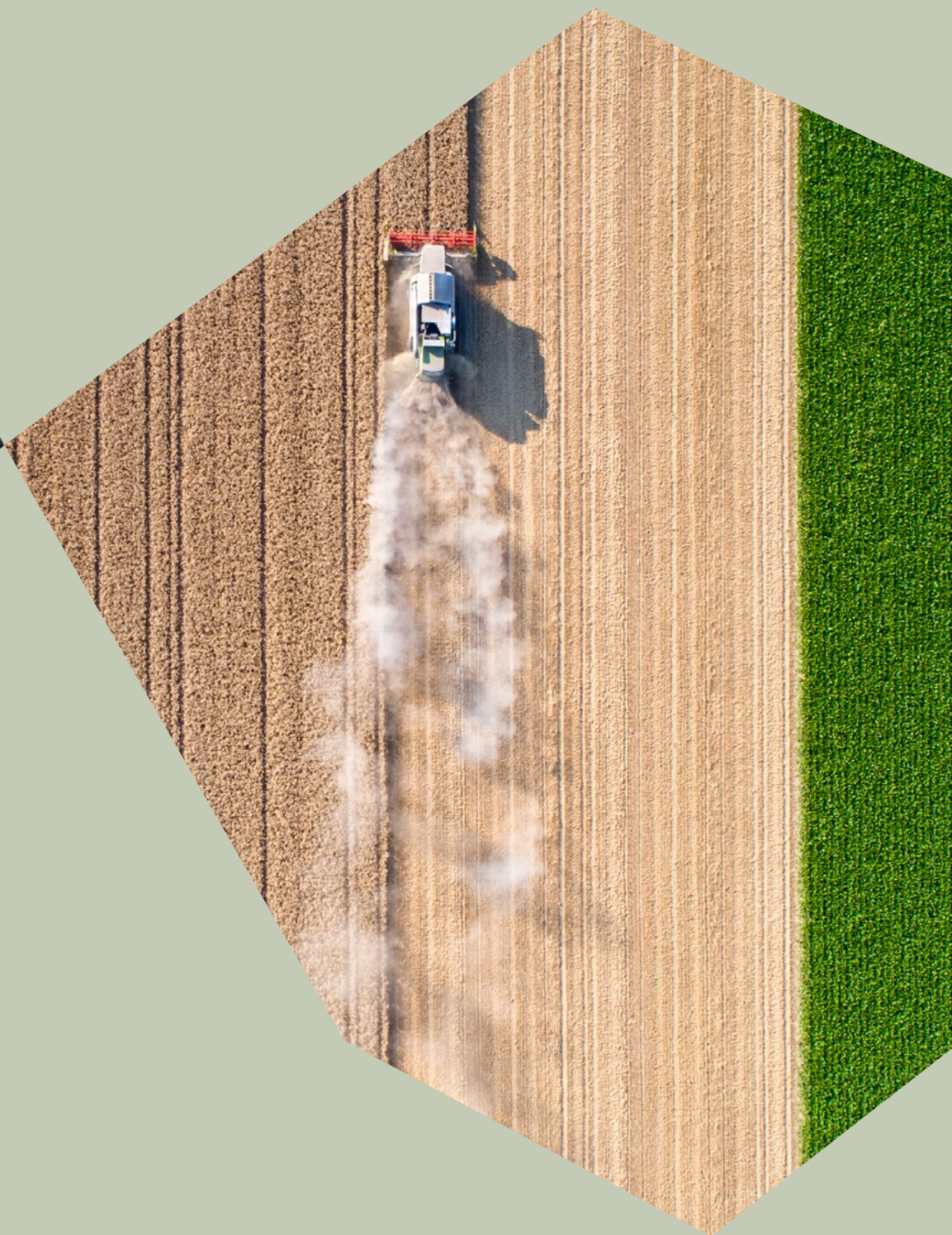


# WBCSD's *TNFD pilot*

Lessons from TNFD piloting with 23 global businesses



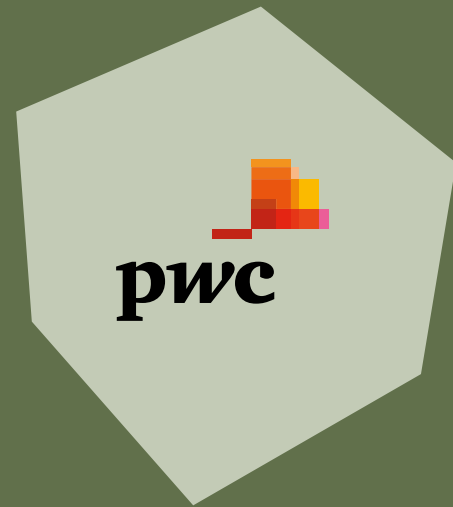
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# Purpose

This resource provides a synthesis of the WBCSD Taskforce on Nature-related Financial Disclosures (TNFD) pilot process, summarizing pilot member business experience, learnings, challenges, illustrative applications and examples. Reflections draw on multiple sources including group workshops, spotlight sessions, bilateral discussions and TNFD maturity assessments. It is intended to provide insights for companies working with the TNFD Framework and practical 'how-to' guidance on the TNFD's LEAP approach (including three use cases) and disclosure recommendations. The pilot was conducted with 23 WBCSD member companies, in collaboration with PwC UK\*, as part of broader work on Nature Action and Redefining Value in WBCSD.

\* In this resource, "PwC" refers to the UK member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see [www.pwc.com/structure](https://www.pwc.com/structure) for further details.



## Note

*The TNFD pilot started in September 2022 based upon beta v0.2 of TNFD guidance and continued through beta v0.3 and v0.4 until June 2023. Accordingly, the piloting content was regularly updated according to the latest TNFD framework release.*

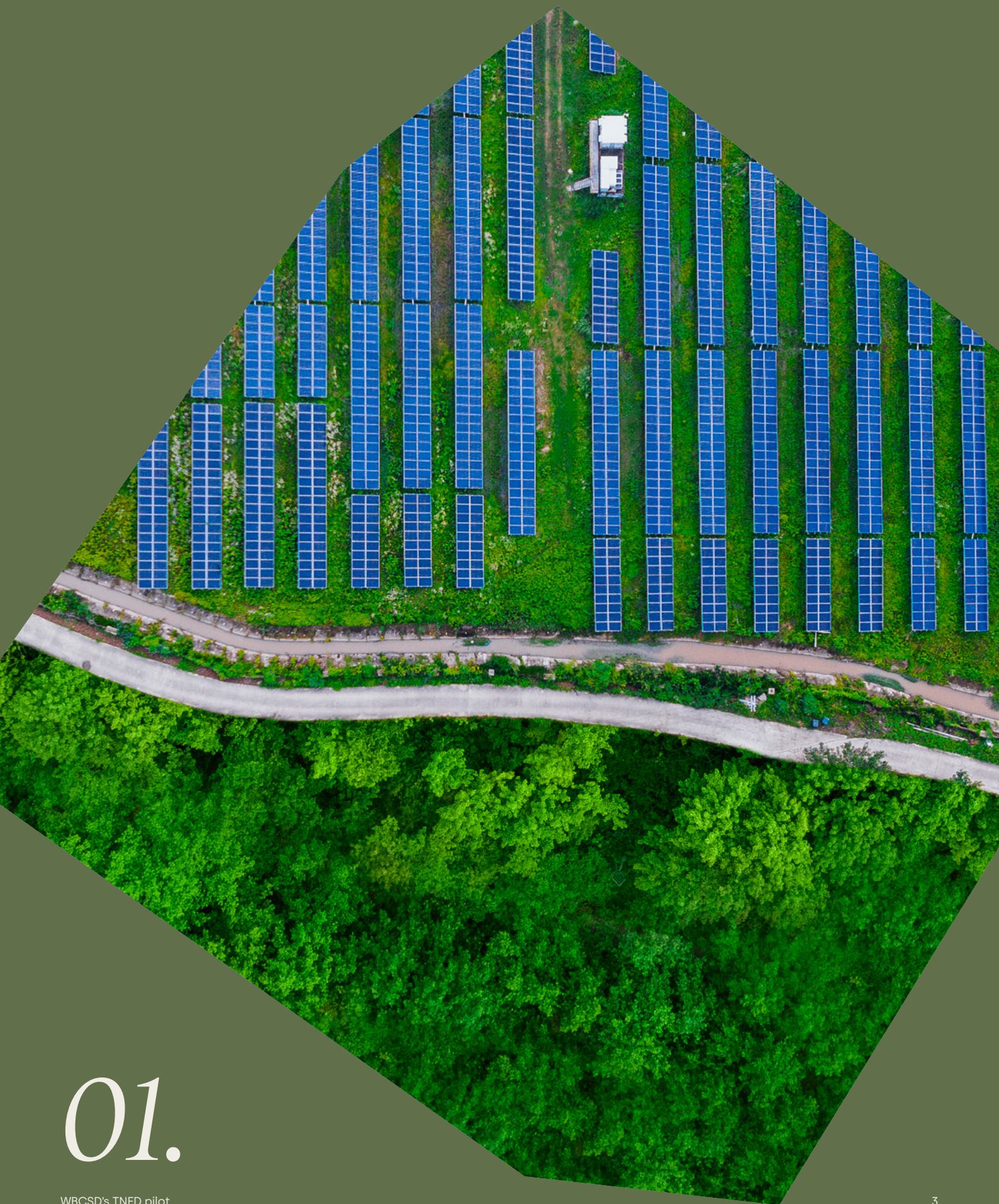
*WBCSD requested PwC's support to set up and run the pilot, including the use of PwC UK's TNFD maturity assessment methodology. The methodology is designed to provide organizations with an understanding of their maturity in relation to the TNFD and wider nature landscape. WBCSD and PwC have collaborated in designing and executing this pilot throughout, and this resource is published by WBCSD with support from colleagues at PwC.*

*In addition, WBCSD engaged Environmental Resources Management (ERM) to provide additional support, in particular for the energy pilot.*

*Throughout references are made to various third-party nature-related tools and data providers. These references do not reflect endorsements by WBCSD or PwC but rather are stated as examples that were identified during this pilot process.*

*While the pilot was conducted with beta versions 0.2, 0.3 and 0.4 of the TNFD framework, this resource includes version 1.0 of the TNFD recommendations where relevant, unless expressly stated otherwise.*

# Introduction



01.

# Introduction

## Why was this pilot conducted?

Nature loss poses both risks and opportunities for business, with over half (55%) of the world's gross domestic product (GDP) moderately or highly dependent on nature, equivalent to an estimated US \$58 trillion.<sup>1</sup> However, many businesses don't have a comprehensive understanding of how their activities, positively or negatively, impact nature or how nature will impact their business's financial performance both immediately and in the longer-term.

The Taskforce on Nature-related Financial Disclosures (TNFD) was launched in 2021 with the ultimate aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes. It provides a voluntary risk management and disclosure framework for businesses to report and act on evolving nature-related risks which will allow financial institutions (FIs) and companies to incorporate nature-related risks and opportunities into their strategic planning, risk management, investment and financing decisions.

The fact that much of the language of Target 15 from the Global Biodiversity Framework (GBF) (signed in Montreal in December 2022), mirrors that of the TNFD, is a testament to how this framework is already being used by policy-makers and businesses to identify, assess and disclose their nature-related dependencies, impacts, risks and opportunities (DIROs). Furthermore, the number of companies reporting DIROs under the framework is one of the official monitoring indicators for the GBF's Target 15.

In 2022, the World Business Council for Sustainable Development (WBCSD), Business for Nature, Capitals Coalition, TNFD, Science-Based Targets for Nature (SBTN), World Economic Forum (WEF) and World Wildlife Fund (WWF) collaborated to provide business with a consistent approach to accelerate nature action. Leveraging WBCSD's Building Blocks for Nature Positive<sup>2</sup> alongside other key frameworks, this group developed the high-level business actions on nature,<sup>3</sup> also known as the ACT-D framework: Assess, Commit, Transform and Disclose.

WBCSD has engaged more than 75 member companies to develop detailed [Roadmaps to Nature Positive](#), which provide step-by-step guidance on this journey, including how to get started, and progress on ACT-D across all maturity levels, backed up by deep dives into specific value chain systems. The deep dives into prioritized value chains are supporting companies

in scaling up actions to halt and reverse nature loss, prepare to set science-based nature-related goals and targets, and disclose progress using quantifiable metrics.

**WBCSD was selected as a piloting program partner to test and inform the design and development of the TNFD framework through knowledge sharing and provision of feedback. Input has been provided on an ongoing basis to the TNFD secretariat on the TNFD beta versions over the 12 months prior to the release of v1.0 of the TNFD framework in September 2023.**

**WBCSD member companies welcomed the opportunity to unpack TNFD framework components and share learnings and reflections, whilst leveraging experiences from WBCSD's Taskforce for Climate-related Financial Disclosures (TCFD) Preparer Forums, Nature Action, Redefining Value and strategic value chain Pathways programs, plus experience with the Natural Capital Protocol.**

**To learn more about this work see [Roadmaps to Nature Positive: Foundations for all businesses](#).**

***Explore the foundations for specific systems:***

→ Land use: [agri-food \(row crops\)](#) and [forest](#) sectors

→ [Built environment](#)

→ [Energy](#)

Overviews for additional sectors are available from [Business for Nature](#).

## How was the TNFD pilot conducted?

A cohort of 23 WBCSD member companies were selected to participate in the pilot, representing a range of geographies and businesses, with three groups reflecting the socio-economic systems with potential for significant impacts and dependencies on nature:<sup>4</sup>



**Land-based (Agri-food & forest sectors)** system impacts 72% of species under threat by contributing to water and soil pollution, deforestation, land degradation and habitat destruction.



**Built Environment (Infrastructure, Real Estate & Construction Materials)** system impacts 29% of species threatened with activities driving increased flood risk, water, oil pollution and degradation of land and seabeds.



**Energy and Extractives (Oil & Gas, Electric Utilities, Bioenergy, Metal & Mining)** system potentially impacts 18% of species threatened through activities that may contribute to land use change, freshwater use, pollution and landscape alterations.

\* Symbols throughout indicate where system-specific content is provided.

These systems also present significant opportunities in ensuring a transition to a low carbon, nature positive economy.<sup>5</sup>

The pilot provided a space and structure for companies to learn about and engage with the TNFD framework, and as a consequence, provide user feedback as the framework evolved. Sector-specific learnings, experiences, challenges, case studies and suggestions were all synthesized and shared with the TNFD secretariat for consideration in the iterations of the TNFD guidance.

In addition, WBCSD engaged Environmental Resources Management (ERM) to provide additional support, in particular for the energy pilot.

- For more information on pilot approach and methodology, see [appendix I](#).
- For more information on organizations engaged throughout the TNFD pilot, see [appendix II](#).
- For more information on summary feedback to the TNFD, see [appendix III](#).
- For more information on commonly asked questions by TNFD pilot members, see [appendix IV](#).



# Introducing the TNFD framework

## The TNFD Disclosure recommendations

The TNFD has developed a **framework** for nature-related risk and opportunity management and disclosure with the **aspiration** to inform, and feed into, the specific standards developed by organizations such as the International Sustainability Standards Board (ISSB) and specific market regulators. The TNFD recognizes the interconnectedness between climate and nature-related issues and encourages an integrated approach to risk management and disclosures. The framework outlines **disclosure recommendations** that are aligned to the TCFD, with organizations encouraged to disclose around four key pillars: Governance, Strategy, Risk & Impact Management, and Metrics & Targets.

Each of the four pillars are split into recommended disclosures. All 11 of the TCFD recommended disclosures are either included or have been slightly adapted. One exception to this is that the concept of Scope 1, 2 and 3 emission reporting in the TCFD has been changed to reflect

direct, upstream, downstream and financed activities. This is reflected by the fact that the 'Risk and Impact Management A' disclosure recommendation (in the orange box) has been split into two parts:

- A(i), covering direct operations; and
- A(ii) covering upstream, downstream, financed activities and assets. This allows differentiated approaches to nature-related issues in direct operations and value chain(s).

In addition to these 12 disclosure recommendations, the TNFD includes 2 additional disclosure recommendations:

- Strategy D (in the blue box), covering priority locations; and
- Governance C (in the green box), covering stakeholder engagement.

