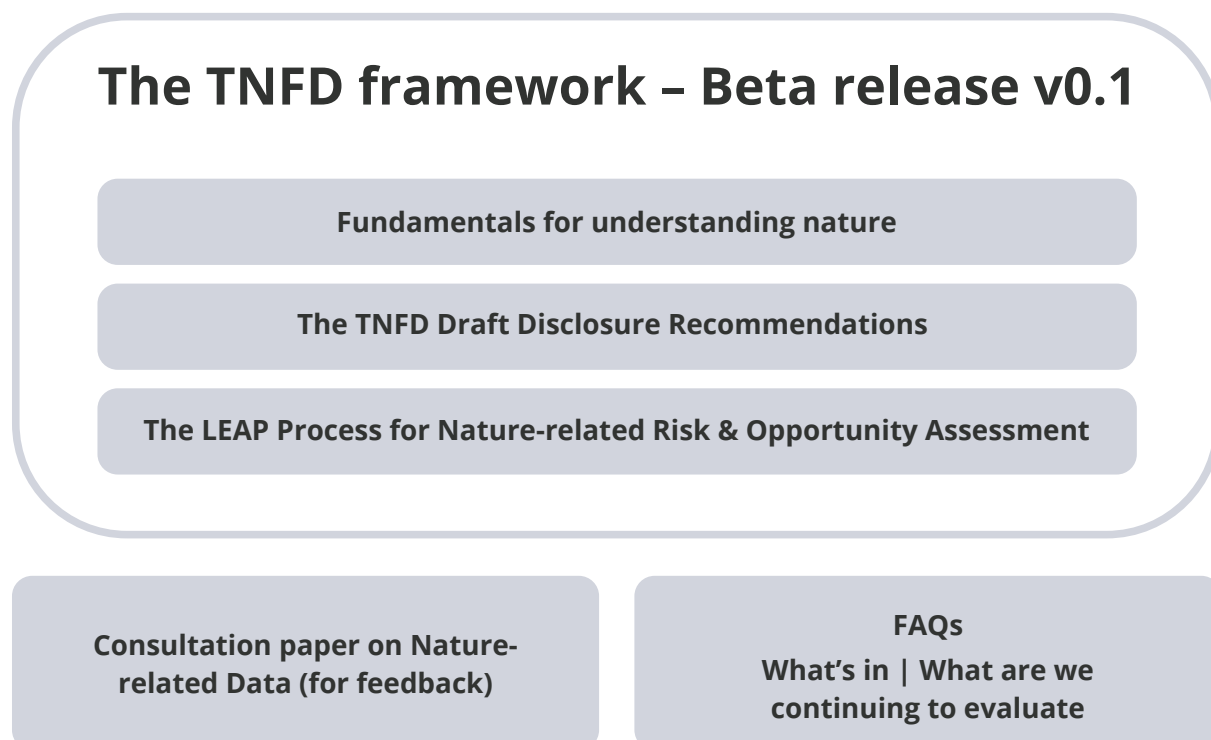


Figure 6: Core components of the TNFD framework

2.3. Who the TNFD framework is designed for

- 1. Investors and financial institutions:** Support more informed and robust capital allocation decisions and active ownership strategies based on clarity, confidence and trust in data relating to nature-related risks and opportunities.
- 2. Analysts:** Enable high-quality and timely analysis that incorporates nature-related risks to support the determination of potential and likely impacts on future cash flow and company valuations.
- 3. Corporates:** Inform better corporate strategy, governance and risk management decision making, and the incorporation of nature-related risk assessments alongside, and ideally integrated with, climate-related risk reporting in statutory reporting to markets and regulators.
- 4. Regulators:** Ensure recommendations and guidance align with existing disclosure mechanisms, standards and other jurisdiction-specific regulatory requirements.
- 5. Stock exchanges:** Support and encourage consideration of new voluntary and mandatory listing requirements linked to nature-related risks, as well as opportunities for new listed equity offerings that encourage nature-positive outcomes.
- 6. Accounting firms:** Enable comprehensive company assurance that incorporates nature risk and opportunity considerations, and support internal risk functions.
- 7. Environmental, Social and Governance (ESG) data providers, credit rating agencies and financial data and infrastructure providers:** Enable support to investors and financial decision makers with consistent and robust data and insights on how corporates manage their nature-related risks.

As we have seen in the growth of climate-related reporting, demand for disclosure from investors and others is now strong and widespread. For many investors, company disclosures on climate are considered essential to their full disclosure of material risks.

Large asset owners and asset managers also play a catalytic role, as they influence the organisations they invest in to provide nature-related financial disclosures and strengthen their management of nature-related risks and opportunities. This also applies to lenders, including development financiers. Corporates have been found to be 2.3 times more likely to disclose across climate, forests and water themes when financial institutions request them to do so¹².

In addition, governments and regulators are considering nature-related risk management and disclosure, expanding the work they have already undertaken on climate-related risks. Eight jurisdictions, including the United Kingdom, Japan, Singapore and the European Union, have now mandated the incorporation of TCFD recommendations into their national reporting regimes¹³. The more than 100-strong network of global central banks and supervisors, the Network for Greening the Financial System (NGFS), is now exploring the impacts of nature and biodiversity loss on systemic risks to financial system stability. Many national governments, central banks,

regulators and public sector organisations formally support the TNFD as members of the TNFD Forum, a global and multi-disciplinary consultative network of over 300 institutional supporters who share the vision and mission of the TNFD¹⁴.



We look forward to the establishment of the Taskforce on Nature-related Financial Disclosures and its recommendations.

G7 Finance Ministers



The TNFD will play a shaping role in providing a reporting framework that will allow for consistent and comparable reporting

Network for Greening the Financial System, Study Group on Biodiversity and Financial Stability

2.4. Framework development principles

The TNFD framework is being developed following the TNFD principles¹⁵:

- **Market usability:** Directly usable and valuable to market participants, notably corporates and financial institutions, as well as policy and other actors.
- **Science-based:** Follow a scientifically anchored approach, incorporate well established and emerging scientific evidence, and converge towards other existing science-based initiatives.
- **Nature-related risks:** Embrace nature-related risks that include immediate and material financial risks, as well as nature dependencies and impacts and their related organisational and societal risks.
- **Purpose driven:** Actively reducing risks and increasing nature-positive action by using the minimum required level of granularity to ensure achievement of the TNFD goal.
- **Integrated and adaptive:** Can be integrated into and enhance existing disclosures and other standards. Account for and be adaptive to changes in national and international policy commitments, standards and market conditions.
- **Climate-nature nexus:** Employ an integrated approach to climate- and nature-related risks, scaling up finance for nature-based solutions.

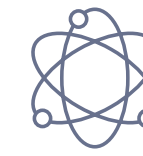
- **Globally inclusive:** Ensure the framework and approach is relevant and accessible worldwide, across emerging and developed markets.



Nature-related Risks



Market Usability



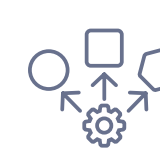
Science-based



Globally Inclusive



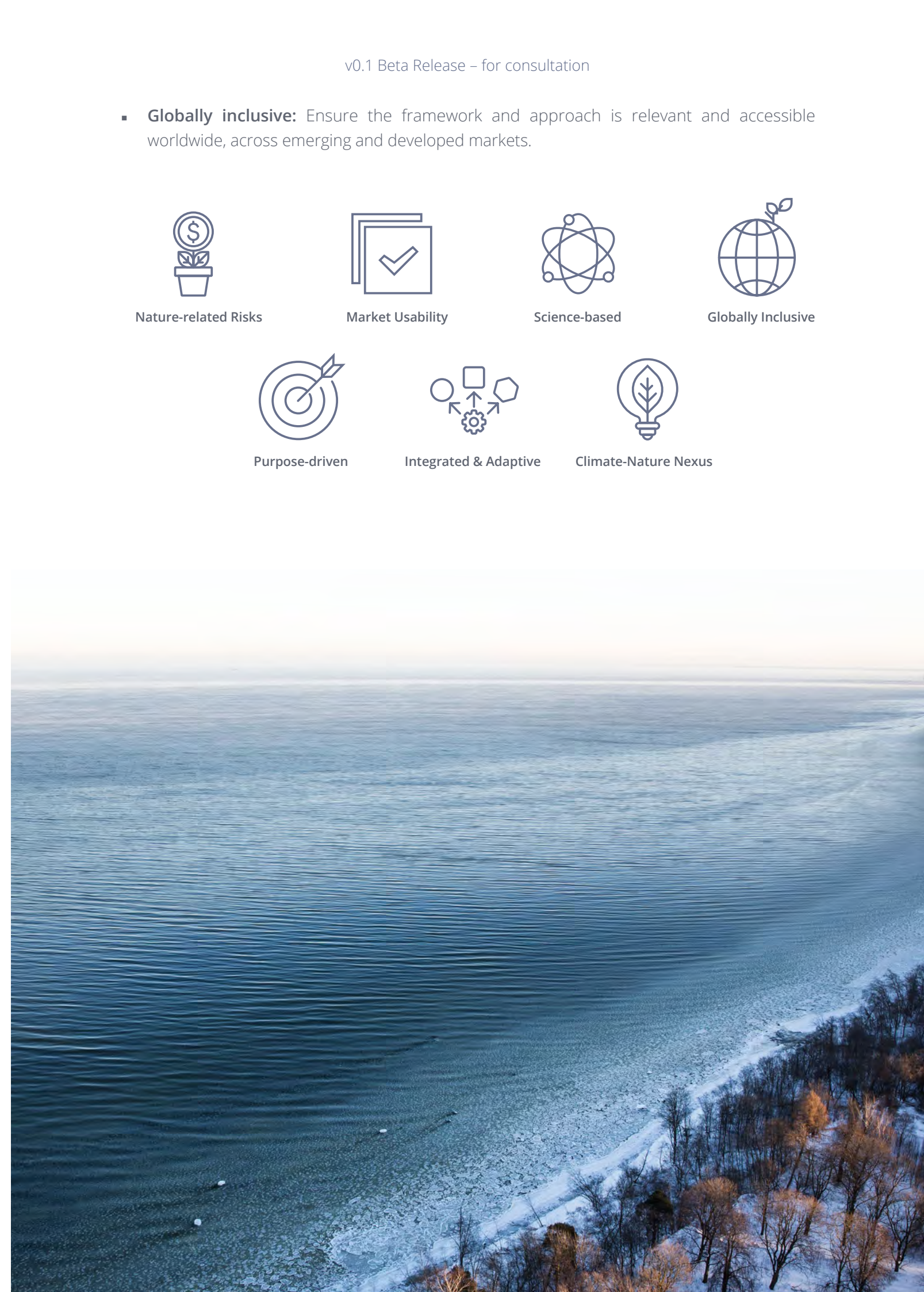
Purpose-driven



Integrated & Adaptive



Climate-Nature Nexus



3. Understanding nature – Fundamental concepts & definitions for nature-related risks & opportunities

Over the past decade, market participants have developed and learned a language system to talk about, and respond to, climate change. Climate terminology has become part of the essential business lexicon for informing and making corporate and investment decisions that determine the flow of trillions of dollars of capital. No equivalent language system yet exists for nature and nature-related risks.

At the heart of the Taskforce's early work has been the identification – and definition – of a set of fundamental concepts that the TNFD recommends market participants use to understand, assess and report on their nature-related risks and opportunities. The Taskforce has worked closely with some of the world's leading scientific and conservation organisations to ensure the TNFD's recommendations draw on authoritative and consensus-based definitions as the foundation of a market-accessible language system for understanding nature.

The full set of core recommended definitions are provided in the TNFD glossary of key terms (Annex 1).

3.1. TNFD's definitions of nature

The working definition of **nature** in the TNFD framework is the natural world, with an emphasis on the diversity of living organisms (including people) and their interactions among themselves and with their environment. People and societies interact with nature and are not separate from it. Nature can be understood through a construct of four **realms** – Land, Ocean, Freshwater and Atmosphere. These are major components of the natural world that differ fundamentally in their organisation and function. Atmosphere is included in the framework to reflect the

close association between climate- and nature-related risks and opportunities, while also acknowledging that links with climate mitigation and adaptation occur across all realms. Further details on these realms are provided on the TNFD's interactive online platform.

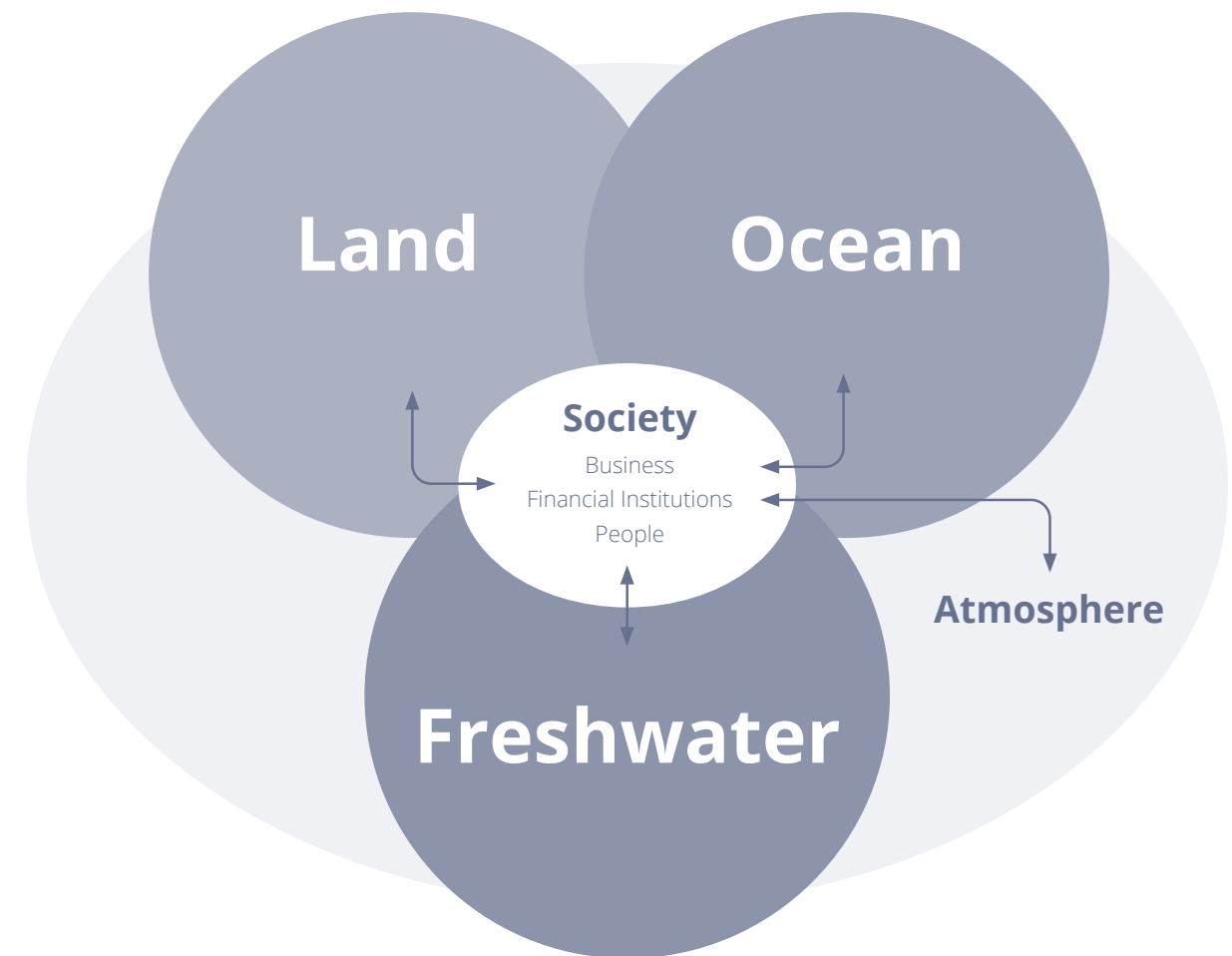


Figure 8: Nature's four realms – Land, Ocean, Freshwater and Atmosphere

Society interacts with and across all four realms and therefore sits at the centre. People, including corporates and financial institutions, both depend on, and have impacts on, nature. As such, society both contributes to – and is affected by – the main drivers of nature change.

The four realms provide an entry point for understanding how organisations and people depend on, and have impacts on, the natural capital that provides the resources and services from which business and societies benefit. The TNFD defines **natural capital** as the stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people¹⁷.

Just as in the financial world, where assets exist that give rise to flows of revenue, nature can be conceived of consisting of stocks of **environmental assets** that give rise to associated flows of benefits to people and the economy. The TNFD defines environmental assets as the naturally occurring living and non-living components of the Earth, for example, forests, wetlands, coral

reefs and agricultural areas. Together, they constitute the biophysical environment, which may provide benefits to humanity. The TNFD aligns with the UN System of Environmental-Economic Accounting Ecosystem Accounting (UN SEEA EA) in its list of environmental assets upon which corporates and financial institutions depend for their business operations and enterprise value, and which they may impact¹⁸. A list of environmental assets is provided in the TNFD's online platform.

The TNFD defines **ecosystem assets** as a form of environmental assets that relate to diverse **ecosystems**, where an ecosystem is a dynamic complex of plant, animal and microorganism communities and the non-living environment that interacts as a functional unit¹⁹.

