The TNFD scenario toolbox

How to use this toolbox

This downloadable and printable set of graphics and worksheets should provide a useful set of tools for scenario workshop participants to use during the TNFD scenario exercise as described in the TNFD scenario analysis guidance.

The document includes the following:

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

Step-by-step approach to scenario analysis

Step 1: Identifying the relevant driving forces

Workshop participants should assess which driving forces are most relevant to explore in their scenarios to define critical uncertainties

Categories of driving forces in the TNFD scenarios frame

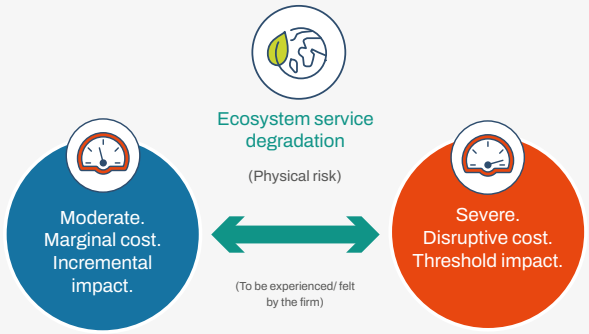
Driving force category	Driving force	Continuum of variation
Ecosystem interactions, dependencies and impacts	Changes to the state of nature	Mild <-> severe
	Number of ecosystems impacted	Single <-> multiple
	Changes in ecosystem services provision	Mild <-> severe
	Speed of change (to state of nature 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	Galvanizing <-> 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

Step 1: Identifying the relevant driving forces

TNFD proposed critical uncertainties (1/2)

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:



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.

Step 1: Identifying the relevant driving forces

TNFD proposed critical uncertainties (2/2)

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:

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.

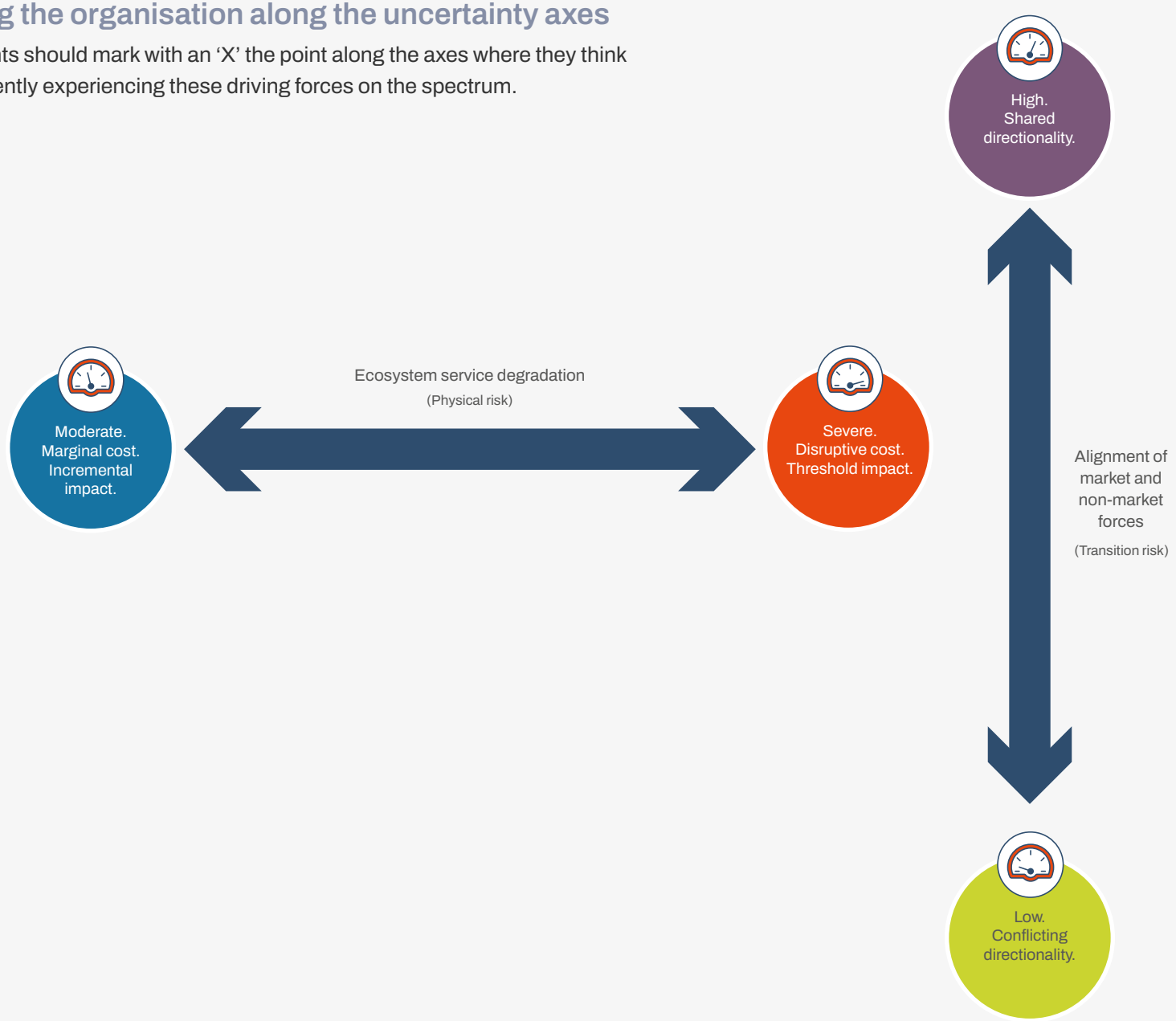
For example, consumer attitudes towards a particular environmental issue such as plastic pollution may change quickly, but government policy and regulatory responses may move much slower, or not at all. Organisations operating across multiple legal and regulatory jurisdictions might face very different 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.