Figure 1: TNFD's recommendations and recommended disclosures

Governance	Strategy	Risk & impact management	Metrics & targets
<p>Disclose the organisation's governance of nature-related dependencies, impacts, risks and opportunities.</p>	<p>Disclose the effects of nature-related dependencies, impacts, risks and opportunities on the organisation's business model, strategy and financial planning where such information is material.</p>	<p>Describe the processes used by the organisation to identify, assess, prioritise and monitor nature-related dependencies, impacts, risks and opportunities.</p>	<p>Disclose the metrics and targets used to assess and manage material nature-related dependencies, impacts, risks and opportunities.</p>
<p><b>Recommended disclosures</b></p> <p><b>A.</b> Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities.</p> <p><b>B.</b> Describe management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities.</p> <p><b>C.</b> Describe the organisation's human rights policies and engagement activities, and oversight by the board and management, with respect to Indigenous Peoples, Local Communities, affected and other stakeholders, in the organisation's assessment of, and response to, nature-related dependencies, impacts, risks and opportunities.</p>	<p><b>Recommended disclosures</b></p> <p><b>A.</b> Describe the nature-related dependencies, impacts, risks and opportunities the organisation has identified over the short, medium and long term.</p> <p><b>B.</b> Describe the effect nature-related dependencies, impacts, risks and opportunities have had on the organisation's business model, value chain, strategy and financial planning, as well as any transition plans or analysis in place.</p> <p><b>C.</b> Describe the resilience of the organisation's strategy to nature-related risks and opportunities, taking into consideration different scenarios.</p> <p><b>D.</b> Disclose the locations of assets and/or activities in the organisation's direct operations and, where possible, upstream and downstream value chain(s) that meet the criteria for priority locations.</p>	<p><b>Recommended disclosures</b></p> <p><b>A(i)</b> Describe the organisation's processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its direct operations.</p> <p><b>A(ii)</b> Describe the organisation's processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chain(s).</p> <p><b>B.</b> Describe the organisation's processes for managing nature-related dependencies, impacts, risks and opportunities.</p> <p><b>C.</b> Describe how processes for identifying, assessing, prioritising and monitoring nature-related risks are integrated into and inform the organisation's overall risk management processes.</p>	<p><b>Recommended disclosures</b></p> <p><b>A.</b> Disclose the metrics used by the organisation to assess and manage material nature-related risks and opportunities in line with its strategy and risk management process.</p> <p><b>B.</b> Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.</p> <p><b>C.</b> Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.</p>

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

However, despite the similarities between the TCFD and TNFD frameworks, one of the challenges of the TNFD when compared with the TCFD is that there is no single metric of measurement for nature change (like the carbon dioxide equivalent, CO<sub>2</sub>e, for climate). This creates challenges for businesses trying to aggregate nature-related issues up to the company-level for reporting purposes, or for comparison across business units or geographies. The TNFD have worked to take these complexities into account and provide a simplified, systematic process accounting for these differences. On numerous occasions the TNFD have adapted the framework to ensure businesses receive further clarity on requirements with the intention of improving alignment. For example, the release of 'core' and 'additional' metrics<sup>6</sup> will support the alignment of cross-sector metric reporting.

### General Requirements

The TNFD has also set out six general requirements that cut across the four disclosure pillars. The general requirements consider varying levels of maturity, allowing report preparers to adapt their approach over time and increase the scope of disclosures.

The six general requirements<sup>7</sup> relate to:

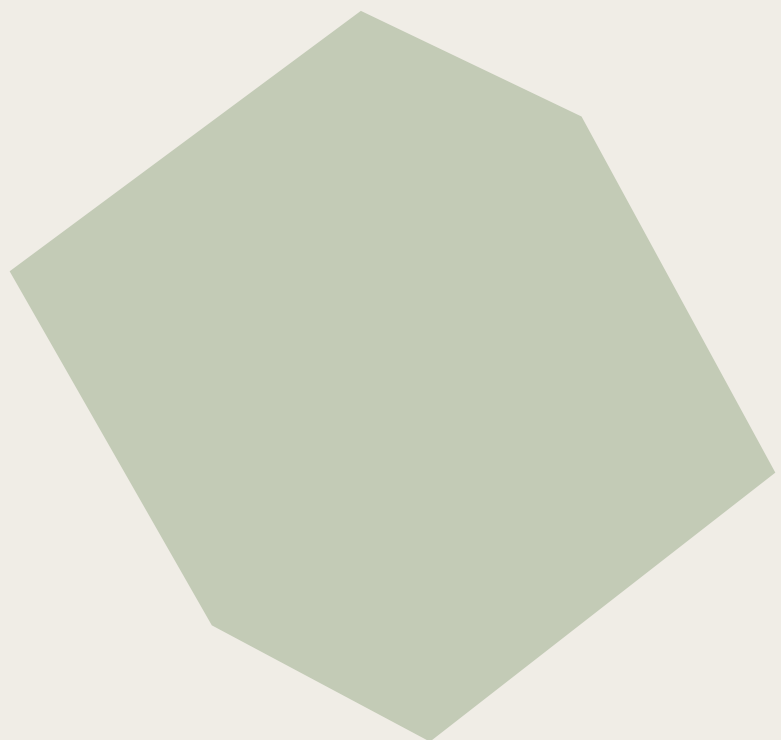
1. The approach to materiality;
2. The scope of disclosures made;
3. Links between nature-related dependencies, impacts, risks and opportunities (referred to collectively in the TNFD framework as nature-related issues);
4. The location specificity of nature-related issues;
5. Integration with other sustainability-related disclosures; and
6. Stakeholder engagement.

### The LEAP approach

Along with the disclosure recommendations and general requirements, the TNFD has also created a voluntary process for assessing and managing DIROs called **LEAP** (Locate, Evaluate, Assess, Prepare). This process requires data at the location-specific level both from direct operations and across the value chain, representing additional data requirements when compared with the assessments required by TCFD.

Businesses may find that some of their existing practice and data collection aligns with TNFD's LEAP approach. For examples from this pilot program, see the **'Use cases' section**.

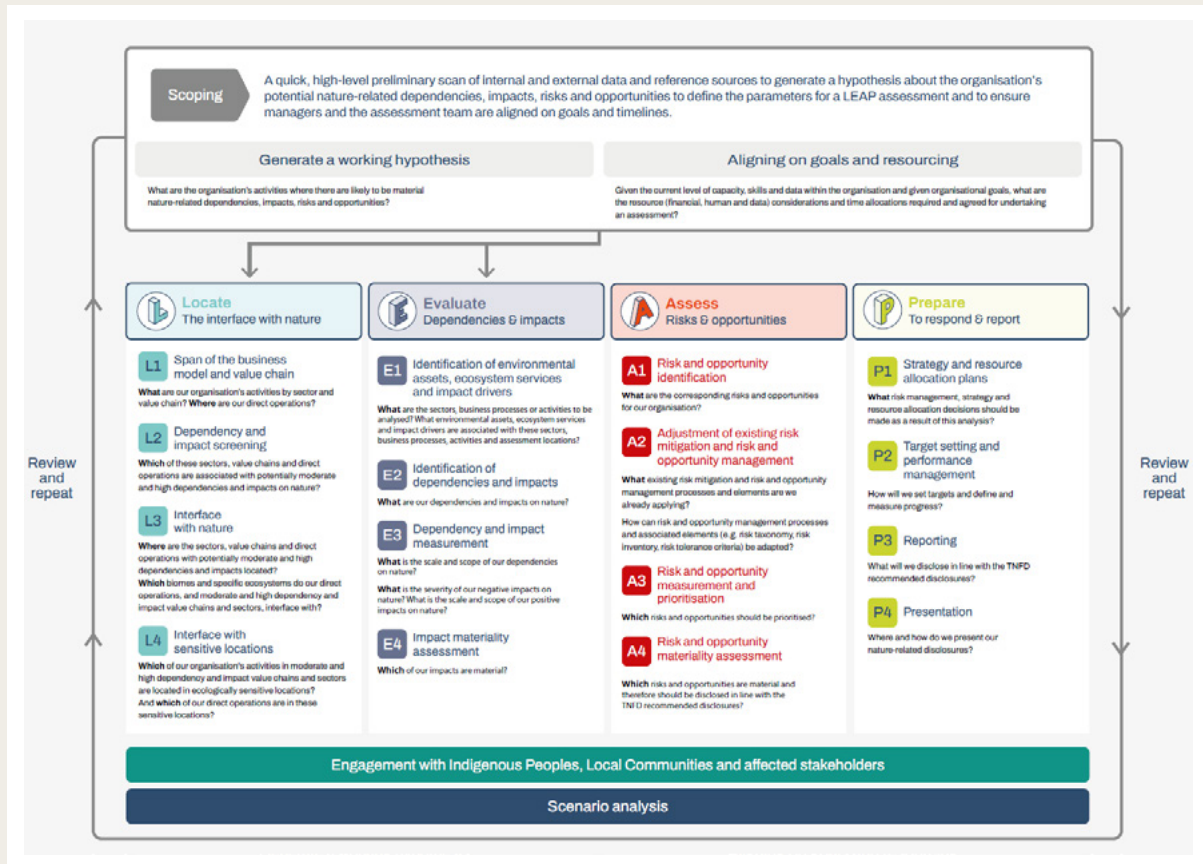
LEAP assessments are broken down into 16 analytic components, each framed by a guiding question. However, before commencing the LEAP assessment, the TNFD recommends reviewing the scope of the assessment in order to prioritize what is likely to be material for a business and to focus data collection. The scoping stage reflects the type of business, the different entry points into the LEAP approach and the varying types of analysis appropriate for each component of LEAP, with different framing questions for corporates vs financial institutions.



→ For specific guidance on scoping, see [Roadmaps to Nature Positive: Foundations for all businesses](#) and explore examples for different systems: land use (**agri-food** and **forest** sectors), **built environment** and **energy**.



Figure 2: The TNFD approach for identification and assessment of nature-related issues – LEAP



Source: TNFD (2023). Guidance on the identification and assessment of nature-related issues: the LEAP approach. Retrieved from: <https://tnfd.global/publication/additional-guidance-on-assessment-of-nature-related-issues-the-leap-approach/>

## Pilot members' TNFD maturity

To understand the baseline of TNFD maturity at the start of the pilot, PwC conducted maturity assessments\* against v0.2 of the framework. Pilot members' public disclosures were reviewed and assessed against TNFD disclosure recommendations.

Some key themes and topics applicable across all systems:

→ Of the four phases of the LEAP approach, **pilot members feel most confident in the Locate** phase. However, pilot members found Locate more challenging for **the downstream and upstream parts of the value chain** with a lack of clarity around how to obtain location-specific data, especially in long and complex value chains.

→ Of the four pillars of TNFD, **pilot members feel most confident in Governance**. This is in part due to its similarity with TCFD and other reporting frameworks. Strategy is the pillar that presents the most difficulty, with nature-related scenario analysis being a very new area for companies that the majority of pilot members are yet to start tackling.

→ Some quick wins identified by members included upskilling internal teams and mapping out existing data to understand what data from business operations and across the value chain is already being collected (for example, for climate disclosures).

\*Given the TNFD maturity assessments were conducted against v0.2 of the framework the results do not assess pilot members maturity against some of the TNFD's recent recommendations (such as those regarding traceability and stakeholder engagement). The results are also based on disclosures from previous years which may have since been updated and improved. The maturity assessment findings highlight variability between systems based on the sample of 23 global businesses involved in this TNFD pilot).

**Table 1: General learnings from PwC UK's TNFD maturity assessments**

Sector	Existing alignment to TNFD	Next steps for alignment
<b>Energy</b>	<ul style="list-style-type: none"> <li>→ Well established central risk and opportunity management processes</li> <li>→ High TCFD maturity and alignment</li> <li>→ High level nature positive commitments which consider Biodiversity, Water, Land use, atmosphere and resource efficiency</li> </ul>	<ul style="list-style-type: none"> <li>→ Disclose how nature-related risks and opportunities are identified, assessed, monitored and how these impact business strategy</li> <li>→ Use risk categories (e.g., physical) and sub-categories (e.g., acute or chronic) to disaggregate lists of environmental risks, using short-(&lt;2), medium-(2-5) or long-term (5+) time horizons where possible</li> <li>→ Set interim targets to support high level commitments e.g. "water positive", "nature positive", etc.</li> <li>→ Link DIROs to financial implications</li> </ul>
<b>Land Use</b>	<ul style="list-style-type: none"> <li>→ Case studies that highlight location-specific risks (e.g., deforestation, unsustainable forest management) and/or opportunities (e.g. restoration)</li> <li>→ Good TCFD structures which can be translated to TNFD, particularly around governance and risk management pillars</li> <li>→ Clear nature strategies with associated high-level targets on nature</li> </ul>	<ul style="list-style-type: none"> <li>→ Improve description of board and management level responsibility for nature</li> <li>→ Align to TNFD classification of risks i.e., physical, transition and systemic</li> <li>→ Analyze value of nature-related dependencies, impacts, risks and opportunities in various nature scenarios</li> <li>→ Set targets now and adapt them later, including KPIs to monitor progress</li> </ul>
<b>Built Environment</b>	<ul style="list-style-type: none"> <li>→ Description of nature-related impacts influencing business planning</li> <li>→ There is some discussion on how nature-related risks are being managed, particularly for water and waste</li> <li>→ Good inclusion of stakeholders e.g. for materiality review</li> <li>→ Nature is frequently thought of in relation to other business risks</li> <li>→ Clear targets for site level operations, with nature-related opportunities defined</li> </ul>	<ul style="list-style-type: none"> <li>→ Leverage TCFD learnings on risk classification, description of business opportunities etc.</li> <li>→ Include diagrams that represent governance structures and risk management approaches to demonstrate how information is passed across the organization</li> <li>→ Describe strategic decision-making implications</li> <li>→ Develop a more holistic approach to nature, covering a range of concepts, realms, assets</li> </ul>

# Getting started using *the LEAP approach*



02.

# Getting started using the LEAP approach

## Introduction

This section provides insights on implementing elements of the LEAP approach, collated by incorporating TNFD guidance and examples generated by pilot members, WBCSD and PwC during pilot workshops. Workshops focused on specific challenging aspects of the TNFD framework as identified during the maturity assessments and in collaboration with pilot members. Each challenge area relates to a different stage of the LEAP approach.

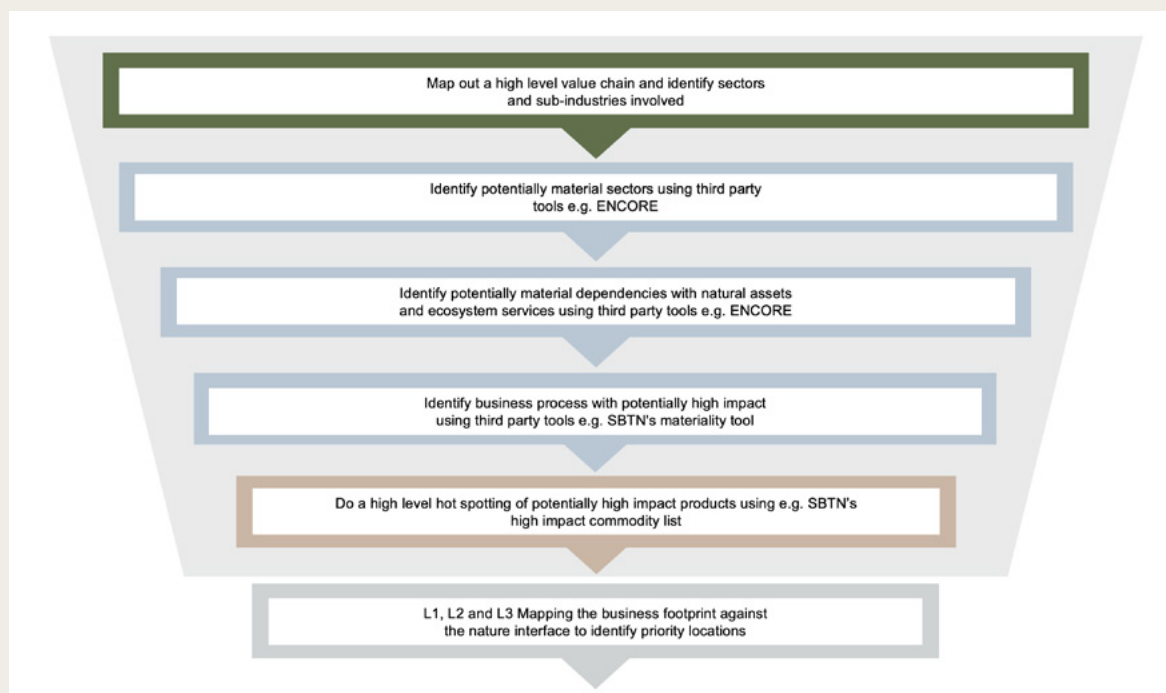
## Scoping: Scoping value-chain assessments

The 5-step approach to scoping LEAP assessments outlined below was adapted from TNFD v0.3 guidance by PwC and does not constitute direct TNFD guidance. Each step outlined below can be thought of in a funnel approach as depicted by the diagram in figure 3, which together can generate a working hypothesis to take into further LEAP assessments.