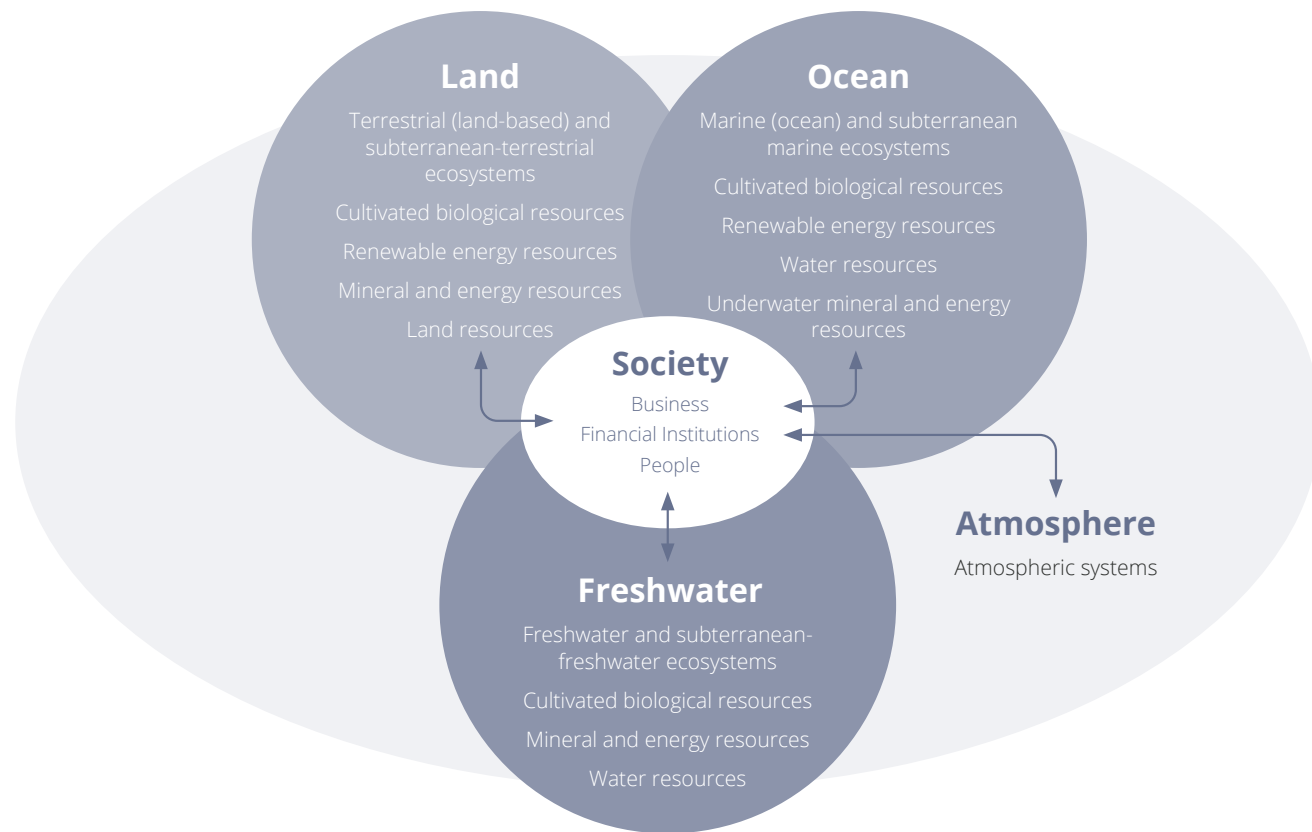


Figure 9: Environmental assets by realm²⁰

The concept of nature as a set of capital assets – producing flows of benefits and having direct links to a healthy global economy – acknowledges that any adverse changes in natural capital have a potentially negative effect on the ecosystem services upon which businesses and economic activity rely.

Natural capital underpins our economy and society as a stock of assets providing humanity with a flow of services. Ecosystem services provide benefits (the goods and services that are ultimately used and enjoyed by people and society) to business.

The TNFD defines **ecosystem services** as falling into one or several of these categories:

- 1. Provisioning services** represent the contributions to benefits that are extracted or harvested from ecosystems (e.g. timber and fuel wood in a forest, freshwater from a river).
- 2. Regulating and maintenance services** result from the ability of ecosystems to regulate biological processes and to influence climate, hydrological and biochemical cycles, and thereby maintain environmental conditions beneficial to individuals and society. Provisioning services are dependent on these regulating and maintenance services (e.g. the provision of freshwater depends on the ability of forests to absorb carbon and regulate climate change).
- 3. Cultural services** are the experiential and intangible services related to the perceived or actual qualities of ecosystems whose existence and functioning contributes to a range of cultural benefits (e.g. the recreational value of a forest or a coral reef for tourism).

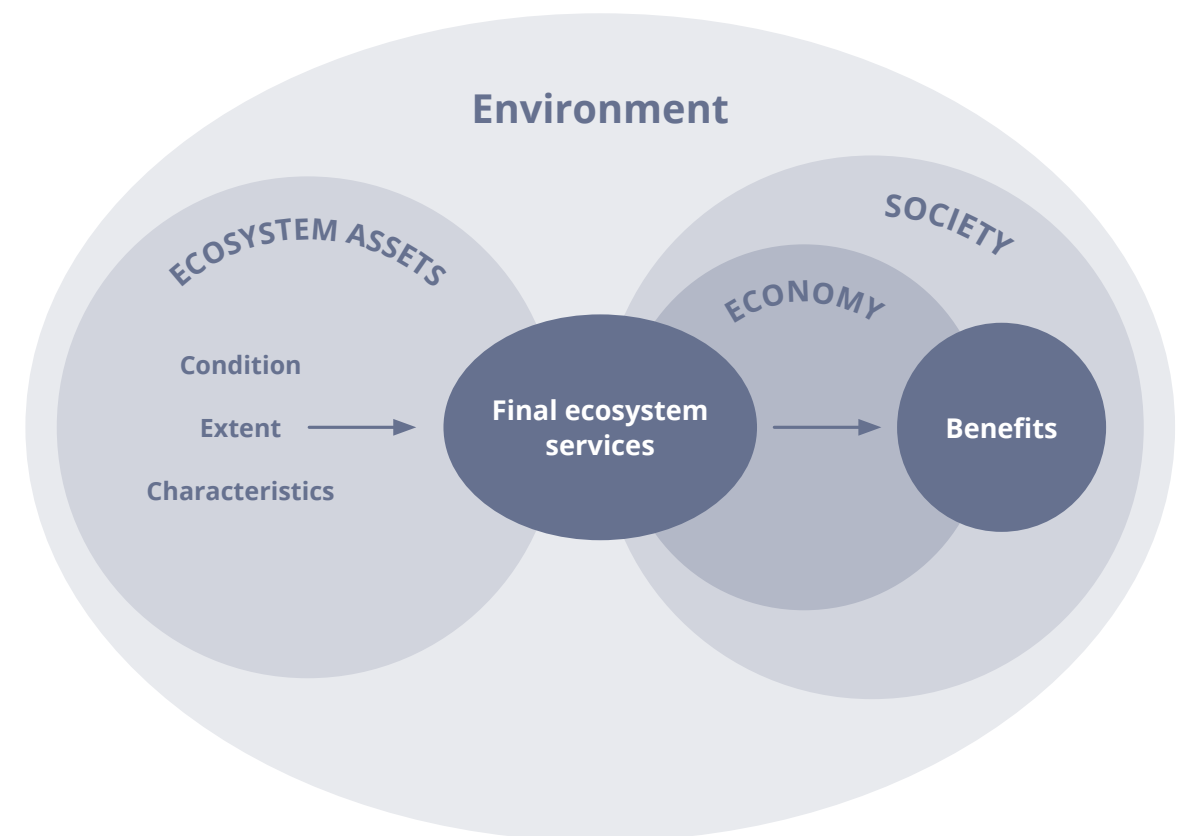


Figure 10: Ecosystem assets, ecosystem services and benefits to society and the economy²¹

For the purposes of private sector risk management and disclosure, ecosystem services provide a basis for understanding corporate dependence on natural capital. The TNFD aligns with the list of 25 ecosystem services set out by the UN SEEA Ecosystem Accounts. A full list is provided in the TNFD’s online platform.

The TNFD’s working definition of **biodiversity** comes from the Convention on Biological Diversity (CBD): ‘the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.’ In short, biodiversity is an essential characteristic of nature that enables ecosystem assets to be productive, resilient and able to adapt to change. Biodiversity operates at a genetic, species, habitat and ecosystem level and is critical to maintaining the quality, resilience and quantity of ecosystem assets and the provision of ecosystem services on which business and society rely. Biodiversity is also sometimes used as a term to refer to the living components of natural capital, such as species and habitats.

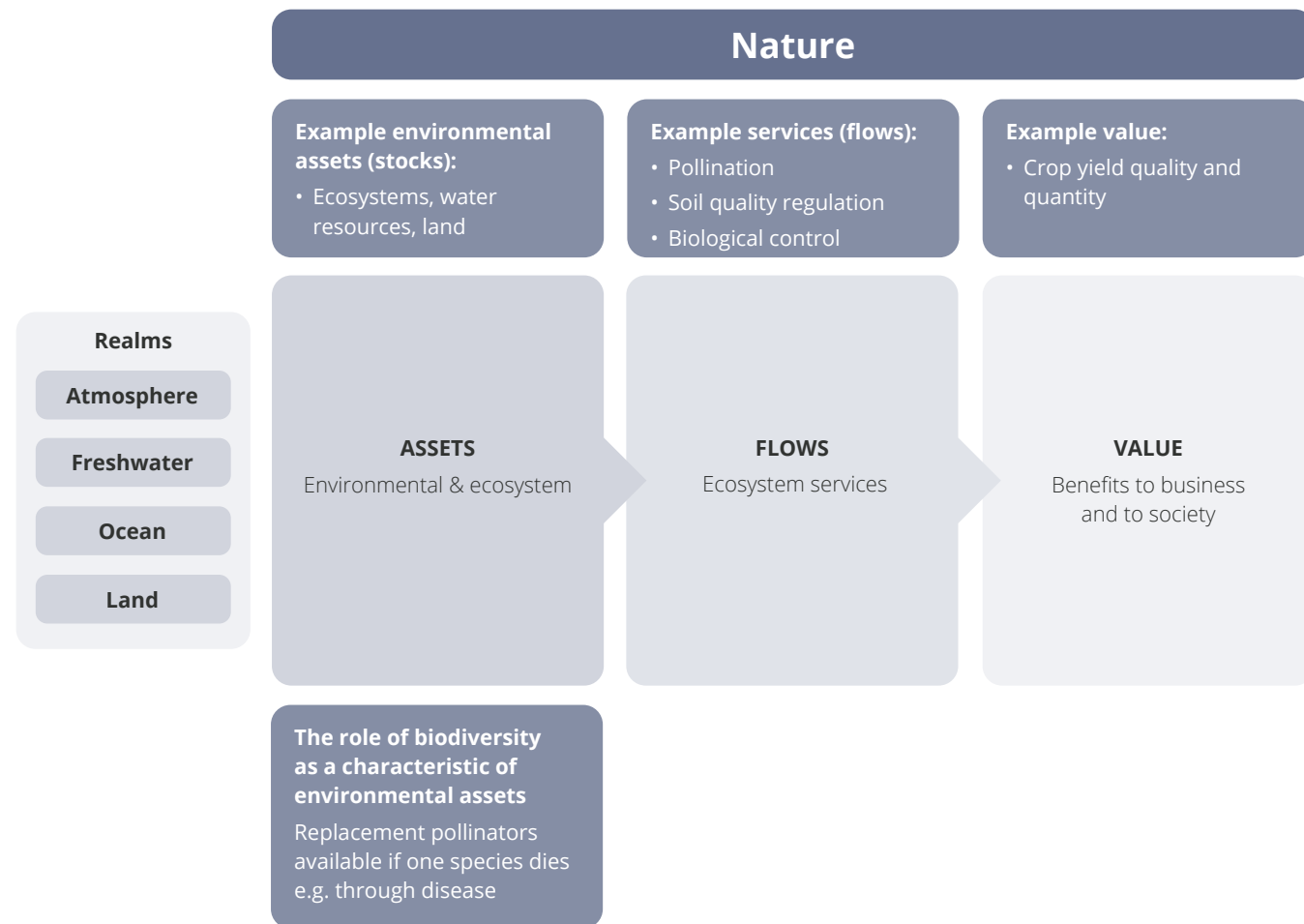


Figure 11: TNFD’s building blocks for understanding nature

Case examples

The relationship between natural capital, biodiversity and ecosystem services

Environmental assets (water, species such as the honeybee or birds within terrestrial ecosystems, and atmosphere) combine to enable the flow of ecosystem services (pest control, pollination services and soil quality) which in turn deliver value through increased quality and quantity of crop yields. The environmental assets are underpinned by **biodiversity**; for example, biodiversity increases the resilience of species **providing pollination services**. The diversity of wild pollinator species and their habitats can act as an insurance policy against future changes in the environment – if one pollinator struggles to cope with a disease outbreak or rising temperature, a diverse community of other species could take over and prevent a collapse in crop pollination.

A water utility or beverage company depends on the ecosystem service of **clean water provision**, which derives from the environmental asset of water resources and healthy **terrestrial and aquatic ecosystems**. The degradation of peatlands leads to water sedimentation and deterioration of water quality. Restoration of habitats and preservation of biodiversity could reduce water quality deterioration, reducing the operational costs of water treatment.

Biomes are various regions of our planet distinguished by the type of plant life that they support in response to average rainfall and temperature patterns e.g. tropical rainforests, open ocean waters, deserts or lakes.

Overview of TNFD’s fundamental concepts for understanding nature

An overview of the TNFD’s core concepts related to nature is provided in the figure on the next page, including realms, biomes, environmental assets and ecosystem services. Further information is provided on the TNFD’s online platform.

Fundamentals for Understanding Nature for Market Participants

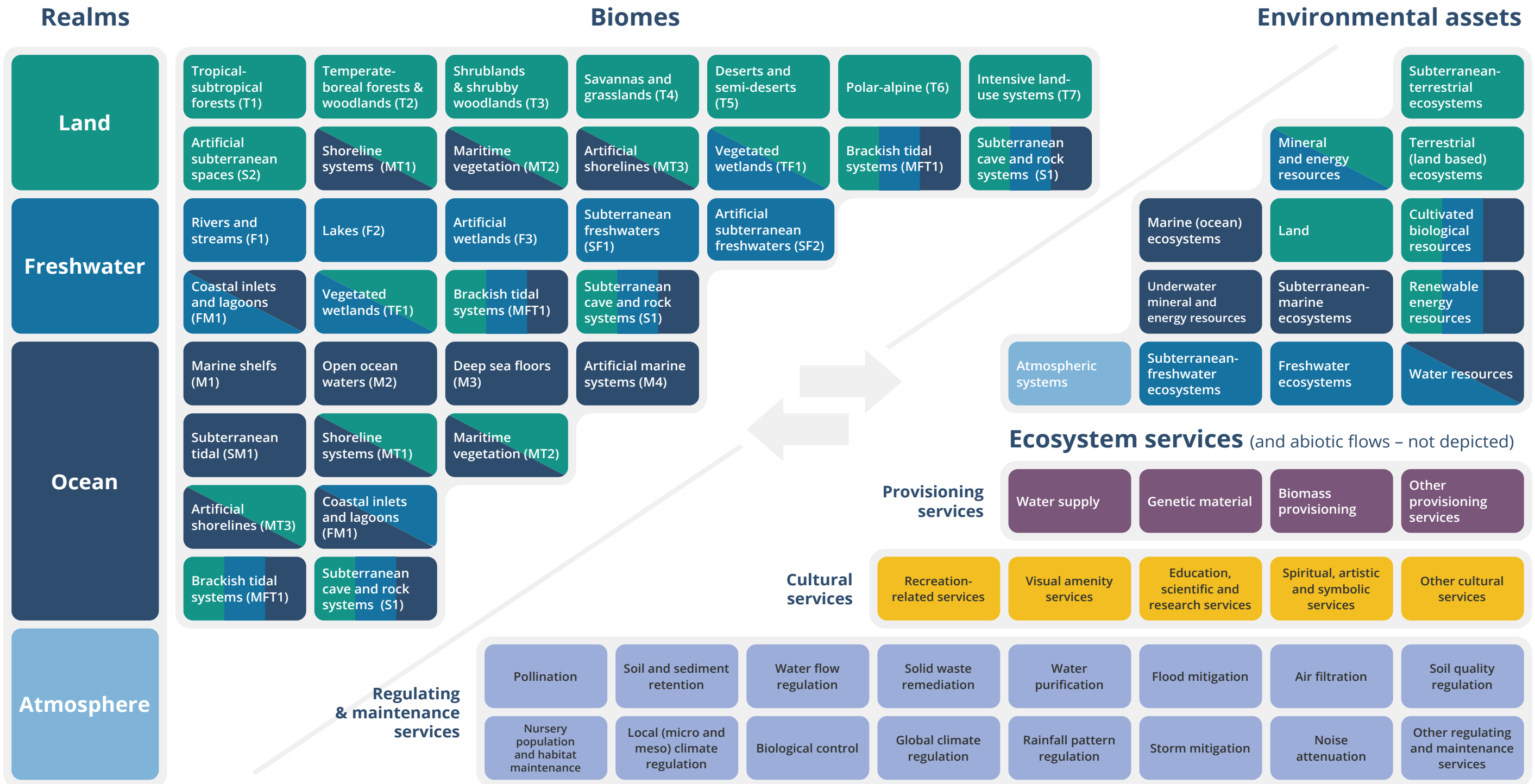


Figure 12: Overview of TNFD's fundamental concepts for understanding nature^{22,23}

3.2. TNFD's definitions of dependencies

The underlying business model of an enterprise and its perceived value by investors depends, in varying degrees, on reliable and cost-effective access to environmental assets and the ecosystem services they provide.

Organisations also have impacts on environmental assets and ecosystem services, which may be positive or negative. Short-term impacts on nature can result in short-, medium- and long-term consequences for the quality and resilience of ecosystems; thereby creating potentially additional medium- and long-term risks and opportunities for enterprises given their dependencies. In short, today's nature impacts can create tomorrow's dependencies and risks.

The significance of the TNFD framework's understanding of nature is that nature-related dependencies and nature impacts – the sources of risks to business continuity, earnings and ultimately enterprise value – are location specific. Location therefore matters greatly for the identification, assessment, mitigation and management of nature-related risks facing organisations, creditors and investors. Consequently, consideration of location – and more specifically the interface of business processes with stocks of environmental assets and flows of ecosystem services – is central to the framework proposed by the TNFD.

