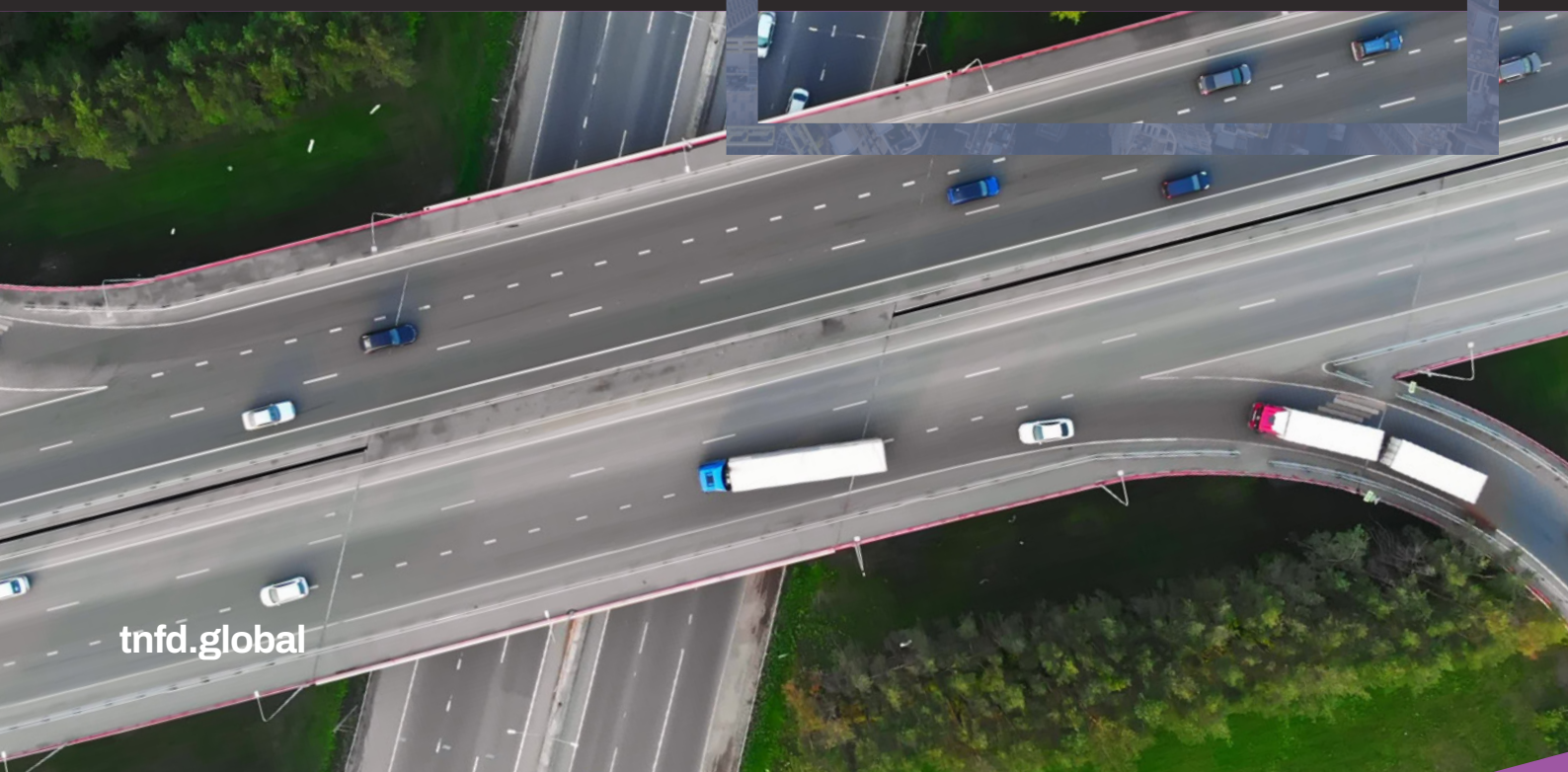
Taskforce on Nature-related Financial Disclosures

Guidance on scenario analysis

Version 1.0 September 2023



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1. Introduction to the TNFD's approach to scenario analysis

QUICK REFERENCE GUIDE

Relevant Recommended Disclosures:

Strategy C

Relevant LEAP components:

Scenario analysis is a risk assessment tool that sits in the Assess phase of LEAP, but can inform all components of the LEAP approach.

1.1. Context

Good strategy is the art of making choices with the best available information under conditions of uncertainty. Like the Task Force on Climate-related Financial Disclosures (TCFD), the Taskforce on Nature-related Financial Disclosures (TNFD) recognises the utility and importance of scenario analysis to help organisations develop – and test the resilience of – their strategy, given a complex set of uncertainties. Scenario analysis allows organisations to explore the possible consequences of nature loss and climate change, the ways in which governments, markets and society might respond, and the implications of these uncertainties for business strategy and financial planning.

TNFD guidance on scenario analysis builds on TCFD's scenario resources, including TCFD Guidance on Scenario Analysis for Non-Financial Companies, to enable integrated considerations of climate and nature in scenario analysis and integrated disclosures.

1.2. Primary objectives of scenario analysis

The primary objective of scenario analysis in applying the TNFD recommendations is to help organisations develop – and test the resilience of – their strategy, by assessing nature-related dependencies, impacts, risks and opportunities given a complex set of uncertainties. The main purpose of a TNFD scenario exercise is to prompt thinking around:

- What may be different in the future from today?
- How may changes unfold over time and why?
- What new nature-related risks and opportunities may emerge as a result of those changes that are of significance to the resilience of the organisation's business model?
- What key uncertainties may affect potential changes?

The exercise can deepen an organisation's assessment of nature-related dependencies, impacts, risks and opportunities, support corporate strategy, risk management and capital allocation decision making, and inform the organisation's disclosures based on the TNFD's Recommendations.

1.3. The TNFD approach to scenarios

Scenarios are a set of plausible descriptions or narratives about how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and critical uncertainties. They are used to provide a view of the implications of developments external to the organisation and inform actions by the organisation.[1] They are intended to challenge thinking about what the future might be like and how an organisation might respond under circumstances different from those it faces today. The emphasis is on identifying several plausible views of the future, not predicting or forecasting forward from today's reality, or describing the world in which the organisation hopes it might be operating.

It is important to distinguish scenario analysis from other common approaches used in business and finance. These tools can be complementary but are conceptually distinct, as outlined in Box 1.

Box 1: Distinguishing scenarios from stress tests, sensitivity analyses, probabilistic forecasts and transition pathways

- **Stress tests** represent difficult 'edge cases' that are developed by putting extreme values of a relevant variable or small number of variables into existing planning models. Stress testing involves assessing how the results of those planning models change in response.
- **Sensitivity analyses** assess how a planning model's outputs change when important inputs vary within expected ranges (e.g. +10%, – 10%). Sensitivity analysis is widely used by financial analysts and built into business forecasting to account for common stochastic variation.
- **Probabilistic forecasts** attach statistical probabilities from prior related analyses to a new problem and are often used as different starting points for econometric analysis.[2]
- **Transition pathways** describe multiple possible ways in which a specific target can in principle be achieved, such as different pathways to the same temperature rise outcome of 1.5°C.[3]

1 TCFD (2020) Guidance on Scenario Analysis for Non-Financial Companies

2 Millett, Stephen M. (2009) Should probabilities be used with scenarios? Journal of Future Studies 13.4

3 Office of the Vice President for Research (2019) Climate-Related Financial Disclosures – The Use of Scenarios Cambridge, MA: Massachusetts Institute of Technology

In contrast, **scenarios** explore a broader set of uncertainties than stress tests and sensitivity analyses, at least some of which represent discontinuities with existing planning models. Scenarios are also typically designed in part to identify risks that could emerge over the course of a longer time frame (e.g. multiple years), which typically take shape at the intersection of several seemingly unconnected uncertainties. Rather than variations on a single model, a scenario framework typically incorporates several distinct models. Scenarios are not probabilistic forecasts, as uncertainties imply risks and opportunities that cannot meaningfully be attributed a probability, which would otherwise enable predictions or at least projections. They can be distinguished from transition pathways as the latter represent the plans in motion to advance, given the scenarios that the planner is taking into account.

Even though scenarios are by definition forward looking, they are used to assess how potential risks and uncertainties affect the *current* risk processes and strategies of an organisation, to test the resilience of strategies to a wide range of future conditions.

Nature scenarios have some specific differences to climate scenarios:

- Nature-related impacts, dependencies, risks and opportunities are location-specific, whereas the location of greenhouse gas (GHG) emissions does not matter to its impact on climate change.
- There is no single global nature goal and agreed indicator, akin to the 1.5°C global temperature change target for climate. The Kunming–Montreal Global Biodiversity Framework (GBF), agreed at the 15th meeting of the Conference of Parties to the UN Convention on Biological Diversity in December 2022, provides a set of global goals and targets, and agreed indicators.[4] However, the incorporation of these in scenario analyses is still at an early stage, and will be more complicated given the multiplicity of goals, targets and indicators.
- There are not yet 'off the shelf' quantitative nature scenarios akin to the climate scenarios developed by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS)[5] and the International Energy Agency (IEA).[6] Organisations are now working to develop science-based approaches that integrate nature and climate considerations, such as the NGFS and the Inevitable Policy Response (IPR).[7] This TNFD guidance complements the approaches being developed by these initiatives and is designed to help organisations get started with scenario analysis as these initiatives further develop more quantitative nature scenarios. This guidance will be updated with content on more advanced and quantitative nature scenarios over time as these initiatives make progress.

4 The Global Biodiversity Framework sets out an ambitious pathway to reach the global vision of a world living in harmony with nature by 2050. Among the Framework's key elements are our goals for 2050 and 23 targets for 2030.

5 NGFS Scenarios Portal, available at: https://www.ngfs.net/ngfs-scenarios-portal/

6 IEA Net Zero by 2050, available at: https://www.iea.org/reports/net-zero-by-2050

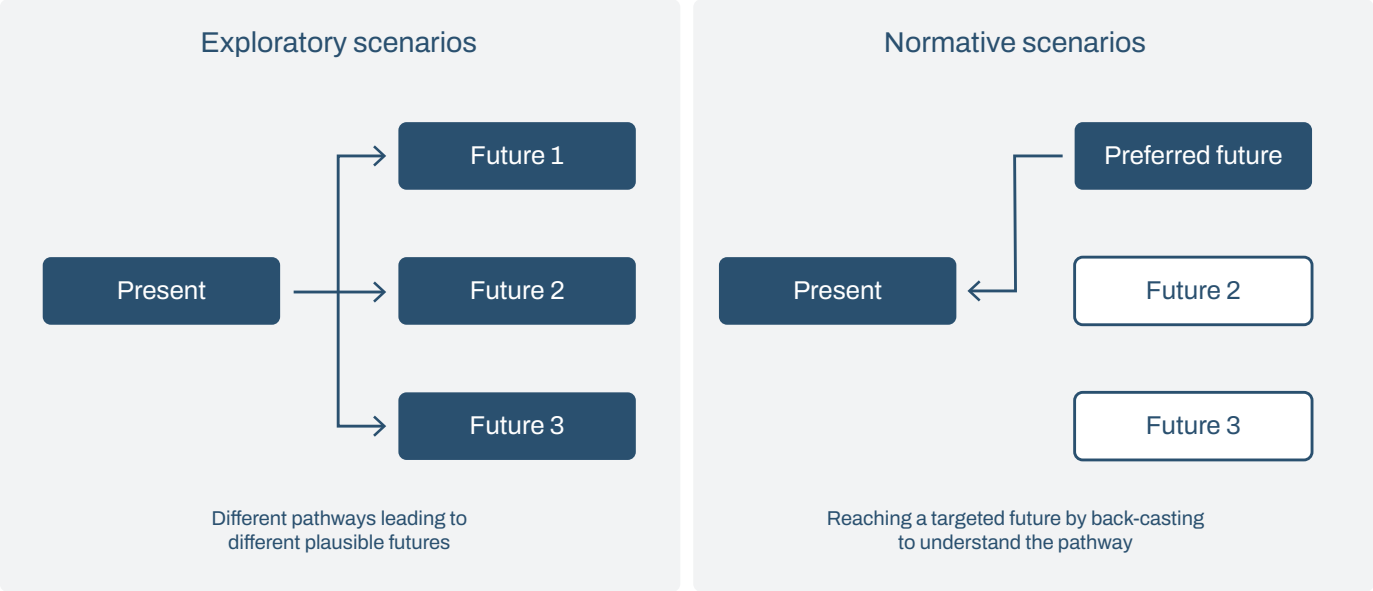
7 IPR Forecast Policy Scenario (FPS) + Nature, available at: https://www.unpri.org/inevitable-policy-response/ipr-forecast-policy-scenario--nature/10966.article. IPR's FPS + Nature is currently the only publicly available integrated climate and nature scenario for use by investors that considers key macroeconomic variables and implications for land use.

1.3.1. Scenario design characteristics

To address the specific characteristics of nature and learn lessons from climate scenarios, the TNFD approach to scenarios is based on the following design characteristics:

- **Exploratory scenarios** that describe a range of critical uncertainties and set out plausible futures. These are distinct from normative scenarios, which start with a preferred or desired future outcome and then back-cast plausible pathways from the preferred future to the present (see Figure 1).[8]
- **Qualitative scenario storylines** that allow for targeted quantification to be layered in to interrogate issues that emerge.
- **A 'building blocks' approach for scenario analysis,** through a set of standardised elements, that organisations can use and adapt to develop their own customised scenarios that reflect the location and specific context of nature-related issues for their organisation.
- **Oriented around two critical uncertainties,** closely correlated to physical risk and transition risk, to create a tractable approach that can be customised to an organisation's specific context, but still create a common approach to aggregate data.
- **Versatile and adaptable** to allow organisations to tailor the scenario analysis approach to their own contexts and unique characteristics, rather than following a 'one size fits all' approach.
- **Complementary and synergistic with other scenario approaches and tools**, such as more advanced quantitative models and tools to deepen the assessment. See Section 3.2 for examples of other scenario approaches and tools.
- **Medium to long term time horizon** to generate insights on nature-related dependencies, impacts, risks and opportunities.

Figure 1: Exploratory and normative scenarios



Source: TCFD Guidance on Scenario Analysis for Non-Financial Companies

8 TCFD (2020) Guidance on Scenario Analysis for Non-Financial Companies

1.3.2. Why exploratory and not normative nature risk scenarios?

A normative approach to climate scenarios has been enabled by:

- The global commitment to a single normative target of 1.5ºC;
- Climate change as a global phenomenon with one shared atmosphere where GHG emissions are mobile and fungible; and
- The central principle of a quantifiable global carbon budget, which enables an agreed distribution of that budget among many actors (states, companies, cities, etc.).

In contrast, nature is place-based and unique. The loss of a hectare of rainforest in the Amazon is not interchangeable with the loss of a hectare of wetland in Africa or threatened native species in Australia. While globally agreed goals and targets for nature now exist in the GBF, there are multiple normative goals and targets, not one. Furthermore, National Biodiversity Strategies and Action Plans (NBSAPs) are being updated and specific targets and sector-specific transition pathways needed for normative scenarios are not yet defined. Consequently, nature scenarios still require an exploratory approach – although these may include a GBF-aligned plausible future. The exploratory nature scenarios outlined in this guidance therefore ask "what if?" questions that allow the user to identify and aggregate qualitative and quantitative supporting research and data to drive internal risk and opportunity assessment.

1.3.3. The two critical uncertainties that define the TNFD's nature risk scenarios

The TNFD's recommended critical uncertainties are:

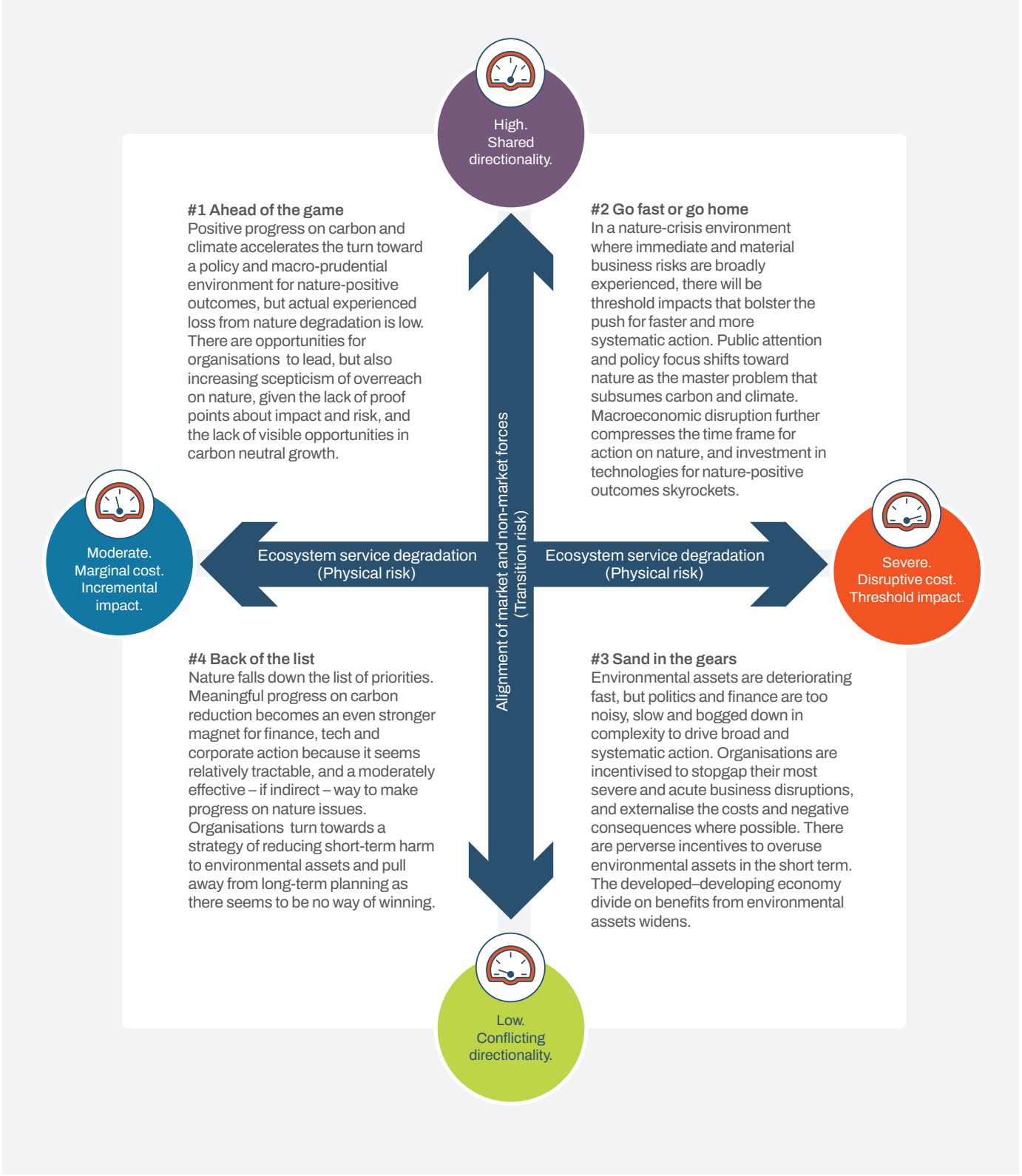
1. **Ecosystem service degradation.** This is most closely correlated with physical risk and connected with climate change, given: a) climate change is one of the five drivers of nature loss; and b) global climate regulation is an important ecosystem service affected by nature loss.[9]
2. **Alignment of market and non-market driving forces.** This is most closely correlated with transition risk and connected with actions to address both nature loss and climate change.

When combined, the TNFD's recommended critical uncertainties produce a 2×2 matrix with four distinct yet plausible scenarios for consideration. These narratives are provided by the TNFD as recommended defaults for market participants to use and provide a basis to compare the resulting insights and implications for organisational strategy. They can be tailored to increase the relevance and decision utility to the organisation, if desired.

These critical uncertainties and the four narratives they generate are outlined in more detail in Figure 2 on the following page.

9 Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) (2019) Summary for policymakers of the global assessment report on biodiversity and ecosystem services

Figure 2: TNFD critical uncertainties matrix, with four possible narratives of plausible futures



To help organisations get started with nature scenario analysis, the Taskforce has deliberately sought to avoid an approach that is overly rigid, prescriptive or reliant on advanced analytic capabilities such as modelling.

Financial institutions or larger non-financial corporates with more complex analytic or reporting needs and in-house capabilities may wish to adapt these scenarios and/or layer analytic or quantitative approaches into the scenario analysis. The TNFD is working with partners to explore the possibilities for more advanced scenarios for financial institutions (that could also be used by large or multinational corporates), which build on the TNFD 2x2 critical uncertainties matrix. The aim of this work is to provide guidance and use cases on more quantitative approaches that can be used to measure potential risks further, test strategies under conditions of uncertainty, and estimate financial consequences for the organisation.

1.4. The link to the TNFD's recommended disclosures

Scenario analysis informs the TNFD recommended disclosure Strategy C. In this recommendation, organisations are asked to 'Describe the resilience of the organisation's strategy to nature-related risks and opportunities, taking into consideration different scenarios.'

1.5. The link to the TNFD's LEAP approach

Scenarios are also an important component of the TNFD's LEAP approach. It is particularly relevant to the **Assess phase** of LEAP, which involves assessment of material nature-related risks and opportunities, and identification of risk mitigation and risk and opportunity management measures. In the Assess phase of LEAP, scenario analysis can support organisations in assessing the severity or materiality of their risks, prioritising those risks and opportunities, and identifying mitigation and management measures under different plausible futures. Scenario analysis can also inform the other phases of LEAP:

- **Locate**: Scenarios can help an organisation identify under different plausible futures which sectors, business units, value chains or asset classes are in sensitive locations or areas where the organisation is likely to have significant potential dependencies and/or impacts;
- **Evaluate:** Scenario analysis can be useful to consider multiple time frames and a range of uncertainties that may affect the size and scale of its dependencies and impacts; and
- **Prepare**: Scenario analysis can test the resilience of an organisation's strategic choices and response options to plausible futures.

The TNFD Assess guidance in the LEAP approach includes further information on how to use scenario analysis as a method for assessing, quantifying and managing nature-related risks.

1.6. Benefits and use cases of scenarios

Scenario analysis can be used by organisations in their strategic planning and risk management process to:

- Extend the standard time horizon of risk analysis beyond short term and into strategic ideation about the medium and long term viability and resilience of an organisation, its objectives, strategy and targets;
- Identify responses to identified risks and opportunities, including the management of any changes in specific risk drivers (such as regulation or decline in ecosystem integrity and provision of ecosystem services);
- Identify whether an organisation's strategy and related plans are resilient to plausible events that are not generally considered in mainstream forecasts, and any potential decisions an organisation would need to make or revise based on an observed gap or weakness in the current strategy (stress testing can also be useful);
- Identify potential gaps and any need for quantification and scientific modelling;
- Justify investment in risk mitigation measures, such as improvements in operational processes; and
- Prioritise areas of business and strategy, which in turn can inform appropriate governance, risk and impact management, capital allocation and target setting.

For financial institutions, scenarios can help with decision-making about risk appetite, changes in the allocation of capital, geographic diversification and company engagement. See the Annex to the LEAP approach for more information on how scenario-based risk assessment methods can help measure nature-related risks, with a focus on use by financial institutions.

2. Implementing the TNFD nature scenario approach – The TNFD scenario toolbox

In addition to this guidance document, the TNFD also provides practical tools and templates to support users with their application of scenarios. These can be found on the TNFD website with links provided in Annex 1. This set of guidance and tools will be updated as work by TNFD, its partners and other organisations on nature scenarios further progresses.

2.1. Where to start

The guidance outlined in this document by the TNFD is built around a participatory workshop-style scenario-driven initiative involving a diverse, multi-disciplinary group of participants drawn from across the organisation and potentially also involving invited external subject matter experts and other participants. Such a format requires careful planning and a commitment of time and resources to be undertaken successfully. The TNFD encourages organisations to start with an internal scoping discussion between an assigned project team and management on the desired activities and outcomes, and the required resources.

When scoping a scenario exercise, the TNFD recommends that organisations consider the following broad and simple format to start:

- Conduct a qualitative scenario workshop, especially in areas where quantification and quantitative models are not available, readily usable or have limitations;
- Focus on understanding the world in which the organisation may have to operate on a deep and detailed level before making decisions;
- Avoid jumping quickly toward specific implications for the organisation and decisions inside a scenario that describes a particular business environment; and
- Avoid rushing to quantification before nature-related dependencies, impacts, risks and opportunities are identified and understood qualitatively.

In line with the TCFD Guidance on Scenario Analysis for Non-Financial Companies, the scenario drivers, constraints, assumptions and logic identified and discussed within the organisation during the qualitative analysis of scenario narratives may then be used as inputs to models, with the aim of quantifying the impact of scenarios on its costs and operations.

The TNFD does not expect a quantitative approach to scenario analysis will be needed or beneficial for all organisations. Quantitative approaches are not needed to satisfy the TNFD's relevant recommended disclosure (Strategy C). For those organisations that are interested in considering a more quantitative scenario approach, Section 3 provides additional information on how multinational corporates and financial institutions could build from this approach further. As noted above, the Taskforce will continue to work with a range of organisations to provide more detailed, quantitative nature scenarios and update this guidance as progress is made on this topic.

2.2. A participatory workshop-driven approach

Focus: Organisations undertaking scenario workshops should focus the exercise on testing, refining and stretching their thinking, planning and decision-making. The focus should be on those aspects that are most relevant to understand the organisation's dependencies and impacts on nature, and the resilience of their strategy under different scenarios that could shape their nature-related risks and opportunities.

Duration: A full scenario exercise is typically conducted in multi-day workshops. Recognising that many organisations may find it challenging to commit that level of time and resources up front, a one-day or even a half-day workshop can generate preliminary hypotheses and results, which can be developed further depending on the needs and interest of the organisation.

Participants: In order to generate useful insights, scenario workshops should include staff, and potentially external experts, from diverse professional backgrounds. Additional guidance on the successful design of scenario workshops is outlined in the TCFD's Guidance on Scenario Analysis for Non-Financial Companies. Each workshop should begin and conclude with the full group of participants.

Flow: An introductory facilitation helps set the scene, clarifies expectations for the purpose of the exercise and, if needed, illustrates the TNFD approach to scenarios. The conclusion is used to compare the insights and implications that sub-groups generate from their respective scenarios.

A series of workshops can usefully follow a structured flow:

i. Start with an initial focus on multiple exploratory "what if" scenarios, following the TNFD's 2×2 scenario frame, to identify risks and opportunities and inform strategic thinking. This might also consider the availability of data and models for further quantitative assessment, if desired.

ii. Then turn to framing the organisation's specific strategy and planning decisions to identify future targets and transition pathways to achieve those targets under different scenarios.

iii. Having identified strategic options, targets and pathways for different scenarios, the organisation can then apply further analysis to assess the resilience of its current strategy and the implications for its strategy choices in the future under different scenarios.

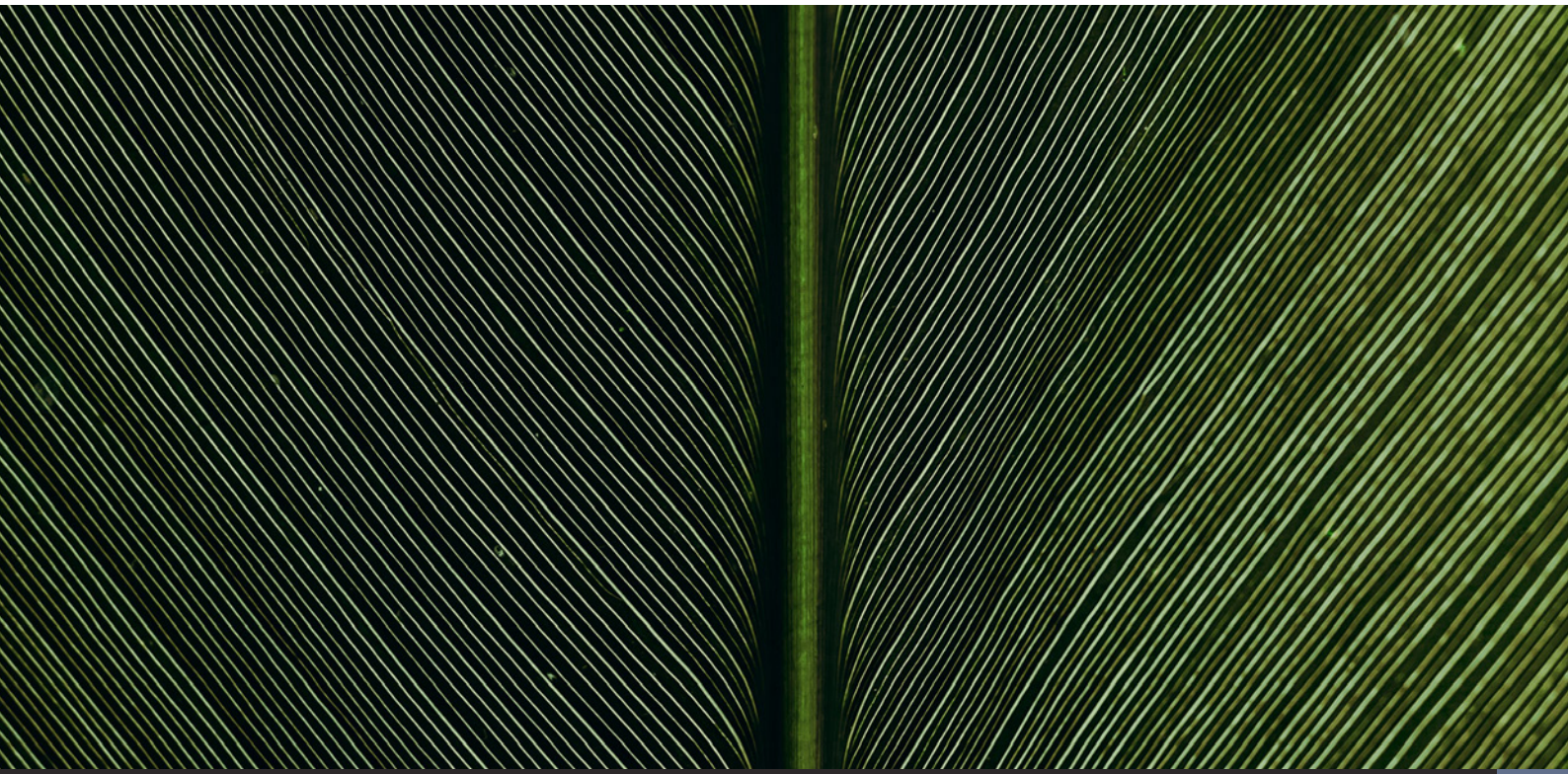


Table 1 highlights where in the LEAP approach the insights gained from scenario workshops can be helpful to develop a robust, forward-looking assessment of nature-related dependencies, impacts, risks and opportunities.

Table 1: Benefits of scenario analysis in the LEAP approach in the TNFD framework

Phase of LEAP	Benefits of scenario analysis	Components of LEAP
Locate	Help to identify locations that might be sources of significant nature-related issues under different plausible futures	L3 – Interface with nature
Evaluate	Interrogate assumptions about the size and scale of impacts and dependencies on nature under different plausible futures	E2 – Identification of dependencies and impacts
Assess	Break out of static, business-as-usual ways of thinking about the future to consider critical uncertainties that may create risks and opportunities over the medium and long term, including: • Identifying the most significant nature-related risks and opportunities under different plausible futures; • Interrogating assumptions about the magnitude or speed of nature-related risks and opportunities in sectors, value chains and locations of interest to the organisation; and • Highlighting where multiple risks (and/or opportunities) combine to become greater than the sum of the parts and may generate systemic risks.	A1 – Risk and opportunity identification A3 – Risk and opportunity measurement and prioritisation
Prepare	Explore the implications of different plausible futures for an organisation's current or emerging strategy. Stress-test the viability and credibility of organisational goals and targets, including publicly disclosed transition plans and commitments, under different plausible futures, and consider revisions to goals and targets.	P1 – Strategy and resource allocation P2 – Target setting and performance management

2.3. Step-by-step guidance

Figure 3 below provides a step-by-step approach to conduct the exercise.

Figure 3: Step-by-step approach to scenario analysis

2.3.1. Step 1: Identifying the relevant driving forces

The exercise should start with narrative descriptions of possible business environments in which the organisation may have to pursue its strategic objectives.

In order to define the most pertinent uncertainties, the organisation should assess which driving forces are most relevant to explore in its scenarios. There are a number of driving forces that can be considered in a scenario to explore nature-related issues. Table 2 provides an overview of the driving forces used as the basis for the two critical uncertainties in the TNFD's scenarios approach.

These categories of driving forces are not mutually exclusive nor comprehensively exhaustive. Market participants may also use other frameworks like Political, Economic, Social, Technological, Legal and Environmental (PESTLE) or Social, Technology, Economic, Environmental and Policy (STEEP) analyses to identify driving forces.[10] The range of variation captured in simple words on a continuum for each driving force is intended as a placeholder for more specific analyses by organisations undertaking scenario analysis.

10 In its Guidance on Scenario Analysis for Non-Financial Companies, the TCFD suggests the use of these types of analyses to identify forces of consequence that may vary by scale, highlighting that they are commonly used to gain insight into developments in the external environment during times of uncertainty.

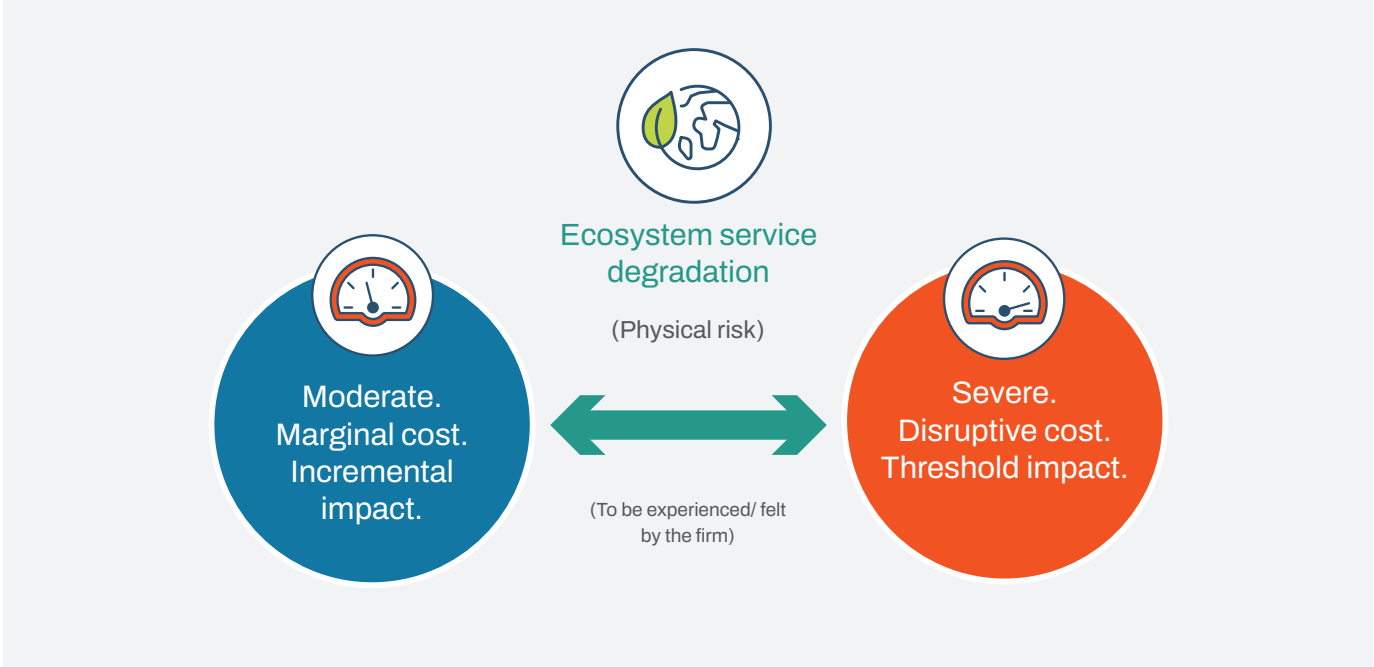
Table 2: Categories of driving forces in the TNFD scenarios frame		
Driving force category	**Driving force**	**Continuum of variation**
Ecosystem interactions, dependencies and impacts	Changes to the state of nature	Mild <-> severe
	Number of ecosystems impacted	Single <-> multiple
	Changes in ecosystem services provision	Mild <-> severe
	Speed of change (to state of nature and/or ecosystem services)	Slow and incremental <-> fast and threshold
	Climate change (one of five drivers of nature change)	Mild <-> severe
Finance and insurance	Cost of capital	Abundant and cheap <-> scarce and expensive
	Sensitivity of capital	Insensitive to nature impacts and dependencies <-> sensitive to nature impacts and dependencies
Stakeholder and customer demands	Consumer sentiment	Ignore nature <-> incorporate nature
	Consumer attention to impact	Concentrated <-> widespread
	Impact of nature impacts on reputation	Significant <-> marginal
	Impact of ecosystem service delivery on consumer	Indirect through price <-> direct through availability
	Sensitivity to inequity of nature impacts	Low <-> high
	Impact of nature impacts on local communities	Significant <-> marginal

Driving force category	Driving force	Continuum of variation
Regulators, legal and policy regimes	Global regulation	Permissive <-> restrictive
	Political impact of science	Galvanising <-> paralysing
	Level of action	States, municipalities, local <-> national, global coordination
	Global targets	Absent <-> robust
	Methodologies and expectations for science-based targets	Absent <-> robust
	Granularity of available data	Highly aggregated <-> very local
Relevant technology and science	Data regime	Closed, incomparable, not shared <-> open, standardised, shared
Direct interaction with climate	On asset values, on the corporate	Minimal <-> substantial
	Perception of efficacy of climate regime	Low, failing <-> high, successful
Macro and microeconomy	Domestic growth	Stagnant <-> robust
	Globalising markets	Fractured, separating <-> uniform, conforming

While users of scenarios can create a scenario analysis frame using any of the driving forces, the TNFD proposes constructing scenario analysis as a default around the following two critical uncertainties:

1. **Ecosystem service degradation.** This is most closely correlated with physical risk and connected with climate change as a driver of nature loss as global climate regulation is an important ecosystem service.
2. **Alignment of market and non-market driving forces.** This is most closely correlated with transition risk and connected with actions to address climate change.

Figure 4: Critical uncertainty 1: Ecosystem service degradation (closely aligned with physical risk)

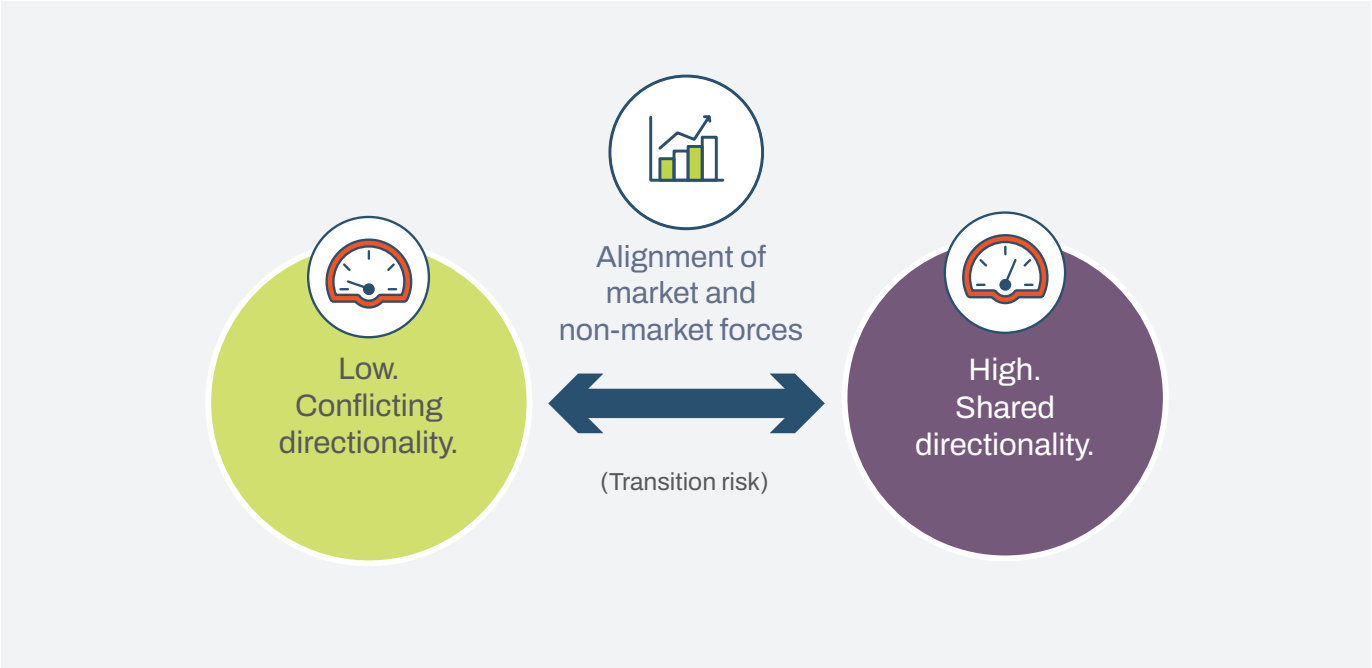


On one end of the critical uncertainty spectrum of ecosystem service degradation, organisations experience material disruptions to production as a result of severe degradation in the state of nature and loss in the provision of ecosystem services on which the organisation depends. The ability of the organisation to adapt to increasing costs or disruptions is limited by a combination of external driving forces, such as the cost of finance, or by systemic nature-related risk.

Disruptions to the organisation could be the consequence of a severe collapse in a single ecosystem service, such as pollination, or of several simultaneous minor, moderate or severe declines in complementary or connected ecosystem services due to ecosystem degradation, such as a moderate decline in water availability intersecting with a moderate reduction in carbon storage and sequestration.

On the other end of the ecosystem service degradation spectrum, nature loss is moderate or low and organisations have continued access to the provision of ecosystem services on which they depend.

Figure 5: Critical uncertainty 2: Alignment of market and non-market forces (closely aligned with transition risk)



The second critical uncertainty is most closely related with the definition of transition risk. Both the TCFD and the TNFD recognise multiple types of potential transition risks faced by organisations as society takes action to address the twin crises of climate change and nature loss. These market and non-market forces are multifaceted and interact with each other, including stakeholder and customer demands and regulatory, legal and policy regimes (see Table 2 for relevant driving forces).

Consequently, making sense of transition risk is not simply a matter of whether that risk in aggregate is high or low, but whether the contributing market and non-market forces interacting with each other are trending in the same direction or pulling in different directions. In other words, whether there is coherence and alignment among the contributing factors that shape the transition risks facing the organisation.

For example, consumer attitudes towards a particular environmental issue such as plastic pollution may change quickly, but government policy and regulatory responses may move much slower, or not at all. Organisations operating across multiple legal and regulatory jurisdictions might face very different levels of policy and regulatory uncertainty, creating a low level of alignment, or they might face a high level of alignment if governments across jurisdictions are coordinating closely and consistently due to a new international policy agreement or legal convention. Such lack of consistency or alignment can arise with any of the stakeholders involved, not only consumers and regulators.

On one end of the alignment of market and non-market forces spectrum, most or all of these categories of driving forces synchronise, creating a clear decision signal for business and finance, and therefore more stability and a lower-risk operating environment.

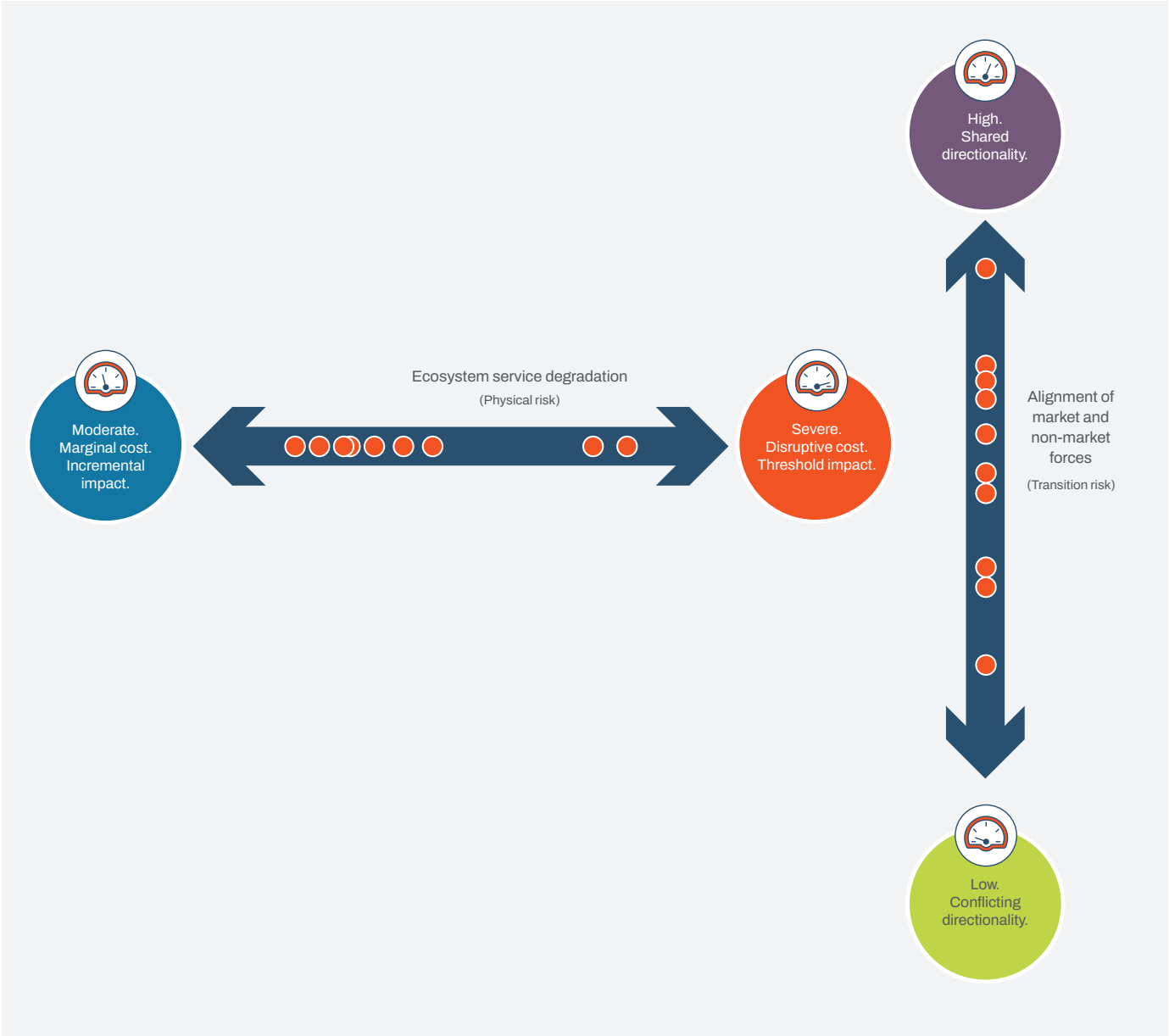
On the other end of the spectrum, most or all of these categories of driving forces pull in different directions or move at contrasting speeds, creating conflicting decision signals for business and finance, and therefore a more unstable and high-risk context.

2.3.2. Step 2: Placing the organisation along the uncertainty axes

When identifying baseline assumptions for the core drivers of change under different scenarios, the organisation should start by deciding a point along these critical uncertainties where it believes the organisation currently sits.

This process could be accomplished by asking each workshop participant to plot on a simple worksheet (a template is provided in the toolbox) where on each axis they think the organisation currently sits. This simple exercise should be the basis for a group discussion on whether the participants hold a broadly shared or highly divergent view on the current and expected state of the organisation.

Figure 6: Illustrative result of scenario workshop discussion under Step 2



The group should then align around a consensus view of the outlook for the organisation today for the purposes of the scenario exercise. The group should then think about the possible variations in the business landscape in which the organisation may have to operate going forward, by practically identifying where on the critical uncertainty axes they believe the organisation would sit in a specified future. More guidance on how to think of this specified future is provided in Box 2.

Box 2: Time horizons for nature-related scenarios

In setting time horizons for its scenario analysis, an organisation should consider its definition of short, medium and long term timeframes, and how those timeframes align with the organisation's strategic planning horizons and capital allocation plans. As part of its key design characteristics, the TNFD refers to scenario analysis and foresight exercises that suggest that to plan for a three-year future with clarity, organisations generally have to look out five or more years. In order to plan for the next five years, they have to look out seven to 10 years, and so on.

To use the TNFD scenarios outlined in this document, we suggest that users adopt a timeframe of 2030 as this is the agreed timeline established in the GBF at a policy level for 'halting and reversing nature loss'. Users may also want to explore the longer timeframe in the GBF of 'living in harmony with nature by 2050' as a second reference point for transition.

This step focuses on qualitative descriptions of the business environment, rather than quantitative models or numerical targets, to stimulate a conversation on what data (both internal and external) and/or models would be most pertinent and useful to resolve important uncertainties in the decision-making process. It also aims to help the organisation identify the disclosures that would most effectively enable an accurate evaluation from the market.

The output of this step should be a clear overview of the data and tools that are currently available to make these judgments, but also a perspective on which additional tools would be necessary to perform a deeper assessment. The scenario exercise can be useful to identify and refine the organisation's need for quantification and modelling to understand nature-related risks and opportunities further.

Case study 1:

Dow Chemical Company

The Dow Chemical Company is a NYSE listed U.S.-based chemicals company with over 100 operational sites worldwide. Dow's products are used across industries and supply chains globally as a key input into downstream manufacturing processes and a wide range of consumer goods.

A team of 15 Dow leaders and subject matter experts gathered for an in-person pilot test of the TNFD's beta scenarios approach in late March 2023 in Lake Jackson, Texas, to explore scenarios with respect to Dow's main manufacturing complex in the Texas Gulf Coast region of the U.S.

This large-scale site produces products for a wide range of uses across multiple value chains. The coastal location of this site depends on a number of key ecosystem services, including the flow of fresh water used in Dow's manufacturing processes. Adjacent wetlands also provide coastal storm surge and floodwater protection services, enabling the optimal operation of Dow's facilities. To help contextualise the scale and frequency of nature-related dependencies, the team reflected on recent extreme weather events such as ice storm Yuri in 2021, hurricane events and periodic drought conditions that have placed pressure on the availability of water flow to its Texas operations.

Using the default TNFD scenarios, the group explored the state of the world and the Dow business in 2030 in each of three scenarios – 'Sand in the gears', 'Back of the list' and 'Ahead of the game' – and the potential implications for Dow's corporate strategy, risk management and response options to a range of plausible physical and transition risks. Physical risks from increasingly frequent and more severe tropical storms and storm surge and the reliability of the fresh water supply were identified as key challenges.

The team also identified a series of potential early warning signals and the ideal supporting data solutions that would be needed to inform management decisions about a shift from today's status quo to an alternate emerging reality. Discussion of potential physical and transition risks led to the generation of potential opportunities to meet those challenges, such as an evaluation of further investment in coastal wetland restoration to mitigate storm water surges associated with hurricanes, and potential accelerated investment in water stewardship in the face of growing evidence of potential future water scarcity.

- **Length:** 6-hour in-person workshop
- **Focus:** U.S. Gulf Coast chemicals production business
- **Participants:** 15 staff from across organisational function

2.3.3. Step 3: Using scenario storyline descriptions

When put together as an intersection, the scenario axes selected by the organisation generate four possible scenarios (or quadrants), each including a description or storyline of a plausible future state of the world in which the company might find itself operating. The emphasis is on *plausible*, not preferred. The two critical uncertainties might not cause this plausible future state of the world to come about and certainly not on their own. It is up to the scenario analyst to ask and answer the question: *How and why did this plausible future state of the world come about? Or, in other words, what are the causal drivers that would lead to a world where those descriptions are accurate?*

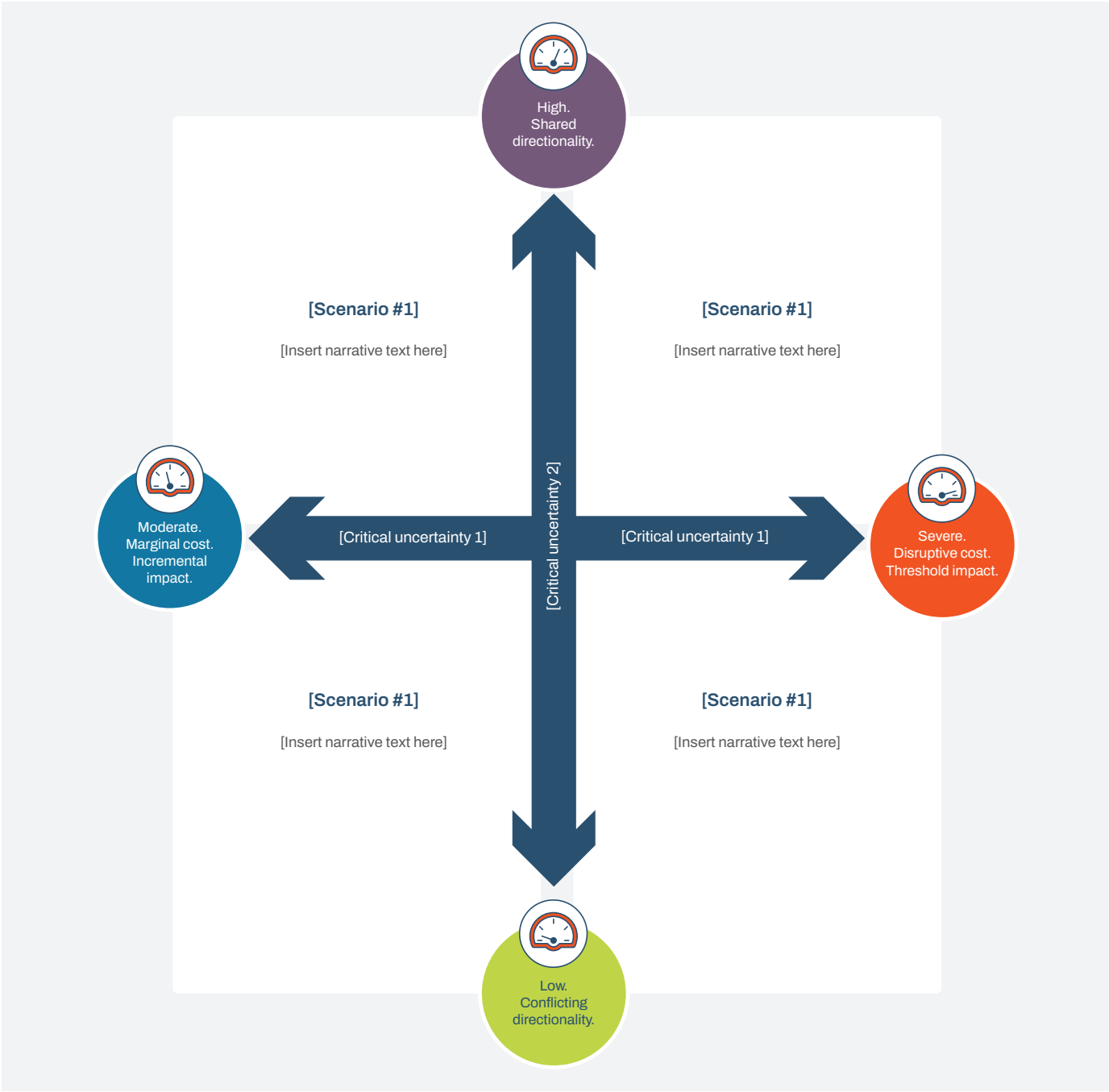
As outlined in Step 1, the TNFD proposes four narratives of plausible futures based on two critical uncertainties, which can be tailored to maximise the relevance and usefulness to the organisation, based on its own context and unique characteristics.

Figure 7 presents a visual representation of the 2×2 frame in which the axes intersect, and to which organisations can add the relevant scenario narratives.

Key questions for workshop participants:

- *"How and why did this plausible future state of the world come about?"*
- *"If I imagine myself working in and managing this business in 2030, what is it like running this business and making strategic decisions in this scenario?"*

Figure 7: A 2×2 scenario frame



In this step, the organisation explores each of the four pre-defined scenarios to prompt thinking around what is different from today, and what new risks and opportunities might emerge in each of the scenarios identified.

Facilitation aids: The TNFD provides facilitation worksheets as templates to help guide these exploratory discussions. The printable toolbox components can be found on the TNFD website, with links provided in Annex 1.

Box 3: Use of templates

Templates can help guide the discussion at scenario workshops by outlining clear and direct scoping questions. Some examples of scoping questions include:

- What is the high-level narrative of the scenario?
- What are the four most important drivers of this change?
- When you identify yourself in this scenario, what is the biggest difference between now and this future context?
- What are the new business goals and opportunities that would be relevant/would need to be abandoned in this context?

These questions should ideally prompt detailed discussions around a set of dimensions. As an example, a multinational consumer goods company could think of the following dimensions:

- This is a world in which... (*descriptive*)
- This world is credible because... (*plausibility*)
- This world happens because... (*causality*)
- In this world, we would see more of X, Y, Z... and less of A, B, C (*business relevance*)
- The opportunities and challenges for the company trying to make nature risk and opportunity-weighted business decisions in this world are.... (*decision application*)

Annex 1 – TNFD scenario toolbox components includes examples of templates that can be used during the exercise. These templates are also downloadable from the TNFD website and are linked in Annex 1.

Facilitation format: Ideally the number of workshop participants is sufficiently large (15-25 people is recommended) to enable workshop participants to split into break-out groups with meaningful and diverse representation of different parts of the business, with each group assigned to explore one of the four scenario narratives. Participants in each group can use the TNFD worksheets to provide a structure to their discussion and capture the collective thinking of the group about what that plausible future would look like and its potential implications for the organisation.

Case study 2:

Stockland

The organisation is one of the largest diversified property development companies in Australia, with an asset portfolio that spans a number of asset classes including residential communities, retail shopping centres, logistics sites and workplace offices. Biodiversity management has formed part of Stockland's sustainability commitments with the business more recently extending their focus to supply chain nature risk and opportunity assessment piloting in line with the TNFD framework.

The organisation identified the exercise as an effective engagement tool for building understanding of the impact of the critical uncertainties represented by each scenario on the business, by raising key strategic questions to test the resilience of the organisation's business model.

The scenario workshop included approximately 20 senior staff members, spanning environmental and social sustainability, Indigenous engagement, finance, risk management, project development, investment management, legal and strategy functions.

The workshop itself was structured in three parts:

1. An introduction to nature-related risks and opportunities and the scenario framing;
2. A breakout session considering each scenario individually, to discuss the relevant drivers and potential business implications; and
3. A breakout session considering the scenarios collectively, to assess which scenario(s) presented the greatest risks and opportunities.

While the narratives were left sufficiently high-level to stimulate a discussion, the workshop benefited from the introduction session and provision of pre-read and handout materials to participants to ensure they had a sound understanding of the range and depth of potential nature-related outcomes that could be of relevance to the business. This allowed participants to spend more time advancing their thinking in relation to potential business-specific risks, opportunities, strategies and actions.

When practically applying the approach, the following insights emerged from the workshop:

- The conflicting directionality axis presented significant transition risks at both ends of the spectrum under the 'Go fast or go home' and 'Sand in the gears' scenarios. This was based on the possibility of needing to meet strict compliance requirements or a lack of certainty about regulation and customer sentiment respectively.
- The organisation found it useful to add numerical examples or clear high, medium or low thresholds on hypothetical baselines against the axes. For example, for the cost/impact axis, low could be a limited further decline in species and high could be more substantial decline, with a description of the associated severity of risks. This helped inform the application of the scenarios and ensured that participants had a consistent interpretation of the cost/impact axis in particular.
- A key component of workshop discussions was the inclusion of additional considerations around social outcomes and the potential impacts on Indigenous Peoples and Local Communities.

- **Length:** 4-hour in-person workshop
- **Focus:** Australian property development business
- **Participants:** 20 staff from across organisational functions

A description of the four possible narratives identified by the TNFD is included below as part of the scenario toolbox. These narratives were developed using a landscape assessment of existing and ongoing market practice on scenarios relevant to both climate and nature-related decision-making and disclosures. Organisations might decide to adjust or review these, depending on the specific context in which they operate and their unique characteristics.

Scenario #1: Ahead of the game

Continued global experience of climate-related physical risks, combined with perceived, if piecemeal, success of broad and aggressive carbon reduction policies around the world, set the stage for a surprising degree of consensus behind a more proactive stance towards nature.

A few, seemingly impossible policies come into force toward the middle of this decade, such as a carbon tax in the U.S. This, combined with the breakneck pace of nuclear power plant construction in Northern Europe and a historically massive retrofit of Chinese housing stock with electric heat pumps, will create a self-reinforcing momentum for investment that spills over to action and investment in nature.

Societal and financial pressures on corporates to protect and advance the nature agenda run far ahead of actual experienced loss. The positive cascade effect from carbon reduction results in demand for corporates to meet the moment of opportunity, while avoiding the pitfalls of overpromising and being seen as 'nature-washing'.

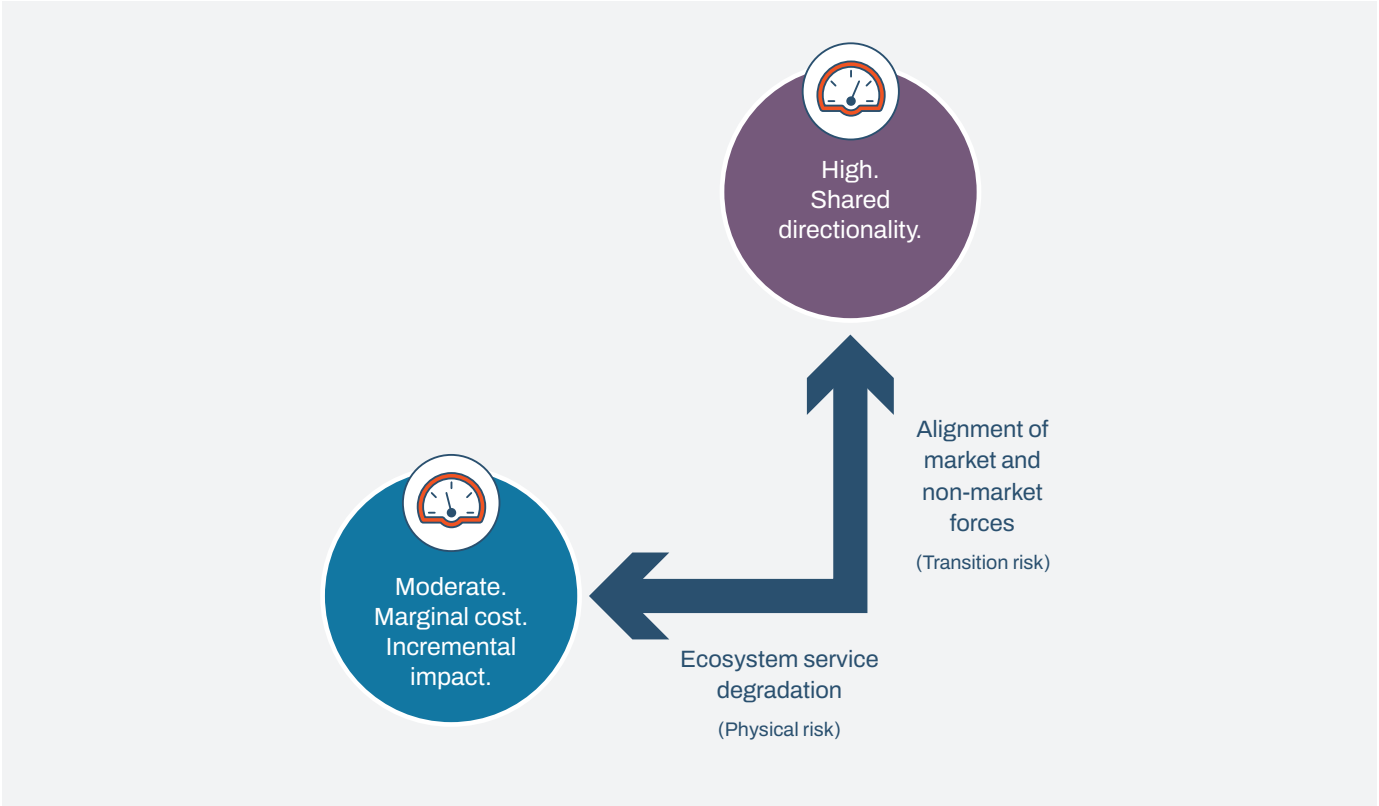
In developed economies, consumer demand for nature impact transparency and traceability becomes as loud as demands for carbon transparency and the life cycle analysis of products. The world's largest online retailer leads with both a carbon and a nature score on its entire inventory. Two other larger retailers follow.

Social movements around nature-positive life pop up in surprising parts of the world, including many developing countries. There are small-to-start but vocal religious movements that draw on Indigenous culture elements as inspiration, and they successfully broaden the appeal.

The energy intensity of GDP in most places continues to decline, though at uneven rates. Meaningful proportions of social experience and value creation follow the pandemic pathway toward virtual and now metaverse-enabled platforms. This means the impact on nature of an increasing proportion of human activities is concentrated in a smaller number of biomes, such as data centres and production and recycling facilities for relevant hardware, where it is somewhat easier to identify, quantify and address.

The global macroeconomic environment stabilises as post-pandemic inflationary pressures are worked through. Interest rates return close to the mid 2010s level, so that the returns on forward-looking nature-positive investments seem broadly plausible. Having missed the chance that the 2010s presented, political authorities in many countries are determined not to miss this second opportunity.

Figure 8: Scenario #1: Ahead of the game



Scenario #2: Go fast or go home

Uneven but astonishing nature impacts have come at crashing speeds. Once-in-a-century events that impact ecosystem services have now turned into once-in-a-decade events for many parts of the world. Corporates are experiencing and suffering immediate and material business harm from these ecosystem service disruptions. Policy, consumer and financial pressures are quickly mounting and creating the need for faster, bolder and more comprehensive action, putting corporates on the defensive about their past and present actions.

Short-term efforts to simply remediate the immediate impact of acute shocks to corporates will be attractive, but will also risk being seen by market and non-market actors as insufficient and temporary fixes, rather than solutions.

Some corporates will likely experience a very rapid, threshold-type drop-off in essential ecosystem services – a 70% reduction in water availability, for example – which could pose an existential business threat. Others will experience mounting pressure on a number of ecosystem services all at once, such as a 15% decline in water, pollination and land availability, which combined together are a major challenge, but not an immediate existential risk.

Meanwhile, voter and consumer preferences, government policy and regulation, NGO guidance and actions by financial institutions, including those of local banks and insurers, may hasten pressure at multiple levels. By late in the decade, the external pressure on some corporates from these multiple actors to deal with nature risk could exceed the pressure to deal with the narrower and contained issue of carbon emissions, where more progress will have been made and more intellectual, organisational and financial resources

deployed. Corporates that can link climate and nature in practice will have a strategic advantage in this scenario.

In this scenario, it is likely that human dislocation associated with climate and nature, such as conflicts over water and the creation of climate refugees, would be interpreted by political actors and the media as more driven by nature loss than climate change, regardless of the science linking the two. Public narratives and representations of risk and harm would shift to focus on visible nature loss. Numerical temperature targets or other quantitative indicators like temperature charts will be seen increasingly as scientific abstractions that do not capture the human costs.

Nature-neutral corporate strategies or commitments will be criticised and considered to be too little, too late. The time frame for action will be severely compressed. An incremental approach will be interpreted as weak and insufficient by many relevant stakeholders. Financial risk disclosures may be seen as too disconnected from real action and corporates and financial institutions will find it challenging to cooperatively evolve their disclosure regimes quickly enough to appease their critics, whose voices will be loud, including in board proxy fights.

There is likely significant macroeconomic risk that manifests in, or significantly contributes to, a continued or exacerbated global downturn. This next global recession could be labelled the nature recession, just as the pandemic recession begins to pass.

The demand for nature-positive enabling technologies multiplies and accelerates rapidly. Early-stage investors and entrepreneurs shift their focus from carbon reduction toward natural asset protection and restoration.

Figure 9: Scenario #2: Go fast or go home

Scenario #3: Sand in the gears

Conflicting and ambiguous signals from market and non-market forces about nature assets stop corporates from taking systematic action, even while they are experiencing significant negative material impacts from the loss of ecosystem services.

This lack of coherence in signals, from everything other than the natural environment itself, has different root causes in different political jurisdictions. In the U.S., it might be a function of government and regulatory paralysis, along with the growing backlash against Environmental, Social and Governance (ESG) investing. In Europe, the focus might shift from nature towards maintaining carbon discipline at a time of multiple energy transitions, including the loss of Russian gas. In Asia, it might be driven by a dash for economic growth at all costs following a grinding recession. The multiplicity of causes in different places contributes to the overall sense that the world is simply not aligned around the need to deal with nature loss.

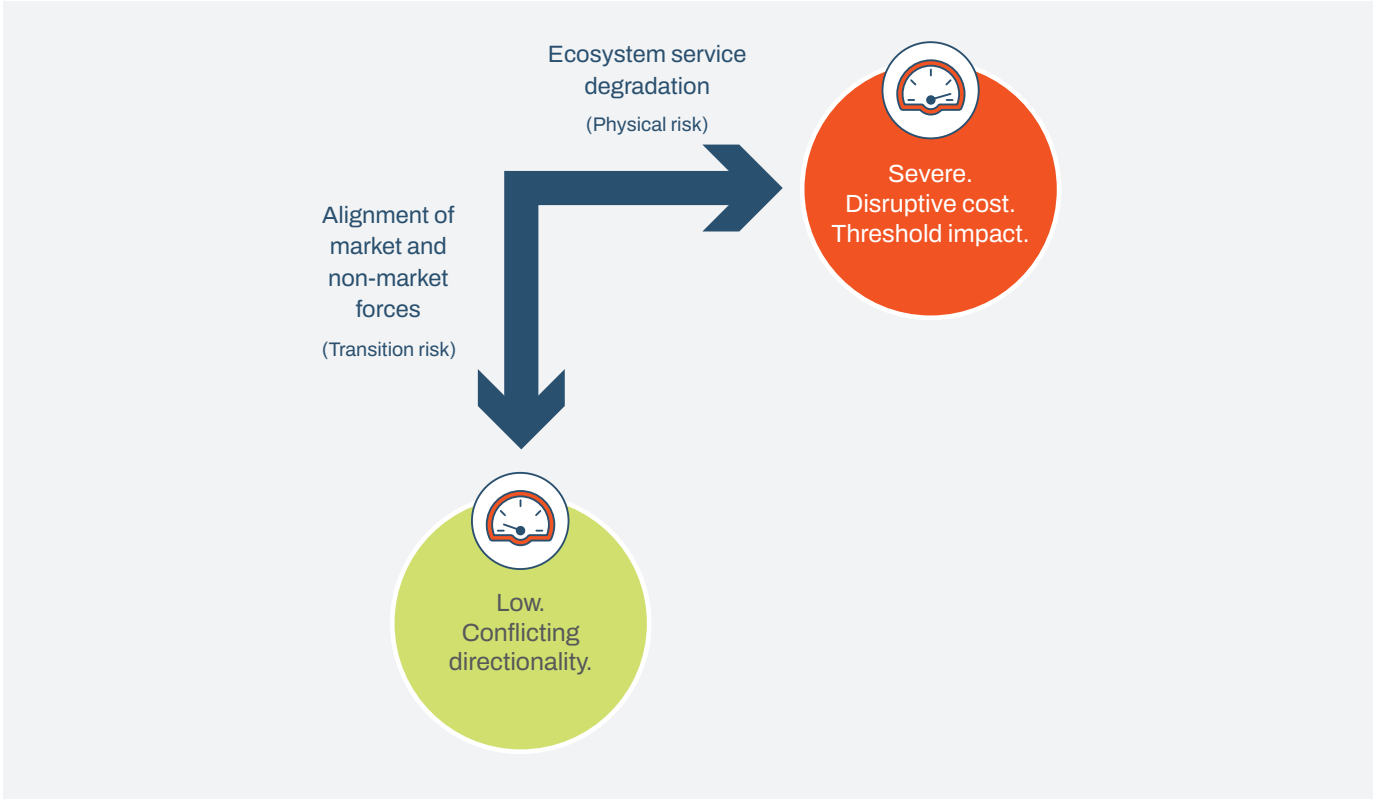
The scientific community might inadvertently contribute to this lack of coherence. Models for nature loss and nature resilience might become ever more complicated and indeterminate because of complexity and localisation, or conversely, oversimplified and exaggerated for political impact. It took decades for the climate modelling community to navigate the political and public reaction to and understanding of its efforts. The nature modelling community may have an even harder scientific problem and a harder political problem to grasp at once.

Large financial institutions are not able to agree on standardised disclosure guidance. Data availability and quality remain uneven and generally low. Progress is frustratingly slow and this lack of agreement creates an opportunity for opponents of ESG investing to extend their critique to nature. Boards are overwhelmed at the complexity of the issues and management risk focus turns to short-term measures that reduce the immediate and acute risks of disruptive ecosystem degradation, rather than longer term or more systemic action.

The impact of ecosystem service loss is, for an extended period, spread unevenly across economic sectors and geographies and is seen, or modelled, in some cases, to be a small to negligible proportion of overall GDP. In a generally sluggish macro growth environment caused by many other factors, the macro impact of nature on the economy is not large enough to spark greater focus and coherence in regulatory and financial regimes or consumer behaviours. This might start to change towards the end of the decade as costs mount, and other drags on macroeconomic growth are resolved, leaving the impact of nature loss more visible. Individual companies might be deeply impacted by ecosystem service loss, but the whole is less than the sum of parts in all but perhaps a few sectors and a few geographies.

The demand for nature-relevant technologies that could have a broader and more systematic impact is muted as a result. Funding and scientific and entrepreneurial attention flow even more disproportionately than they do at present toward carbon reduction and promising early-stage technologies are stranded.

Figure 10: Scenario #3: Sand in the gears



Scenario #4: Back of the list

The argument for carbon-risk assessment versus nature-risk assessment becomes tense. As the science gets stronger and more precise about nature-related risk, political progress on carbon assessment is advanced as a result of an escalating series of climate crises. Panic buttons are pushed on carbon and nature issues are side-tracked as a result.

A small and highly committed community of scientific experts, international NGOs and some subset of financial institutions will be working persistently to raise the salience and urgency of nature issues, but to little avail.

Nature slips down the list of corporate risk priorities, because visible material costs are small and the expectation this will shift in the relevant time frame is low.

The inherent scientific and physical connections between carbon, climate and nature will not have a practical impact to the benefit of the nature agenda. The predominant argument for how to allocate attention and resources is likely to shift to reducing carbon to begin to address the global aspect of the nature problem, rather than addressing the very complex nature-related local interdependencies that manifest in particular geographies and sectors.

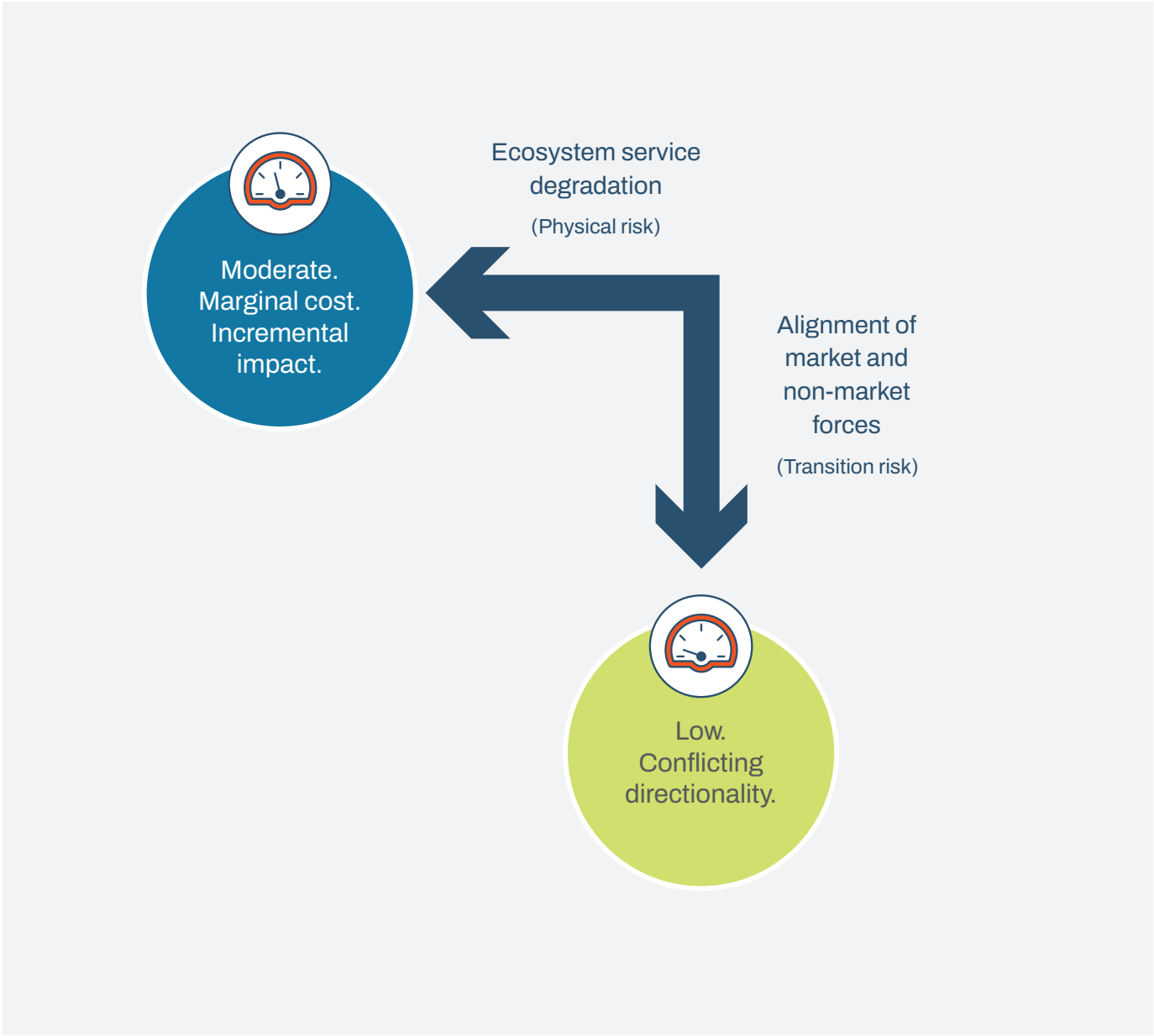
Technology, finance, talent and entrepreneurial focus will be drawn even more disproportionately to carbon reduction than at present, with many decrying the technologies receiving large amounts of funding as a misallocation of capital.

Efforts to agree on standardised disclosure regimes for nature assets stall. The necessary attention and prioritisation to get this work done is not available. CEOs, boards, finance leaders and political leaders, for the most part, consider this as a 'nice to have', rather than a 'must have', and standardised disclosure regimes for nature are delayed for another few years or more.

The debate about the disproportionate economic impact of nature-related disclosures and risk decision making are likely to become increasingly politicised, both within countries and internationally. Less wealthy regions and countries that are more immediately and severely exposed to nature risk will raise louder demands for exemption and compensation. There is considerable risk that nature becomes an even more contentious North versus South and rich versus poor political issue than the current climate debate.

Formal modelling efforts addressing nature loss proceed apace, but are largely confined to the specialist academic community. Models are rarely used by financial institutions and even less so by corporates, which do not see the immediate value of incorporating costly and complex models into decision making. Instead of developing long-term mitigation strategies, corporates move locations, adapt and diversify to avoid variations in nature.

Figure 11: Scenario #4: Back of the list



2.3.4. Step 4: Identifying high-level business decisions

As highlighted in this guidance, the scenario workshop team has a key role that often informs leadership decisions about strategy and risk management. This is aligned with the organisation's governance on nature-related risks and opportunities.

One approach would be that a team of mid to senior managers from across the organisation undertakes a longer scenario workshop that is then distilled into a background paper for the senior management team or board, who then do their own shorter scenario exercise and discuss strategic issues for the organisation.

Well-constructed scenarios, and a robust internal discussion about the possible implications of a set of plausible future scenarios (i.e. the four quadrants of the 2×2 scenario matrix), should:

- Inform medium to long term decision making about governance, strategy, risk and impact management, targets and capital allocation;
- Surface insights about potential changes that could make the organisation'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 targets and societal outcomes; and
- Determine what the organisation would disclose in alignment with the TNFD's Strategy C recommended disclosure.

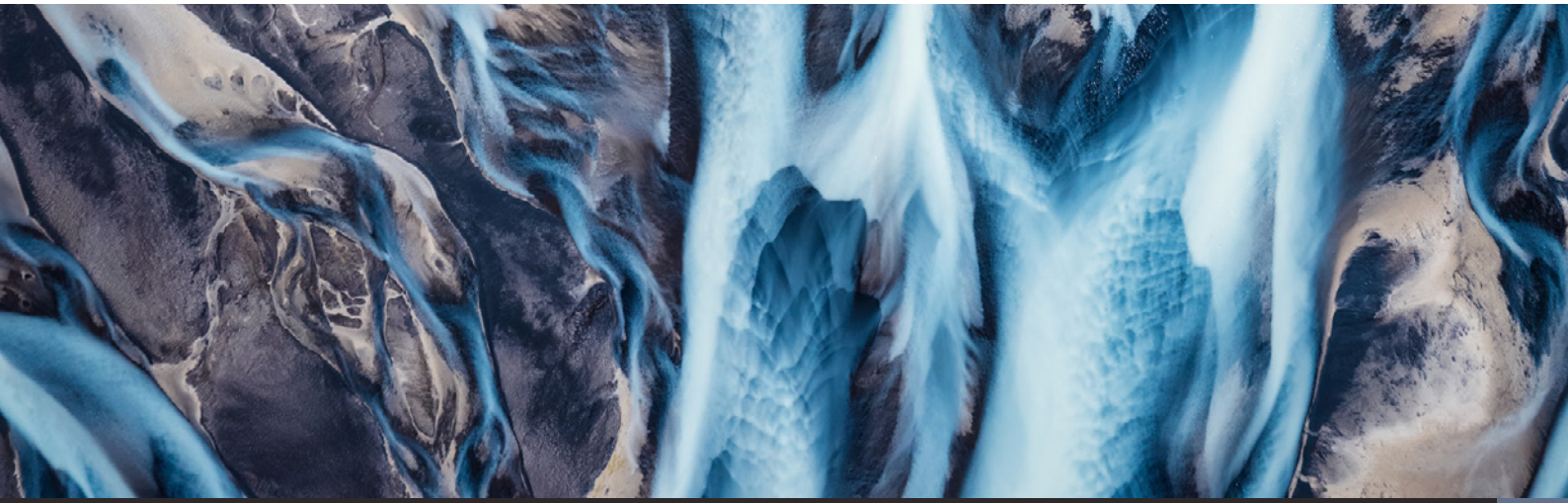
After performing an in-depth assessment of the changes faced by the organisation in each of the described scenarios, the team should be able to draw reasonable, qualitative observations to proceed from strategy options to strategy decisions.

The following questions can also guide the evaluation of initial high-level decisions:

- What transition pathways start to become clear? What decisions would need to be made to take steps down a promising transition pathway?
- What data now seem most valuable, both in terms of what you have and what you would want?
- What would your organisation need in order to carry out a full scenario analysis to give you more confidence in your answers to the previous questions?
- What disclosures would most efficiently enable external observers to assess the organisation's nature dependencies and impacts, its strategy to manage risks and capitalise on nature-related opportunities?

In line with the TCFD Guidance, this final step should ensure that high-level decisions and recommended strategy:

- Improve how well prepared the organisation will be for nature-related surprises or disruptions;
- Identify important uncertainties and contingency plans for those uncertainties; and
- Strengthen the resilience of the organisation.



Case study 3:

Reckitt

The organisation is a multinational producer of health, hygiene and nutrition products, with operations in around 60 countries and a specific strategic commitment on traceability and transparency, especially as it relates to its latex and palm oil supply chain.

Reckitt's pilot scenario exercise included approximately 10 staff members with functions including sustainability, procurement, process technology, research and development and risk management. It focused on the company's latex supply chain with a particular focus on UK and Thailand-based operations. Reckitt was able to leverage prior research as a baseline input into the scenario exercise – a quantitative biodiversity measurement study with Reckitt's partners, Nature-Based Solutions (NBS), an interdisciplinary programme of research, education and policy advice based in the Department of Biology at the University of Oxford. This study supported the assessment of nature-related risks and associated interventions for Reckitt on this latex origin.

Over the course of a two-hour online workshop, the team was able to identify the organisation's current position along the uncertainty axes, recognising that its current approach identified mostly location-specific driving forces on:

- Quality concerns;
- Seasonality;
- Changes in cost;
- Global regulation;
- Engagement with manufacturers/sources of raw materials; and
- Consumer sentiment, perception and attention to impact.

The team was then prompted to consider how these dependencies would change in the future, subject to two of the four scenarios in the TNFD's 2×2 scenario matrix.

As a result, the stakeholder engagement point of view (mainly with small-scale farmers in the latex and palm oil value chain) was believed to have one of the largest potential impacts in all plausible scenarios, particularly how small farmers would be exposed to, interpret and respond to the market and non-market signals that the scenarios modelled. This finding reinforced the idea that variation in business ecosystems can be seen, for this organisation, to be as important as local variation in natural ecosystems.

One potential conclusion of this perceived gap, which the company is already actively addressing through its supply chain traceability assessment, could be to develop a model of small farmers' behaviours in response to the pressures that the scenarios portray. That could be in the form of a quantitative model that first builds on the qualitative understanding of the relevant variables from the farmers' perspective, rather than what an outsider might expect them to be.

Other observations from the pilot included the demand for more advanced tools that could help determine the relevant interventions to contribute to nature-positive outcomes. This would build on the metrics for evaluating biodiversity, carbon and social impact in the location developed with NBS. It would allow potential interventions at the farm and wider landscape levels to be considered to assess these for positive impact. Internal (qualitative) exchanges are needed, especially with some of the actors closer to the ground, to prioritise activity and avoid creating a theoretical approach too focused on data availability, which may not trigger change in practice. Similarly, practical sampling approaches for current and future states are needed, and are being developed, to provide practical metrics and enable progress.

- **Length:** 2-hour online workshop
- **Focus:** Global latex supply chain's UK and Thailand operations
- **Participants:** 10 staff members from the UK and Asia and external subject matter experts

2.4. Key considerations when running a scenario exercise

It is important that scenario workshop participants understand the following:

1. How the scenario exercise supports organisational disclosures aligned with the TNFD recommended disclosures;
2. How to decide the right level at which to conduct the scenario analysis. A scenario analysis could include an organisation's full operations, a specific facility or operation, or selected parts of the business, depending on a specific biome. A narrower focus – for example, on one or more facilities or functions that share core exposures and dependencies – may be most revealing. This will require aggregation and scaling up at a later stage;[11]
3. What the organisation considers the relevant time horizon for implications under scenarios; and
4. How the exploration of decisions and options in multiple scenarios will later be reconnected into decisions about strategy.

2.5. Outputs of the exercise – robust findings and contingent findings

By running these four scenario discussions in small break out groups, one for each quadrant, in a parallel and independent fashion and then returning together as one group to share insights, the workshop will have a greater chance of surfacing 'robust findings', which are common among all four, as well as 'contingent findings', which are significantly different among the four quadrants, or even in tension with each other.

Both are important and valuable outputs of the scenario workshop, since it is recognised that the organisation does not know and cannot predict where on the scenario landscape it will have to operate in the future. Two immediate considerations for this output are:

1. Decisions and actions that emerge from the exercise as **robust** should be on the table for immediate and concerted action, especially if tools are already available to action them; and
2. Decisions and actions that emerge from the exercise as **contingent** should prompt the question: *What additional data and analyses would the organisation need to conduct or obtain in order to decide to move toward one or another of these contingent options?*

11 As illustrated by the TCFD in its Guidance on Scenario Analysis for Non-Financial Companies, ideally, scenario analysis should encompass the company as a whole, including supply and distribution chains. Initially, however, a company may focus on a particular critical business unit, product line, geography, ecosystem/biome, asset, or input(s) that may be highly impacted by climate-related risks or opportunities before expanding the scope of its scenario analysis. This narrower focus (for example, focusing on one or two specific biomes where nature-related risks seem highest) allows a company to gain experience with scenario analysis while at the same time focusing on a climate-critical aspect of its business. However, a company should quickly expand its scope to all of its operations , biomes and its entire value chain in a mature scenario analysis process.

Case study 4:

New Belgium Brewing (Kirin Holdings)

New Belgium Brewing Company is a Colorado-headquartered brewing company in the U.S. and wholly owned subsidiary of global beverage and pharmaceuticals company Kirin Holdings Company. New Belgium Brewing has been a certified B Corporation since 2012 operating three sites across the U.S. Fort Collins, Colorado, one of New Belgium Brewing's production sites, has the highest water stress among Kirin group's production sites.

The scenario workshop was held in person at New Belgium Brewing's headquarters in Fort Collins, drawing together five senior executives from the business as well as sustainability colleagues from Kirin Holdings and the sustainability director from Kirin's Australian-based subsidiary.