**Table 2: PwC's suggested 5 step approach to scoping LEAP assessments**

Step	Suggested approach	
1	Identify sectors present in the value chain	Map out and assess the value chain components (e.g. suppliers, intermediaries, customers, etc.) to identify which sectors are involved. Consider where in the value chain the sector classification changes from one stage to another using sector classification systems such as Global Industry Classification Standard (" <b>GICS</b> ") (which is used for the <b>ENCORE</b> tool) or Sustainability Accounting Standards Board (" <b>SASB</b> ") (recommended by TNFD).
2	Screen for <b>potentially high risk</b> sectors	Of the sectors identified, use a high-level screening tool such as ENCORE to understand which sectors and sub-sectors are <i>potentially</i> high risk. This can be calculated in a variety of ways as long as the method is disclosed (e.g. aggregated ENCORE score across all impacts and dependencies multiplied by the scale and intensity of operations for each sector).
3	Screen for where in the value chain <b>potential dependencies</b> might occur	Identify which natural assets and ecosystem services you are <i>potentially</i> highly dependent on in these sub-sectors. For example, using ENCORE to understand which production processes within each sub-industry have 'high' or 'very high' dependencies on the natural assets ecosystem service.
4	Screen for where in the value chain <b>potential impacts</b> might occur	Which business processes have a <i>potentially</i> high impact on ecosystem services/ natural assets (within the high risk sub-industries previously identified in part (1)). For example, use SBTN's <b>sectoral materiality tool</b> to understand which production processes have 'high' or 'very high' impacts.
5	Explore potentially high impact products	Narrow the scope further based on the presence of any high impact commodities in the value chain which should be prioritised to explore in more detail. Potentially high impact commodities could be explored using SBTN's <b>high impact commodity list</b> or tools such as <b>TRASE</b> .

**Figure 3: Visualization of the suggested approach to scoping LEAP assessments**



This scoping approach provides a basis for businesses to understand potentially high impact or highly dependent parts of their business operations or wider value chain. These need to be explored in terms of financial magnitude, such as associated spend, cost or revenue data. In addition, TNFD suggests performing a high-level hotspotting.

**Table 3: PwC's suggested 5 step approach to scoping LEAP assessments**

Type of business	Upstream		Direct operations	Downstream		
Construction company	Material extraction	Transportation of materials	Construction	Waste and demolition		
Construction materials manufacturer	Procurement of raw materials		Materials extraction and processing	Transportation of materials	Construction	Waste and demolition

**Table 4: Built Environment members' answers to steps 2, 3, 4 and 5 in the outline 5 step process**

Potentially high risk sectors	Potential dependencies	Potentially high risk processes	Potential Impacts	Potentially high risk commodities
Precious metals and materials	Surface water	Construction materials manufacturing	Lowering water quality	Steel
Product provision	Ground water	Mining for materials	Lowering of the water table	Sand
Landscaping/design	Soil quality	Construction	GHG emissions	Cement

This process allows businesses to understand that water availability (as one example) is likely to be a material dependency in the built environment sector and therefore all water stressed areas where operations are occurring should be identified. Tools such as the [Aqueduct water risk atlas](#) can facilitate this analysis as part of the 'Locate' phase of LEAP.

→ For specific guidance on typical impacts and dependencies, see [Roadmaps to Nature Positive: Foundations for all businesses](#) and explore examples for different systems: land use ([agri-food](#) and [forest](#) sectors), [built environment](#) and [energy](#).

## Evaluate: Identifying and measuring dependencies

TNFD's '**Evaluate**' stage of LEAP is about identifying and analyzing impacts and dependencies. TNFD **defines** impacts and dependencies on nature as follows:

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**Figure 4: Deep dive into the evaluate phase of the LEAP approach, focusing on impacts and dependencies, included in TNFD v0.4**

**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 organization's or another party's actions and can be direct, indirect or cumulative.*

**Dependencies:** *Aspects of ecosystem services that an organization 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 list of potential dependencies for each sector was taken from the **ENCORE platform**. In order to assist identification of additional dependencies, other tools used by members were identified.

Tools/methods used by members to support identification and evaluation of dependencies:

- **Guidance.** **TCFD**, **ENCORE**, **Food, Land and Agriculture Guidance** (FLAG) from the Science-based Targets Initiative (SBTi), **GLOBIO**, guidance from accepted certification standards, **WWF Biodiversity Risk Filter** and **SBTN** helped corporates to define scope and method for dependency analysis.
- **Tailor made tools.** One example was the use of Integrated Biodiversity Assessment Tool (**IBAT**), in conjunction with additional Geographic Information System (GIS) layers representing different ecosystem services, to show the footprint of potential dependencies for the organization.
- **Primary data inputs.** Data already being collected by the business regarding usage or consumption can help to identify nature-related dependencies based on an understanding of the linkages between production and

dependencies. For example, water consumption from local water bodies or use of land for growing crops.

- **Third party geospatial tools.** Geographical mapping of assets/operations (including value chain operations where possible) in relation to nature-related risk(s). For example, the mapping of **water risk using Aqueduct**.
- **Stakeholder workshops.** Methods identified to help the process of qualitatively evaluating the materiality of identified dependencies. For example, a pilot member suggested creating a spreadsheet to list out different dependencies, how likely they are to occur and potential strategic responses based on workshops and discussions held with key stakeholders.

### *Dependencies and their related metrics*

The TNFD provides an extensive table of ecosystem services and potential physical metrics, which could be used to measure potential ecosystem indicators for each (see figure 5).

Figure 5: Example of ecosystem service metrics




Metric category	Sub-category	Indicator	Metric	Disclosure inclusion
General	N/A	Ecosystem services the organisation has an impact on: measurement of the change in the availability and quality of the ecosystem services	For ecosystem services (provisioning, regulating & maintenance and cultural) impacted, measurement on the change in the availability and quality of the ecosystem services	Additional
General	N/A	Ecosystem services the organisation depends on: measurement of the change in the availability and quality of the ecosystem services	For ecosystem services (provisioning, regulating & maintenance and cultural) depended on, measurement on the change in the availability and quality of the ecosystem services	Additional
Regulating and maintenance services	Water flow regulation	Amount of water flow regulated	Capacity of reservoirs or alternative forms of storage (cubic metres) otherwise needed to provide same service	N/A
Regulating and maintenance services	Water flow regulation	Amount of water flow regulated	Volume of diverted water flow otherwise needed to provide same service	N/A

Source: TNFD (2023). *Guidance for corporates on science-based targets for nature, Annex 1*. <https://tnfd.global/publication/additional-draft-guidance-for-corporates-on-science-based-targets-for-nature-2/#publication-content>



This allows businesses to understand the extent of their dependency on ecosystem services and conclude which are most material to their business. They should then be prioritized when considering risk and impact management or making strategic decisions. An example of a dependency identified as potentially material for each sector is highlighted in table 5 below, along with the potential ecosystem indicators, metrics and data sources to measure each one.

**Table 5: Dependencies and their related metrics**

System	Example dependency	Example ecosystem indicator	Example metric	Example data source
Energy 	Surface water availability	Water consumption by source	Volume of water consumption by source (m³)	Consumption data from corporates
Land use 	Soil quality	Soil Organic Carbon (SOC) level	SOC reported as a percentage of topsoil and converted to volume per hectare (t/ha)	Supplier land use data
Built Environment 	Soil quality	Carbon balance related to timber (i.e. net carbon emissions and storage)	Volume of timber used that was sustainably harvested/produced	Data collected by suppliers

The TNFD recommends 10 'core' **metrics** which should be disclosed against 'Metrics and Targets B' and 'Strategy A', with relation to a business' dependencies and impacts on nature. These 'core' metrics are aligned to global policies such as the Global Biodiversity Framework (GBF) and therefore the TNFD encourages businesses to disclose against all of the metrics that are relevant to the business model, sector(s), biome(s) and priority locations.

Further considerations regarding the 'core' metrics include:

- the measurement baseline, for example, the percentage change from previous reporting years
- direct operations should be disclosed separately from upstream, downstream or financed activities (in the case of FIs)
- state the location the metric refers to
- consider disclosure of these metrics alongside TNFD disclosure guidance for 'Metrics and Targets B' and 'Strategy A'

→ for impact drivers, organizations should ensure the metric enables report users to determine what the impact driver is (e.g. the type of pollutant emitted), where the impact is located, with reference to spatial data where possible and how much impact has taken place (e.g. the volume of pollutant emitted).

If organizations do not report against any of the core metrics, they should provide an explanatory statement as to why they have not reported.

→ **For specific guidance on typical impacts and dependencies, see Roadmaps to Nature Positive: Foundations for all businesses** and explore examples for different systems: land use (**agri-food** and **forest** sectors), **built environment** and **energy**.



Figure 6: TNFD core global disclosure indicators and metrics for nature-related dependencies and impacts (1/5)

Metric no.	Driver of nature change	Indicator	Metric	Connection to GBF targets
	Climate change	GHG emissions	Refer to ISSB's IFRS-S2 Climate-related Disclosures Standard	Target 7
<b>C1.0</b>	Land/freshwater/ocean-use change	Total spatial footprint	Total spatial footprint (km <sup>2</sup> ) (sum of): <ul style="list-style-type: none"> <li>• Total surface area controlled/ managed by the organisation, where the organisation has control (km<sup>2</sup>);</li> <li>• Total disturbed area (km<sup>2</sup>); and</li> <li>• Total rehabilitated/restored area (km<sup>2</sup>).</li> </ul>	Target 1 (A.2 Extent of natural ecosystems), Target 2, Target 5, Target 11 (B.1 Services provided by ecosystems)
<b>C1.1</b>		Extent of land/freshwater/ocean-use change	Extent of land/freshwater/ocean ecosystem use change (km <sup>2</sup> ) by: <ul style="list-style-type: none"> <li>• Type of ecosystem; and</li> <li>• Type of business activity.</li> </ul> Extent of land/freshwater/ocean ecosystem conserved or restored (km <sup>2</sup> ), split into: <ul style="list-style-type: none"> <li>• Voluntary; and</li> <li>• Required by statutes or regulations.</li> </ul> Extent of land/freshwater/ocean ecosystem that is sustainably managed (km <sup>2</sup> ) by: <ul style="list-style-type: none"> <li>• Type of ecosystem; and</li> <li>• Type of business activity.</li> </ul>	Target 1 (A.2 Extent of natural ecosystems), Target 2, Target 5, Target 11 (B.1 Services provided by ecosystems)
<b>C2.0</b>	Pollution/pollution removal	Pollutants released to soil split by type	Pollutants released to soil (tonnes) by type, referring to sector-specific guidance on types of pollutants.	Target 7 (7.2 Pesticide environment concentration), Target 11

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

Figure 6: TNFD core global disclosure indicators and metrics for nature-related dependencies and impacts (2/5)

Metric no.	Driver of nature change	Indicator	Metric	Connection to GBF targets
C2.1	Pollution/ pollution removal	Wastewater discharged	<p>Volume of water discharged (m3), split into:</p> <ul style="list-style-type: none"> <li>• Total;</li> <li>• Freshwater; and</li> <li>• Other.</li> </ul> <p>Including:</p> <ul style="list-style-type: none"> <li>• Concentrations of key pollutants in the wastewater discharged, by type of pollutant, referring to sector-specific guidance for types of pollutants; and</li> <li>• Temperature of water discharged, where relevant.</li> </ul>	Target 7 (7.1 Index of coastal eutrophication potential), Target 11 (B.1 Services provided by ecosystems)
C2.2		Waste generation and disposal	<p>Weight of hazardous and non-hazardous waste generated by type (tonnes), referring to sector-specific guidance for types of waste.</p> <p>Weight of hazardous and non-hazardous waste (tonnes) disposed of, split into:</p> <ul style="list-style-type: none"> <li>• Waste incinerated (with and without energy recovery);</li> <li>• Waste sent to landfill; and</li> <li>• Other disposal methods.</li> </ul> <p>Weight of hazardous and non-hazardous waste (tonnes) diverted from landfill, split into waste:</p> <ul style="list-style-type: none"> <li>• Reused;</li> <li>• Recycled; and</li> <li>• Other recovery operations.</li> </ul>	

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

Figure 6: TNFD core global disclosure indicators and metrics for nature-related dependencies and impacts (3/5)

Metric no.	Driver of nature change	Indicator	Metric	Connection to GBF targets
C2.3	Pollution/ pollution removal	Plastic pollution	<p>Plastic footprint as measured by total weight (tonnes) of plastics (polymers, durable goods and packaging) used or sold broken down into the raw material content.</p> <p>For plastic packaging, percentage of plastics that is:</p> <ul style="list-style-type: none"> <li>• Re-usable;</li> <li>• Compostable;</li> <li>• Technically recyclable; and</li> <li>• Recyclable in practice and at scale.</li> </ul>	Target 7, Target 11 (B.1 Services provided by ecosystems)
C2.4		Non-GHG air pollutants	<p>Non-GHG air pollutants (tonnes) by type :</p> <ul style="list-style-type: none"> <li>• Particulate matter (PM<sub>2.5</sub> and/or PM<sub>10</sub>);</li> <li>• Nitrogen oxides (NO<sub>2</sub>, NO and NO<sub>3</sub>);</li> <li>• Volatile organic compounds (VOC or NMVOC);</li> <li>• Sulphur oxides (SO<sub>2</sub>, SO, SO<sub>3</sub>, SO<sub>x</sub>); and</li> <li>• Ammonia (NH<sub>3</sub>)</li> </ul>	Target 7, Target 11 (B.1 Services provided by ecosystems)

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

Figure 6: TNFD core global disclosure indicators and metrics for nature-related dependencies and impacts (4/5)

Metric no.	Driver of nature change	Indicator	Metric	Connection to GBF targets
C3.0	Resource use/ replenishment	Water withdrawal and consumption from areas of water scarcity	Water withdrawal and consumption (m <sup>3</sup> ) from areas of water scarcity, including identification of water source.	Target 11 (B.1 Services provided by ecosystems)
C3.1		Quantity of high-risk natural commodities sourced from land/ocean/freshwater	Quantity of high-risk natural commodities (tonnes) sourced from land/ocean/freshwater, split into types, including proportion of total natural commodities.  Quantity of high-risk natural commodities (tonnes) sourced under a sustainable management plan or certification programme, including proportion of total high-risk natural commodities.	Target 5 (5.1 Proportion of fish stocks within biologically sustainable levels), Target 9, Target 11 (B.1 Services provided by ecosystems)
C4.0	Invasive alien species and other	<b>Placeholder indicator:</b> Measures against unintentional introduction of invasive alien species (IAS)	Proportion of high-risk activities operated under appropriate measures to prevent unintentional introduction of IAS, or low-risk designed activities.	Target 6, Target 11 (B.1 Services provided by ecosystems)

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

Figure 6: TNFD core global disclosure indicators and metrics for nature-related dependencies and impacts (5/5)

Metric no.	Driver of nature change	Indicator	Metric	Connection to GBF targets
C5.0	State of nature	<b>Placeholder indicator:</b> Ecosystem condition	<p>For those organisations that choose to report on state of nature metrics, the TNFD encourages them to report the following indicators, and to refer to the TNFD additional guidance on measurement of the state of nature in Annex 2 of the <a href="#">LEAP approach</a>:</p> <ul style="list-style-type: none"> <li>• Level of ecosystem condition by type of ecosystem and business activity; and</li> <li>• Species extinction risk.</li> </ul> <p>There are a number of different measurement options for these indicators. The TNFD does not currently specify one metric as there is no single metric that will capture all relevant dimensions of changes to the state of nature and a consensus is still developing.</p> <p>The TNFD will continue to work with knowledge partners to increase alignment.</p>	Target 1, Target 2, Target 3, Target 4, Target 11
		<b>Placeholder indicator:</b> Species extinction risk		

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

To evaluate key dependencies, TNFD recommends consideration of factors related to dependency materiality assessment and provides some examples (see figure 7).