Step 2: Placing the organisation along the uncertainty axes

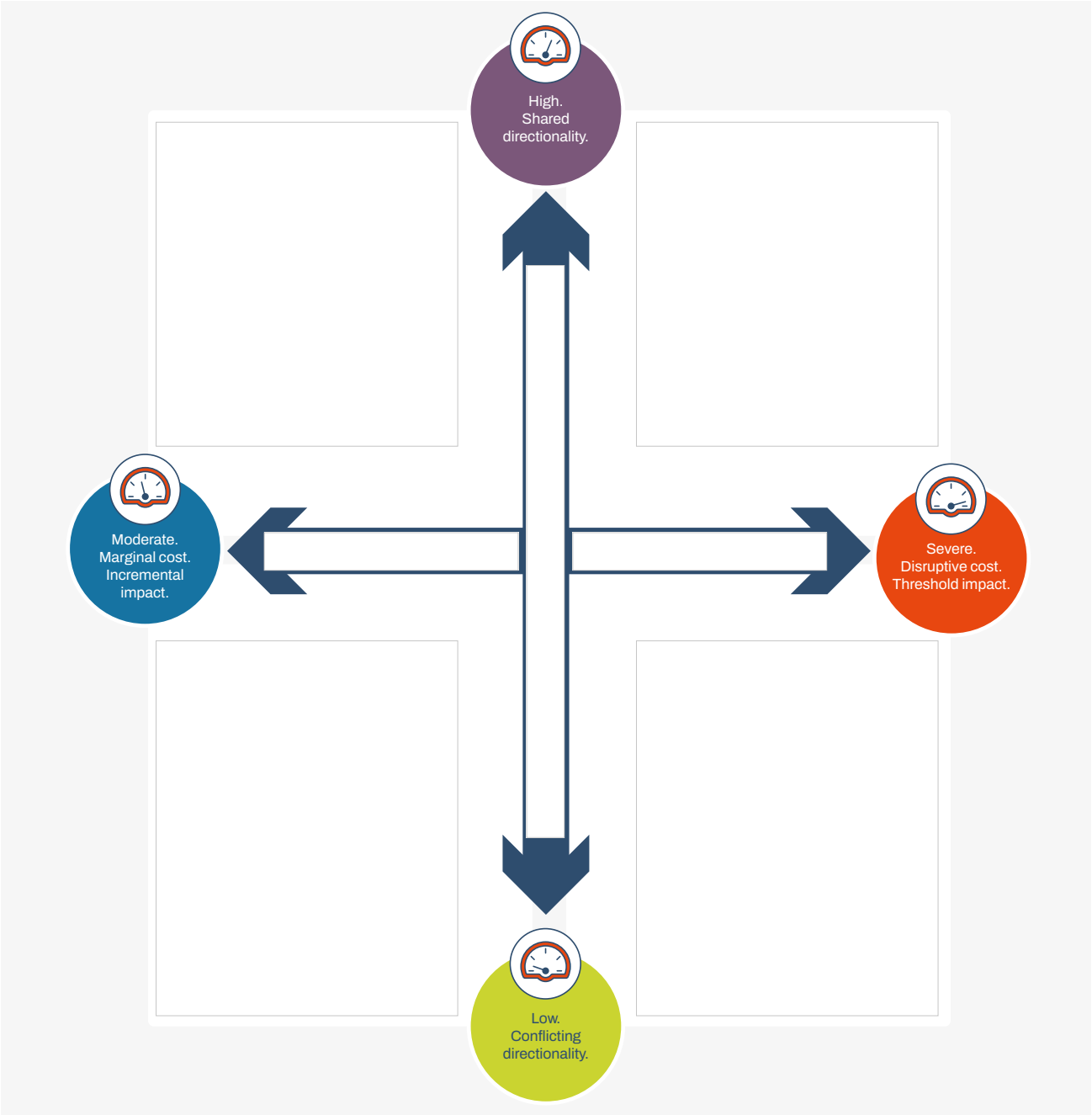
Workshop participants should mark with an 'X' the point along the axes where they think the company is currently experiencing these driving forces on the spectrum.