Discussion started with a focus on the business's dependency on water flows, particularly from the Colorado and Poudre river watersheds that support the Fort Collins brewing facility. Participants also discussed current dependencies and potentially material risks for other key ingredients such as hops and barley, relevant to the three operational sites across the U.S. Climate change effects, including recent experience with some of Colorado's largest bushfires in the past five years, were discussed as existing sources of physical risk. The current policy and legislative focus on water security issues across the broader western U.S. was highlighted as a marker of potential future transition risk.

Over the course of five hours, participants explored the default TNFD scenarios, including a current assessment against the two critical uncertainties that frame the four default TNFD scenarios. Participants then broke into two groups to consider two of the four scenarios in detail – 'Ahead of the game' and 'Sand in the gears' – with the support of break-out group facilitation questions provided in the TNFD scenario's toolkit.

During the break out session on these two scenarios, participants placed themselves inside the reality of these two scenarios in the year 2030, to explore the likely commercial realities of the business in that world as well as the surrounding economic, environmental and social context within which the business would likely be operating. These discussions surfaced a range of key insights about the types of economic and commercial pressures on the business, including likely water security considerations, ingredient price volatility and the company's social license to operate in a world characterised by elevated water stress. They also surfaced potential opportunities including new dimensions for product differentiation and marketing based on transparent, verifiable sustainability performance data available to consumers.

The session concluded with consideration of common insights across these two divergent scenarios and possible implications for near-term corporate strategy. The group also discussed possible early indicators that the Board and management team might watch, such as legal and policy changes to water allocation arrangements in the Colorado River watershed, to discern the probability of these, or other scenarios, beginning to emerge over the coming years.

- **Length:** 5-hour in-person workshop
- **Focus:** U.S. brewing business
- **Participants:** 10 staff from across organisational functions

2.6. Illustrative use cases

As seen in Section 1, organisations can use scenario analysis to identify responses to risks and opportunities, justify investment in risk mitigation measures (e.g. improvements in operational processes), and prioritise strategic decisions such as capital allocation and target setting. Users should understand the ultimate aim of their scenario analysis exercise, to ensure that they conduct a type of risk assessment that can meet it.

Box 4 and Box 5 present illustrative examples of qualitative risk assessments that can be applied with the use of the TNFD scenario approach. More advanced use cases could involve a greater focus on the quantified assessment of risks by building from this approach.

Box 4: Illustrative use case example – focused qualitative assessment

A specialist agriculture investor has high exposure to animal-pollinated fruit and vegetable producers and would like to understand which regions in its portfolio are most at risk of pollinator collapse. It needs a forward-looking scenario to understand what its risks could be in 2030.

Identify risks

What are the most important emerging nature-related risks facing this company?

For a portfolio with high exposure to animal-pollinated fruit and vegetables, declines in pollinator populations are a substantial risk

How could these risks affect company performance?

Declines in pollinators would affect portfolio value through producer revenues. Replacing natural pollinators with pollinator services would increase costs of production, impacting company value. These costs could be highly volatile if pollinator collapse is widespread and abrupt in a particular geography. Perceived contribution to pollinator collapse could also be a major reputational risk.

Example of materiality of risks

Recent estimates suggest that global production of fruit, vegetable and nuts is already 3-5% lower due to loss of animal-pollinators

Scenario outputs

Why are scenarios required?

This company would use a scenario in order to understand how risks could evolve over time to 2030. A static data set would not account for how pollinator risks could increase over time in response to land use changes, as this could inform the relative advantages of early and preventative investment.

Which scenario outputs could be used?

Pollinator decline by 2030, by region and by crop (%)

What additional data could be used to enhance the analysis?

Production by crop and country, today and forecast to 2030

Costs associated with boosting natural pollinators or replacement of pollinator services would help produce and estimate for investment need

Disclosures

Which TNFD disclosure indicators would this scenario analysis assist with?

Total pollutants released to soil split by type

Quantity of high-risk natural commodities sourced from land/ocean/freshwater

Value of assets, liabilities, revenue and expenses that are assessed as vulnerable to nature-related physical risks (total and proportion of total)

For ecosystem services impacted, measurement on the change in the provision of the service

Description and costs related to loss of operating areas

Description of exposure and costs related to raw material and natural resource price volatility

Exposure to increased operational costs/loss of revenue due to reputational risks

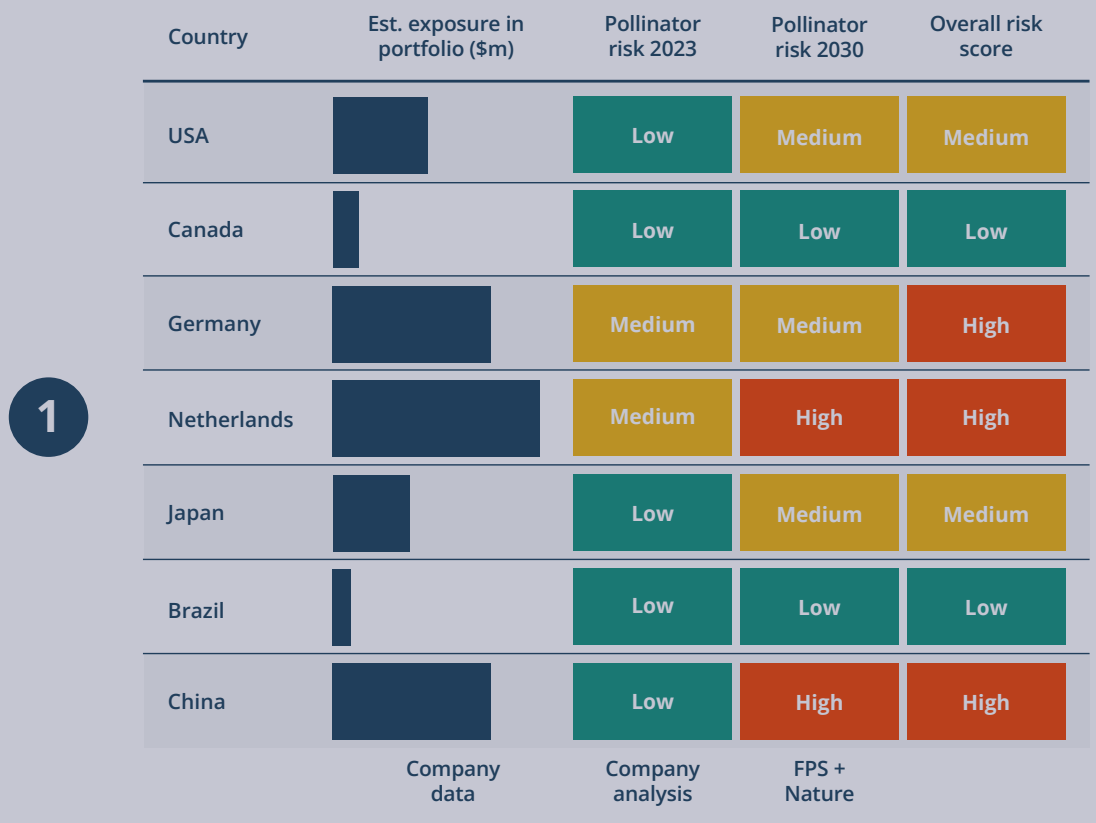
Source: Smith et al. (2020), Pollinator Deficits, Food Consumption, and Consequences for Human Health: A Modeling Study

Box 5: Illustrative use case example – broad qualitative assessment

Illustrative use case example – broad qualitative assessment

A car manufacturer's investor wants to understand which parts of its supply chain are exposed to nature-related transition risks and disclose this following the TNFD's recommendations. It needs a scenario to have an internally consistent view of different risks, and to understand how these evolve over time.

To inform the scenario workshop, the scenario team prepared a high-level heatmap based on the organisation's estimated exposure to different geographies.



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TNFD disclosure metric
Value of assets, liabilities, revenue and expenses that are exposed to nature-related transition risks (total and proportion of total).

3

Key insights and agreed actions
Develop engagement strategy for ensuring companies in portfolio boost natural pollinator populations, especially in Germany, Netherlands and China

3. More advanced approaches and tools

3.1. Scenarios for financial institutions and multinational corporates

The workshop approach to scenario analysis presented in Section 2 is mainly directed at organisations that are taking first steps for nature-related scenario analysis, either for their entire organisation and its business model or for a part of their operations, such as one business unit, product line or location. The accompanying toolbox of supporting tools and templates aims to facilitate a solid starting point for any organisation that would like to approach a nature-focused scenario analysis at an organisation/facility/biome-level.

The TNFD recognises the need for more advanced tools or approaches for some organisations, such as many financial institutions, including those who may be subject to stress tests by regulators. Large multinational corporates and financial institutions may tend to favour an approach to scenario analysis that can:

- Accommodate more advanced analytics and modelling of nature-related dependencies, impacts, risks and opportunities in order to quantify the financial effects on the business; and/or
- Provide an overview of potential strategic actions that can be applied to the entirety of the organisation, and not only individual facilities or limited geographies.

The second point is important for multinationals and financial institutions, because both may have operations and portfolios that span many geographies, biomes and sectors of the economy. When conducting a scenario assessment, they may therefore need to consider a large and diverse set of variables and uncertainties. The TNFD's 2×2 scenarios matrix, focusing on select critical uncertainties at individual locations as a default, may not be sufficient for these organisations, which may need to layer multiple chosen uncertainties on a broader geographic scale.

For example, exploring the range of outcomes for a geographically diverse portfolio of a financial institution under different scenarios requires many different driving forces to be considered. Further quantitative modelling would need to be undertaken to assess the financial implications to the organisation of the potential risks under different scenarios.

Box 6:

An illustrative example – GSK's approach to scenario analysis

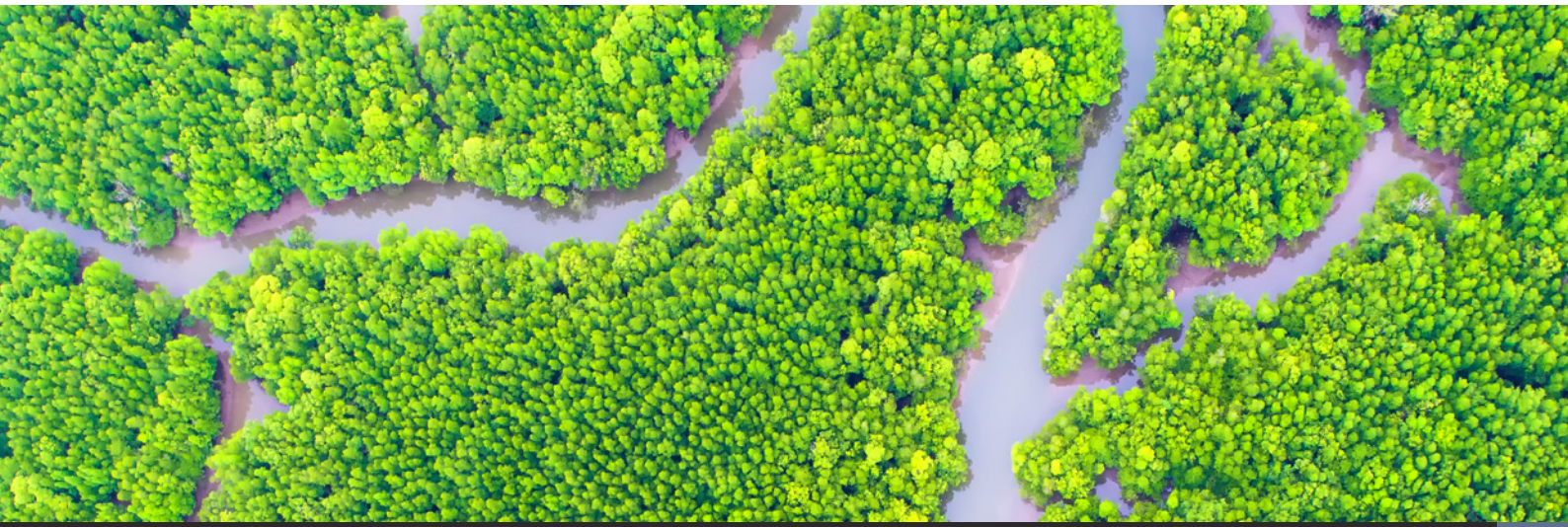
One example of a more advanced approach for multinational corporates that builds on the use of the TNFD's 2×2 scenario matrix has been carried out by a biopharma company, GSK. In 2020, GSK set out its commitment to a net zero, nature positive, healthier planet. At the same time as delivering against these targets, it carried out a scenario assessment to deepen its understanding of its nature-related risks and opportunities.

The organisation estimated the average financial impact to the business (expressed in potential change in the cost of goods and year-end profits) driven by each of the most relevant driving forces in the TNFD scenarios guidance and repeated the estimation for each of the TNFD's four scenarios.

The main challenges encountered when performing the assessment were reported across the following key areas:

- **Accurate data** – while this is key to full analysis, GSK recognises that improving data will take time, so began by building in detailed business data at the very first step of analysis.
- **Complexities and localisation of nature** – nature has multiple different dimensions compared to climate, and while carbon emissions are a global phenomenon, nature degradation is local and interacts with threats to health and resilience locally. This requires gathering data and implementing solutions in a more localised way.
- **Traceability** – solutions demand traceability, so partnering with suppliers is needed to increase levels of transparency on where and how materials are sourced, often well beyond those suppliers with which GSK has a direct procurement relationship.

While some of the points above were addressed, for the purpose of the scenario exercise GSK used extensive existing data from within the business alongside existing external tools for nature-related proxies and assumptions.



As mentioned above, the TNFD is working with partners on more advanced nature scenario analysis approaches, which will introduce additional depth into a forward-looking risk assessment in several areas. These may include:

- **Incorporating multiple critical uncertainties, driving forces and their interactions.** Building on this TNFD guidance, more advanced approaches could move beyond the framing of the two critical uncertainties by integrating many factors into a single scenario narrative. The additional critical uncertainties could incorporate both climate and nature considerations if a report preparer wishes to conduct an integrated nature and climate assessment.
- **Considering risks and opportunities at multiple time horizons.** This could focus on 2030 and 2050 but could also include intermediate years to illustrate how the speed of changes could affect exposure to risks. A scenario could also be used to understand risk implications across multiple geographies and across different sectors.
- **Moving towards quantitative scenario outcomes and modelling approaches.** The TNFD recognises that some scenarios users require scenario outputs that plug directly into quantitative risk assessment models to determine the potential financial implications of nature-related risks. Models can also be used to study the development of complex systems through time, such as how land use may be affected by agricultural policy changes, how quickly it may take for invasive pests to spread across tree species, or how water availability could be affected by urban development.

Box 7 shows examples of potential questions on scenario analysis that will be assessed by the TNFD to provide an overview of more advanced approaches.