Figure 7: Criteria for identifying potentially significant ecosystem services

Factor	Low	Medium	High
<b>1. How significant is the loss of inputs to the company if the ecosystem service is disrupted?</b>	Limited loss of inputs: the company or operation can continue as is or with minor modifications	Moderate loss of inputs: the company or operation can continue only with important modifications e.g. slower production or use of substitutes	Severe loss of inputs: disruption in company or operation sites prevents operation
<b>2. How significant is the financial loss of impaired production/ services?</b>	Limited financial loss: disruption to the company/operation doesn't have the potential to materially affect the company's profits	Moderate financial loss: disruption to company or operations has the potential to materially affect the company's profits	Severe financial loss: there is a reasonable possibility that the disruption to the company or operations could affect the financial viability of the company
<b>3. How significant is the impact of the loss of ecosystem services on society?</b>	Limited impact: impacts are temporary and minor	Moderate impact: potential impacts may significantly constrain access to ecosystem services by other stakeholders	Severe impact: reasonable possibility that societal access/ use of ecosystem services is prevented

Source: TNFD (2023). *Guidance on the identification and assessment of nature-related issues: the LEAP approach*. Retrieved from: <https://tnfd.global/publication/additional-guidance-on-assessment-of-nature-related-issues-the-leap-approach/>

TNFD suggests that any additional materiality factors should be those already used in materiality assessments elsewhere in the organization. TNFD allows organizations to choose their approach to materiality, rather than endorse one approach to materiality over another. For example, 'double materiality' or 'dynamic materiality' may be chosen based on regulatory requirements or reporting and disclosure preferences. This supports alignment with the emerging global baseline currently under development by the ISSB.<sup>8</sup>

Examples of materiality factors being used by pilot members:

- Capacity of the business to influence or change the natural environment they impact / are dependent upon.
- Business criticality, for example, using volumetric data on raw materials by country and region, or spend-based data on suppliers.
- Stakeholders materiality assessment (internal and external) with quantitative targets.

## Assess: Identifying and assessing risks and opportunities

Following the impacts and dependencies identified and evaluated in the 'Evaluate' phase of LEAP, the TNFD suggests overarching questions and supplemental guidance for the 'Assess' phase of LEAP (see figure 8).

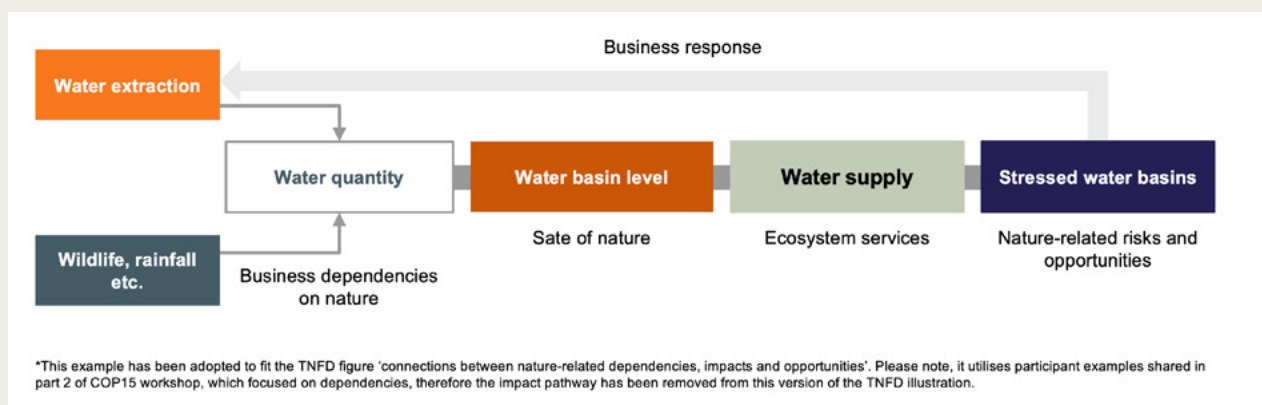
Figure 8: Overarching questions and guidance of the Assess phase of LEAP; and its relation to TCFD

Component of LEAP	Overarching question and supplemental guidance	Related TCFD Step
<b>Assess (A1)</b> Risk and Opportunity Identification	<i>What are the corresponding risks and opportunities for our business?</i> Based on the evaluation of dependencies and impacts on nature (the Evaluate phase of LEAP), identify the organisation's nature-related risks and opportunities.	Not applicable for climate-related risks
<b>ASSESS (A2)</b> Existing Risk Mitigation and Risk and Opportunity Management	<i>What existing risk mitigation and risk and opportunity management approaches are we already applying?</i> Identify the specific risk mitigation and risk and opportunity management processes and elements that may need to be adjusted to integrate nature-related risks and opportunities, as well as the functions and departments responsible for those processes and elements.	TCFD Step 2
<b>ASSESS (A3)</b> Additional Risk Mitigation and Risk and Opportunity Management	<i>What additional risk mitigation and risk and opportunity management actions should we consider?</i> Incorporate nature-related risks and opportunities into the existing risk and opportunity taxonomy and inventory used by the organisation. This includes mapping nature-related risks to existing risk categories and types, referring to the TNFD risk and opportunity register as a useful resource.	TCFD Step 3
<b>ASSESS (A4)</b> Risk and opportunity Measurement & Materiality Assessment	<i>Which risks and opportunities are material and should be prioritised?</i> Adapt existing risk and opportunity management processes and key elements based on information gained in the previous components of LEAP, including prioritisation and measurement of risks and opportunities.	TCFD Step 4

Source: TNFD (2022) TNFD Framework Beta v0.3. Annex 3.1: Guidance on the Assess Phase of LEAP. Retrieved from: [https://framework.tnfd.global/wp-content/uploads/2022/11/TNFD\\_Framework\\_Annex\\_3-1\\_v0-3\\_B.pdf](https://framework.tnfd.global/wp-content/uploads/2022/11/TNFD_Framework_Annex_3-1_v0-3_B.pdf)

TNFD provides an example of a pathway for identifying risks based on impact drivers or dependencies (see [here](#)). Using an example impact driver (water extraction) and an example dependency (water quantity available for extraction) identified as material, the diagram below shows how this information can help to identify nature-related risks and opportunities (R&Os). In this instance, a highly stressed water basin, which is unable to meet water demand.

Figure 9: Example of a Risks and Opportunities identification pathway



Based on the risks and opportunities identified by following the TNFD's pathway from identified impacts and dependencies, some examples of additional processes followed to identify nature-related risks and opportunities are outlined below.

### Processes for identifying nature-related risks and opportunities

- **Third party geospatial tools.** For example, [STAR](#), [WWF Risk Filter Suite](#) and [Aquaduct](#).
- **Third party methodologies and decision-making tools.** For example, The [Corporate Ecosystem Services Review](#)<sup>9</sup> provides a methodology to help identify and assess risks and opportunities.
- **Internal tools.** Readily available technologies which can be leveraged such as geospatial analysis for farmland or timberland properties.
- **Additional guidance.** The most cited guidance was [SBTN](#) guidance and the [IUCN standards](#).
- **Existing risk screening processes.** Screening processes that capture risks at a more generalized level which might include nature-

related risks. These processes may need to be reviewed and refined if existing enterprise risk management (ERM) processes do not take nature strategies into account.

- **Local/site level environmental assessments.** For example, surveys to collect relevant, granular data might reveal significant changes in natural capital.
- **Existing risks.** An organization's internal risk register is likely to have previously captured risks, which are related to nature. For example, water-related risks if there is a significant presence in a water-stressed area.
- **Existing opportunities.** Opportunities previously captured related to nature. For example, conservation and restoration of important habitats, or implementation of nature-based solutions.

Once the potential risks and opportunities have been identified, these can be used to populate the TNFD's [template R&O register](#).

Figure 10: TNFD's example Nature-related Risk Register

Nature-related risk category	Nature-related risk	Nature-related risk sub-categories	Illustrative example	Realm (Land, freshwater, ocean, atmosphere)	Organisational level (Product, entity, site/facility or area)	Location	Risk generated by	Exposure metrics	Magnitude metrics	Risk rating (based on prioritisation criteria)	Responsibility for management	Connection to other environmental and social risks/opportunities
<b>Physical risk - acute</b>	Changes in the state (condition and/or extent) of ecosystems the organisation depends on or impacts, resulting in changes to the flow of ecosystem services:  • Changes to the <b>supply of natural inputs</b> (provisioning services)	Water condition – freshwater  Water resources	Degradation of freshwater ecosystems due to pollutants released by the organisation and other stakeholders	Freshwater	Area	Europe	Change in state of nature Change in flow of ecosystem services Impact on society	Quantity and concentration of pollutants emitted (impact driver)  Change in mean species abundance in freshwater ecosystems (ecosystem condition)  Concentration of pollutants in water (ecosystem condition)	Costs associated with the relocation of operations and suppliers  Reduction in revenue due to interruption of operations / supply chain  Increased costs due to interruption of operations / supply chain  Restoration costs  Value of assets / revenue dependent on area  Number of locations / business lines / facilities exposed	High	Sustainability manager	Potential for disruption of local community due to reduced water quality  Potential for reduced carbon sequestration in area due to negative impact on freshwater plants

Source: TNFD (2022). Risk and Opportunity Registers.

Retrieved from: [https://tnfd.global/wp-content/uploads/2023/07/22-23032\\_TNFD\\_Risk-and-Opportunity-Registers\\_v2-1.pdf](https://tnfd.global/wp-content/uploads/2023/07/22-23032_TNFD_Risk-and-Opportunity-Registers_v2-1.pdf)



An example of what this risk and opportunity register might look like in practice for 'loss of forest resources due to increasing fires' can be seen below. The TNFD suggests potential metrics to measure exposure and magnitude, which can be utilized to determine materiality of each risk/opportunity (see full list [here](#)).

**Table 6: Land Use members' example risk and opportunity register**

<i>Risk Registry Category</i>	<i>Example Response</i>
Type of risk/opportunity	Physical – chronic
Illustrative example	Loss of forest resources due to increasing wildfires
Realm	Land
Organizational level	Product
Location	Worldwide
Risk generated by	Change in state of nature
Exposure metrics	<ul style="list-style-type: none"> <li>→ Change in wildfire frequency</li> <li>→ Change in wildfire severity (i.e. damage to trees and biodiversity)</li> <li>→ Wildfire preparedness</li> <li>→ Wildfire speed of onset</li> </ul>
Magnitude metrics	<ul style="list-style-type: none"> <li>→ Increased costs of forest resources/reduced supply</li> <li>→ Increased capital expenditure on adaptation, e.g. increased costs with fire prevention and control systems/measures</li> <li>→ Reduction in revenue due to interruption of operations/supply chain</li> </ul>
Risk rating	4 – Very high
Responsibility for management	Site level operations
Connection to other environmental and social risk/opportunities	<ul style="list-style-type: none"> <li>→ Potential disruption to local water supplies as a result of soil erosion caused by wildfire</li> <li>→ Potential for reduced carbon sequestration in area</li> <li>→ Potential for mortality and morbidity depending on the size, speed and proximity to the fire</li> </ul>

Following identification of magnitude and exposure metrics, the TNFD recommends exploring any additional prioritization criteria that might be relevant to your organization (see figure 11).

**Figure 11: TNFD's prioritization criteria for nature-related risks and opportunities**

Prioritisation criteria	Description
Magnitude	The significance of the risk or opportunity to the organisation, based on the risk implications for the organisation, measured through risk assessment methods such as scenario analysis.
Likelihood	The severity of information about a possible risk is higher if the event is likely to occur.
<b>Additional TCFD prioritisation criteria</b>	
Vulnerability	Vulnerability refers to propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt. It includes the organisation's ability or inability to adapt, mitigate or control the risk the risk, or ability to harness the opportunity, is dependent on risk and opportunity awareness, management along the value chain, operational and managerial resilience, value chain and/or product diversification, or market or sector influence.
Speed of onset	The speed of onset that the risk/opportunity is expected to arise, i.e. in the long term, medium term or short term. <sup>104</sup>
Speed of onset refers to the time that elapses between the occurrence of an event and the point at which the organisation first feels its effects.	
<b>Additional TNFD prioritisation criteria<sup>105</sup></b>	
Severity (or scale and scope) of impact on nature	The scale (temporal and spatial), scope and irremediable character of the negative impact, or the scale (temporal and spatial) and scope of the positive impact on nature.
Impact to society	The value of the impact on nature to society. See Annex 3 on valuation of nature-related dependencies and impacts developed by the Capitals Coalition, drawing from the <a href="#">Natural Capital Protocol</a> , for more details.

Source: TNFD (2023). *Guidance on the identification and assessment of nature-related issues: the LEAP approach*. Retrieved from: <https://tnfd.global/publication/additional-guidance-on-assessment-of-nature-related-issues-the-leap-approach/>



### Examples of additional prioritization criteria

Some examples of additional prioritization criteria are provided below.

- Opportunity for positive impact: The size of the opportunity to reverse the negative risk into a positive impact. For example, any opportunities for realizing co-benefits such as carbon sequestration.
- Ease of risk mitigation: Risks that have an easy solution (technically, financially etc.) would be less material.
- Social aspects of the risk's location: For example, in countries with less strict regulations, the risk may be more material.

It is important to note that as corporate maturity on nature increases over time, expectations both internally and externally increase to understand the materiality of each risk/opportunity under different nature-related scenarios. This nature scenario exploration will build on existing climate scenarios work such as WBCSD's [Energy Scenario Catalog](#) and [Food & Ag Scenario Explorer](#) to incorporate nature-related factors.

Following identification of all relevant prioritization criteria, each nature-related risk/opportunity identified should be scored against magnitude, likelihood (exposure) as well as any other relevant criteria (see figure 12).

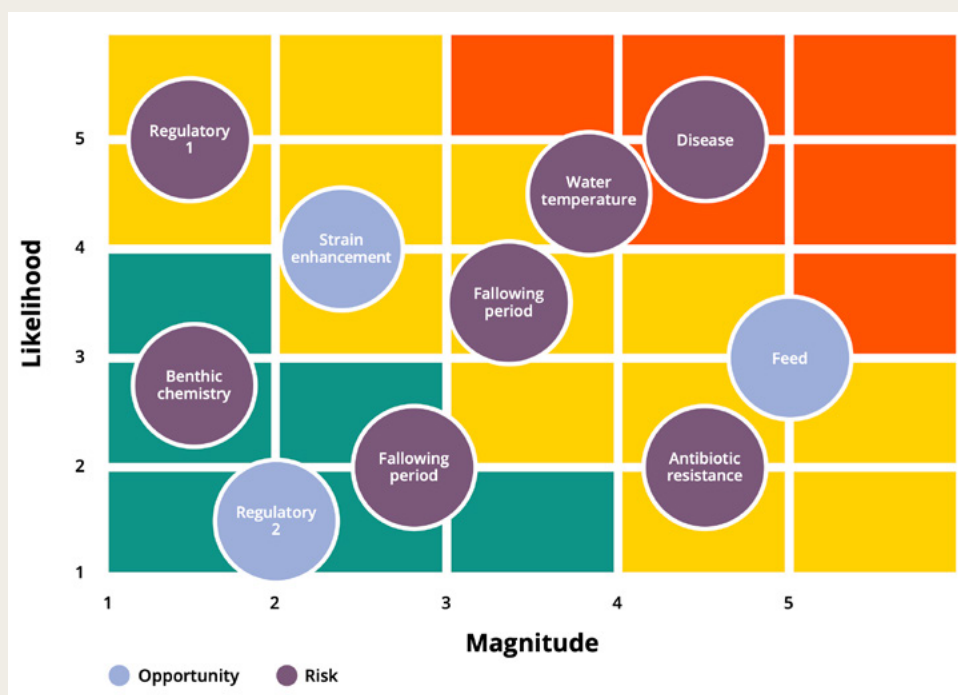
**Figure 12: Criteria for prioritizing nature-related risks and opportunities**



Source: TNFD (2023). *Guidance on the identification and assessment of nature-related issues: the LEAP approach*. Retrieved from: <https://tnfd.global/publication/additional-guidance-on-assessment-of-nature-related-issues-the-leap-approach/>

The multiplication of these factors will allow prioritization of each R&O, with those scoring highest being the most material. See figure 13 for an example from a TNFD case study on aquaculture.

**Figure 13: Example from TNFD's Aquaculture case study on risks and opportunities**



Source: TNFD (2022). *TNFD aquaculture case study*. Retrieved from: [https://tnfd.global/wp-content/uploads/2023/07/TNFD\\_Aquaculture\\_Case\\_Study\\_v03\\_A-1.pdf](https://tnfd.global/wp-content/uploads/2023/07/TNFD_Aquaculture_Case_Study_v03_A-1.pdf)

The TNFD provides guidance on 'core' risk and opportunity metrics that should be included in disclosures. These metrics support TNFD disclosures against 'Metrics and Targets A', 'Strategy A' and 'Strategy B'. If businesses do not report against any of the metrics listed in figure 14, they should provide an explanatory statement as to why they have not reported.

**Figure 14: TNFD core global disclosure indicators and metrics for nature-related risks and opportunities**

Metric no.	Category	Metric
<b>C7.0</b>	Risk	Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related transition risks (total and proportion of total).
<b>C7.1</b>		Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related physical risks (total and proportion of total).
<b>C7.2</b>		Description and value of significant fines/penalties received/litigation action in the year due to negative nature-related impacts.
<b>C7.3</b>	Opportunity	Amount of capital expenditure, financing or investment deployed towards nature-related opportunities, by type of opportunity, with reference to a government or regulator green investment taxonomy or third-party industry or NGO taxonomy, where relevant.
<b>C7.4</b>		Increase and proportion of revenue from products and services producing demonstrable positive impacts on nature with a description of impacts.

Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

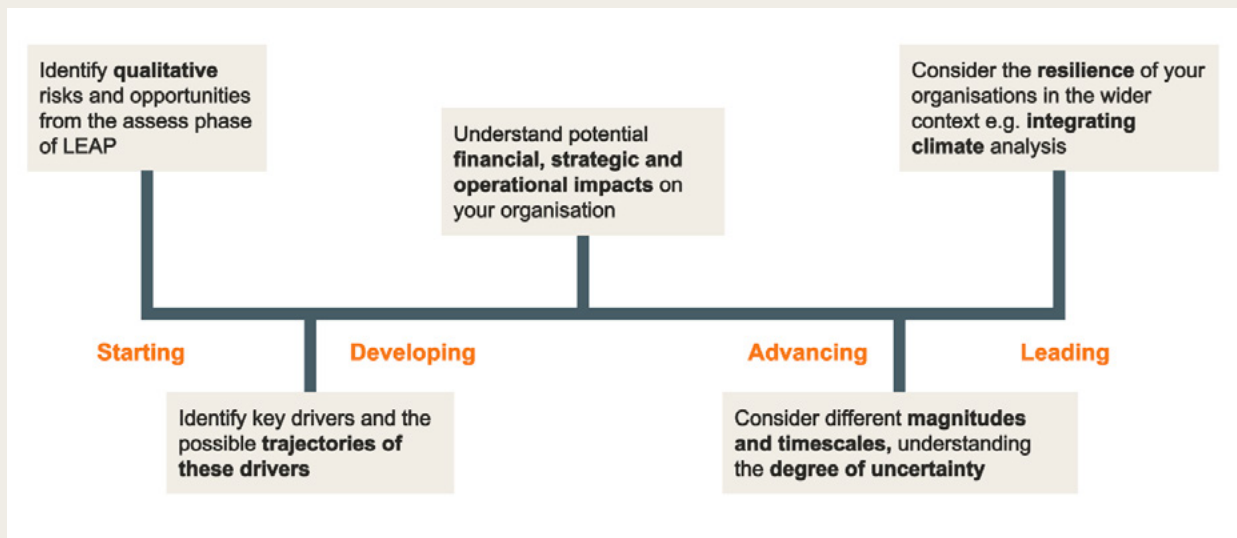
There are also 'additional' risk and opportunity metrics that can help guide the business on their most material risks and opportunities, for optional disclosure.



## Assess (cont.): Nature-related scenarios

Nature-related scenario analysis is complex and should be viewed as a journey with businesses increasing in maturity over time. TNFD specifies the importance of understanding the world in which the business may have to operate, before making any decisions. As part of the pilot, a maturity scale was developed based on TNFD v0.4 [scenario guidance](#) to show a suggested pathway for companies to move from qualitative risk and opportunity assessment all the way to quantitative analysis that considers financial, strategic and operational impacts as well as resilience.

Figure 15: Illustrative scenario maturity steps

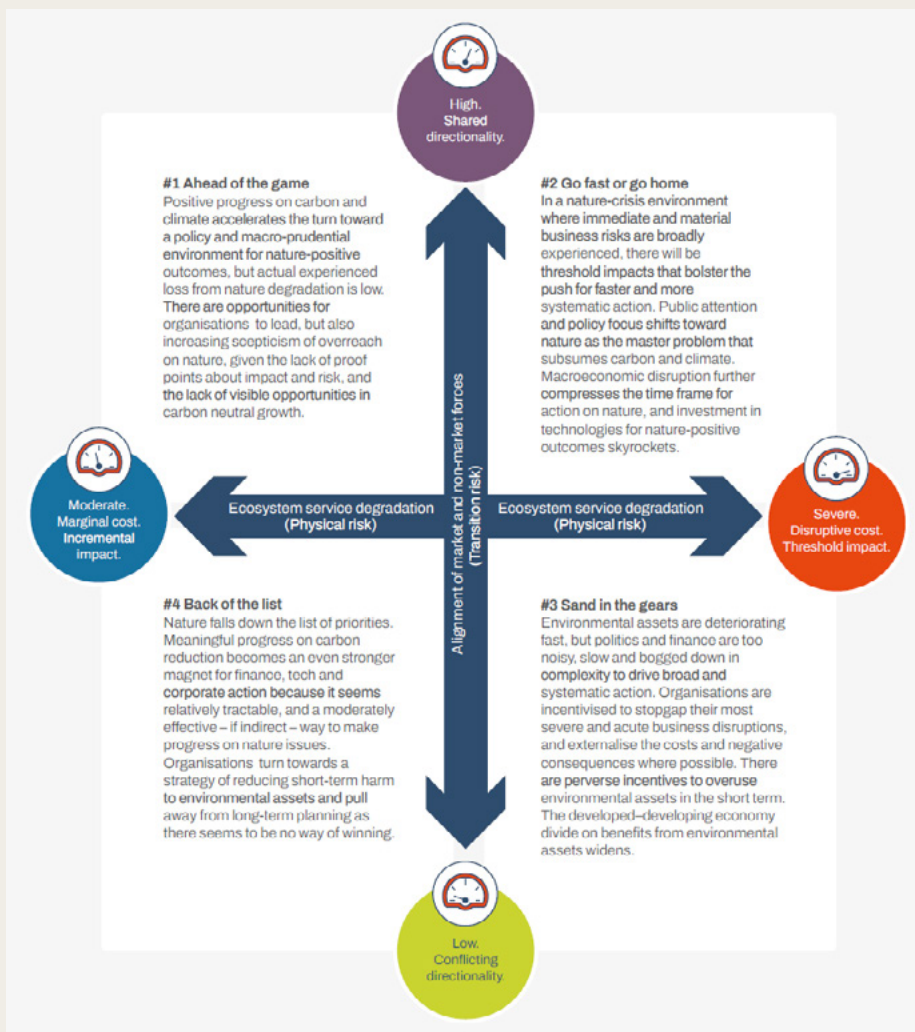


## Approach to scenario analysis maturity assessment

To identify risks and opportunities and inform strategy thinking, TNFD **recommends** initial qualitative exploration of “what if” scenarios following its 2x2 scenario frame. For example, by exploring the TNFD scenario ‘#2 Go fast or go home’ businesses can understand how they might operate in a future where there is ‘High ecosystem degradation’ but also ‘High alignment of market and non-market forces’, which form the two axes of TNFD ‘uncertainty axes’ (see figure 16).

The TNFD outlines a 4 step approach (see figure 16), that businesses can follow for further exploration of each scenario. Below we have outlined some practical suggestions following these steps, including the development of financial impact pathways.

Figure 16: TNFD's default nature-risk scenarios



Source: TNFD (2023). *Guidance on scenario analysis*. Retrieved from: <https://tnfd.global/publication/guidance-on-scenario-analysis/#publication-content>

Figure 17: TNFD's Step-by-step approach to scenario analysis



Source: TNFD (2023). *Guidance on scenario analysis*. Retrieved from: <https://tnfd.global/publication/guidance-on-scenario-analysis/#publication-content>

### Scenario Analysis step 1: Identifying the relevant driving forces

Step 1 involves identifying relevant driving forces for the scenario being explored. A description of driving forces relevant for TNFD's scenario #2 is included below.

**Table 7: A description of each of the driving forces in TNFD's scenario #2 for High Ecosystem service degradation**

<i>Driving Forces</i>	<i>High Ecosystem Service Degradation</i>
Local ecosystem and asset interactions, dependencies and impacts	Nature-crisis where immediate and material business harms are broadly experienced

**Table 8: A description of each of the driving forces in TNFD's scenario #2 for High Alignment of Market and Non-market Driving Forces**

<i>Driving Forces</i>	<i>High Alignment of Market and Non-market Driving Forces</i>
Regulators, legal and policy regimes	Faster and more systematic action
Stakeholder and customer demands	Public attention and policy focus shifts towards nature
Direct interaction with climate	Nature subsumes carbon and climate
Macro and micro economy	Macroeconomic disruption reduces time for action
Finance and insurance/Relevant technology and science	Investment in nature-positive technologies skyrockets

### Scenario Analysis step 2: Placing the business or facility along the uncertainty axes

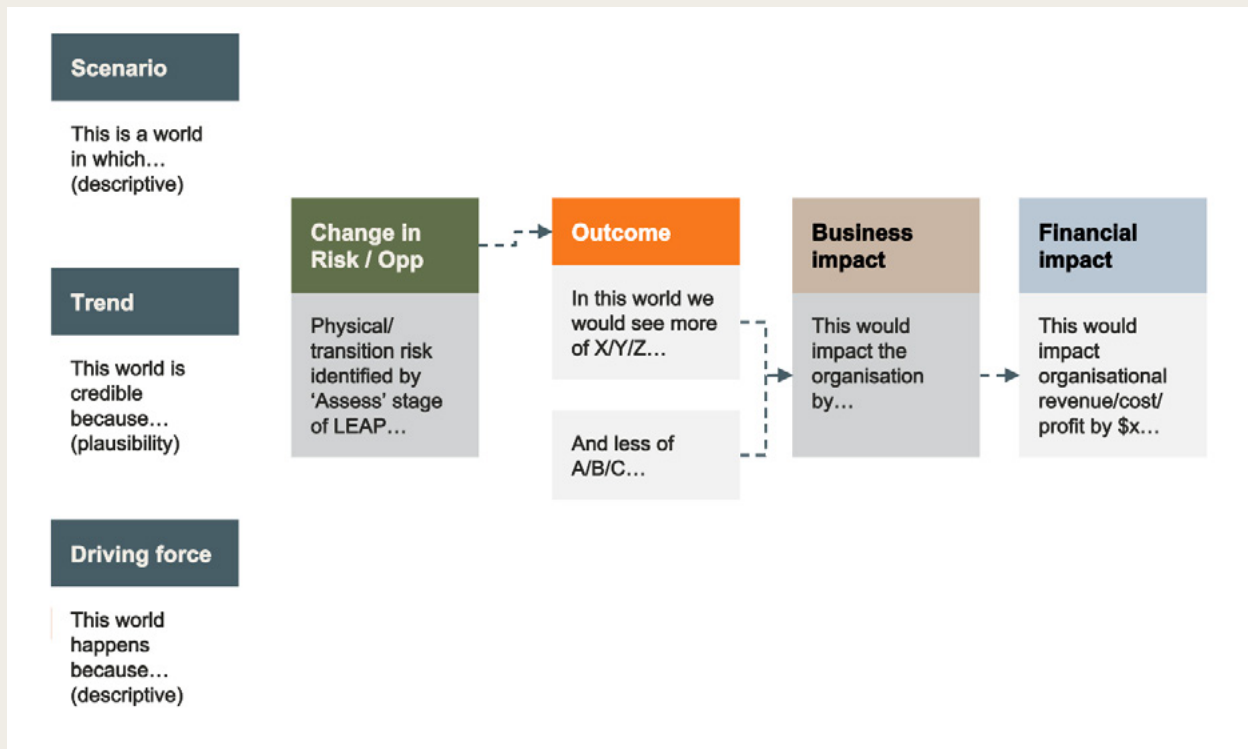
Step 2 suggests placing the business along the 'uncertainty axes' (see scenarios quadrant above), which provides an opportunity to include a variety of stakeholder perspectives to consider what the current and expected state of the business is for each specified future. For example, prompting questions can be discussed such as 'where does the business sit along the uncertainty axes with respect to ecosystem service degradation?' or 'where does the business sit along the uncertainty axes with respect to alignment of market and non-market driving forces?'.

### Scenario Analysis step 3: Using scenario storyline descriptions

Step 3 prompts businesses to think about what new risks and opportunities would emerge in each of the scenarios identified. As part of step 3, it is important to consider the financial impact pathway for identified risks (and opportunities) in the context of the trends and driving forces within that scenario. Companies can use scenario impact pathways to explore the potential effects of risks and opportunities under different future states.

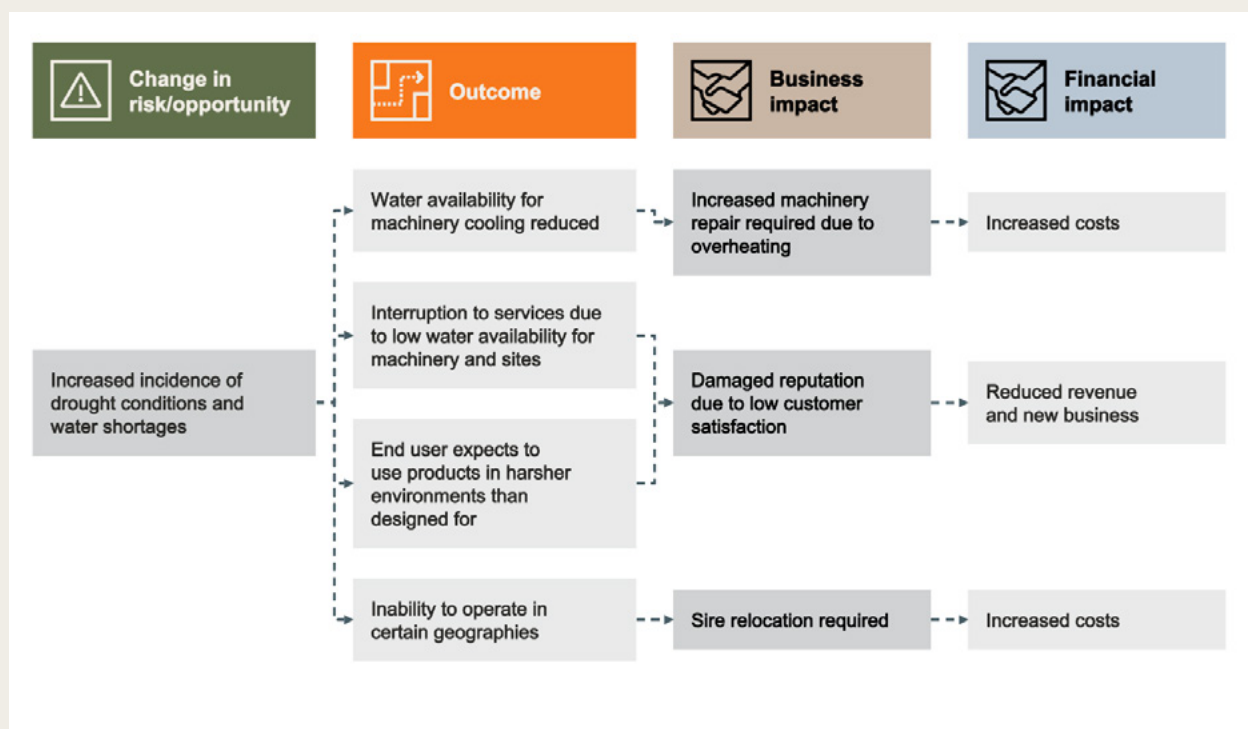
→ *For specific guidance on typical risks and opportunities, see [Roadmaps to Nature Positive: Foundations for all businesses](#) and explore examples for different systems: land use ([agri-food](#) and [forest](#) sectors), [built environment](#) and [energy](#).*

Figure 18: Generic impact pathway used to track business and financial impacts of different scenarios, trends and driving forces



Through exploring an example of a nature-related risk, in this instance the 'increased incidence in drought conditions and water shortages', the example below shows how a risk can be translated into a potential financial impact for a business under the '#2 Go fast or go home' TNFD scenario.




Figure 19: Impact pathway used to track business and financial impacts of an increased incidence of drought conditions and water shortages scenario





Further sector-specific examples of financial impact pathways relevant to the '#2 Go fast or go home' scenario are detailed below.

**Table 9: Impact pathways for different systems used to track business and financial impacts of different changes in risks and opportunities**

Sector	Change in risk or opportunity	Outcome: The direct consequence of the risk if it materializes	Business Impact: How does the outcome affect business activities and operations?	Financial Impact: What's the impact on cost, savings, revenue and financial performance?
Energy 	Transition to processes with reduced negative impacts on nature/ increased positive impacts	<b>Example risk:</b> Difficult to build new sites/increase capacity if placed in high biodiversity areas.	Not achieving business targets at company level or even national level (European RES targets, for example).	Increased liability costs and blocked revenues from non finalized projects.
		<b>Example opportunity:</b> Solar farm plans include co-creation of suitable habitats that encourage pollinators and provide connectivity corridors.	Local community acceptance of the proposed projects, faster approvals and energy consumers shift towards the company.	Increased revenue.
Land Use 	Increased demand/ competition for land	<b>Example risk:</b> Prices increase for plant based inputs for agriculture e.g. seeds, biologicals and animal feed.	Increased operational costs lead to increased cost of goods/products e.g. animal protein.	Higher prices reduce attractiveness of the market, therefore reducing revenue.
		<b>Example opportunity:</b> Restoration of degraded land for plantations.	Improve local communities and customers perceptions whilst meeting customer demand for products.	Increase in revenue as a result of increase in products and enhanced consumer sentiment.
Built Environment 	Shifting consumer preferences to products with lower impacts on nature	<b>Example risk:</b> Customers don't want to buy as much cement as previously due to its high impact on water consumption.	Reduced sales in cement.	Reduced revenue.
		<b>Example opportunity:</b> Progressive rehabilitation on quarries.	Improved image of company, positive stakeholder sentiment.	More access to investor capital and increased land expansion approvals.

#### Step 4: Identifying high-level business decisions

Following identification of the possible implications of each plausible future scenario, step 4 encourages businesses to discuss how this might:

- Inform medium to long-term decision making about **governance, strategy, risk and impact management, targets and capital allocation**
- Surface key insights about potential changes that could make the organization's **core business model and processes more resilient to climate change and nature loss**
- **Identify new business models**, such as nature-based solutions, that are aligned with net zero and nature-positive goals and societal outcomes
- Determine what the company would disclose **in line with TNFD's Strategy C** disclosure:
  - 'Describe the resilience of the organization's strategy to nature-related risks and opportunities, taking into consideration different scenarios'.

TNFD has various **scoping questions**, which can help guide companies through the 4-step process, for example:

***'What are the new business goals and opportunities that would be relevant/would need to be abandoned in this context?'***

It is crucial to engage key stakeholders in this step, ensuring a diverse range of expertise from different parts of the organizations, such as legal, corporate, regulations, sustainability and commercial, to enrich the conversation.

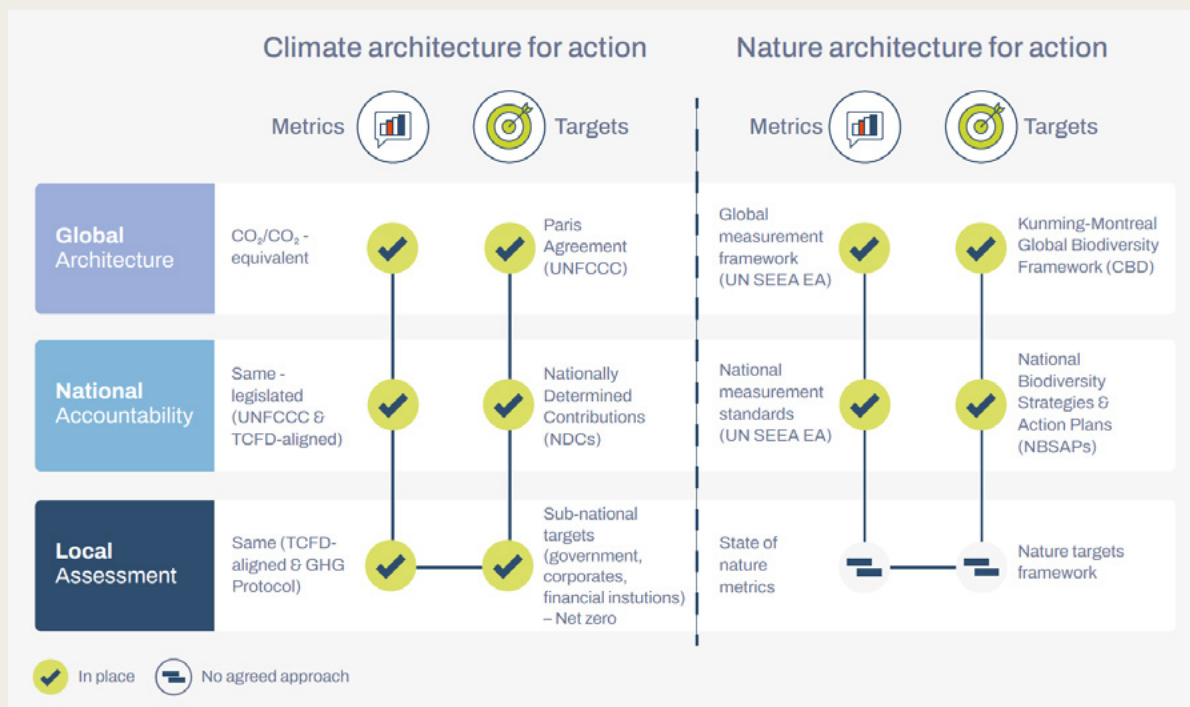
Scenario analysis will help businesses to engage with investors on how and why they are scoping their nature-related assessment, for example, focusing on specific commodities or locations.

It will also help to anticipate views from different stakeholders, ranging from investors to the public, by answering the double materiality question "what is the potential risk nature poses to my business and also what risk does my business pose to nature?".

## Prepare: Target-setting

TNFD provides an architecture to help companies frame their targets (see figure 20). This suggests that businesses should utilize different measurement frameworks for targets depending on whether they were set at the Global, National or Local level.

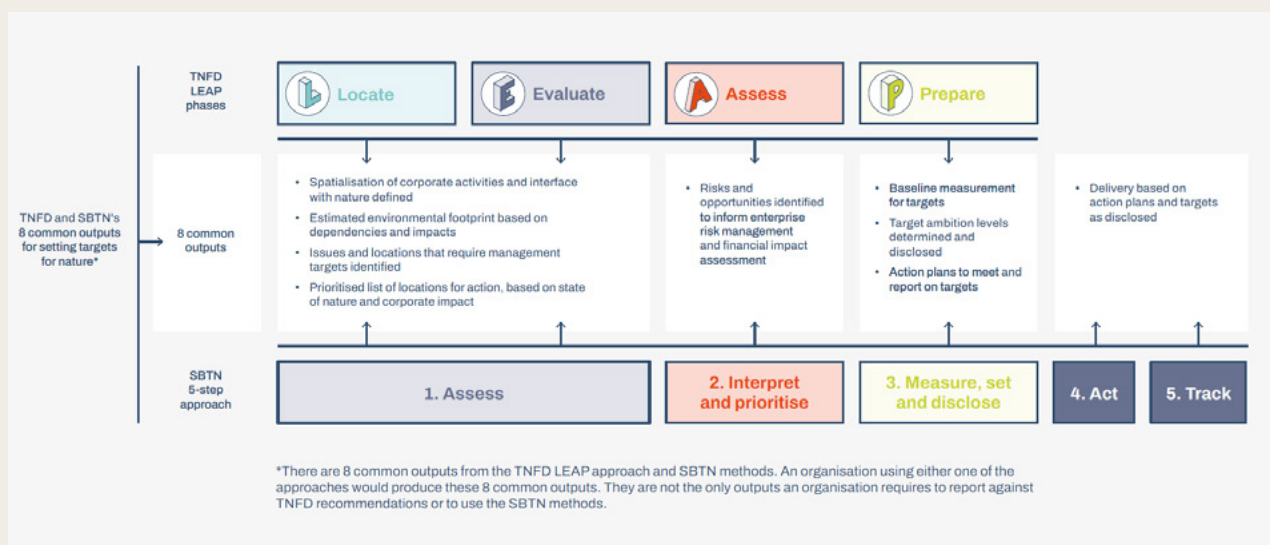
Figure 20: The architecture for measurement and target setting – Climate and nature



Source: TNFD (2023). Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations. Retrieved from: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/#publication-content>

The TNFD has aligned its guidance with other global initiatives, such as the SBTN target setting guidance (see figure 21).




Figure 21: TNFD and SBTN fundamental areas of alignment on target setting



Source: TNFD (2023). Guidance for corporates on science-based targets for nature. <https://tnfd.global/publication/additional-draft-guidance-for-corporates-on-science-based-targets-for-nature-2/#publication-content>

Examples of global and local targets for businesses across each sector are displayed below, however, national targets are lacking. Many countries are still developing targets as part of revisions to **National Biodiversity Strategies and Action Plans** (NSBAPs), to be submitted by COP16. The majority of targets identified in the pilot, center around water, land use and atmospheric emissions, showing how targets set as part of TCFD and SBTi implementation have been adapted for use in TNFD disclosures.

**Table 10: Examples of pilot members' targets**

Sector	Global Architecture	Local Assessment
Energy 	'We commit to producing a net positive impact on biodiversity, confirmed by a third-party institution, for each new project on sites located in an area of priority interest for biodiversity, that is, IUCN ("International Union for the Conservation of Nature") Protected Area Categories I to II and Ramsar areas.'	'Reduce the freshwater withdrawal of the sites located in water stressed area by 20% between 2021 and 2030'
Land Use 	'Add 100 thousand hectares for conservation and/or protection by 2030 from a 2018 baseline'	'All tobacco growing areas to perform a local water risk assessment and develop mitigation plans by 2025'
Built Environment 	'Reduce our freshwater withdrawal specifically related to cement by 33% by 2030 from our 2018 baseline'	'Making 25% of manufacturing facilities (individual sites) landfill-free by 2025'



→ For specific guidance on priority business actions and interim targets, see [Roadmaps to Nature Positive: Foundations for all businesses](#) and explore examples for different systems: land use (**agri-food** and **forest** sectors), **built environment** and **energy**.

## Approaches used by Financial Institutions

### Approaches used by Financial Institutions

A roundtable discussion between financial institutions (FIs) and corporates was held to understand how FIs are integrating corporate nature-related disclosures into their decision making, and how implementing TNFD guidance will support corporates to meet FI requirements.

#### The approach to nature-related assessments used by a sample of FIs

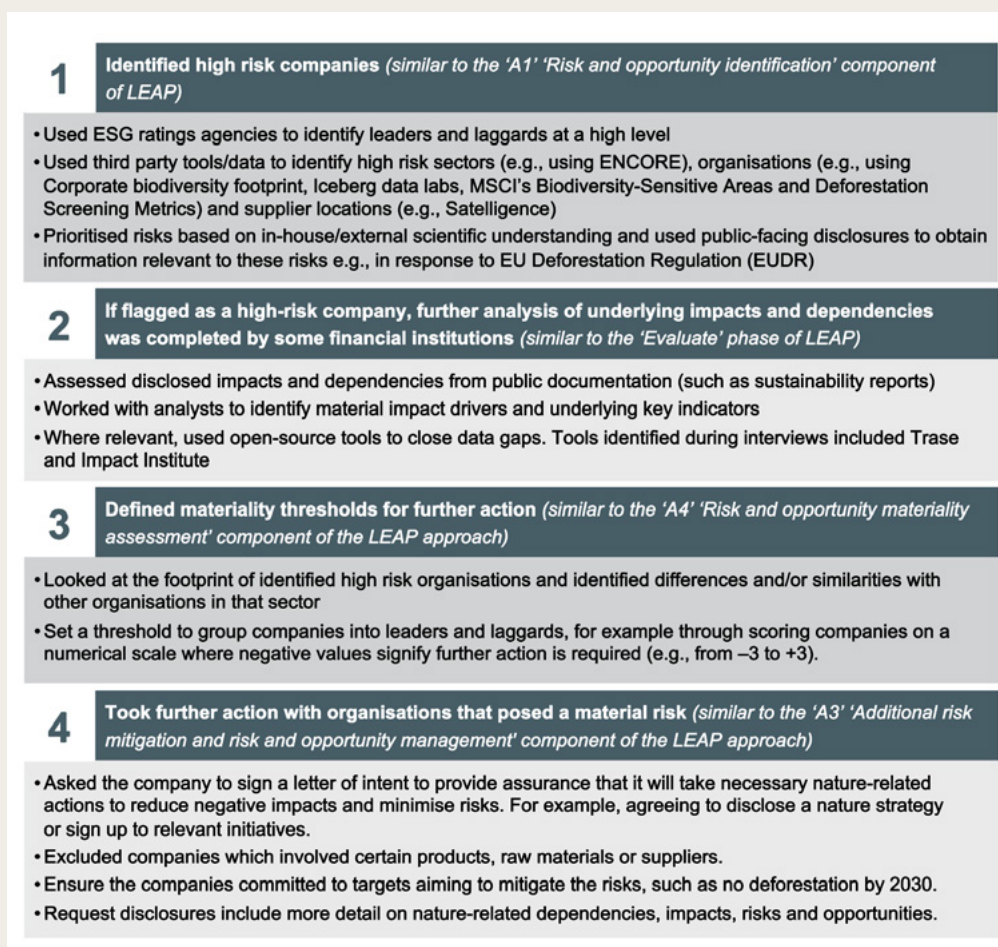
During engagement with FIs conducted over the pilot, it was observed that it may not always be possible for FIs to follow the LEAP approach, for example, it was difficult to obtain location-specific data, which is a prioritization criteria for the 'Locate' stage of LEAP. This stage was deemed to be too granular for some FIs, and therefore the majority started the LEAP approach with either the 'Evaluate' or 'Assess' stage following the initial scoping.

The four step risk assessment approach outlined below is a synthesis of methods currently in use by the sample of eight FIs engaged during the pilot, of

which, there was a clear variance in maturity. Less mature FIs were solely relying on third-party data as described in step 1 below, whilst more mature FIs were additionally collecting corporate data on material impact drivers, supplementing data gaps with third party tools where necessary (step 2) to allow them to set a materiality threshold (step 3) and take any necessary further action (step 4).

As maturity in this area increases, it is expected that more FIs will be looking to align with TNFD and use corporate information to inform strategic decisions related to nature. TNFD has [[hyperlink](#)] [specific guidance for FIs](#), including specific metrics. TNFD explicitly states that businesses should disclose the financial implications of material DIROs to enable this decision-making process. Therefore, it is in the best interest of businesses to disclose the necessary information, so that third party tools are not used to supplement data gaps as this may provide the FI with an overestimate of their risk exposure, leading to potential negative consequences for the businesses involved.