Step 3: Using scenario storyline descriptions

A 2×2 scenario frame

Once the relevant critical uncertainties are defined, organisations can add the relevant scenario narratives to a 2×2 frame in which the axes intersect.



Step 3: Using scenario storyline descriptions

Suggested narratives

The TNFD provides a description of four possible narratives identified around the two critical uncertainties of 'ecosystem service degradation' and 'alignment of market and non-market forces'.

Organisations deciding to make use of the TNFD's suggested scenario narratives can find more detailed descriptions in the following pages, which can be easily printed for use during scenario workshops.

Step 3: Using scenario storyline descriptions

Suggested narratives: 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.

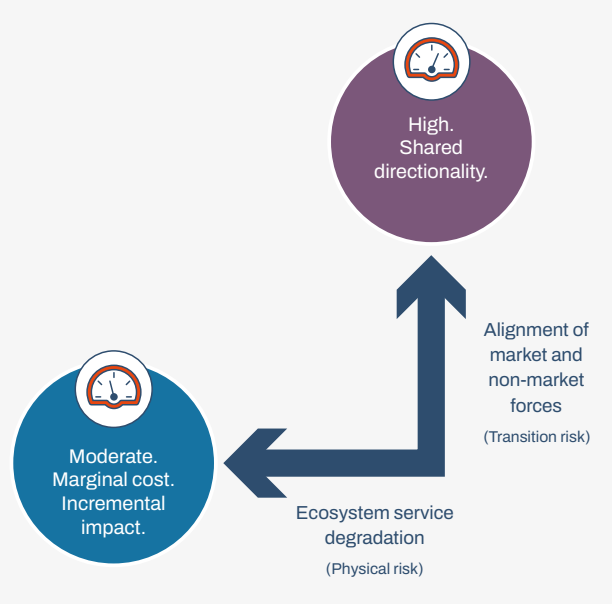
Societal and financial pressures on corporates to protect and advance the nature agenda run far ahead of actual experienced loss. The positive cascade effect from carbon reduction results in demand for corporates to meet the moment of opportunity, while avoiding the pitfalls of overpromising and being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



Step 3: Using scenario storyline descriptions

Suggested narratives: 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.

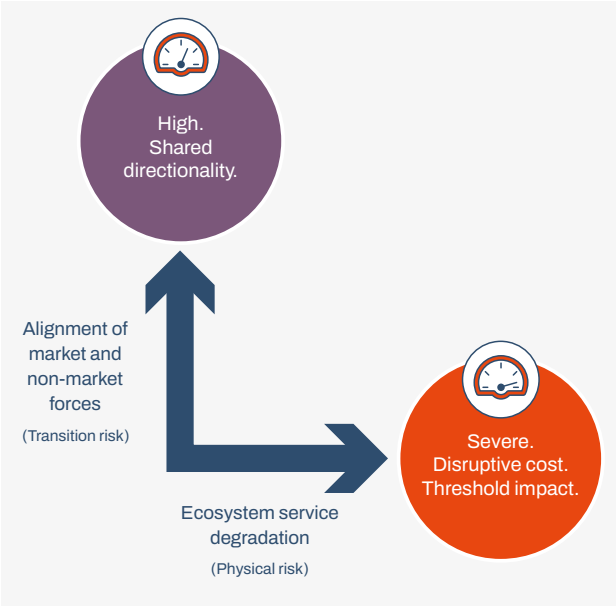
Short-term efforts to simply remediate the immediate impact of acute shocks to corporates will be attractive, but will also risk being seen by market and non-market actors as insufficient and temporary fixes, rather than solutions.

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 cowardly 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.

Step 3: Using scenario storyline descriptions

Suggested narratives: Scenario #3 – Sand in the gears

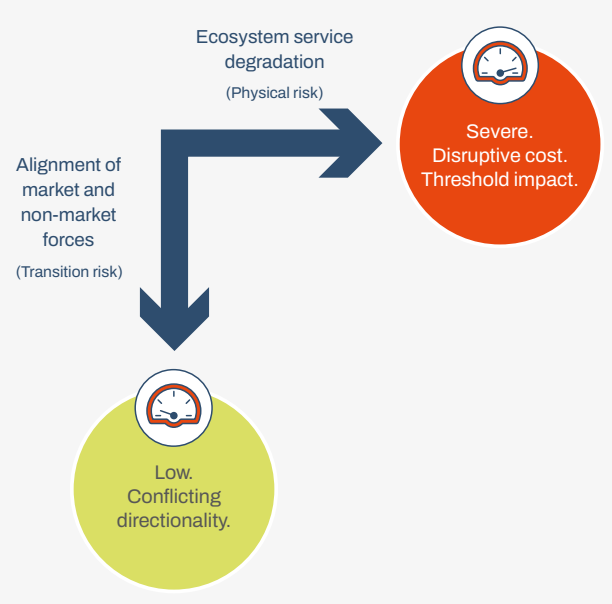
Conflicting and ambiguous signals from market and non-market forces about nature assets stop corporates from taking systematic action, even while they are experiencing significant negative material impacts from the loss of ecosystem services.