Consideration of location – and more specifically the interface of business processes with stocks of environmental assets and flows of ecosystem services – is central to the framework proposed by the TNFD.

The TNFD recognises that this specific attention to location can represent a novel way of thinking for many organisations and that access to information about locations can be a challenge – in particular for complex value chains or organisations operating in many geographies. Nevertheless, an organisation's dependencies on nature and nature impacts are location-specific and therefore essential for an integrated and robust assessment of nature-related risks and their flow-on implications for cash flows, revenues and enterprise value.

The TNFD defines **dependencies** as aspects of ecosystem services that an organisation or other actor relies on to function. Dependencies include ecosystems' ability to regulate water flow, water quality, and hazards like fires and floods; provide a suitable habitat for pollinators (who in turn provide a service directly to economies), and sequester carbon (in terrestrial, freshwater and marine realms). A dependency of a business on nature for operations and business continuity

may be direct or through its supply chain. Further details on dependency analysis are provided on TNFD's interactive online platform (Step 6 of the LEAP approach).

Dependencies include an ecosystem's ability to:

- Regulate water flow and water quality;
- Prevent or create resilience against hazards like fires and floods;
- Provide a suitable habitat for pollinators (who in turn provide a service directly to pollinate crops); and
- Sequester carbon (in realms across land, ocean and freshwater).

The tourism sector, for example, could have a high dependence on both cultural ecosystem services (the presence of a healthy intact reef for scuba diving) and coastal protection services (protection of coastal infrastructure from the impact of extreme weather events through the presence of healthy mangroves and coral reefs). In a confectionary company, the decline of insect populations may impact the pollination services available to pollinate cocoa crops, leading to loss of yield quantity and quality. In both these examples, location is particularly relevant (the proximity of healthy coastal ecosystems to coastal infrastructure to enable protection and the location of cocoa crops to declining insect and wild pollinator populations).

Analysing and measuring the degree to which business operations are dependent on nature is beneficial to the company, as potential changes in natural capital may affect the costs and benefits of doing business, and thereby present risks to short-, medium- and/or long-term earnings and cashflow.

The TNFD considers five main drivers of nature change: climate change; resource exploitation; land and sea use change; pollution; and invasive alien species¹⁶.

3.3. TNFD's definitions of impacts

The TNFD considers an organisation's effect on natural capital through its **impact drivers**. These include measurable quantities of a natural resource that are used as an input to production and measurable non-product outputs of a business activity that affects nature. For the TNFD, **impact pathways** describe how, as a result of a specific business activity, a particular impact driver can lead to changes in natural capital, and in turn, how these changes affect different stakeholders. An **impact** driver differs from an impact. The TNFD defines an impact as a change in the state (quality or quantity) of natural capital, which may result in changes to the capacity of nature to provide social and economic functions. Impacts can be positive or negative. A single impact driver may be associated with multiple impacts.

Measure impact drivers

Business activities at an agri-food company lead to land conversion, which is an **impact driver**, to create a new agriculture area

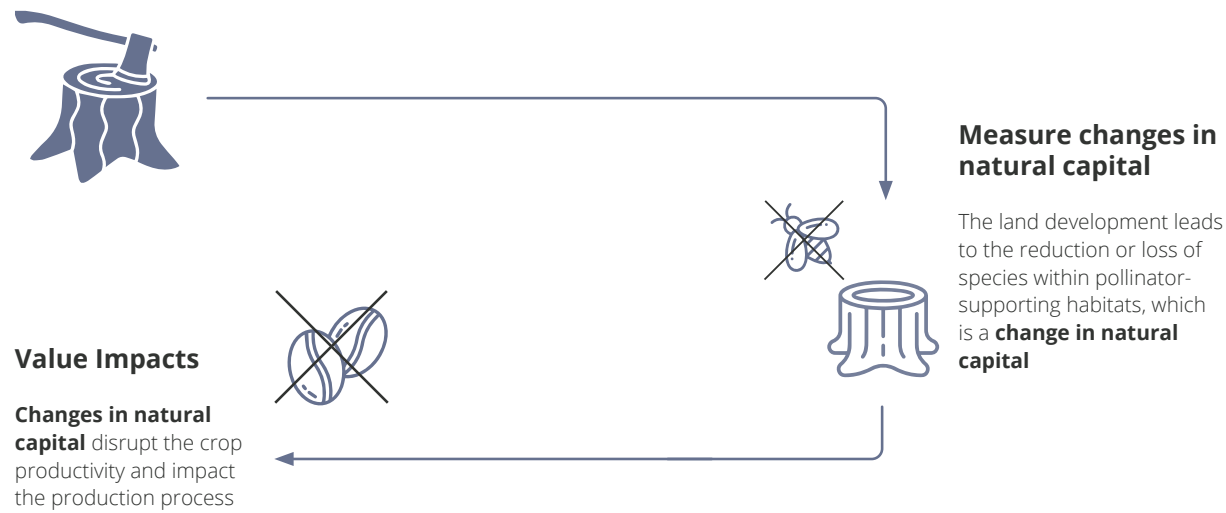


Figure 13: Impact pathway²⁴

Impacts may be²⁵:

- **Direct** – a change in the state of natural capital caused by a business activity with a direct causal link;
- **Indirect** – a change in the state of natural capital caused by a business activity with an indirect causal link (e.g. indirectly caused by the climate change and greenhouse gas emissions); and/or,
- **Cumulative** – a change to the state of natural capital that occurs due to the interaction of activities of different actors operating in a landscape, not only the target organisation.

Nature-related impacts in the textiles industry

In the production of natural fibres in the textiles industry, direct impacts on nature could occur through converting habitats for crop production. The textiles industry's greenhouse gas emissions contribute to air pollution and climate change, as indirect impacts. Cumulative impacts could occur through pollutants, where the pollution impacts of the fibre producer combine with pollution from other producers and industries operating in the landscape, resulting in substantial negative impacts on freshwater ecosystems and sensitive species, and all people who depend on them. This could be financially material for the textile company, exposing it to potential fines, supply chain disruption and loss of social license to operate.

3.4. TNFD's definitions of risks

The TNFD defines **nature loss** as the loss of, and/or decline in, the state of nature. Scientific research on ecosystem 'tipping points' highlights the risk of unexpected, compounding and accelerating declines in the quality, quantity and resilience of natural capital. This can present significant challenges to businesses and investors as they seek to assess the complex interplay of dependencies, impacts and risks, including between nature and climate, over different timeframes.

The prospect of tipping points in local ecosystems, which lead to changes that mean ecosystem services are no longer available to organisations who depend on them, accentuates the risk of stranded assets. Scenario analysis has a valuable role to play in this context to inform short-term corporate strategy, risk management and capital allocation decisions that are as robust as possible to a number of plausible futures. While general principles of diversification of dependencies on nature will remain central to effective risk management, in some cases, managing the risks associated with nature loss may require total business transformation and new ways of conducting business. This could include, for example, new ways of approaching business with a granular understanding of where operations and value chains are located.

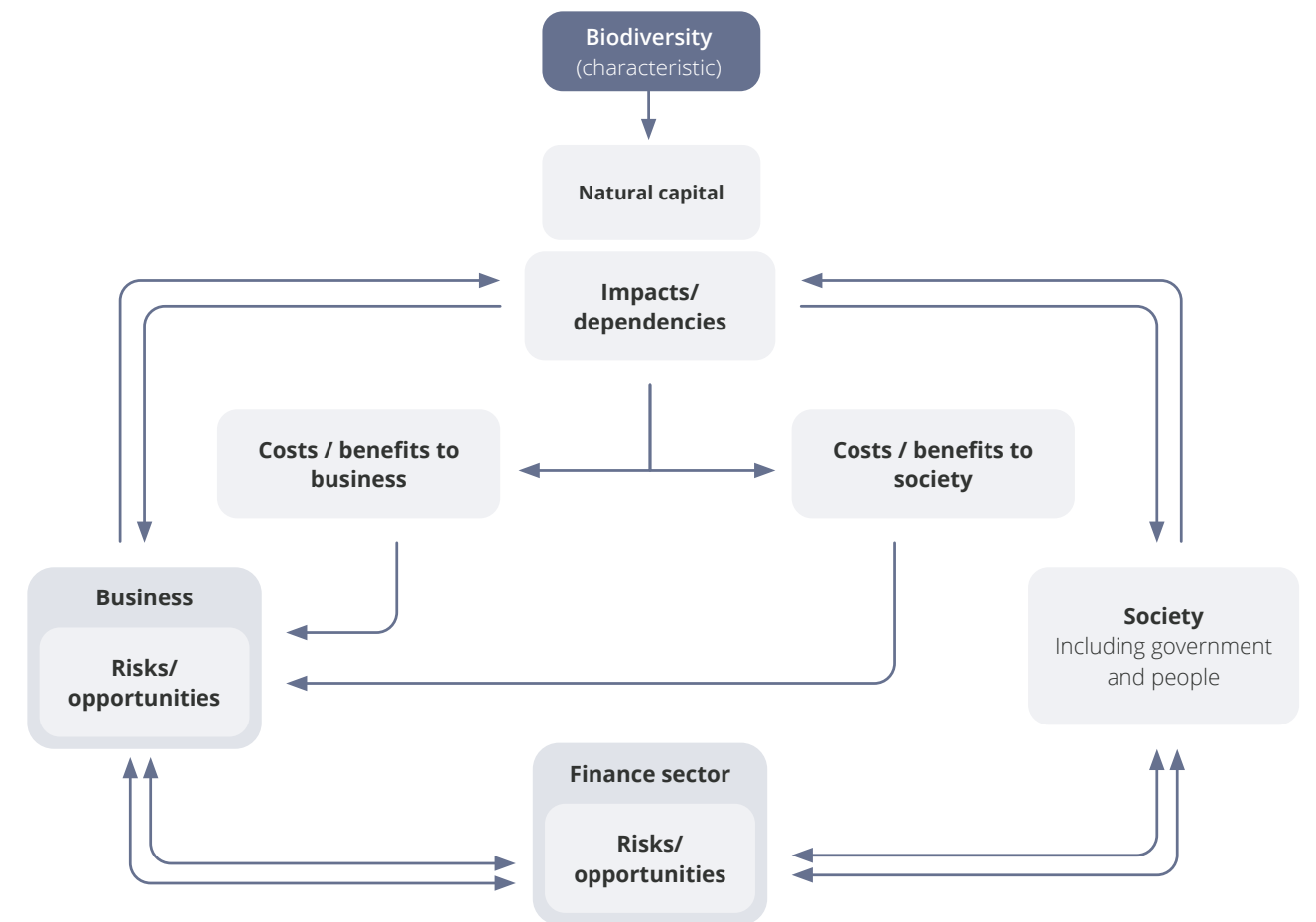


Figure 14: Relationships among business dependencies & impacts and financial risks & opportunities²⁶

The TNFD defines **nature-related risks** as the potential threats posed to an organisation linked to its, and other organisations', dependencies on nature and nature impacts. These can derive from physical, transition and systemic risks.

In addition to shorter-term financial risks (deemed material today or in the near term), this includes longer-term risks presented by its dependencies and impacts on nature.

Physical risks are a direct result of an organisation's dependencies on nature. These are risks arising when natural systems are compromised, due to the impact of climatic events (e.g. extreme weather such as a drought), geologic events (e.g. seismic events such as an earthquake) or changes in ecosystem equilibria, such as changes in soil quality or ocean chemistry. These can be acute, chronic or both. Nature-related physical risks arise as a result of changes in the biotic (living) and abiotic (non-living) conditions that support functioning ecosystems. Nature-related physical risks are broad, and are often associated with climate-related physical risks. They are driven by biological, chemical and other scientific processes. It is therefore important for corporates and financial institutions to understand how business activities result in changes in the state of nature and how this affects ecosystem service provision.

Transition risks are risks that result from a misalignment between an organisation's or an investors strategy and management and the changing landscape in which it operates. Developments aimed at halting or reversing the damage to nature, such as government regulations or policy, technological developments, market changes, litigation and changing consumer preferences, can all result in transition risks.

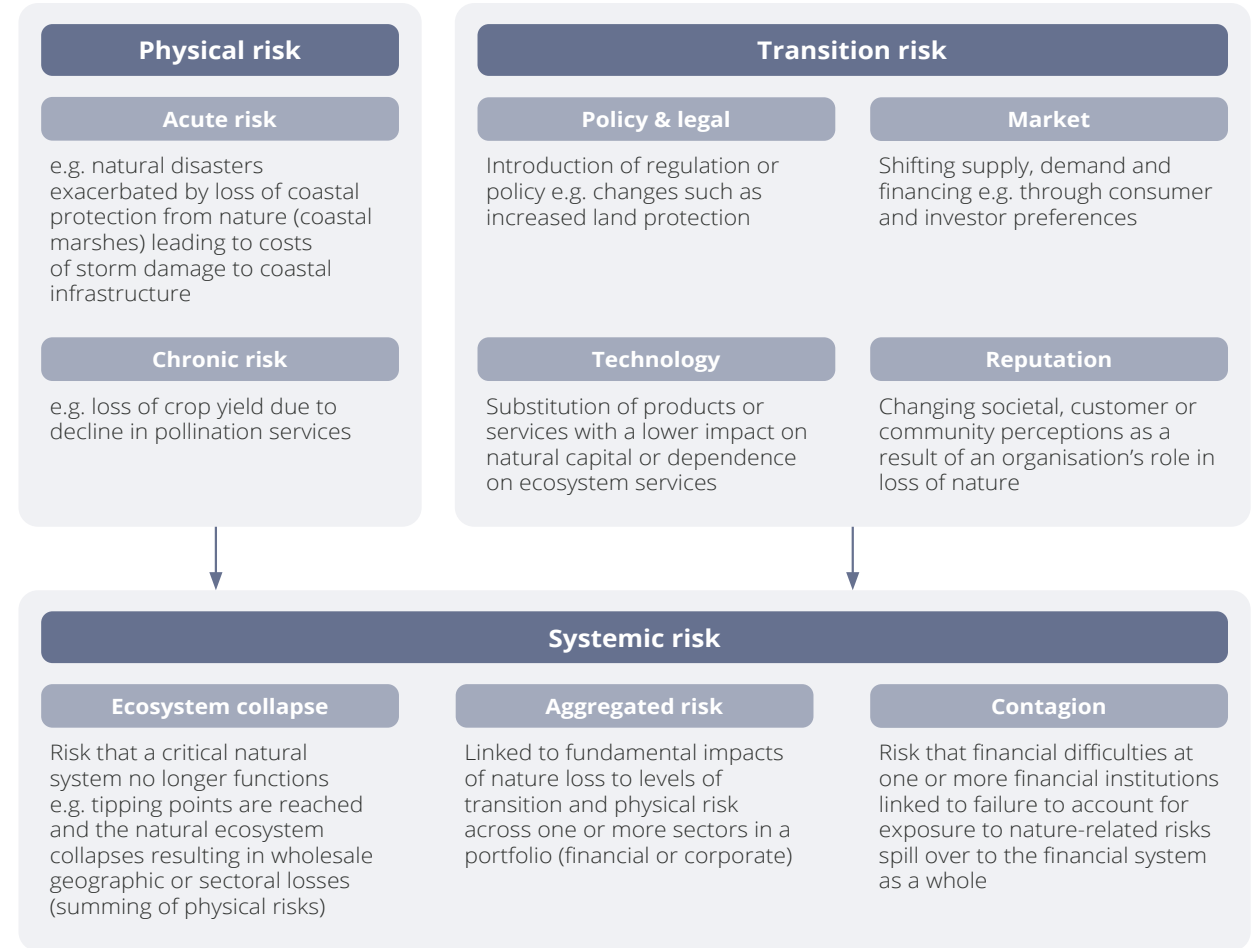


Figure 15: TNFD's definitions of nature-related risks

There are close relationships between the different forms of risks. Physical and transition risks can interact and affect economic agents through various channels, before materialising into traditional sources of financial risk (e.g. credit or market risk). For example, organisations can generate acute physical risk by removing coastal marshes, leading to potential damage costs linked to loss of coastal infrastructure from storms. This can also generate a transition risk, specifically policy and legal risk (if that action was illegal) and reputation risk (if it is negatively perceived by consumers). If sufficient organisations in that region remove coastal marshes, then whole regions of industry may suffer from a lack of protection from coastal storms, resulting in systemic risk.

Systemic risks are risks arising from the breakdown of the entire system, rather than the failure of individual parts. They are characterised by modest tipping points combining indirectly to produce large failures with cascading of interactions of physical and transition risks (contagion), as one loss triggers a chain of others, and with systems unable to recover equilibrium after a shock. An example is the loss of a keystone species, such as sea otters, which have a critical role in ecosystem community structure. When sea otters were hunted to near extinction in the 1900s, the coastal ecosystems flipped and biomass production was greatly reduced.

Links between nature- and climate-related risks

Nature-related risks are closely linked to climate-related risks. Ecosystems play a key role in emitting and sequestering greenhouse gas emissions, and in supporting the adaptation to a changing climate. For example, the world’s forests are a net carbon sink that absorb 7.6 billion tonnes of CO2 per year²⁷, which is around 15% of the estimated 50 billion tonnes of greenhouse gases emitted annually²⁸. Nature’s absorption of greenhouse gas emissions slows atmospheric CO2 concentrations, but with nature’s capacity to sequester greenhouse gases currently far below global annual emissions, we have an imbalance that leads to global warming. This, in turn, drives impacts on nature. Climate change is one of the five key drivers of nature change²⁹.

Moreover, drivers of the loss of nature, such as deforestation, are significant sources of greenhouse gas emissions. Nature-related risks are therefore closely linked to climate-related risks in several ways, and the risks must be considered together. When assessing the financial risks associated with climate change, the role of the loss of nature in climate feedback loops and tipping points must also be considered. (See Section 6 for more details on the TNFD’s work on the climate-nature nexus.)

3.5. TNFD’s definitions of opportunities

An understanding of nature-related dependencies and nature impacts, as well as shifting demand-side factors, such as consumer preferences and regulation, can inform not just corporate and investor risk management, but also growth strategy and the pursuit of commercial opportunities. These may be opportunities that significantly reduce nature-related dependencies and nature impacts and therefore risks, and/or new business models, products and services that contribute to nature-positive outcomes.

The TNFD defines **nature-related opportunities** as activities that create positive outcomes for corporates and/or financial institutions and nature by avoiding or reducing impact on nature, or contributing to its restoration. Nature-related opportunities can occur: i) when organisations mitigate the risk of natural capital and ecosystem services loss; and, ii) through the strategic transformation of business models, products, services and investments that actively work to halt or reverse the loss of nature, including the implementation of nature-based solutions or support for them through financing or insurance.

Nature-based solutions

Nature-based solutions are actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits³⁰. They encompass a wide range of actions, such as the protection and management of ecosystems, the incorporation of green and blue infrastructure in urban areas, and the application of ecosystem-based principles to agricultural systems. The concept is grounded in the knowledge that healthy natural and managed ecosystems produce a diverse range of services on which human wellbeing depends, from storing carbon, controlling floods and stabilising shorelines and slopes, to providing clean air and water, food, fuel, medicines and genetic resources.

A subset of nature-based solutions, **natural climate solutions**, have been identified as essential to deliver climate mitigation, adaptation and resilience solutions. With the growth in net zero carbon commitments from business and governments, and increased physical climate risks as a result of global warming, demand for natural climate solutions is anticipated to grow significantly in the coming years, sometimes as a hybrid approach integrating nature-based and engineered solutions³¹.

Nature-related opportunities will vary according to the region, market and industry in which an organisation operates

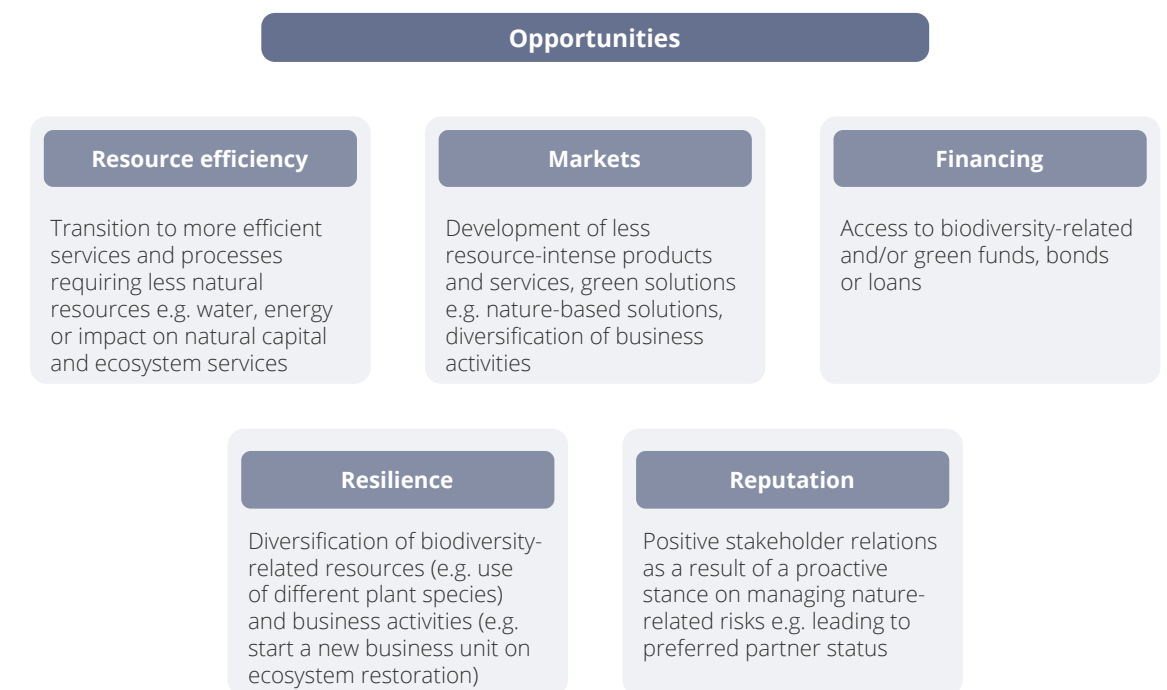


Figure 16: TNFD's definition of nature-related opportunities

3.6. How nature affects financial risk and company and investor performance

The complex interplay of nature-related dependencies and impacts over multiple time periods can result in earning and cashflow vulnerability. This can transmit into a broader range of financial risks, including market, credit and liquidity risks. These transmission channels include both micro-channels (such as supply chain uncertainty due to disruptions to production activities and value chains imposing unexpected costs; changes in profitability and asset values; and increased litigation) and macro-channels (such as changing demand and raw material price volatility).

The complex interplay of nature-related dependencies and impacts over multiple time periods can result in earning and cashflow vulnerability. This can transmit into a broader range of financial risks, including market, credit and liquidity risks.

This in turn gives rise to risks and opportunities. Business action to manage these issues – through, for example, governance, strategy, and risk management – can give rise to financial opportunities or risks linked to, for example, asset devaluation, supply chain resilience and shifting demands. These risks within organisations translate into financial risk for financial institutions. But not all nature-related risks and opportunities can be translated into ‘financial impact’ in the form that is recognised within income statements, cash flow statements or balance sheets.



Financial risks and opportunities emerging from nature

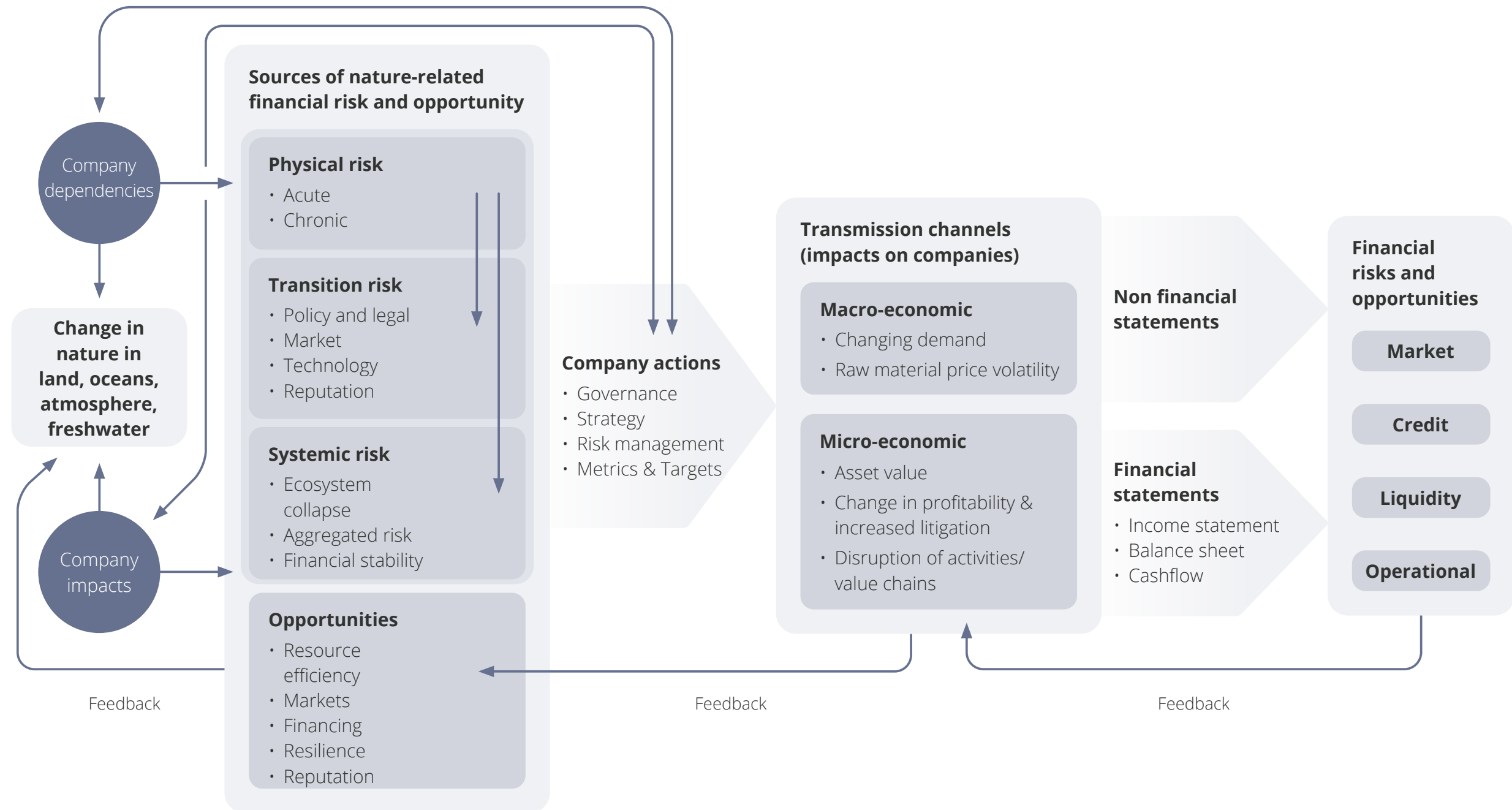


Figure 17: Financial risks and opportunities emerging from nature

4. The TNFD draft disclosure recommendations

The development of a set of disclosure recommendations for nature-related risk and opportunities is built on the premise that transparency of information through disclosures facilitates better risk and capital allocation decisions by corporates, investors and lenders. As this occurs, understanding of the financial implications of the nature-related dependencies and nature impacts that materially shape enterprise risks and opportunities will grow. This will enable financial markets to channel capital away from nature-negative outcomes, and towards nature-positive solutions, opportunities and business models, ultimately supporting more efficient allocation of both risk and capital, and the functioning of stable markets.

The TNFD draft disclosure recommendations in this first beta version of the framework are designed to:

- help provide better information to support strategy and risk management at the board and management level, and ultimately improve capital allocation and asset valuation decisions by corporates;
- promote more informed investment, credit and insurance underwriting decisions by financial institutions; and
- enable a stronger understanding of the concentrations of nature-related risk and opportunities, based on insights into nature dependencies and impacts.

The TNFD draft disclosure recommendations may also be used by public authorities to assess and manage systemic nature-related risks and inform macro-prudential policies and responses.

4.1. Key design considerations

Consistency with the emerging global baseline

Market participants have been clear that they are seeking an integrated and globally consistent baseline of sustainability disclosure requirements. The current prevalence of different approaches, voluntary standards and variable metrics imposes significant time burdens,

transaction costs and interpretive uncertainty on preparers and users. With those considerations front and centre, the TNFD has sought to maximise the consistency and language of our approach with existing climate-related disclosure recommendations from the TCFD.

The TNFD has sought to maximise the consistency and language of its approach with existing climate-related disclosure recommendations from the TCFD.

Throughout the TNFD's consultation and iterative framework development phase, the Taskforce will continue to work closely with standards setters, such as the new ISSB and international and national regulators, including IOSCO, the SEC and the European Commission, as well as international accounting bodies. This will align the TNFD's recommendations as closely as possible to the emerging global baseline for sustainability reporting.

Enabling integrated disclosures in mainstream financial reports

The TNFD supports moves towards sustainability disclosures that are fully integrated into the mainstream financial reports issued by preparers. The TNFD actively encourages moves towards an integrated approach as quickly as possible, and by aligning the TNFD's recommended disclosures closely to those of the TCFD, the TNFD hopes to facilitate early adopters to move towards integrated disclosures.

Recognising the inseparable feedback loops between climate- and nature-related risks and the importance of an integrated approach to risk management and disclosure, the TNFD's proposed draft disclosure recommendations refer to the TCFD for specifics on disclosure of climate-related risks and opportunities. In line with this approach, the TNFD's recommendations do not include specific language related to greenhouse gas emissions, on the assumption that the TCFD or other relevant frameworks and standards will be used by preparers for those specific disclosures.

The importance of location in nature-related disclosures

A corporate or financial institution should undertake a location-based assessment of its dependencies on nature and nature impacts in order to identify its risks and opportunities, recognising that dependencies and impacts occur in specific locations. For financial institutions, it is not primarily their assets and operations, but their investments, loans and securities, that

need to be informed by a location-based assessment.

Organisations will need to consider location in the full set of their material impacts and dependencies across their direct operations and related upstream and downstream activities when making disclosures. Location-based analysis is required for a robust identification of material nature-related risks and opportunities.

A focus on opportunities alongside risks

Nature-related opportunities are included in the TNFD framework alongside nature-related risks. While recognising that organisations have no obligation to disclose specific growth and investment opportunities related to sustaining or building their competitive advantage, the TNFD draft disclosure recommendations encourage preparers to describe the nature-related opportunities they have identified over the short, medium and long term, as well as the metrics and targets used to assess future performance in pursuing those opportunities. This approach aligns with that of the TCFD.

Approach to materiality

The TNFD expects organisations to disclose the full set of material risks and opportunities related to the impacts and dependencies of their operations and their upstream and downstream value chains. For financial institutions, this means both direct operations, on-balance-sheet financing (e.g. lending, investing, insuring) and other business activity (e.g. advisory). In all cases, disclosures should be guided by the concept of materiality, recognising the specific challenge for financial institutions in aggregating and consolidating across large portfolios.

The TNFD recommends that organisations follow an enterprise value approach aligned with the global baseline standards under development by the ISSB, and aligned with the relevant jurisdiction in which reporting is performed. The TNFD recommends that organisations consider medium- to long-term timeframes. Disclosing risks and opportunities across multiple time horizon requires organisations to consider a broader set of dependencies and impacts, as some that are not material in the short-term may lead to additional risks and opportunities that are material for enterprise value over time. Aligned with the time horizon of many institutional investors, a long-term perspective on enterprise value creation highlights that the value created, preserved or eroded by an organisation (and its providers of financial capital) is inextricably linked to other stakeholders, society and the natural environment³².

Approach to timeframes and use of scenarios

The TNFD recommends that organisations disclose how they define short-, medium- and long-term time frames, and how those timeframes align with the organisation's strategic planning horizons and capital allocation plans. As guidance, the TNFD recommends the use of the

following time frames:

- short-term – less than 2 years;
- medium-term – 2-5 years; and
- long-term – more than 5 years.

If a preparer is using definitions of short-, medium- and long-term that differ from the time frames recommended by the TNFD, they should explain these definitions based on the time horizon over which nature-related risks or opportunities could reasonably be expected to have a financial effect on the organisation.

The TNFD recommends that preparers account for different long-term scenarios to ensure that their strategy, governance, risk management and capital allocation decision making appropriately considers long-term trends and critical uncertainties relating to nature, including climate change, that are relevant to their organisation. In its further work on scenarios, drawing on related work by IPBES and the NGFS, the TNFD will issue further guidance on scenario analysis of nature-related risks and opportunities. (See Section 7 for more details on the TNFD's forthcoming work on scenarios.)

Communicating and staging the scope of disclosures

Preparers should be clear and transparent in communicating what has been included in the scope of their disclosures. Given that nature-related disclosures will be new to many organisations, it will be prudent in many cases to start with a narrow scope and then expand over time. Preparers may wish to prioritise their disclosures and focus on specific activities or business lines where nature-related risks and opportunities are most material. They may focus on priority locations, as defined in the TNFD disclosure recommendations and the LEAP approach (see glossary of terms), and/or on specific aspects of their value chain and specific dependencies and impacts. For financial institutions, scoping choices may involve focusing on certain asset classes or financing and advisory lines of business.

When disclosures are made, a statement should be provided outlining what further disclosures are planned in the future. Coverage should expand over time, so that after no more than 5 years, organisations are considering all material impacts and dependencies across their direct operations and related upstream and downstream activities. This proposed timeline aligns with the TCFD's concept of a five-year pathway to full disclosure.

4.2. Characteristics of useful information

To encourage effective disclosure, the TNFD proposes to use and align with the qualitative characteristics of useful sustainability-related information, set out in Appendix D of the International Sustainability Standards Board (ISSB) General Requirements for Disclosure of Sustainability-related Financial Information Prototype³³ and in EFRAG documentation³⁴. This identifies the types of information that are likely to be most useful to existing and potential investors, lenders and other creditors to make decisions about the reporting organisation based on information in its sustainability-related financial disclosures.

These ‘characteristics’ set out that useful sustainability-related financial information must be relevant and material, and faithfully represent what it purports to represent. The usefulness is enhanced if it is comparable, verifiable, timely and understandable.

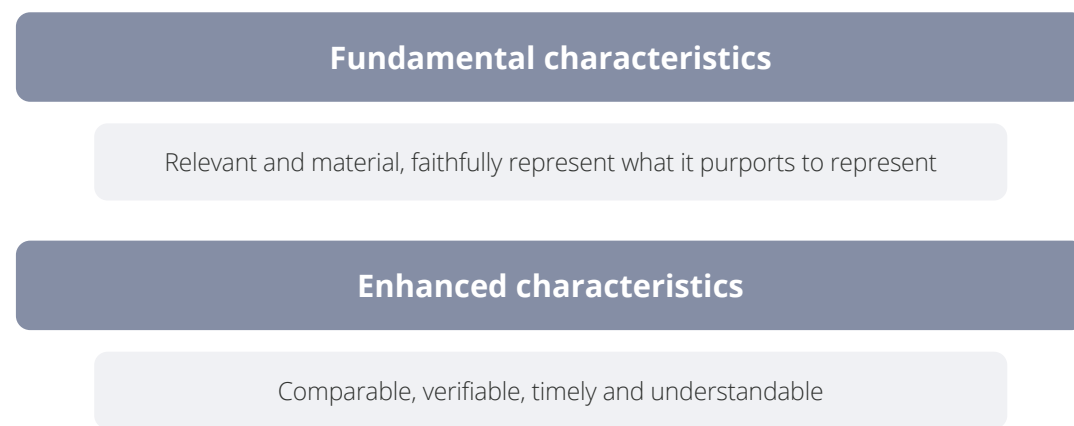


Figure 18: Characteristics of useful information³⁵

High-level overview of disclosure recommendations

To encourage market uptake and integration, the TNFD’s draft disclosure recommendations have been designed to be aligned with, and additive to, the TCFD’s disclosure recommendations. The TCFD structure, content and language was used as the starting point that TNFD extended, adapted and supplemented with recommendations as needed to cover nature-related risks and opportunities. These will remain under review and consideration throughout the beta framework development phase as TNFD consider and incorporate feedback from market participants.

The draft disclosure recommendations for nature-related risks and opportunities in this beta version follow the TCFD’s four pillars of governance, strategy, risk management, and metrics and targets:

1. Governance: the ways in which the organisation’s oversight and decision-making functions take nature-related risk and opportunities into account.
2. Strategy: the integration of actual and potential effects of nature-related risks and opportunities on the organisation’s business model, strategy and financial planning.

3. Risk management: how the organisation integrates nature-related risks into its overall risk management approach.
4. Metrics and targets: quantitative and qualitative performance indicators and aims related to nature-related risk and opportunities, based on nature dependencies and impacts.

These initial draft disclosure recommendations provide guidance for all sectors. Further specific guidance for individual sectors will be developed and included in subsequent beta releases of the TNFD framework.



Figure 19: TNFD draft disclosure recommendations

Preparers should apply four general requirements for the preparation of disclosures that cut across all four pillars of the disclosure recommendations:

1. Identification of material nature-related risks and opportunities should be based on an assessment of nature-related dependencies and nature impacts;
2. Consideration of the organisation’s interface with nature at specific locations should be integral to the assessment, recognising that nature-related dependencies and nature impacts occur in specific ecosystems;
3. Consideration should be given to how the organisation ensures that the correct skills and competencies are available to assess nature-related risks and opportunities, and oversee strategies designed to respond to those risks and opportunities; and,
4. A statement should be provided regarding the scope of current disclosures and what further disclosures are planned in the future.

4.3. Detailed TNFD draft disclosure recommendations

4.3.1. Governance

Investors, lenders, insurance underwriters and other users of nature-related financial disclosures (collectively referred to as “investors and other stakeholders”) are interested in understanding the role an organisation’s board plays in overseeing nature-related risks and opportunities, as well as management’s role in assessing and managing those risks and opportunities. Such information supports evaluations of whether nature-related risks and opportunities receive appropriate board and management attention.

<p>Governance</p> <p>Disclose the organisation’s governance around nature-related risk and opportunities</p>	
<p>Recommended Disclosure a)</p> <p>Describe the board’s oversight of nature-related risks and opportunities.</p>	<p>Guidance for All Sectors</p> <p>In describing the board’s oversight of nature-related risks and opportunities, organisations should consider including a discussion of the following:</p> <ul style="list-style-type: none"> processes and frequency by which the board and/or board committees (e.g. audit, risk, or other committees) are informed about nature-related risks and opportunities; whether the board and/or board committees consider nature-related risks and opportunities when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, and business plans, as well as setting the organisation’s performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions, and divestitures; and how the board monitors and oversees progress against goals and targets to address nature-related risks and opportunities.

<p>Recommended Disclosure b)</p> <p>Describe management’s role in assessing and managing nature-related risk and opportunities.</p>	<p>Guidance for All Sectors</p> <p>In describing management’s role related to the assessment and management of nature-related risks and opportunities, organisations should consider including the following information:</p> <ul style="list-style-type: none"> whether the organisation has assigned nature-related responsibilities to management-level positions or committees; and, if so, whether such management positions or committees report to the board or a committee of the board and whether those responsibilities include assessing and/or managing nature-related risks and opportunities; a description of the associated organisational structure(s); processes by which management is informed about nature-related risks and opportunities; and how management (through specific positions and/or management committees) monitors nature-related risks and opportunities.
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4.3.2. Strategy

Investors and other stakeholders need to understand how nature-related risks and opportunities may affect an organisation’s businesses, strategy and financial planning over the short, medium and long term. Such information is used to inform expectations about the future performance of an organisation.

<p>Strategy</p> <p>Disclose the actual and potential impacts of nature-related risks and opportunities on the organisation’s businesses, strategy and financial planning, where such information is material.</p>	
<p>Recommended Disclosure a)</p> <p>Describe the nature-related risks and opportunities the organisation has identified over the short, medium and long term.</p>	<p>Guidance for All Sectors</p> <p>Organisations should provide the following information:</p> <ul style="list-style-type: none"> a description of what they consider to be the relevant short-, medium- and long-term time horizons, taking into consideration the useful life of the organisation’s assets or infrastructure and the fact that nature-related

	<p>risks and opportunities often manifest themselves over the medium and longer terms³⁶;</p> <ul style="list-style-type: none"> ▪ a description of the specific nature-related risks and opportunities potentially arising in each time horizon (short, medium, and long term) that could have a material financial impact on the organisation; and ▪ a description of the process(es) used to determine which risks and opportunities, based on nature-related dependencies and nature impacts, could have a material financial impact on the organisation. ▪ Organisations should provide a description of their risks and opportunities, as appropriate. In describing nature-related risks and opportunities, organisations should refer to the online platform.
<p>Recommended Disclosure b)</p> <p>Describe the impact of nature-related risks and opportunities on the organization's businesses, strategy and financial planning.</p>	<p>Guidance for All Sectors</p> <p>Building on recommended disclosure (a), organisations should discuss how identified nature-related risks and opportunities have affected their businesses, strategy and financial planning. Organisations should consider the impact on their businesses, strategy and financial planning in the following areas:</p> <ul style="list-style-type: none"> ▪ Products and services ▪ Supply chain and/or value chain ▪ Nature-related adaptation activities ▪ Investment in research and development ▪ Operations (including types of operations and location of facilities) ▪ Acquisitions or divestments ▪ Access to capital <p>Organisations should describe how nature-related risks and opportunities serve as an input to their financial planning process, the time period(s) used and how these risks and opportunities are prioritised. Organisations' disclosures should reflect a holistic picture of the interdependencies that affect their ability to create value over time. Organisations should describe the impact of nature-related risks and opportunities on their financial performance (e.g. revenues and costs) and financial position (e.g. assets and liabilities³⁸). If scenarios were</p>

	<p>used to inform the organisation's strategy and financial planning, such scenarios should be described.</p> <p>Organisations that have made nature-related commitments, operate in jurisdictions that have made such commitments, or have agreed to meet investor expectations regarding nature, should describe their plans, which could include nature-related targets and specific activities intended³⁷.</p>
<p>Recommended Disclosure c)</p> <p>Describe the resilience of the organisation's strategy, taking into consideration different scenarios.</p>	<p>Guidance for All Sectors</p> <p>Organisations should describe how resilient their strategies are to nature-related risks and, where relevant to the organisation, future scenarios consistent with increased nature-related physical and transition risks.</p> <p>Organisations should consider discussing:</p> <ul style="list-style-type: none"> ▪ where they believe their strategies may be affected by nature-related risk and opportunities; ▪ how their strategies might change to address such potential risk and opportunities, including a description of how the location specificity of risks and opportunities may be considered; ▪ the potential impact of nature-related risks and opportunities on financial performance (e.g. revenues and costs) and financial position (e.g. assets and liabilities); and ▪ the scenarios and associated time horizon(s) considered; <p><i>Note – Further guidance on scenarios analysis will be developed by the Taskforce for future releases of beta versions of the TNFD framework. Guidance will include the relationship of scenarios with different time horizons.</i></p>
<p>Recommended Disclosure d)</p> <p>Describe the organisation's interactions with low integrity ecosystems, high importance ecosystems or areas of water stress.</p>	<p>Guidance for All Sectors</p> <p>Organisations should provide a list and/or spatial map of the ecosystems deemed to be low integrity and/or high importance and water-stressed areas with which the organization's assets and operations interact. This should include reference to the location of the ecosystem and the type of ecosystem (i.e. the biome).</p>

A number of reference sources and indicators for defining low integrity ecosystems, high importance ecosystems and water-stressed areas are available and signposted in the LEAP approach on the TNFD interactive online platform. Others reference sources and indicators are in development.

The definitions and reference sources for this disclosure recommendation in subsequent beta versions will be established through further consultation with knowledge partners and market participants.

4.3.3. Risk management

Investors and other stakeholders need to understand how nature-related risks and opportunities may affect an organisation’s businesses, strategy and financial planning over the short, medium and long term. Such information is used to inform expectations about the future performance of an organisation.

Risk Management

Disclose how the organisation identifies, assesses and manages nature-related risks.

Recommended Disclosure a)

Describe the organisation’s processes for identifying and assessing nature-related risks.

Organisations should describe their risk management processes for identifying and assessing nature-related risks. Important aspects of this description are:

- how organisations determine the relative significance of nature-related risks in relation to other risks; and
- how a location-specific approach has been used, taking into account the differences in risks and opportunities across locations.

Organisations should describe whether they consider existing and emerging regulatory requirements related to nature loss (e.g. restrictions on water use / land use), as well as other relevant factors considered. Organisations should also consider disclosing the following:

- processes for assessing the potential size and scope of identified nature-related risks; and,
- definitions of risk terminology used or references to existing risk classification frameworks used.

<p>Recommended Disclosure b)</p> <p>Describe the organisation’s processes for managing nature-related risks.</p>	<p>Guidance for All Sectors</p> <p>Organisations should describe their processes for managing nature-related risks, including how they make decisions to avoid, minimize, mitigate, transfer, accept or control those risks. In addition, organisations should describe their processes for prioritising nature-related risks, including how materiality determinations are made within their organisations and how priority locations are identified.</p> <p>In describing their processes for managing nature-related risks, organisations should address the risks included in the online platform, as appropriate.</p>
<p>Recommended Disclosure c)</p> <p>Describe how processes for identifying, assessing, and managing nature-related risks are integrated into the organisation’s overall risk management.</p>	<p>Guidance for All Sectors</p> <p>Organisations should describe how their processes for identifying, assessing and managing nature-related risks are integrated into their overall risk management.</p>

4.3.4. Metrics and targets

Investors and other stakeholders need to understand how an organisation measures and monitors its nature-related risks and opportunities. Access to the metrics and targets used by an organisation allows investors and other stakeholders to better assess the organisation’s potential risk-adjusted returns, ability to meet financial obligations, general exposure to nature-related risks and opportunities, and progress in managing or adapting to those risks and opportunities.

Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant nature-related risks and opportunities, where such information is material.

Recommended Disclosure a)

Disclose the metrics used

Organisations should provide the key metrics used to measure and manage nature-related risks and opportunities.

by the organisation to assess material nature-related risks and opportunities in line with its strategy and risk management process.

Where nature-related risks and opportunities are material, organisations should consider describing whether and how related performance metrics are incorporated into remuneration policies.

Where relevant, organisations should provide any analysis of shadow prices for ecosystem services, as well as nature-related opportunity metrics, such as revenue from products and services designed for a nature-positive economy.

Over time, metrics should be provided for historical periods to allow for trend analysis. Where appropriate, organisations should consider providing forward-looking nature-related metrics, consistent with their business or strategic planning time horizons. In addition, where not apparent, organisations should provide a description of the methodologies and assumptions used to calculate or estimate nature-related metrics.

Note – Further guidance on metrics will be developed by the Taskforce for inclusion in future beta releases of the TNFD framework.

- whether the target is absolute or relative;
- time frames over which the target applies;
- base year from which progress is measured; and
- key performance indicators used to assess progress against targets.

Organisations disclosing medium-term or long-term targets should also disclose associated interim targets in aggregate or by business line, where available.

Where not apparent, organisations should provide a description of the methodologies used to calculate targets and measures.

Note – Further guidance on targets will be developed by the Taskforce for inclusion in future beta releases of the TNFD framework.

Recommended Disclosure b)

Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.]

Guidance for All Sectors

Note – Adaptation of this TCFD recommended disclosure is under ongoing consideration by the TNFD Taskforce members for inclusion in future beta releases of the TNFD framework.

Recommended Disclosure c)

Describe the targets used by the organisation to manage nature-related risks and opportunities and performance against targets.

Guidance for All Sectors

Organisations should describe their key nature-related targets, including location-specific targets for priority locations, where relevant, and in line with anticipated regulatory requirements or market constraints or other goals³⁹.

In describing their targets, organisations should consider including the following:



5. Introduction to the TNFD nature-related risk and opportunity assessment approach: LEAP

Since the launch of the TNFD, market participants have indicated that simple, accessible guidance on how to understand and respond to nature-related risks and opportunities would be a welcome complement to a set of disclosure recommendations. In response, the TNFD has developed a first beta version of an integrated assessment process for nature-related risk and opportunity management called LEAP.

- **Locate** your interface with nature;
- **Evaluate** your dependencies and impacts;
- **Assess** your risks and opportunities; and
- **Prepare** to respond to nature-related risks and opportunities and report.

The LEAP approach is voluntary guidance intended to support internal, nature-related risk and opportunity assessments within corporates and financial institutions to inform strategy, governance and risk management decisions, including disclosure decisions consistent with the TNFD's draft disclosure recommendations.

This first beta release of the LEAP approach is an early prototype designed to stimulate feedback and input from market participants to help the Taskforce further develop this guidance.

There are three overarching considerations:

- The LEAP approach encourages users to carefully consider the scope of their assessment before commencing;
- Analysts and preparers are encouraged to consult with relevant stakeholders throughout the LEAP approach; and
- LEAP is designed as an iterative process – across business locations, business lines for corporates, and across investment portfolios and asset classes for financial institutions – in line with enterprise risk management processes and reporting and disclosure cycles.

LEAP is not, in itself, a disclosure recommendation or a mandated process to adhere to the disclosure recommendations put forward by the TNFD. As such, not everything that is identified, assessed and evaluated using the LEAP approach needs to be disclosed. LEAP is intended to serve as voluntary guidance to assist market participants with their internal analysis and discussions in order to make a number of corporate and investment decisions and apply the TNFD disclosure recommendations.

LEAP has been designed as a general approach for use by a wide range of corporates and financial institutions. The TNFD recognises that a general approach is difficult to develop, given variations in business models, sector-based market dynamics and the information needs of users. Financial institutions, in particular, have different decision making and information requirements to corporates; and there is significant difference among financial institutions.

As outlined below, the TNFD has developed an extended **LEAP approach for financial institutions (LEAP-FI)**. This early prototype of LEAP-FI focuses on the assessment of nature-related risks and opportunities in relation to financed activities (e.g. debt and equity investing, trading and insuring). Complex financial products such as derivatives are not included within the scope of the LEAP process. The LEAP approach for financial institutions will be built upon and further improved in following releases of the TNFD framework. The Taskforce recognises that some organisations may already have an equivalent process built into their enterprise risk management framework. In such cases, the LEAP approach can be used as a checklist to ensure existing internal processes adequately address nature-related risks and opportunities. Critically, the TNFD believes that all aspects of the LEAP approach should be incorporated into any robust nature-related risk and opportunity assessment process. Further details and in-depth guidance on the LEAP approach is available on TNFD's interactive online platform.

This first beta release of the LEAP approach is an early prototype designed to stimulate feedback and input from market participants to help the Taskforce further develop this guidance.

The Taskforce welcomes feedback from all organisations, in particular financial institutions, as further iterative development of LEAP for corporates and LEAP for financial institutions is a key priority for the Taskforce.

5.1. Key design elements of the LEAP approach

In developing the LEAP approach, the Taskforce has built on and integrated existing, high-quality nature-related frameworks, tools, data sources and other guidance developed by other organisations that are aligned with the TNFD's principles and approach. The source frameworks and tools used are signposted throughout the phases of the LEAP approach, with descriptions of how they may be used by organisations. As new frameworks, tools, data sources and guidance are developed, the TNFD will add additional signposts into the LEAP approach. The following key elements should be considered in the initial stages of identifying nature-related dependencies and nature impacts to inform an organisation's analysis of risks and opportunities:

- **Location:** Since nature-related dependencies and nature impacts are location-specific, understanding where the organisation, its operations and supply chains are located, and the specific nature context of that location (i.e. the biome and location-specific ecosystem), is essential to understanding actual, rather than potential, nature-related risks and opportunities.
- **Sector:** The nature of the organisation's business processes, products and services will similarly define its relationship with nature. Some sectors' products and services will have a less or more significant impact on nature than others, depending on their production processes.
- **Drivers of change:** The pressures on nature in different locations around the world will influence the level of risk exposure. For example, if climate change is driving shifts in water availability or changes in coral reef health, this can have implications for agricultural and tourism companies with supply chains reliant on that coastal infrastructure in that specific location, which may become more exposed to extreme weather events formerly protected by coral reefs.
- **Timeframes and scenarios:** It is also important to consider the timeframe, particularly when identifying nature-related risks and opportunities. As outlined earlier, the use of scenarios can be helpful to support longer term thinking around key trends and critical uncertainties. This concept of scenarios has been included in the initial set of disclosure recommendations in this first beta version of the TNFD framework. Further consideration of scenarios will be included in future versions.

5.2. The LEAP approach for corporates

The LEAP approach for corporates involves four core phases of analytic activity:

- Locate your interface with nature;
- Evaluate your dependencies and impacts;
- Assess your risks and opportunities; and
- Prepare to respond to nature-related risks and opportunities and report.

These four core phases are broken down into 17 analytic components for corporates, each framed by a guiding question.

The LEAP Approach for Corporates

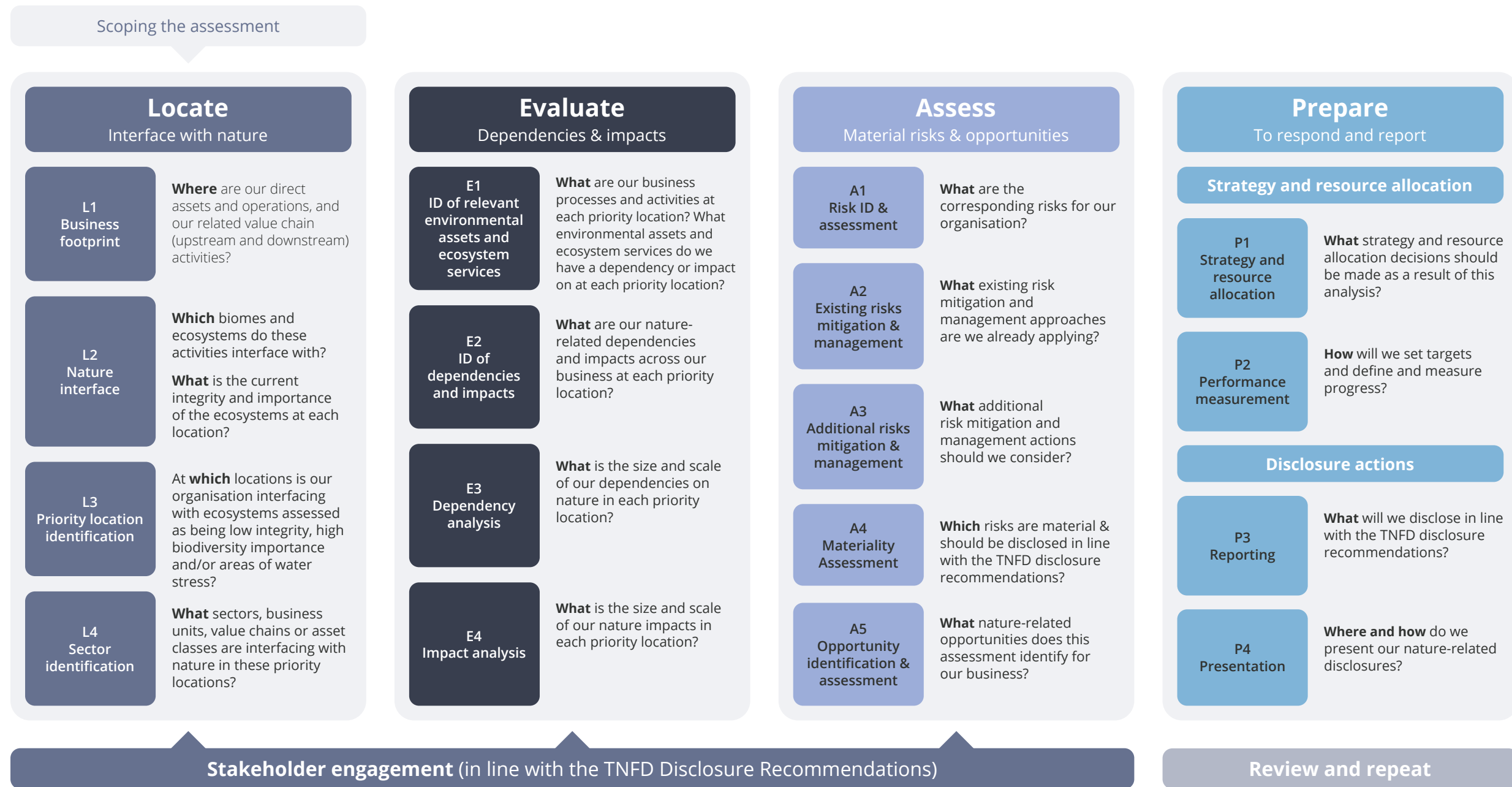


Figure 20: The LEAP approach

5.3. LEAP for Financial Institutions (LEAP-FI)

Flexibility is required within the application of the LEAP process by financial institutions to accommodate variations in asset class, levels of influence and data.

In addition to the 17 steps for corporates, the LEAP approach for financial institutions includes a preceding set of 4 guiding questions that consider the type of financial institution, type of product / asset class, level of aggregation and sector in which the institution allocates capital.

This preceding phase is designed to enable financial institutions, to progress to the 'Locate' or 'Evaluate' phase of the LEAP approach, based on the type of financial institution, the nature of the capital being provided and the level of aggregation. For example:

- Financial institutions engaged in project finance, real estate, sovereign risk, some insurance (hazard assessment) and some private equity firms will make location-based capital allocations and therefore start with the 'Locate' phase of LEAP.
- Listed and unlisted equity and debt are more likely to follow a sector or thematic-based capital allocation and would find it more appropriate to start with the 'Evaluate' phase of LEAP.

This approach to LEAP-FI has been taken based on the following additional considerations:

- Financial institutions operating as a corporate entity can apply the LEAP approach for corporates, as it pertains to their own operations and supply chain, however, these represent limited impacts compared to financed impacts.
- Financial institutions encourage their clients (recipients of financial capital) to go through the LEAP approach for corporates and provide information in line with the TNFD disclosure recommendations.
- For financed activities, the connection between financial exposures and nature is derived from the connection of the entities/projects financed and their own link with nature. Therefore, financial institutions will need information from these entities/projects to support their assessment. Such information may be incomplete or vary in quality across jurisdictions. As a result, the analysis of risks and opportunities associated with the nature-related dependencies and nature impacts of financed activities on nature may be based on high-level, modelled or proxy data and involve significant estimates and assumptions.



LEAP for Financial Institutions (LEAP-FI)

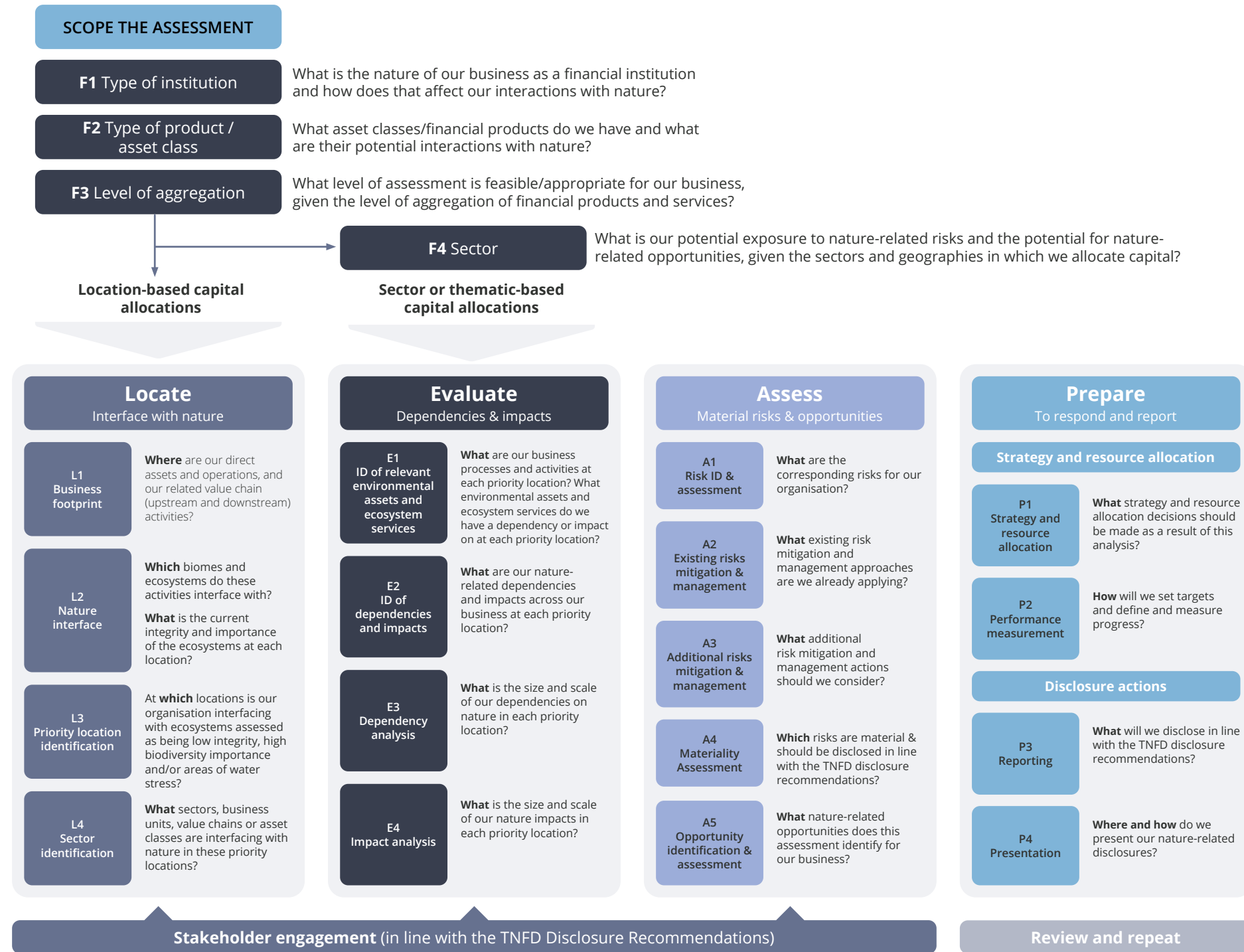


Figure 21: The LEAP approach for financial institutions

6. Priority areas for further development

In addition to further refining the content included in this first beta version, a number of further science-based and framework design topics have been identified for further consideration by the Taskforce. As such, the TNFD will release further material on the following topics in subsequent releases.

6.1. Climate-nature nexus

Climate change and nature loss are mutually reinforcing. Climate change is one of five direct drivers of nature loss. At the same time, extensive nature loss reduces the ability of ecosystems to store carbon and releases carbon emissions, which amplifies the effects of climate change. Climate- and nature-related physical risks, transition risks and opportunities are therefore closely connected⁴⁰. Natural ecosystems mitigate – and help to adapt to the unavoidable – effects of climate change, such as increased temperatures, droughts or floods.

The combination of nature loss and climate change can significantly increase physical risks to corporates and financial institutions. For example, in the agriculture sector, crop yields can be affected by lower rainfall and higher temperatures, but also declining natural pest control, soil degradation and loss of pollinators. These risks can be compounding – for example, climate change can create conditions in which pests flourish. The growing scientific evidence around tipping points highlights that compounding climate-nature impacts increase the risk to business owners and investors of stranded assets.

Transition risks are also connected, as commitments are made to achieve both net zero greenhouse gas emissions and nature-positive outcomes, in line with the Convention on Biological Diversity (CBD) post-2020 Global Biodiversity Framework. Climate change mitigation and adaptation and nature conservation and restoration are mutually reinforcing. There is increasing awareness that climate change mitigation and adaptation solutions – such as monoculture afforestation, bioenergy crop planting and large built infrastructure such as dams or solar and wind energy installations – can lead to nature loss. In addition, concerns have been raised about the design, additionality and co-benefits of some poorly managed carbon offsets, while others – including some nature-based carbon offsets – have been shown to deliver well-managed, reliable offset solutions. Nature-based carbon offsets also offer considerable

co-benefits for nature, livelihoods and wellbeing.

Nature- and climate-related opportunities are also interconnected: actions that mitigate climate change can contribute to nature restoration, and actions that conserve and restore nature can contribute to climate change mitigation and adaptation. Investment opportunities for nature-based solutions include, for example, restoring peatlands as carbon sinks, regenerative farming, or restoring seagrasses for climate adaptation.

Approach in this version of the TNFD Framework (v0.1)

Recognising the climate-nature nexus, and wanting to build on progress made in climate-related risk management and disclosures, many corporates and financial institutions now want to take an integrated approach to managing and disclosing material climate- and nature-related risks and opportunities. One of the TNFD's principles is to employ an integrated approach to climate- and nature-related risks. The fundamental definitions at the foundation of this first beta version of the TNFD framework have been developed to ensure links between climate and nature are recognised, and to enable an integrated approach:

1. Atmosphere is included in the TNFD framework as one of four nature **realms** (along with Ocean, Freshwater and Land) to reflect the close association between climate- and nature-related risks and opportunities, while also acknowledging that links with climate mitigation and adaptation occur across all realms.
2. Climate change is recognised as one of the **direct drivers of nature change**⁴¹. Therefore, the TNFD includes greenhouse gas emissions as a nature-related impact driver.
3. The TNFD's approach to **impact drivers** recognises that some actions for climate mitigation and adaptation can be harmful to nature, including carbon offsets e.g. land use change to establish monoculture plantations as a carbon sink.
4. **Dependencies** on ecosystem services relating to climate change are included in the TNFD framework, for example, global and local climate regulation and rainfall pattern regulation.
5. Nature-based solutions and natural climate solutions are specifically identified by the TNFD as **opportunities** that address synergies to address nature loss, as well as climate mitigation and adaptation, while also considering societal impacts, with the potential to maximise co-benefits and avoid trade-offs.
6. The TNFD's approach to defining **physical, transition and systemic risks** can encompass feedback loops and reinforcing interactions between climate change and nature loss, to ensure financial risks and opportunities are accurately assessed.

In the draft disclosure recommendations in this beta version, the TNFD actively encourages integrated climate- and nature-related disclosures, rather than the development of dedicated nature-only reporting. To encourage an integrated approach to the climate-nature nexus, the TNFD's proposed disclosure recommendations have been designed to align with, and be

additive to, the TCFD's disclosure recommendations (see section 4 for further details on how the recommendations align).

The proposed draft disclosure recommendations refer to the TCFD for specifics on disclosure of climate-related risks and opportunities. In line with this approach, the TNFD recommendations do not include specific language related to greenhouse gas emissions. However, atmospheric systems and processes, as well as greenhouse gas emissions and other emissions, are treated as part of nature in the context of the TNFD. The TNFD recognises that the TCFD reporting requires a much broader assessment of climate-related aspects than greenhouse gas emissions.

The TNFD recognises differences in the way in which nature-related risks and opportunities need to be assessed, but the similarity of the high-level draft disclosure recommendations of the TNFD with the high-level recommendations of the TCFD should enable users to adopt an integrated approach to risk management and disclosures from the outset.

Areas for further development in subsequent beta versions

The Taskforce will continue to work with knowledge partners and market participants to evaluate how best to fully incorporate the climate-nature nexus into the TNFD framework. The next phase of work for the Taskforce will involve investigating the approach to scenarios in collaboration with the TNFD's knowledge partners. This will include exploring the potential for an integrated approach that reflects the effects of both climate change and nature loss, as well as any global targets for nature set out in the forthcoming Global Biodiversity Framework.

The Taskforce welcomes feedback on how to approach the climate-nature nexus in subsequent versions of the TNFD framework. In particular, TNFD welcomes feedback on how to approach this in the context of scenarios of practical relevance and application for market participants.

6.2. Scenarios and timeframes

As described by the TCFD, scenario analysis is a well-established method for developing strategic plans that are more flexible or robust to a range of plausible future states. Scenario analysis allows consideration of how an organisation might perform under different plausible future states (i.e. its resilience or robustness). As in the case of climate change, nature-related scenarios allow an organisation to explore and develop an understanding of how nature-related physical and transition risks and opportunities might plausibly affect it over time.

Forward-looking scenario analysis is necessary for nature-related risk assessment for the same reasons that it has proved useful for climate-related risks and been encouraged by the TCFD. Nature-related risks are also far reaching in breadth, scope and potential irreversibility. Risks are simultaneously uncertain and foreseeable, and the size and balance of future risks will be determined by actions taken in the short to medium term⁴². Given that ecosystem processes are non-linear⁴³, generating the risk of ecosystem tipping points⁴⁴, assessment of nature-related risks must be undertaken in the face of deep or radical uncertainty. No single model or scenario can provide the full picture of potential risks. Longer time horizons increase the extent to which impacts affect dependencies and become risks.

There are currently no standard scenarios designed to address the resilience of corporates and financial institutions (or the wider financial system) to nature-related physical and/or transition risks. Scenarios suitable for use by central bankers and financial supervisors may now be addressed by the Network for Greening the Financial System (NGFS), which has recognised the importance of scenario analysis in its next phase of work on biodiversity risks and financial stability⁴⁵. IPBES has undertaken work on nature-related scenarios, which can also provide a useful starting point⁴⁶.

Approach in this version of the TNFD Framework (v0.1)

As with the TCFD approach to climate, given the importance of forward-looking assessments of nature-related risks, this first beta version of the TNFD framework explicitly recognises that scenario analysis is an essential tool for an organisation to use when assessing physical and transition risks. This is based on an understanding of the importance of scenarios for identifying material risks and opportunities over short-, medium- and long-term time frames, due to the complexity, uncertainty and importance of long-time horizons when dealing with nature.

The definitions in the beta version of the TNFD framework, and its conceptual approach to nature-related risks, opportunities and financial risks, reflect that several hazards and potential shocks are uncertain, as are the transmission channels through which organisations experience associated financial risks and opportunities. The physical and transition risks of nature loss can be acute or chronic. Ecosystems can collapse suddenly, and policies can lead to a rapid repricing of assets. In contrast, ecosystem tipping points can also materialise gradually, and policies can be implemented incrementally. Nature impacts can affect ecosystem services that organisations depend on and/or create transition risks over time.

The draft disclosure recommendations included in this initial beta version of the TNFD framework specify that risks should be assessed taking into consideration different scenarios of nature loss. In this beta release, the TNFD also recommends organisations disclose how they define short-, medium- and long-term time frames, and how those timeframes align with the organisation's strategic planning horizons and capital allocation plans. As guidance, the TNFD recommends use of the following time frames: short-term – less than 2 years; medium-term – 2-5 years; and long-term – more than 5 years. If a preparer is using definitions of short-, medium- and long-term that differ from the time frames recommended by TNFD, they should explain and justify their choice

based on the time horizon over which nature-related risks or opportunities could reasonably be expected to have a financial effect on the organisation.

Further development in subsequent beta versions

Scenarios will be considered and explored in future work by the Taskforce, and guidance on scenarios will be included in subsequent releases of the framework. The Taskforce will establish a Working Group dedicated to working on scenarios, exploring how they can and should be used to identify potential physical and transition risks and opportunities over short-, medium- and long-term time frames.

The Taskforce intends to collaborate with a select group of knowledge partners to develop guidance on the development of scenarios relevant to nature-related risks. The work will consider questions such as:

- The case for, and benefits of, scenario development and analysis;
- Which scenarios to use or develop in order to assess nature-related risks and opportunities, and the resilience of strategies;
- How organisations can develop and apply scenario analysis as part of the TNFD framework;
- How to address practical application challenges with scenario analysis, including important analytical choices, as well as relevant tools and data sources to be used.

The Taskforce welcomes feedback on how to approach scenarios and scenario guidance in subsequent versions of the TNFD framework, and in particular how to reflect connections between climate and nature. This will enable a better understanding of linkages and the resilience of organisations to both climate- and nature-related shocks. The Taskforce also welcomes feedback on its approach to timeframes, including the guidance on the definition of short-, medium- and long-term.

6.3. Scope of disclosures

A systematic approach to defining scope enables organisations to prioritise specific elements of an assessment of nature-related risks and opportunities, and clearly communicate to others which elements of scope they are including in their assessment.

A clear indication of selected scope helps to convey to users:

- what the organisation views as potentially material and is disclosed,
- potentially material and is not yet disclosed, and
- not material.

This allows users to understand whether risks and opportunities not in the disclosure are excluded to make the initial scope practical, or because they are not considered material.

The TCFD requires organisations to define if they are reporting against Scope 1, 2 and 3 as defined by the GHG Protocol. An equivalent of these scopes could be defined for nature, but does not yet exist. An adaptation of the scope concept for nature could capture additional dimensions beyond value chain coverage, such as sector or business unit, geography, asset class and types of nature-related dependencies and nature impacts:

- **Value chain coverage:** Direct operations (equivalent of Scope 1 for greenhouse gas emissions), or full value chain including upstream and downstream, including consumption and end of life (equivalent of Scope 3 for greenhouse gas emissions). For a corporate, this refers to their own value chain. For a financial institution, this refers to the value chain of the corporates to which they provide finance, including, where relevant and identifiable, their value chain impacts.
- **Sector/business units:** For a corporate, different economic industries in which the reporting organisation operates. For a financial institution, different economic industries to which the reporting organisation provides finance.
- **Geography:** For a corporate, countries or subnational jurisdictions in which the reporting organisation operates. For a financial institution, countries or subnational jurisdictions where the organisations to which the reporting organisation provides finance are listed.
- **Asset class (specific to financial institutions):** Listed equity, private equity, corporate bonds, government bonds, corporate loans, other debt instruments, real estate, infrastructure, project finance and other asset classes.
- **Types of impacts, impact drivers and dependencies:** Which dimensions of interactions with nature the reporting entities are choosing to disclose (see section 3)). This is a new aspect of scope, specific to the context of nature. Dependencies and impacts, including cumulative impacts, on nature occur not only directly from a corporate or financial institution's own operations, but also in upstream and downstream activities across value chains. For financial institutions, this would include lending (on- and off-balance sheet), investment (direct and through investment vehicles) and/or insurance, as well as business

activities, such as client investments and advisory.

Approach in this version of the TNFD framework (v0.1)

The proposed approach in this beta version of the TNFD framework is that corporates disclose on all material risks and opportunities related to the dependencies and impacts of their operations and across their value chain. This includes a consideration of the upstream (supply) and downstream (consumer) value chains, as described above. For financial institutions, this would include lending, investment and/or insurance, as well as fee-based business activities. The TNFD recognises that there is a difference in perspective and degree of control between a corporate that is managing its value chain, and an investor that needs to understand the value chains of all the corporates in their portfolio.

However, in all cases, disclosures should be guided by the concept of materiality. The TNFD recommends that organisations follow an enterprise value approach aligned with the developing standards of the ISSB, which will set a global baseline. The TNFD notes that consideration of medium- to long-term timeframes through scenarios is important, as impacts and dependencies over these time frames may lead to additional risks and opportunities that are material for enterprise value.

The TNFD understands that nature-related disclosures will be new to many organisations. Organisations may need to start with a narrow scope and expand the depth and breadth of their assessments. They may wish to prioritise their disclosures and focus on specific activities or business lines where such information is particularly material, focusing on priority locations and aspects of their value chain, as well as specific impact drivers, impacts and dependencies. Financial institutions may wish to focus on certain asset classes, sectors, locations or portions of their financing and advisory activities.

In the first beta version of the TNFD framework, the draft disclosure recommendations (see section 4) specify that users should be clear what was considered in scope for the disclosure and what has not been considered for the scope of the disclosure. The TNFD recommends that a statement should be provided of what further disclosures and additional scope areas are planned in the future. This should allow users to form a view on whether there are any gaps in an organisation's current disclosures of material nature-related risks and opportunities. The coverage should expand over time, so that after no more than five years, organisations are considering their full set of material dependencies and impacts across their upstream and downstream operations when making disclosures. This proposed timeline aligns with TCFD's concept of a five-year pathway to full disclosure.

Further development in subsequent beta versions

The TNFD will continue to explore its approach to scoping in relation to its disclosure recommendations and the LEAP approach for nature-related risk and opportunity assessment and welcomes feedback.

6.4. Approach to materiality

A fundamental issue in any risk management and disclosure framework or standard is the approach to materiality. The terms 'single materiality', 'double materiality' and 'dynamic materiality' are used to distinguish different approaches. Double materiality is associated with the approach that organisations should disclose not only how nature may impact the organisation's immediate financial performance (so-called 'outside-in') but also how the organisation impacts nature ('inside out'). The concept of 'dynamic materiality' emphasises that there is a path for issues (including impacts) to become material over time.

The terms singular, double and dynamic materiality are often juxtaposed and contrasted as mutually exclusive approaches. In practice, there are signs of a move towards convergence in the market. The new ISSB is focused on its ambition to introduce a global baseline of standards for sustainability-related disclosures. It recognises enterprise value as a key concept that is 'interdependent with value creation for society and the environment'⁴⁷.

The ISSB Sustainability Prototype includes impacts, and it has been stated that the ISSB will develop IFRS Sustainability Disclosure Standards, including disclosure requirements that 'address companies' impacts on sustainability matters relevant to assessing enterprise value and making investment decisions'⁴⁸. Clause 12 of their prototype specifies that 'material information could include but is not limited to information about a) an entity's impacts on society and the environment, if those impacts could reasonably be expected to affect the entity's future cash flows'⁴⁹.

Individual jurisdictions are creating their own requirements, which may be more ambitious than the emerging global baseline being introduced by ISSB, with materiality approaches being developed'⁵⁰.

Approach in this version of the TNFD framework (v0.1)

In line with the gradual convergence in the perspective on materiality in the market, the TNFD framework recognises that consideration of both nature-related dependencies and impacts is required for a comprehensive assessment of risks and opportunities, and that impacts on nature become relevant to enterprise value when assessed over a future time horizon (e.g. through scenario analysis). The TNFD framework has thereby been developed to be applicable to meet both the emerging global baseline being developed by the ISSB, and the approaches of specific jurisdictions and the ambitions of individual preparers, which may go beyond these requirements.

The TNFD framework recognises that organisations need to make disclosures in accordance with their national disclosure requirements. If certain elements of the recommendations are incompatible with national disclosure requirements for financial filings, organisations are encouraged to disclose those elements through other reports. As is recommended by the TCFD, the TNFD recommends that material nature-related information is provided in mainstream (i.e. public) annual financial filings.

Further development in subsequent beta versions

The Taskforce will continue to consider its approach to materiality and welcomes feedback from market participants.

6.5. Social dimensions

Wider society depends on ecosystems for their livelihoods and a variety of ecosystems. Like education and health, nature is more than an economic good: many people value its existence and recognise its intrinsic value, irrespective of any direct or indirect use by people. The term ‘nature’s contributions to people’ (the preferred term of IPBES) is a broader concept than ecosystem services that emphasises that culture is central to the links between people and nature, and the TNFD recognises the value of other knowledge systems, for example, those of local communities and Indigenous peoples⁵¹. These communities have customs, values and institutions that enable them to act as stewards of ecosystems. Some of these sites may be considered sacred.

Local communities and Indigenous peoples play a critical role in safeguarding nature, and protecting and restoring nature plays an essential role in safeguarding Indigenous peoples and local communities, as they depend on ecosystems for their livelihoods. Community-led protection and practices of Indigenous peoples and local communities have proved highly effective for the protection of ecosystems through their knowledge, practices and institutions. As evidence of this, biodiversity indicators show declines of 30% less and 30% more slowly in Indigenous lands than in lands not managed by Indigenous people⁵².

Values of connectivity, reciprocity and trust in relationships with all species have provided the

basis for effective institutions for environmental management. The TNFD recognises that nature is more than an economic good: many value its existence and recognise its intrinsic value, irrespective of any direct or indirect use by people.

Approach in this version of the TNFD framework (v0.1)

The importance of broader society, Indigenous peoples and local communities is emphasised throughout the draft definitions in this version of the framework.

- The draft definition of nature itself emphasises that people are part of nature, not separate from it.
- The focus on ‘natural capital’ supporting the provision of ‘ecosystem services’ makes clear that many actors depend on ecosystem services to function, not only the organisation in focus.
- Although the TNFD uses the term ecosystem services, as it is already well understood and used by the private sector, the Taskforce recognises that it will be important for users of the framework to understand the many aspects of nature’s contributions to people. The approach to ‘impacts’ in the framework clarifies that these affect many actors who depend on nature. Further, many actors can have impacts on nature and these can be cumulative.
- The definition of transition risks makes it clear that corporates and financial institutions are affected by the perspectives and awareness of society on nature loss, who may take action to shape policies and regulations, challenge reputations and litigate.
- Enterprise value is affected by transition and physical risks that evolve over time, and shaped by the experience, perspectives and rights of wider society, including local communities.

Understanding the dependencies and impacts of other actors on nature is critical to understanding nature-related risks and opportunities to a corporation or financial institution. Stakeholder engagement is therefore a critical, cross-cutting element of the LEAP approach for nature-related risk and opportunity assessment in the TNFD framework.

Further development in subsequent beta versions

The Taskforce is developing engagement channels to broaden and deepen its engagement with representatives of local and Indigenous communities.

6.6. Defining nature-positive

The term nature-positive is the subject of ongoing discussions linked to the agreement of the Convention on Biological Diversity’s Post-2020 Global Biodiversity Framework, which will provide the global umbrella policy framework agreed by governments. This reflects calls from members of business, government and civil society for a global goal for nature that could sit in parallel to the goal of the UN Framework Convention on Climate Change to limit global warming to below 2°C, preferably to 1.5°C, compared to pre-industrial levels. The term nature-positive is also

increasingly used in the context of corporates' and financial institutions' actions and impacts on nature.

The term nature-positive is not yet well defined or understood in a consistent manner. In the context of corporate risk, opportunity and disclosures relating to nature, clarity on what nature-positive means for corporates will be important. It raises questions such as: What is the baseline or reference point? How can nature-positive and nature-negative outcomes be measured? Can an organisation, product or project be described as nature-positive or only the outcomes to which they are contributing?

Approach in this version of the TNFD framework (v0.1)

The TNFD's ultimate objective is to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. Nature-positive is defined in this version of the framework as a high-level goal and concept describing a future state of nature across all realms (including biodiversity, ecosystem services and natural capital) which is greater than the current state.

Further development in subsequent beta versions

To further define transition pathways to nature-positive, the TNFD will look to the CBD Global Biodiversity Framework, including specific targets agreed, which could form the basis of development of scenarios and targets for transition plans. The Taskforce will also look towards the development of goals and objectives for nature and biodiversity within national and local policies, which will set the level of ambition and context for targets set by corporates and financial institutions. The implications of these policy frameworks will be considered in subsequent beta versions of the TNFD framework, particularly in relation to metrics, targets and scenarios.

The Taskforce would welcome feedback on the approach to defining nature-positive and nature-positive outcomes in subsequent beta versions of the TNFD framework.

6.7. Data, metrics and targets

High-quality data is essential to enable effective risk and opportunity management and disclosure. This is especially true for nature-related risks and opportunities. The TNFD's research has indicated that a significant amount of nature-related data is already available, from public, NGO and commercial sources. However, gaps remain, and data quality and consistency vary considerably across different regions, biomes and ecosystems. Over time these gaps will be filled,

and organisations are already using – and can start working on – what is available today.

Location is a key element to assessing nature-related risks and opportunities. Data on the location of an organisation's assets and operations, both those directly controlled by it and those in its supply chain, are critical for applying the draft TNFD framework. Organisations will need to compile and manage data sets that map the location of their assets and activities (both direct and across their value chain) and the biomes and ecosystems these are located in, to understand their nature-related dependencies and nature impacts. Many corporates have already built data sets that map their assets and operations, while financial institutions are using models that can integrate aggregated data on locations. Other organisations have yet to begin or are just starting to work with location-specific data. A key challenge for all organisations is identifying and managing the spatial location of assets in their supply chain.



Data on the location of an organisation's assets and operations, both those directly controlled by it and those in its supply chain, are critical for applying the draft TNFD framework.

Organisations should work to manage and disclose those nature-related risks and opportunities, based on nature-related dependencies and nature impacts, that are material to the context of their business activities.

The data and metrics required to assess an organisation's dependencies and impacts vary greatly depending on factors such as the type of environmental asset, the location and sector. A challenge for organisations will be to interpret the data and metrics, and how to identify appropriate proxy data to assess metrics, indicators and targets when direct data, such as asset locations, are unavailable. Further, report users will require information to understand whether the metrics reported by preparers indicate that impacts are being effectively mitigated.

As yet, there is no architecture of globally agreed metrics and targets for nature protection and restoration at global or national levels. The forthcoming CBD Global Biodiversity Framework may fill this gap and provide recommended metrics and targets globally. Others, such as the Science-based Targets Network (SBTN), are developing approaches for businesses to set targets. Other frameworks, guidelines and tools provide metrics and indicators that can be used to assess, manage and disclosure nature-related risks and opportunities, and more are in development. The TNFD framework will take into consideration these targets and related metrics, as they are developed.

Key challenges on data, metrics and targets now include identifying a coherent and comprehensive set of essential metrics and indicators for nature-related risk and opportunity

management and disclosure; filling data gaps for the use of more direct measurement rather than proxies; achieving the granularity needed to assess and address location-specific dependencies and impacts on nature, and developing appropriate targets and tracking processes.

Approach in this version of the TNFD framework (v0.1)

The TNFD's discussion paper on data, published alongside this first beta version of the framework, sets out the findings of an initial landscape assessment of data sources. The paper includes a non-exhaustive nature-related data inventory, with indications of where these apply to the proposed LEAP risk and opportunity assessment approach and hypothetical case studies of this application. The case studies illustrate how organisations can use available data to manage and disclose their dependencies and impacts on environmental assets, as well as how report users rely on both information and metrics disclosed by businesses and proxies from models and data platforms to understand exposure and risk.

The TNFD has also begun building its understanding of the existing and evolving landscape of nature-relevant frameworks, standards, guidelines, analytical tools, metrics, indicators and targets through an additional landscape mapping assessment that remains ongoing. The TNFD is considering what nature-related data, metrics and targets are relevant to the proposed framework's core concepts and definitions, especially relating to environmental assets, ecosystem services, impact drivers and impacts.

The Taskforce has initially provided two draft recommended disclosures regarding nature-related metrics and targets (see section 4, figure 19), with considerations of these and possible additional disclosures ongoing.

Further development in subsequent beta versions

Moving forward, the TNFD will engage the data community to encourage and facilitate development of data, analytics and tools to support the application of the emerging TNFD framework. The Taskforce will continue its landscape assessment of existing metrics and targets to the TNFD framework and provide solutions to gaps identified. The TNFD anticipates this landscape assessment to continually evolve as nature-related reporting evolves. The landscape assessment of existing metrics and targets is a key piece of work for the Taskforce and will ensure the TNFD framework is usable for market participants in practice.

In subsequent beta releases, the Taskforce will provide recommendations and guidance on nature-related metrics and targets for disclosures – including those that will apply to all organisations and those that are sector-specific – to help contextualise data availability for the TNFD framework for corporates and financial institutions.

6.8. Sector-specific guidance

Additional sector-specific guidance is not provided in this initial beta release. Further work will be undertaken by the Taskforce to understand the needs for sector-specific guidance before it will be included in subsequent releases of the TNFD framework.

The Taskforce welcomes feedback on what sector guidance should cover, including specific sectors to focus on for initial guidance, and whether guidance is also needed by biome.



7. Engage – Co-create the TNFD framework

With the release of this first beta (v0.1) version of the TNFD framework, the TNFD is now commencing a more structured and focused process of engagement with corporates and financial institutions on the specific technical aspects of the TNFD's draft recommendations and guidance. The TNFD's open innovation approach centres around detailed and broad technical consultation, to ensure the TNFD framework is developed by and with the market.

TNFD stakeholder engagement channels

The TNFD has established several consultation and participation channels for a wide range of stakeholders:

- The consultative **TNFD Forum** has been established to enable a wide range of stakeholders to stay up to date with TNFD's developments and support the work of the Taskforce and its working groups;
- **The TNFD Knowledge Hub** is comprised of several networks of knowledge partners contributing best-in-class specialist expertise across science, conservation, development finance and market reporting. The knowledge partners advise the Taskforce on the design and development of the framework. The TNFD will be looking to add additional knowledge partners, particularly partners with in-depth regional expertise, to its consultative network over the coming six months;
- Through the **TNFD Stewardship Council** and engagement with inter-governmental organisations and bodies, the TNFD is leveraging many channels to engage government policy makers and regulators.

Based on market demand, the TNFD is also supporting the creation of **National Consultation Groups** in select markets to expand awareness about the TNFD and encourage feedback and pilot testing of the framework. The TNFD is also working with a number of international organisations to provide channels for input and consultation from **local and Indigenous community organisations** into the framework design and development process.