Figure 23: A synthesis of the risk assessment approaches used by a sample of financial institutions to date



The FIs also stated that TNFD's response metrics were useful to measure and compare what actions businesses are taking regarding qualitative factors such as supplier engagement. The response metrics were often cited as a way of deciding what further action needed to be taken.

# Moving from LEAP *to disclosures*



03.

# Moving from LEAP to disclosures

## Introduction

This section focuses on using LEAP assessment outputs to draft TNFD disclosures. Suggestions for improving disclosures were discussed over the course of the pilot program, often informed with input from the TNFD secretariat. Disclosure against the TNFD recommendations is a complex and highly-technical process with mixed maturity amongst members before the pilot (see the 'Pilot members TNFD Maturity' section). Significant gaps for certain disclosure recommendations highlight the need for detail and granularity not currently implemented by most businesses.

The TNFD recognizes that nature-related disclosures will be new to many organizations, and that it may be prudent to start with a narrow scope (for example, focusing disclosures on specific operations where nature-related risks and opportunities are most material) and then expand over time.

There is an expectation that after no more than 5 years, organizations will be considering all material impacts and dependencies across their direct operations as well as upstream and downstream activities. Therefore, before implementing TNFD guidance, it is important to understand your organization's current level of maturity and ambition. In light of this, the TNFD recommends that an organization provides a statement outlining the scope of disclosures, and what further disclosures are planned in the future.

In order to better understand what an initial TNFD disclosure might look like, actions for each disclosure recommendation were identified for those who are just getting started as well as additional actions that could be taken to assist those who are ready to include more detail. These suggestions provide practical actions for businesses, which have been informed by the discussions, workshops and insights gained throughout the pilot program.

## Governance

Disclosure recommendation	Actions to help you get started	Continuing the TNFD journey	FI expectations for disclosures
A. Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities	Identify specific criteria in the role descriptions of sustainability officers and directors relating to responsibility for management of nature-related issues at the management and board level.	Upskill the board on the materiality of nature-related issues to ensure that these are integrated into all key decision-making processes.	Transparency over internal nature-related management and board level structures.
B. Describe the management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities	Upskill management and staff internally on the topic of nature by reading through TNFD resource bank, beginning internal dialogue and engagement across teams, or hiring external experts to provide training on key topics.	Engage with external partners such as local Non-Governmental Organizations (NGOs) to widen understanding on key topics that are material to your organization and ensure these are integrated into wider enterprise risk management processes.	Transparency over the processes in place to manage nature-related risks and opportunities.
C. Describe how affected stakeholders are engaged by the organization in its assessment of, and response to, nature-related dependencies, impacts, risks and opportunities  * explainer	Comply with national, regional and local regulations regarding the state of nature.	Expand ambition beyond compliance with regulations, collaborating with external stakeholders, including Indigenous Peoples and Local Communities (IPLCs) to apply the mitigation hierarchy ('avoid, minimize, mitigate, offset') for action.	Clear classification and scoping of stakeholders, including rights holders, explanation of representation and nature context, including benefit sharing and just transition, for example.

\* Note, disclosure C related to stakeholder engagement was originally considered under Risks and Opportunities in previous beta versions. We have kept insights and feedback related to stakeholder engagement under Risks and Opportunities in this report.

# Strategy

Disclosure recommendation	Actions to help you get started	Continuing the TNFD journey	FI expectations for disclosures
A. Describe the nature-related dependencies, impacts, risks and opportunities the organization has identified over the short, medium and long term	Build up a longlist of potential DIROs and qualitatively assess associated time horizons by holding a workshop to engage with relevant stakeholders across the business.	Expand the assessment to consider how nature-related R&Os might impact other risks e.g. climate-related risks over short, medium and long term.	Comprehensive and systematic classification of DIROs at different levels of granularity with appropriate context, reflecting materiality processes and a range of time horizons.
B. Describe the effect nature-related risks and opportunities have had and may have on the organization's businesses, strategy, and financial planning	Discuss maturity and ambition level with key stakeholders internally to determine level of nature-related risk appetite and which R&Os may impact the business.	Highlight internally how incorporation of nature-related risks and opportunities can strengthen business strategy, creating a nature-related roadmap to avoid siloed assessment or risks and opportunities.	Start with current status qualitative descriptions and processes but ideally provide more forward-looking quantitative information on products/ services, investment, research and development etc.
C. Describe the resilience of the organization's strategy to nature-related risks and opportunities, taking into consideration different scenarios	Scenario analysis can be treated as an iterative process, and the scope can be broadened over time. An initial assessment may be qualitative and focus on certain commodities, regions or biomes that are most relevant to the organization.	The assessment can develop to include material R&Os under different scenarios, as well as considering different magnitudes and time frames. As maturity increases scenarios can become more quantitative providing estimates of financial impacts.	Alignment between nature and climate scenarios where possible. Sensitivities (e.g. \$ impact or relative % change) provided to key scenario conditions/ parameters.
D. Disclose the locations where there are assets and/or activities in the organization's direct operations, and upstream and/or downstream and/or financed, where relevant, that are in: high integrity ecosystems; and/or areas of rapid decline in ecosystem integrity; and/or areas of high biodiversity importance; and/or areas of water stress; and/or areas where the organization is likely to have significant potential dependencies and/or impacts	Understand what organizational and value chain location data is already being collected that could be used to inform where priority locations may exist.	Develop collaborations with nature-related data providers to improve access to location-specific data.	Clear classification, traceability and appropriate transparency, connecting location with nature of activity and implications/effects.

## Risk and impact management

<i>Disclosure recommendation</i>	<i>Actions to help you get started</i>	<i>Continuing the TNFD journey</i>	<i>FI expectations for disclosures</i>
<p>A. (i). Describe the organization's processes for identifying and assessing nature-related dependencies, impacts, risks and opportunities in its direct operations</p> <p>A. (ii). Describe the organization's processes for identifying and assessing nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chain(s) and financed activities and assets for assessment</p>	<p>Disclose key risks by identifying material dependencies for your sector of operations and translating them into risks i.e. a singular approach to risk identification.</p>	<p>Carry out additional risk assessments to identify further risks i.e. use multiple approaches to identify risks. For example, using primary data sources to identify risk hotspots in your operations or value chain.</p>	<p>Disclosure of the process for identifying all material nature-related issues for direct operations with the view to expand to look at upstream and downstream nature-related issues. Disclosure of quantitative absolute or relative assessments (e.g. value at risk).</p>
<p>B. Describe the organization's processes for managing nature-related dependencies, impacts, risks and opportunities and actions taken in light of these processes</p>	<p>Identify a long list of potential mitigation and management actions that can be taken. From this list, identify "no regret" actions that can be taken in the immediate future to help drive momentum. For example, engaging with suppliers in high-risk priority locations.</p>	<p>Assess varied risk mitigation and management actions through use of the risk mitigation hierarchy. This can be done through ranking actions based on their level of protection and reliability.</p>	<p>Description of the types of monitoring, reporting and verification (MRV) systems in place, including use of any third-party tools and how decisions are made using these systems.</p>
<p>C. Describe how processes for identifying, assessing and managing nature-related risks are integrated into the organization's overall risk management</p>	<p>Start with nature-related DIROs assessed separately from traditional Enterprise Risk Management (ERM) processes.</p>	<p>Integrate nature-related DIROs with ERM processes over time. Considering additional assessment criteria and time horizons.</p>	<p>Methodologies and material outputs of environmental risk assessments at key sites or for key business lines are clearly integrated into wider ERM processes.</p>



## Metrics and targets

<i>Disclosure recommendation</i>	<i>Actions to help you get started</i>	<i>Continuing the TNFD journey</i>	<i>FI expectations for disclosures</i>
A. Disclose the metrics used by the organization to assess and manage material nature-related risks and opportunities in line with its strategy and risk management process	Start with qualitatively assessing DIROs, using third party tools and engaging with stakeholders to understand materiality through a 'top-down' approach i.e. without inclusion of any corporate data. For example, this might involve use of sector or country averages.	Organizations that are more mature can aim to quantify their identified DIROs using a 'bottom-up' approach which incorporates company-specific primary data. For example, nature-related impact drivers such as water consumption will show a more accurate reflection of impact.	Overall mix of risk exposure, sensitivity and opportunity investment, resourcing, development sought. Important to disclose metrics to assess and manage risks and opportunities in high-risk areas e.g. Key Biodiversity Areas (KBAs).
B. Disclose the metrics used by the organization to assess and manage dependencies and impacts on nature	Narrow the scope of data based on what is material to your organization. For example, focusing on water use in water scarce regions if water is a material dependency. In addition, proxy indicators can be used to signal impact levels such as measuring soil organic carbon as a proxy for soil health.	The scope can be expanded over time to include metrics that manage these impacts and dependencies at priority locations. For example, the proportion of sites producing nature action plans (%).	Examples of metrics some FIs look for: → Hectares of land use change to prioritize conservation or restoration; → Certified percentage of sustainably sourced soft commodities.
C. Describe the targets and goals used by the organization to manage nature-related dependencies, impacts, risks and opportunities and its performance against these	Set targets related to material impact drivers. Some organizations decide to approach target setting by focusing on specific impact drivers and/or areas of key pressure that are relevant to their value chain.	Expand target-setting to include actions that drive nature-positive outcomes. For example, targets for nature-related opportunities regarding land restoration, rather than focusing on minimizing nature-negative outcomes.	Examples of targets some FIs look for: → 'Zero deforestation' target → Context based water use target → Targets relating to land use restoration and recovery

# Use cases



04.

# Use cases

## Introduction

The purpose of the use cases is to highlight corporate practices that are broadly aligned with parts of TNFD's LEAP approach, and to demonstrate that in many places, businesses may already be collecting data which can inform LEAP assessments and TNFD disclosures. Examples were selected from each value-chain system. The corporate practices pre-date the release of the LEAP approach, which indicates how previous nature, biodiversity and environmental assessments can be leveraged to support TNFD disclosures. The use cases reference publicly available data, with further refinement in collaboration with the relevant business.

## Energy: Iberdrola

**An overview of Iberdrola's work using the Corporate Environmental Footprint evaluation methodology.**

This use case focuses on the Locate and Evaluate phases of the LEAP approach and how findings inform Assess and Prepare. In the Locate phase, Iberdrola maps their priority locations, and the interface of their different sectors and operations with nature. In the Evaluate phase, Iberdrola identifies their dependencies and impacts using different datasets and methodologies and conducts an impact analysis with the Corporate Environmental Footprint, a scoring exercise that quantifies impacts and enables Iberdrola to compare and prioritize. (See [here](#).)

## Land Use: P&G

**An overview of P&G's work locating high priority areas for setting water-related targets, with associated strategies to achieve them.**

This use case focuses on P&G's water strategy, and in particular on the Prepare phase of LEAP. The case discusses how P&G identifies and maps their priority locations and their interface with nature in Locate and how water is identified as a material impact and dependency in Evaluate. After water is identified as a dependency, in the Assess phase P&G uses this information to assess and design appropriate risk mitigation and management strategies. In the Prepare phase, P&G sets clear targets in their priority locations. (See [here](#).)

## Built Environment: Swire Properties

**An overview of Swire Properties work to enhance urban biodiversity.**

This use case focuses on identifying opportunities as part of the Assess phase of LEAP. The case discusses how Swire Properties' Biodiversity Policy informs their actions in identifying opportunities. In particular, the use case looks at how Swire Properties has seen a market opportunity in making nature and biodiversity a core element of new developments. The use case also explores how Swire Properties has used nature-based solutions as an integral part of the risk management process in one of their locations. (See [here](#).)

# Appendices

**Appendix I: Summary of feedback to the TNFD**

**Appendix II: Common questions asked by pilot members and answered by the TNFD**

**Appendix III: Pilot approach and methods**

**Appendix IV: Organizations engaged throughout the pilot**

# WBCSD TNFD Pilot

## *Appendix I: Summary of feedback to the TNFD*

Sept 2023

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## 1) Introduction

This section provides a synthesis of the feedback provided to the TNFD prior to the end of piloting on June 1st 2023. The majority of the below feedback was generated through discussion in the WBCSD TNFD pilot, but some points were raised by other WBCSD members in wider consultation. This feedback captures overall themes and general views, it does not present all individual company positions and nuances. The section sets out suggestions for how elements of the TNFD framework could evolve, plus actionable implementation guidance which businesses looking to implement TNFD can follow.

## 2) General considerations

### Considerations related to the usability of the TNFD framework

- **Articulate how the TNFD framework aligns with other reporting frameworks.** More businesses will adopt the framework if they can see overlap and convergence with standards such as the Corporate Sustainability Reporting Directive (“CSRD”), Global Reporting Initiative (“GRI”), ISSB and SBTN. Connections with financial accounting standards are also important (e.g. International Accounting Standards 1, 6, 16, 36, 37, 41).
- **Ensure that recommendations and guidance consistently consider user need and use imperative for each disclosure.** Real economy preparers are particularly interested in financial institution use cases, data needs and decision application. Corporates want to understand how users of disclosures may use information provided in different processes such as fundamental analysis, financial forecasting, valuation models, portfolio construction. This is especially important given TNFD’s mission to support a shift in financial flows away from nature-negative outcomes and toward nature-positive outcomes.
- **Consider how to guide businesses through the 1-5 year evolution in disclosure practice** and provide opportunities for preparers to explore options, develop scope, build capacity and capabilities.
- **Target-setting, including indicative sector, regional or biome targets.** Guidance on what is generally achievable for each sector would increase comparability of targets and help build trust with the end-users such as customers.
- **Provide additional capacity building resources** to supplement technical guidance. For example, **e-learning resources or walk-through videos** to make technical guidance more accessible.
- **Improve navigation, cross-referencing, structure and user experience** to ensure all components of the framework are accessible, digestible, searchable etc.
- **Increase the number and thematic coverage of case studies and example disclosures.** Pilot members expressed interest in case studies related to:
- **Outputs from the scoping stage** showcasing processes for prioritizing value chain components, collaborating with value chain actors to assign attribution and demonstrating how outputs support the Locate stage.
- **Nature-related scenario disclosures** and practices from corporates and FIs.

### Considerations related to disclosures and disclosure metrics

- **Carefully consider use and implications of “should”, “should consider”, “may”, “could” language.** Clarity must be reached on what is a recommendation and de facto requirement vs what is guidance and accompanying examples.
- On the approach to materiality, it would be helpful to **provide more explanation or guidance on the implications of financial and impact choices and emphasis (i.e. if single or double materiality), what are the consequences in applying recommendations**, recommended disclosures and implementation guidance.

- Additional guidance is likely needed to help companies make the link from nature issues to actual and potential effects on financial performance and position.
- Provide clarity on what should be disclosed at **site (granular) level vs enterprise (aggregated) level**.
- **Provide greater emphasis on disclosures of positive impacts and opportunity creation in the disclosure recommendations**
- **Consider a broader range of biodiversity metrics within the disclosures.** Biodiversity is somewhat limited to habitat / ecosystem extent measurement and drivers of impacts. European Sustainability Reporting Standard (“ESRS”) 4 (disclosure 5) captures additional state of nature metrics, such as ecosystem connectivity and species composition, as well as metrics related to species of conservation concern, such as how activities may affect the threat status or population size.
- Nature-related transition plans are a nascent idea and topic at the moment, **companies will need an on ramp to explore nature positive transitions and what this looks like across different sectors and businesses.** ESRS 4 provides recommended content for said transition plans, at least in respect of biodiversity, alignment with this standard’s approach could therefore be helpful.
- **Some indication of definitions, referencing, sources should be provided for high integrity, decline in integrity, high importance, water stress** etc.
- **Include a response metric that refers to supplier engagement around data** in order to show how businesses are engaging with suppliers to increase access and availability of nature-related information.
- Provide guidance on how to disclose **commercially sensitive data**. This is particularly relevant to any data included in disclosures that poses competition risk e.g. location-specific or product-specific data.

### 3) Suggestions to the TNFD on how to improve guidance on the LEAP approach

#### Assess guidance

- **Provide additional guidance on financial valuation of nature-related risks, including how to calculate magnitude** drawing on methodologies to value climate-related transition risks.
- **Provide guidance on how to integrate climate and nature-related risk assessments** with examples of how traditional ERM processes can link assessments for climate and nature-related risk, what are the connections with existing risk taxonomies, inventories, classification, criteria and processes.
- **Provide guidance on how to respond to systemic risks.** Systemic risk is challenging – this is the accumulation and combination of transition and physical risks, business and investors will find it difficult to work with systemic risk, what would be the expectations in terms of risk assessment, management and disclosure? Systemic risk is the mandate of central banks and supervisors, government, policy, international accords and agreements.