Box 7: Potential questions for more advanced scenario analysis

Incorporating multiple critical uncertainties, driving forces and their interactions:

- *How should a scenario incorporate the interactions between different forces that could create risks (e.g. policy, technology development and consumer preferences)?*
- *Which physical and transition risks should be incorporated?*
- *What could a Global Biodiversity Framework-aligned scenario look like?*
- *What is the relationship between nature scenarios and climate scenarios?*

Moving beyond an assessment focused on a single organisation/facility/biome:

- *How should users account for multiple countries and regions in their operations and value chains?*
- *How should users account for multiple sectors in their portfolio of activities?*

Incorporating modelling and advanced quantitative approaches:

- *How can a 2x2 critical uncertainties matrix be used to feed into quantitative analysis, including estimating the financial consequences of nature-related risks?*
- *How could a nature scenario be modelled?*
- *Which quantitative variables should be incorporated in a scenario?*
- *What is the right level of geographic granularity?*

3.2. Other relevant scenario tools

Organisations may decide to use approaches that quantify parameters, assumptions and scenarios through simulations, models, data platforms or tools as inputs into in-house models, such as the ones described in the table below. This list is not comprehensive.

Table 3: Useful scenario tools for an enhanced scenario approach

Name	Type of tool	Description	Focus	Output
Forecast Policy Scenario (FPS) + Nature (Inevitable Policy Response)	Scenarios	Integrated, exploratory nature and climate scenario (2023) exploring the impact of forecast climate- and nature-related policies focusing on the land use sector to produce a new database of value drivers to capture initial indications of the potential effect of action on nature.	Transition risk	Comprehensive overview of macroeconomic values, market prices, energy and land use models based on set scenario assumptions.
Climate transition scenario tool for companies in the Food, Agriculture and Forest Products sectors (World Business Council For Sustainable Development (WBCSD))	Scenario tool	Climate scenarios designed specifically for the food, agriculture and forest products sectors.	Transition risk	Output data covering business, land use and environmental factors across 23 crop, animal product and forest product commodities and 18 regions.
The Economic Case for Nature: A global earth-economy model to assess development policy pathways (World Bank)	Scenarios	A novel modelling framework that integrates select ecosystem services into a computable general equilibrium (CGE) model for specific policy and tipping point scenarios.	Transition and physical risk	Effects on GDP, economic growth and output of sectors that rely directly on ecosystem services, on land use change.
International Institute for Applied Systems Analysis (IIASA) – Biodiversity and Natural Resources (BNR)	Library of models and tools	Programme bringing together different elements of land and aquatic ecosystems including agriculture, forests and fisheries with water and the marine environment to inform global and regional policy assessments and provide robust science-based knowledge and foresight.	Transition and physical risk	N/A

Name	Type of tool	Description	Focus	Output
Strong Environmental Sustainability Index (SESI) and Strong Environmental Sustainability Progress Index (SESPI, under development)	Index	Tool that normalises, weights and aggregates indicators of environmental sustainability that use science-based sustainability reference values to measure absolute country performance across different environmental and resource issues related to the functions of natural capital. SESPI adds the temporal perspective, measuring whether under current trends, standards of environmental sustainability would be reached in 2030. Both are developed as part of the Environmental Sustainability Gap Framework (ESGAP).	Transition and physical risk	Measure of environmental sustainability of countries (EU only).
Methodological Assessment Report on Scenarios and Models of Biodiversity and Ecosystem Services (IPBES)	Best practice toolkit	Methodological assessment of scenarios and models of biodiversity and ecosystem services.	Transition and physical risk	N/A
Exiobase	Database	A global, detailed Multi-Regional Environmentally Extended Supply-Use Table (MR-SUT) and Input-Output Table (MR-IOT).	Physical risk	Tables of data related to environmental impacts grouped into 4 accounts: (i) emission; (ii) water; (iii) material; and (iv) land.
Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)	Knowledge Database	Qualitative impact/dependency ratings that link ecosystem services to production processes. Geospatial dataset on natural capital assets and drivers of environmental change.	Physical and transition risk	List of direct potential dependencies and impacts of production processes on ecosystem services and natural capital assets, excluding dependencies and impacts that occur through the supply chain.

Glossary and Abbreviations

Term	Definition
Critical uncertainties	See 'Uncertainty'
Dependencies	Dependencies are aspects of environmental assets and ecosystem services that a person or an organisation relies on to function. A company's business model, for example, may be dependent on the ecosystem services of water flow, water quality regulation and the regulation of hazards like fires and floods; provision of suitable habitat for pollinators, who in turn provide a service directly to economies; and carbon sequestration. *Adapted from Science Based Targets Network (2023)* SBTN Glossary of Terms
Driving force	A force driving the possible outcome of a critical uncertainty, that has a relatively high level of explanatory power in relation to the situation being assessed. *Source: Van Der Heijden, Kees (2010)* Scenarios: The Art of Strategic Conversation
Ecosystem service	The contributions of ecosystems to the benefits that are used in economic and other human activity. *Source: United Nations et al. (2021)* System of Environmental-Economic Accounting – Ecosystem Accounting
Exploratory scenarios	Scenarios that describe a diverse set of plausible future states. *Source: TCFD (2020),* Guidance on Scenario Analysis for Non-Financial Companies
Financial impact	Financial impact occurs when financial items such as physical assets, capital expenditures, operational expenditures and revenues are affected, whether positively or negatively. *Source: TCFD (2020),* Guidance on Scenario Analysis for Non-Financial Companies
Horizon year	The horizon year (or time horizon) is the chosen cutoff time in the future of the scenario stories. *Source: TCFD (2020),* Guidance on Scenario Analysis for Non-Financial Companies
Impacts	Changes in the state of nature (quality or quantity), which may result in changes to the capacity of nature to provide social and economic functions. Impacts can be positive or negative. They can be the result of an organisation's or another party's actions and can be direct, indirect or cumulative. A single impact driver may be associated with multiple impacts. *Source: Science Based Targets Network (2023)* SBTN Glossary of Terms*, Climate Disclosure Standards Board (2021)* Application guidance for Biodiversity- related Disclosures
Narratives	Qualitative descriptions of plausible future world evolution, describing the characteristics, general logic and developments underlying a particular quantitative set of scenarios. Narratives are also referred to in the literature as 'storylines'. *Source: TCFD (2020)* Guidance on Scenario Analysis for Non-Financial Companies

Term	Definition
Nature-related opportunities	Activities that create positive outcomes for organisations and nature by creating positive impacts on nature or mitigating negative impacts on nature. Nature-related opportunities are generated through impacts and dependencies on nature, and can occur: • When organisations avoid, reduce, mitigate or manage nature-related risks, for example, connected to the loss of nature and ecosystem services that the organisation and society depend on; • Through the strategic transformation of business models, products, services, markets and investments that actively work to reverse the loss of nature, including by restoration, regeneration of nature and implementation of nature-based solutions. *Source: Adapted from: WWF (2022)* A Biodiversity Guide for Business
Nature-related risks	In line with ISO, the TNFD defines nature-related risks as potential threats (effects of uncertainty) posed to an organisation that arise from its and wider society's dependencies and impacts on nature. *Source: CDSB (2021)* Framework application guidance for biodiversity-related disclosures; *TCFD (2017)* Final Report: Recommendations on Climate-Related Financial Disclosures
Nature-related scenario analysis	Allows organisations to explore the possible consequences of nature loss and climate change, the ways in which governments, markets and society might respond, and the implications of these uncertainties for business strategy and financial planning. Definition developed for this guidance.
Normative scenarios	Scenarios for which scenario analysis starts with a preferred or desired future outcome and then back-casts plausible pathways from the preferred future to the present in order to inform decisions on what is needed to achieve that preferred future. Examples of normative climate-related scenarios are those targeting net zero emissions in 2050. *Source: TCFD (2020)* Guidance on Scenario Analysis for Non-Financial Companies
Probabilistic forecasts	These rely on statistical probabilities and are often used as different starting points for econometric and statistical forecasts. *Source: Millett, Stephen M. (2009)* Should probabilities be used with scenarios?, *Journal of Future Studies 13.4*
Qualitative scenario analysis	Analysis that focuses on the identification of trends and on the overarching narratives of the scenarios, often providing insight into less quantifiable characteristics of an organisation such as strategy, agility, philosophy, vision, and culture. This kind of analysis can weave together multiple trends of various scales and complexity into a narrative to provide context relevant to an organisation's strategy. *Source: Office of the Vice President for Research, Cambridge, Massachusetts Institute of Technology (2019)* Climate-related Financial Disclosures: Use of Scenarios, *taken from TCFD*
Quantitative scenario analysis	Analysis that refers to the use of quantified information within a scenario. It can take many forms, from numerical descriptions of trends and other factors, to the use of techniques such as trend analysis, sensitivity analysis and modeling of an organisation's climate- and nature-related risks. *Source: Office of the Vice President for Research, Cambridge, Massachusetts Institute of Technology (2019)* Climate-related Financial Disclosures: Use of Scenarios, *taken from TCFD*

Term	Definition
Resilience	Resilience is defined as having the capacity to live and develop with change and uncertainty. It provides capacities for turning risks into opportunities. This includes: (1) adaptive capacities to absorb shocks and turbulence and avoid unpleasant tipping points, thresholds, and regime shifts; (2) capacities to prepare for, learn from, and navigate uncertainty and surprise; (3) capacities for keeping options alive and creating space for innovation; and (4) capacities for systemic transformation in the face of crises and unsustainable development pathways and traps. *Source: Folke, C., R. Biggs, A.V. Norström, B. Reyers, and J. Rockström (2016),* Social-Ecological Resilience and Biosphere-Based Sustainability Science*, Ecology and Society 21(3):41, Rockström, J., A.V. Norström, N. Matthews, R. Biggs, C. Folke, A. Harikishun, S. Huq, N. Krishnan, L. Warszawski, and D. Nel. (2023),* Shaping a Resilient Future in Response to COVID-19*, Nature Sustainability*
Risk management	The process of identifying potential threats, assessing organisational vulnerabilities, determining risks and implementing appropriate risk management techniques to minimise the negative impact they may have on an organisation. The most common types of risk management techniques include avoidance, mitigation, transfer and acceptance. *Source: TCFD (2020)* Guidance on Scenario Analysis for Non-Financial Companies
Scenario pathways	Refer to the political, technological and economic developments and associated risk drivers (e.g. which sectors and regions bear the most emissions reductions, or which energy technologies win out in different economies) that lead to a particular scenario outcome. Distinctively different pathways can lead to the same outcome. *Source: Office of the Vice President for Research, Cambridge, Massachusetts Institute of Technology (2019),* Climate-related Financial Disclosures: Use of Scenarios*, taken from TCFD*
Scenario storyline	A narrative description of a scenario (or family of scenarios), highlighting the main scenario characteristics, relationships between key driving forces, and the dynamics of their evolution. Also referred to as 'narratives' in the scenario literature. *Source: TCFD (2020)* Guidance on Scenario Analysis for Non-Financial Companies
Scenarios	A plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces and relationships. *Source: TCFD (2020)* Guidance on Scenario Analysis for Non-Financial Companies
Sensitive locations	Locations where the assets and/or activities in an organisation's direct operations – and, where possible, its upstream and downstream value chains – interface with nature in*:* • Areas important for biodiversity; and/or • Areas of high ecosystem integrity; and/or • Areas of rapid decline in ecosystem integrity; and/or • Areas of high physical water risks; and/or • Areas of importance for ecosystem service provision, including benefits to Indigenous Peoples, Local Communities and stakeholders. *Source: TNFD*

Term	Definition
Sensitivity analysis	Assesses how a planning model's outputs change when important inputs vary within expected ranges (e.g. +10%, – 10%). Sensitivity analysis is widely used by financial analysts and built into business forecasting to account for common stochastic variation. *Definition developed for this guidance.*
Stress test	Difficult 'edge cases' that are developed by putting extreme values of a relevant variable or small number of variables into existing planning models. Stress testing involves assessing how the results of those planning models change in response. *Definition developed for this guidance.*
Supply chain	The linear sequence of processes, actors and locations involved in the production, distribution and sale of a commodity from start to finish. *Source: TCFD (2020)* Guidance on Scenario Analysis for Non-Financial Companies
Transition pathway	Transition pathways set out the different ways in which a specific target can be achieved (e.g. different pathways to the same temperature rise outcome of 1.5°C). *Source: Office of the Vice President for Research, Cambridge, Massachusetts Institute of Technology (2019),* Climate-related Financial Disclosures: Use of Scenarios*, taken from TCFD*
Uncertainty	A state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from imprecision in the data to ambiguously defined concepts or terminology, incomplete understanding of critical processes, or uncertain projections of human behaviour. Uncertainty can therefore be represented by quantitative measures (e.g. a probability density function) or by qualitative statements (e.g. reflecting the judgment of a team of experts). *Source: TCFD (2020),* Guidance on Scenario Analysis for Non-Financial Companies In this guidance, 'critical uncertainties' define risk measures, creating a tractable approach that can be customised to an organisation's specific context, but still create a common approach to aggregate data.

Abbreviations

BNR – Biodiversity and Natural Resources

ENCORE – Exploring Natural Capital Opportunities, Risks and Exposure

ESG – Environmental, Social and Governance

FPS – Forecast Policy Scenario

GBF – Kunming–Montreal Global Biodiversity Framework

GDP – Gross Domestic Product

GHG – Greenhouse Gas

IEA – International Energy Agency

IIASA – International Institute for Applied Systems Analysis

IPBES – Intergovernmental Platform on Biodiversity and Ecosystem Services

IPCC – Intergovernmental Panel on Climate Change

IPR – Inevitable Policy Response

LSE – London School of Economics

MIT – Massachusetts Institute of Technology

NBS – Nature-Based Solutions

NBSAPs – National Biodiversity Strategies and Action Plans

NGFS – Network for Greening the Financial System

PESTLE – Political, Economic, Social, Technological, Legal and Environmental

PRI – Principles for Responsible Investment

SESI – Strong Environmental Sustainability Index

STEEP – Social, Technology, Economic, Environmental, and Policy

TCFD – Task Force for Climate-related Financial Disclosures

WBCSD – World Business Council for Sustainable Development

WEF – World Economic Forum

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Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services

IPR Forecast Policy Scenario (FPS) + Nature, available at: https://www.unpri.org/inevitable-policy-response/ipr-forecast-policy-scenario--nature/10966.article

Millett, Stephen M. (2009) Should probabilities be used with scenarios?, Journal of Future Studies 13.4

NGFS Scenarios Portal, available at: https://www.ngfs.net/ngfs-scenarios-portal/

Office of the Vice President for Research, Cambridge, Massachusetts Institute of Technology (2019) Climate-related Financial Disclosures: Use of Scenarios

TCFD (2017) Final Report: Recommendations on Climate-Related Financial Disclosures

TCFD (2020), Guidance on Scenario Analysis for Non-Financial Companies

TNFD Additional Guidance on the LEAP Approach

Annex 1 – TNFD scenario toolbox components

The following tools and templates are available as printable PDFs on the TNFD website to support scenario workshops following the guidance set out in this document:

1. Overview of the TNFD's step-by-step approach to scenario analysis
2. Categories of driving forces in the TNFD scenarios frame (relevant for Step 1)
3. The critical uncertainties axes to plot where the organisation is believed to sit (relevant for Step 2)
4. The TNFD's 2x2 critical uncertainties matrix (relevant for Step 3)
5. The four scenario narratives presented in this guidance (relevant for Step 3)
6. Break-out session facilitation worksheet for individual scenario exploration (relevant for all steps of the exercise)

Taskforce on Nature-related Financial Disclosures

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