The TNFD's open consultation period will continue until 30 June 2023. Stakeholders can provide feedback on this first beta version, as well as subsequent beta versions planned for release in June 2022, October 2022 and February 2023. The Taskforce will publish its final recommendations in September 2023.

Feedback, pilot testing and focus groups

To facilitate broad and open consultation on the first beta version of the framework, the TNFD has created an interactive online platform to present the draft framework in full and collect feedback. The TNFD is committed to a global program of pilot testing and aspires to see a broad and diverse mix of pilot tests being conducted by corporates and financial institutions across geographies and sectors; especially in nature-risk hotspots around the world.

The Taskforce is looking for comments and feedback on all aspects of the framework.

Organisations can **review and comment** on the draft framework on the TNFD platform and provide feedback using its feedback functions:

1. Organisations can review the draft framework on the TNFD online platform and provide feedback using its feedback functions.
2. Corporates and financial institutions keen to explore how the TNFD framework might apply in their specific organisational context can **pilot test** the framework independently and, in some cases, through industry collaborative efforts outlined on the TNFD online platform.
3. Based on the feedback provided by market participants, the TNFD will then convene **Focus Group discussions** – around key emerging themes, or by geography or sector – to engage feedback providers in further detail.

The feedback received, through the online platform, pilot testing and through focus group discussions, will be critical inputs into subsequent releases of the framework as indicated above

Information for organisations interested in pilot testing

For those organisations interested in pilot testing the TNFD framework, pilot testing of the beta framework will be commencing from 1 June 2022 to 30 June 2023. For interested pilot testers the scope of a pilot test, and the resources required by an organisation to undertake a pilot test of the framework, will be situational and up to each organisation to determine, based on its current capabilities, data and resources.

- Some pilot testers may want to limit their scope to a desktop review of how the framework might apply to their business, based on comparison with past experience.
- In anticipation of the future market adoption of the final TNFD disclosure recommendations,

other pilot testers might want to deploy considerable time and resources to run through the draft LEAP approach and draft disclosure recommendations in a step-wise manner, in order to assess their current organisational capacity for assessing, managing and reporting on nature-related risks and opportunities. This in-depth piloting could involve using actual organisation and third 3rd party data sources and the use of external consultants or advisers.

Before starting

This first beta release of the TNFD framework is an initial prototype. As a prototype, it is not fully developed and does not yet have all the components required for a seamless pilot testing experience. As an initial beta version, it will be subject to further change and refinement based on feedback from those market participants who support the TNFD as early testers of the framework.

The TNFD therefore encourages all organisations interested in pilot testing to carefully consider the scope of a possible pilot test before starting to deploy resources and time. TNFD would encourage organisations to consider an initial desktop-testing exercise to help inform the scale and scope of a more intensive pilot testing exercise.

The TNFD also encourages pilot testers to consider testing the framework in collaboration with others. This might include, for example, a financial institution and an investee company undertaking a pilot test together. Collaborative testing might also be considered with industry peers through industry associations.

Independent pilot testing

The TNFD Secretariat has limited capacity to provide technical support to pilot testers. The TNFD's online platform has been designed to enable organisations everywhere to undertake their own independent and self-guided, self-paced testing of the beta release of the framework. The online platform will be updated frequently with additional guidance to support independent pilot testers, including additional information on available tools, metrics, targets and data.

For those organisations who are TNFD Forum members, the TNFD Secretariat will be providing some technical support. This will take the form of:

- Online webinars on the framework and key aspects of the framework;
- Focus groups to share learning and insights on key aspects of the framework based on feedback from organisations reviewing and piloting the framework; and
- Online discussion boards to address specific technical issues of shared interest.

Access to these shared learning opportunities for Forum member organisations will be provided on a global basis through webinars, and on a national level through National Consultation Groups, where they exist.

TNFD-supported pilot partner programs

The TNFD will be undertaking structured pilot testing programs with a limited number of institutional partners with the expertise and resources to project manage a portfolio of pilot tests on behalf of the TNFD.

These partner programs are currently being developed by the TNFD and will be announced on the TNFD website as and when they are being launched.



8. Learn more

Knowledge Bank

The TNFD's mission includes disseminating knowledge and best practice as the Taskforce builds momentum towards longer-term market adoption of a risk management and disclosure framework for nature-related risks. The TNFD shares relevant articles, research and market insights through the **TNFD Knowledge Bank**.

Join the TNFD Forum

The TNFD Forum is a global, multi-disciplinary consultative group of institutions with over 300 Forum members.

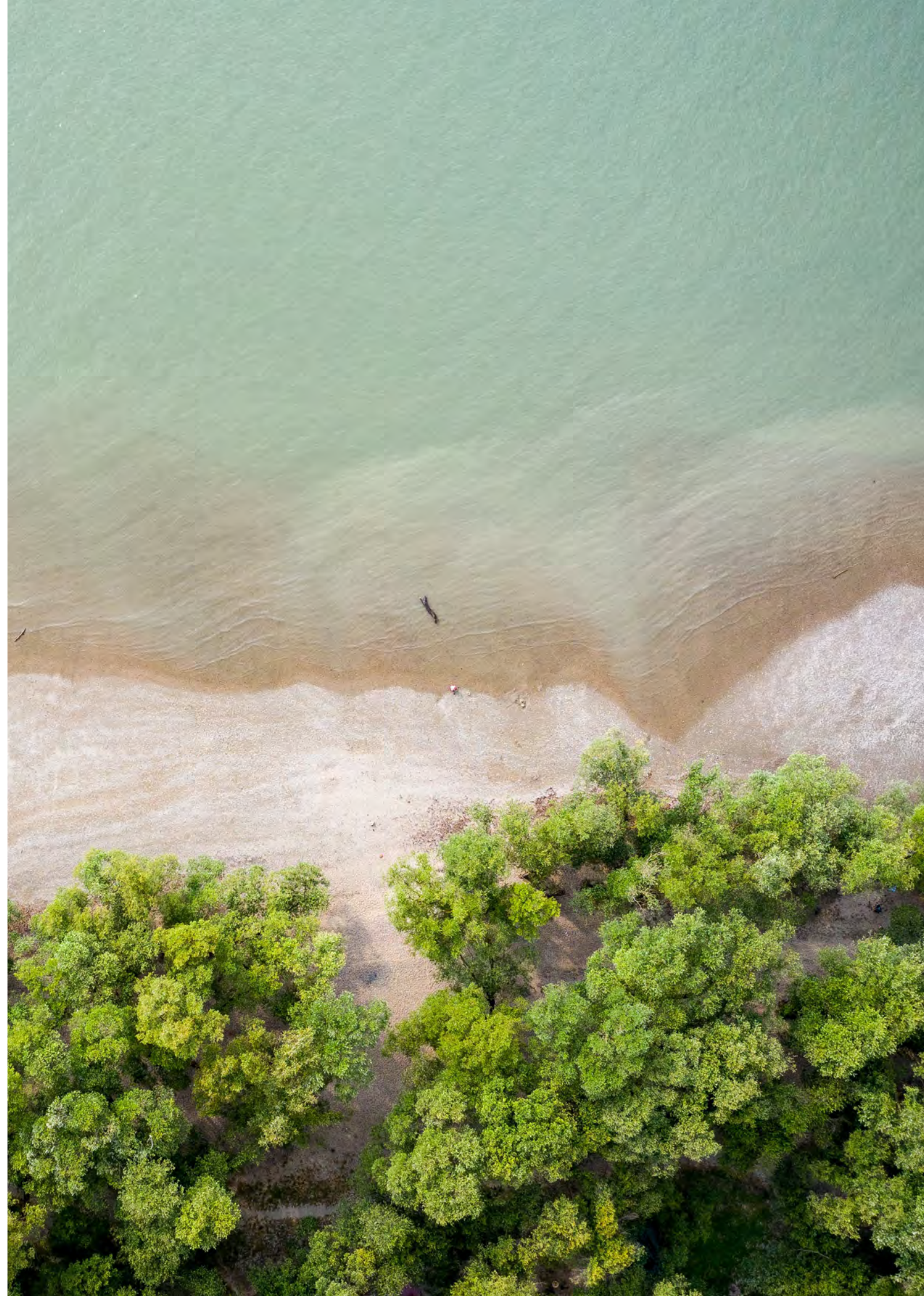
Membership of the Forum is open to a broad range of institutional types including corporates, financial institutions, public sector institutions including regulators, pension funds and sovereign wealth funds, academic and research organisations, business associations, inter-governmental organisations, as well as conservation and civil society organisations.

Institutions interested in joining the Forum should express their interest by **completing this form**.

Contact Us

Visit the TNFD website: www.tnfd.global

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Annex 1 – Glossary of key terms

Biodiversity	The variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. ⁵³
Biome	Global-scale zones, generally defined by the type of plant life that they support in response to average rainfall and temperature patterns e.g. tundra, coral reefs or savannas. ⁵⁴
Cumulative impact	A change in the state of nature (direct or indirect) that occurs due to the interaction of activities of different actors operating in a landscape. ⁵⁵
Dependencies	Aspects of ecosystem services that an organisation or other actor relies on to function. Dependencies include ecosystems' ability to regulate water flow, water quality, and hazards like fires and floods; provide a suitable habitat for pollinators (who in turn provide a service directly to economies), and sequester carbon (in terrestrial, freshwater and marine realms). ⁵⁶
Dependency pathway	A dependency pathway shows how a particular business activity depends upon specific features of natural capital. It identifies how observed or potential changes in natural capital affect the costs and/or benefits of doing business. ⁵⁷
Direct impacts	A change in the state of nature caused by a business activity with a direct causal link. ⁵⁸
Ecosystem	A dynamic complex of plant, animal and microorganism communities and the non-living environment, interacting as a functional unit. ⁵⁹

Ecosystem assets	A form of environmental assets that relate to diverse ecosystems. These are contiguous spaces of a specific ecosystem type characterised by a distinct set of biotic and abiotic components and their interactions. ⁶⁰
Ecosystem services	The contributions of ecosystems to the benefits that are used in economic and other human activity. ⁶¹
Environmental assets	The naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity. ⁶²
Habitat	The area, characterised by its abiotic and biotic properties, that is habitable by a particular species. ⁶³
Impacts	Changes in the state of nature, which may result in changes to the capacity of nature to provide social and economic functions. Impacts can be positive or negative. They can be the result of an organisation's or another party's actions and can be direct, indirect or cumulative. ⁶⁴
Impact drivers	A measurable quantity of a natural resource that is used as a natural input to production (e.g. the volume of sand and gravel used in construction) or a measurable non-product output of a business activity (e.g. a kilogram of NO _x emissions released into the atmosphere by a manufacturing facility). ⁶⁵
Impact pathways	An impact pathway describes how, as a result of a specific business activity, a particular impact driver results in changes in natural capital, and how these changes in natural capital affect different stakeholders. ⁶⁶
Indirect impact	A change in the state of nature caused by a business activity with an indirect causal link (e.g. a change indirectly caused by climate change, to which an organisation's greenhouse gas emissions contributed). ⁶⁷
Natural Capital	The stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people. ⁶⁸

Natural-climate solutions

A subset of nature-based solutions, natural-climate solutions include conservation, restoration, and improved land and sea management that increase carbon storage and/or avoid greenhouse gas emissions, enhance resilience and assist climate adaptation across global forests, wetlands, mangroves, grasslands, and agricultural lands and other habitats.⁶⁹

Nature

The natural world, with an emphasis on the diversity of living organisms (including people) and their interactions among themselves and with their environment.⁷⁰

Nature-based solutions

Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.⁷¹

Nature loss

The loss and/or decline of the state of nature. This includes, but is not limited to, the reduction of any aspect of biological diversity e.g. diversity at the genetic, species and ecosystem levels in a particular area through death (including extinction), destruction or manual removal.⁷²

Nature-related opportunities

Activities that create positive outcomes for organisations and nature by avoiding or reducing impact on nature, or contributing to its restoration. Nature-related opportunities can occur i) when organisations mitigate the risk of natural capital and ecosystem services loss and ii) through strategic transformation of business models, products, services and investments that actively work to halt or reverse the loss of nature, including by implementation of nature-based solutions (or support for them through financing or insurance).⁷³

Nature-positive

A high-level goal and concept describing a future state of nature (e.g. biodiversity, ecosystem services and natural capital) which is greater than the current state.⁷⁴

Nature-related risks

Potential threats posed to an organisation linked to its and other organisations' dependencies on nature and nature impacts. These can derive from physical, transition and systemic risks.⁷⁵

Physical risks

Risks arising when natural systems are compromised, due to the impact of climatic (i.e. extremes of weather) or geologic (i.e. seismic) events or changes in ecosystem equilibria, such as soil quality or marine ecology.⁷⁶ These can be event driven (acute), chronic, or both.⁷⁷

Priority locations

Priority locations are defined as the locations of ecosystems deemed to be low integrity and/or high importance and water-stressed areas with which the organization's assets and operations interact.

Realm

Major components of the living, natural world that differ fundamentally in ecosystem organisation and function: terrestrial (land), freshwater, marine (ocean), subterranean, atmospheric.⁷⁸ The TNFD's framework is based on four realms – Land, Freshwater, Ocean and Atmosphere. The subterranean realm is included within the land, freshwater and ocean realms.

Species

An interbreeding group of organisms that is reproductively isolated from all other organisms.⁷⁹

Systemic risks

Risks arising from the breakdown of the entire system, rather than the failure of individual parts. Characterised by modest tipping points combining indirectly to produce large failures and cascading interactions of physical and transition risks (contagion), as one loss triggers a chain of others and stops systems from recovering their equilibrium after a shock.⁸⁰

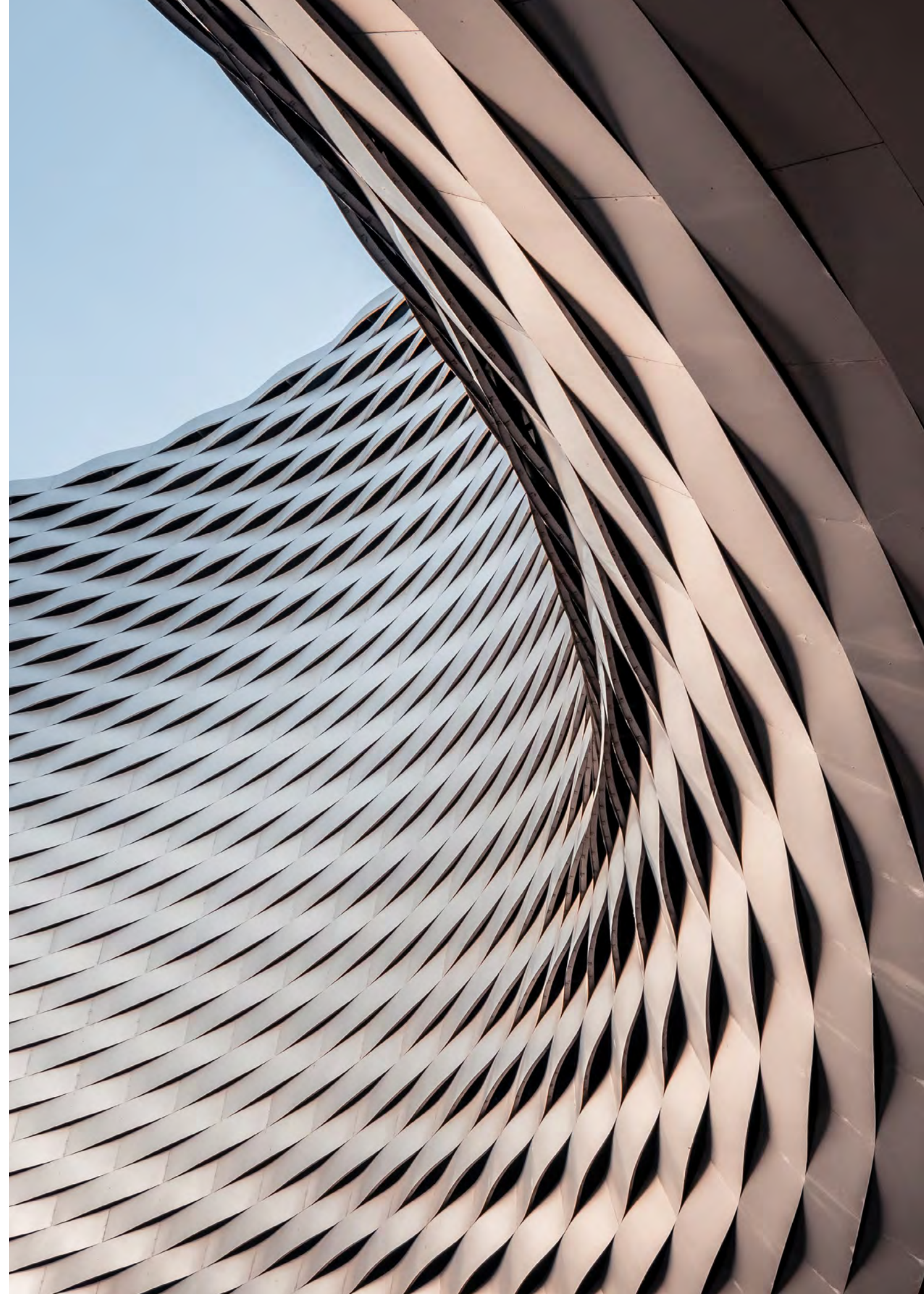
Transition risks

Risks that result from a misalignment between an organisation's 's or investor's strategy and management and the changing regulatory and policy landscape in which it operates. Developments aimed at halting or reversing the damage to nature, such as government measures, technological breakthroughs, market changes, litigation and changing consumer preferences can all impact risks.⁸¹

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37. Organizations may agree to meet investor expectations regarding nature for various reasons, including concerns about access to or the cost of capital if they fail to do so.

38. These impacts may be described in qualitative, quantitative, or a combination of both qualitative and quantitative terms. The Taskforce encourages organisations to include quantitative information, where data and methodologies allow.
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