#### Prepare to respond and report guidance

- Provide additional guidance on the recommended **scope** for target-setting, and approaches to setting targets across value chains where **data availability is low**.
- **Provide Target-setting guidance related to transition risks and opportunities.**
- Further guidance is needed to address target setting challenges such as:
  - What **‘baseline’** to use as a reference, whether temporally or spatially

- The extent to which a business is **contributing** towards nature-related DIROs, along with other factors e.g. other businesses, compared to being the key **attributing** factor
- The **scale** at which to set targets, for example, **site level** data can be difficult to aggregate up to a **global** level target
- A lack of understanding over the **threshold** at which an impact on nature should be deemed **material** and therefore what targets should be set to minimize impact, at a level that is **attainable to the business**, as a result.

### Core concepts and definitions

- **Adopt consistent language in guidance on R&O materiality assessment**, specifically regarding use of likelihood versus exposure.
- **Share a definition of opportunities on a scale** from ‘risk response’ i.e. direct action to mitigate risk to ‘opportunity’ i.e. one that is not referring to risk mitigation but an additional action that would create positive impact.
- Provide a clear definition of **resilience**, and guidance on how this can be expressed **qualitatively and quantitatively**.
- Alignment with SBTN is welcome but other targets should also be accommodated, such as those related to business processes.

## 4) Additional guidance

### Data and metrics

#### Suggestions on data and tools

- **Streamline the suggested datasets and tools** to support companies in selecting the correct tool. This could be done by adding filters to the tools catalog to help identify tools per sector or biome.
- Provide guidance on what data businesses may **already be collecting and reporting** on that can be used to respond to TNFD.
- **There should be guidance on how data and information can flow between sectors without breaching privacy issues.** Certain sectors are very decentralized (e.g. energy) which limits access to data and information.

#### Suggestions on metrics

- Provide additional guidance on whether metrics should be disclosed at the **gross risk / mitigated (residual risk)** level. For example, if you have an estimation for your impact on land use as a result of a coffee supply chain, but all coffee is certified to a high standard, what should be disclosed?.
- **TNFD should engage with regulators and intergovernmental organizations to advise on thresholds for state of nature metrics** to inform ‘acceptable’ levels of change and how this influences business practices.
- **Increase the number of opportunity-related metrics.** This could include areas under restoration, regeneration, for example, or transformational actions within companies.
- **Inclusion of biodiversity metrics.** There is limited guidance on which metrics should be used to monitor/assess impact on biodiversity e.g. the use of Mean Species Abundance (“MSA”) or Potentially Disappeared Fraction of species (“PDF”).
- **The level at which metrics need to be reported.** There is a lack of guidance on the scope of metrics which are required for reporting and the granularity of these metrics. For example, do any metrics need to be disclosed other than the core metrics? Should disclosures against core metrics be aggregated or for individual priority locations?



- **There should be guidance specifying the need to signal the link between identified impacts and dependencies and the associated metrics**, such as those related to the relevant impact drivers or state of nature indicators.

### Nature-related scenario analysis

- Provide additional guidance on how **scenario analysis** connects with, supports and can inform, **organizational and strategic resilience**.
- Implications of increased level and/or rate should be developed in scenario analysis guidance.
- Normative GBF links should also be made to give transition direction – some equivalency with the Paris Agreement.
- **Highlight the difference between short term vs long term outcomes in impact pathways.** Scenario guidance on financial impact pathways is lacking, particularly around the importance of framing short term vs long term outcomes.
- Biome specific guidance relates well to changes to Physical risk, while sector-specific guidance relates well to changes to Transition risk. This should be taken into account for future nature-related scenarios guidance.
- **Connections with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (“IPBES”) Nature Futures Framework and Nature Futures Scenarios should be sought**, biodiversity and ecosystem services models should be evaluated to understand if and how business could use them or how they should be adapted.

### Value-chain guidance

- **There is great desire for increased knowledge exchange, through supply chains.** There are currently challenges relating to the capacity for supply chain partners to support in nature risk assessment, and their awareness of the nature impacts/ dependencies that they face.
- **Produce a risk-benefit framework to show which** products and processes contribute to environmental goals. For example, how will improving water use efficiency provide benefits to consumers and business.
- **Provide more value chain guidance on** upstream and downstream considerations, how to prioritize different elements of the value chain, consideration of different value chain types, different types of data and their use cases (primary, secondary, proxy) and what should be included with regards to your organizational focus and which parts of the value chain should be assessed.
- **Draw on the SBTN’s traceability approach<sup>60</sup> to narrow the scope of locating high priority locations for value chain assessments.** The upstream elements of a value chain may involve >100,000 SME suppliers, therefore it is hard to collect all of the necessary location-specific data. SBTN suggests use of granular data where traceability is possible (e.g. for high impact commodities such as cocoa) whilst accepting that where this is not possible, it may be necessary to use modeled estimates (e.g. using the country and volume of purchase). This provides a useful starting point to identify where key risks and opportunities may lie along the value chain and narrow the scope accordingly.
- **Provide guidance on value chain collaboration to understand indirect impacts and dependencies.** Dependencies are mainly indirect (in the supply chain - especially for certain sectors e.g. the Built Environment) making it hard to obtain data. Supply chain transparency and communication needs to improve to avoid reliance on secondary data.

# WBCSD TNFD Pilot

## *Appendix II: Common questions asked by pilot members and answered by the TNFD*

Sept 2023

### Scoping

**Q. For large businesses with numerous subsidiaries and sectors, where should we start when conducting a nature-related assessment?**

Start with the scoping stage, this may involve heat mapping the business's footprint and focusing on certain aspects of the value chain that are likely to be material. For example, looking at a commodity listed on SBTN's high impact commodity list. TNFD expects this will be a gradual, iterative process to take the nature-related assessment to enterprise level over time as long as there is sufficient transparency regarding next steps and timelines.

**Q. How can existing materiality assessments, for example as part of sustainability assessments more broadly, be used and aligned to LEAP?**

A business's previous materiality processes should be taken into account when going through LEAP in order to make use of existing metrics. However, TNFD requires additional data such as location-specific data which may not already be incorporated into a business's materiality assessments. These extra layers of detail will be important to take into account the state of nature and identify additional risks. Therefore, it may be beneficial to perform a gap analysis to show how existing processes meet TNFD's LEAP approach and highlight where additional activity may be required.

### Assess

**Q. When is best to use exposure vs magnitude vs likelihood when assessing nature-related risks?**

This will depend on who is preparing the report or analyzing the risk. For example, an FI might be most concerned about exposure whilst a corporate might be more concerned with magnitude and likelihood.

**Q. There are duplicative disclosure recommendations for TCFD and TNFD on certain physical risks (for example, water) is this by design?**

There is natural duplicity built into the system given that the atmosphere is one of the natural realms, and therefore, your TCFD journey is already part of your nature journey. There will also

need to be integration between climate and nature at every stage of the LEAP approach since the risks and opportunities are often closely interlinked. For example, nature-based solutions often have a climate mitigation element which means they should be integrated into transition plans and disclosures to avoid duplicity.

**Q. When we look at risk materiality what should we use to define the thresholds? For example, how should low, medium and high be defined?**

This will vary depending on the context in which the business operates in, the threshold at which the dependency has been considered and the actions and responses around it. The release of sector-specific guidance will help to further understanding on sector thresholds as well where appropriate. Quantitative prescription in the financial world (for example stating that 'above 5% is material') is something that the TNFD are not looking to achieve.

**Q. What are the best third party tools to assist with nature-related assessments and when should they be used?**

It is not always one type of tool that will provide you with the best data, as the question will be very context-specific to each business. It is likely that you will require a mix of local datasets, national inventories, third party tools etc., which have been aligned to the LEAP stages in the TNFD tools catalog<sup>61</sup>. TNFD will not narrow down this list further to recommend specific tools since it will depend on specific user requirements.

**Q. Is the TNFD requiring full disclosure of financial information about the risks in various scenarios or just quantification to a certain extent?**

When talking about scenario analysis, TNFD states that it is *additional* to the LEAP approach and therefore is not necessarily recommended for your disclosures other than as part of the disclosures recommendation which references organizational resilience (Strategy D) under different scenarios. Scenario analysis is, however, a good way of engaging other parts of the business to ensure they understand the potential costs, investments, opportunities etc. associated with nature-related risks and opportunities. The TNFD has developed four scenarios which can be used to look at potential futures for identified material risks and opportunities to inform a business's strategy. This should include both physical and transition risks - for example, responding to a nature-related policy you know will come into place in 5 years' time to allow you to adapt your business model accordingly.

# WBCSD TNFD Pilot

## *Appendix III: Pilot approach and methods*

Sept 2023

### An outline for the piloting process for each economic sector

1. Initial desktop research to carry out TNFD maturity assessments.
2. Welcome meeting covering the objectives of the pilot with members, and introducing the TNFD framework, pilot timeline, and priority area process.
3. Review of pilot companies' TNFD maturity assessment results with each individual company, also providing an opportunity for them to comment on goals for the pilot and any progress so far.
4. Workshop to decide on 3 priority focus areas from a sectoral long list of identified challenges from TNFD maturity assessments and interviews.
5. Priority area workshops (see below for workshop design).
6. Sector spotlight sessions where businesses share successes and challenges of piloting specific parts of TNFD guidance.
7. Engagement with financial institutions via interviews to understand challenges with and use of TNFD guidance.
8. Roundtable with financial institutions and corporates to openly address the aforementioned challenges and needs.
9. Closing meeting to summarize the final outputs collated, learnings over the course of the pilot and discuss the TNFD journey ahead.

### Workshop design

Each workshop focused on a specific priority area, selected by WBCSD members through a vote.

The priority areas were selected from a longlist of potential challenges which was drafted during the initial phase of the pilot process. The longlist of challenges was created following TNFD maturity assessments of each pilot member's business, which involved a review of public documents, interviews and one to one engagement. An initial workshop was then held where all pilot members discussed all potential priority areas and then selected a top 3 through a vote in order to agree the 3 priority areas to explore in subsequent workshops.

Each workshop aimed to generate feedback to TNFD on specific elements of the framework. Pilot members were asked to engage with relevant materials and prepare their feedback following the below process:

1. Pre-read materials

Pre-read materials were collated for the priority area and circulated with members.

## 2. Prepare feedback

Companies reviewed the pre-read materials, applying it to their own piloting (where feasible), and prepared feedback to discuss in the workshop.

## 3. Group workshop

Workshops were designed and held to focus on discussion from pilot members in order to identify where TNFD guidance could be improved and share insights and examples of 'good practice' from participating companies.

## 4. Company 1-on-1s

Some companies were invited for additional 1-on-1 meetings to discuss company-specific queries and experience.

## 5. Feedback to the TNFD

Workshop discussions were summarized according to key themes e.g. framework evolution suggestions or implementation guidance. This feedback was provided to TNFD following each workshop to inform various iterations of the framework and the final output from the piloting program.

## Financial Institutions' engagement methodology

An outline of the process followed to gain insight from FIs regarding TNFD guidance:

1. Outreach to TNFD, United Nations Environment Programme Finance Initiative ("UNEP-FI"), Principles for Responsible Investment ("PRI") TNFD FI leads to gather initial reflections, learnings and suggestions for FI interviews
2. Interviews were held with five FIs from both PRI and UNEP-FI across five key topic areas.
3. Learnings were synthesized into four key challenges with applying the TNFD framework / LEAP approach.
4. A roundtable discussion was held between FIs and piloting companies (with representatives across all three economic sectors).
5. Learnings and discussions were synthesized into feedback.

# WBCSD TNFD Pilot

## *Appendix IV: Organizations engaged throughout the pilot*

Sept 2023

### Pilot members

Energy	Land Use	Built Environment
Drax	Corteva Agriscience	Arcadis
Shell plc	CMPC	Swire properties
Iberdrola	Stora Enso	Majid Al Futtaim
Total Energies	Sonae SGPS	Holcim
BP	GSK	Acciona
Enel	New Forests	JCI
	Nutrien	
	Phillip Morris	
	Procter & Gamble	
	Bayer	
	Manulife Investment Management Timber & Agriculture	

## Financial Institutions engaged with as part of the FI interviews or roundtable discussion

Organization	Network organization
Scor	PRI
FSD Africa Investments	PRI
Actiam	PRI
Robeco	PRI
Zurich	UNEP-FI
HSBC	UNEP-FI
SMBC	UNEP-FI
SOMPO Holdings	UNEP-FI
Mirova	TNFD WG6a for Financial Institutions

## External stakeholders

Organization	Speaker	Role
TNFD	Felipe Arango Alessandra Melis Tom Hegarty	Technical Advisor/Pilots Lead Senior Technical Manager Senior Technical Manager
SBTN	Samantha McCraine Dr. Varsha Vijay	Technical Coordinator Technical Director
UNEP-FI	Gabriela Goncalves Romie Goedicke	TNFD GEF project, Technical Officer Co-Head, Nature
PRI	Rebecca Chapman Sylvaine Rols	Head of Environment Senior Specialist, Environmental Issues
Dow	Carrie Houtman	Global Sustainability Director for Climate
Reckitt	David Croft	Global Head of Sustainability

## Piloting team

Organization Expert		Role
PwC	Daniel O'Brien	TNFD member, Data Catalyst Co-Lead
	Tom Loukes	Partner, Sustainability
	Ben Matthews	Senior Manager, Sustainability
	Thomas Engelhard	Manager, Sustainability
	Eleanor Gill	Senior Associate, Sustainability
	Ana Canto Mira	Associate, Sustainability
WBCSD	Luke Blower	Senior Manager, Redefining Value
	Nadine McCormick	Senior Manager, Nature Action
	Tom Williams	Senior Director, Nature Action
	Pete Jones	Manager, Nature & Energy (seconded from ERM)
	Matt Inbusch	Senior Manager, Nature & Land Use
	Claudia Schweizer	Manager, Built Environment
	Jessica Fonseca da Silva	Manager, Forest Solutions Group (FSG)



# Endnotes

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# Acknowledgements

## *Disclaimer*

This content has been developed in the name of WBCSD. Like other WBCSD publications, it is the result of collaborative efforts by representatives from member companies and external experts. A range of member companies reviewed drafts, thereby ensuring that the material broadly represents the perspective of WBCSD membership. Input and feedback from stakeholders listed above was incorporated in a balanced way. This does not mean, however, that every member company or stakeholder agrees with every word.

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## *About the Nature Action Imperative*

WBCSD's Nature Action Imperative supports members to accelerate credible corporate action, and mainstream nature in business strategies & decision-making: building the tools and guidance needed to define credible business contributions to Nature Positive (halt and reverse nature loss by 2030); preparing to engage with the emerging performance and accountability system for nature; and catalyzing investments into nature assets. To learn more about the Imperative and related projects, visit <https://www.wbcسد.org/Imperatives/Nature-Action>.

## *About Redefining Value*

WBCSD's Redefining Value helps companies measure and manage risk, gain competitive advantage and seize new opportunities by understanding environmental, social and

governance (ESG) information. We do this by building collaborations and developing tools, guidance, case studies, engagement and education opportunities to help companies incorporate ESG performance into mainstream business and finance systems. Our goal is to improve decision-making and external disclosure, eventually transforming the financial system to reward the most sustainable companies. To learn more about the program, visit <https://www.wbcسد.org/Programs/Redefining-Value>

## *About the World Business Council for Sustainable Development (WBCSD)*

The World Business Council for Sustainable Development (WBCSD) is a global community of over 225 of the world's leading businesses driving systems transformation for a better world in which 9+ billion people can live well, within planetary boundaries, by mid-century. Together, we transform the systems we work in to limit the impact of the climate crisis, restore nature and tackle inequality.

We accelerate value chain transformation across key sectors and reshape the financial system to reward sustainable leadership and action through a lower cost of capital. Through the exchange of best practices, improving performance, accessing education, forming partnerships, and shaping the policy agenda, we drive progress in businesses and sharpen the accountability of their performance.

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