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 anti-ESG backlash. 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, over-simplified 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 Environmental, Social and Governance (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.

Step 3: Using scenario storyline descriptions

Suggested narratives: 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.

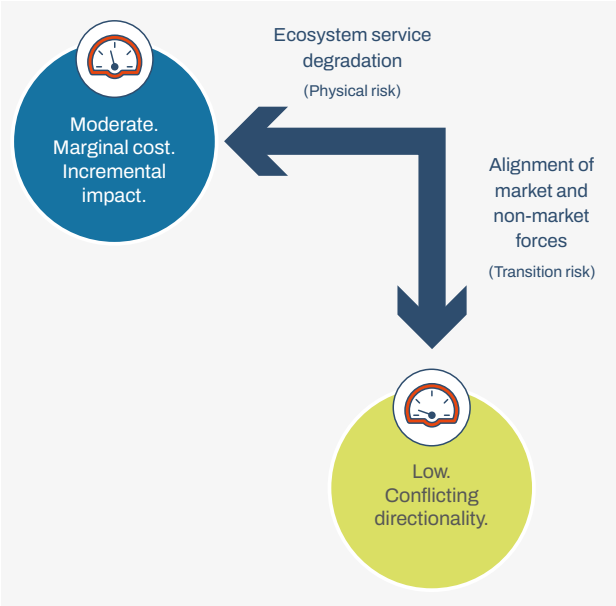
Nature slips down the list of corporate risk priorities, because visible material costs are small and the expectation this will shift in the relevant time frame is low.

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 would 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 is 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.

Understanding and enriching the critical uncertainty axes

Questions for analysis

Ecosystem service degradation ('X' Axis)

(1) Today

Where on the axis below does your 'facility' currently locate on dependence to ecosystem service degradation? (Mark X)

Low | High

Ecosystem service degradation (X Axis)

What data sources are being used to make this assessment?

What additional data would you wish to have, in order to improve and refine that assessment?

(2) Future

Consider baseline assumptions for the rate and direction of change. What are the core drivers of that change?

Consider possible impact on baseline assumption of:

	Direction of impact	Magnitude of impact
Climate		
Technology		
Regulating constraints		
Ambient macroeconomic		

Alignment of market/non-market forces ('Y' Axis)

(3) Assessment of major factors shaping market and non-market forces

	Permissive to Restrictive Impact	Magnitude of Impact	Direction of Change	Rate of Change
Local regulation				
National regulation				
Global regulation				
Supply chain price signals (1st + 2nd orders if possible)				
Consumer sentiment (Reputation + Capital)				
Traditional capital + insurance				

Without a formal equation and simply eyeballing the above charts:
Where would you locate currently? (*Mark 2023 on scale below*)
Where would you expect to locate in 2030? (*Mark 2030 on scale below*)

Low | High

Alignment of market/non-market forces (Y Axis)

What are the most valuable data sources used now in your firm to support these assessments?

What additional data what you wish to have in order to improve and refine that assessment?

What are exogenous shocks that could radically increase or reduce coherence?

Shock examples	Likely direction of impact

High level narrative

This is a world in which:

Major driving forces

This is happening because (4 most important drivers):

This scenario is credible because...

Existing evidence that people in 2030 will refer back to this as having been and early indication that this scenario was unfolding:

Newspaper headlines that would appear in this scenario:

Newspaper Headlines

Publication	Year	Publication year headline

Descriptors of the nature-business nexus in this world

	Upside risks	Downside risks	Which predominates?
Supply chain			
Cost of capital + insurance			
Product mix			
Technology inputs			
Firm reputation + customer sentiment			
Regulatory			

The biggest difference, from your business' perspective, between today's world and this world is:

The greatest uncertainty about nature assets + services that your business world would confront in this world is:

New business goals & opportunities that would come to focus in this world...	Business goals + opportunities of today that would have to be dropped or radically revised in this world:

The most ambitious vision for business-nature success in this world is:

The most important risk to business-nature success in this world is:

Most valuable data or models that would help to metricize and navigate this world:

If you had a crystal ball and knew for certain this world was coming, what would you put forward as a nature-positive moonshot (at the very edge of realistic):

In 2030, the Economist publishes a "Nature Positive Business" survey.

Draw the cover art: