

# UNDP BIOFIN – TNFD Training

## *LEAP - Assess*

*June 2025*

Climate Risk Services

UNDP

BIOFIN
The Biodiversity Finance Initiative

# Meet the team

- Climate Risk Services' CEO **Gerhard** has a wealth of experience in the climate and nature field, previously working for consultancies, banks, governments, and the IUCN. He also holds an MBA from the University of Oxford.

- As a senior analyst at Climate Risk Services, **Ben** specialises in nature-related risk for financial institutions and corporates. Ben holds a Masters degree from Imperial College London in Environmental Technology (environmental economics and policy).




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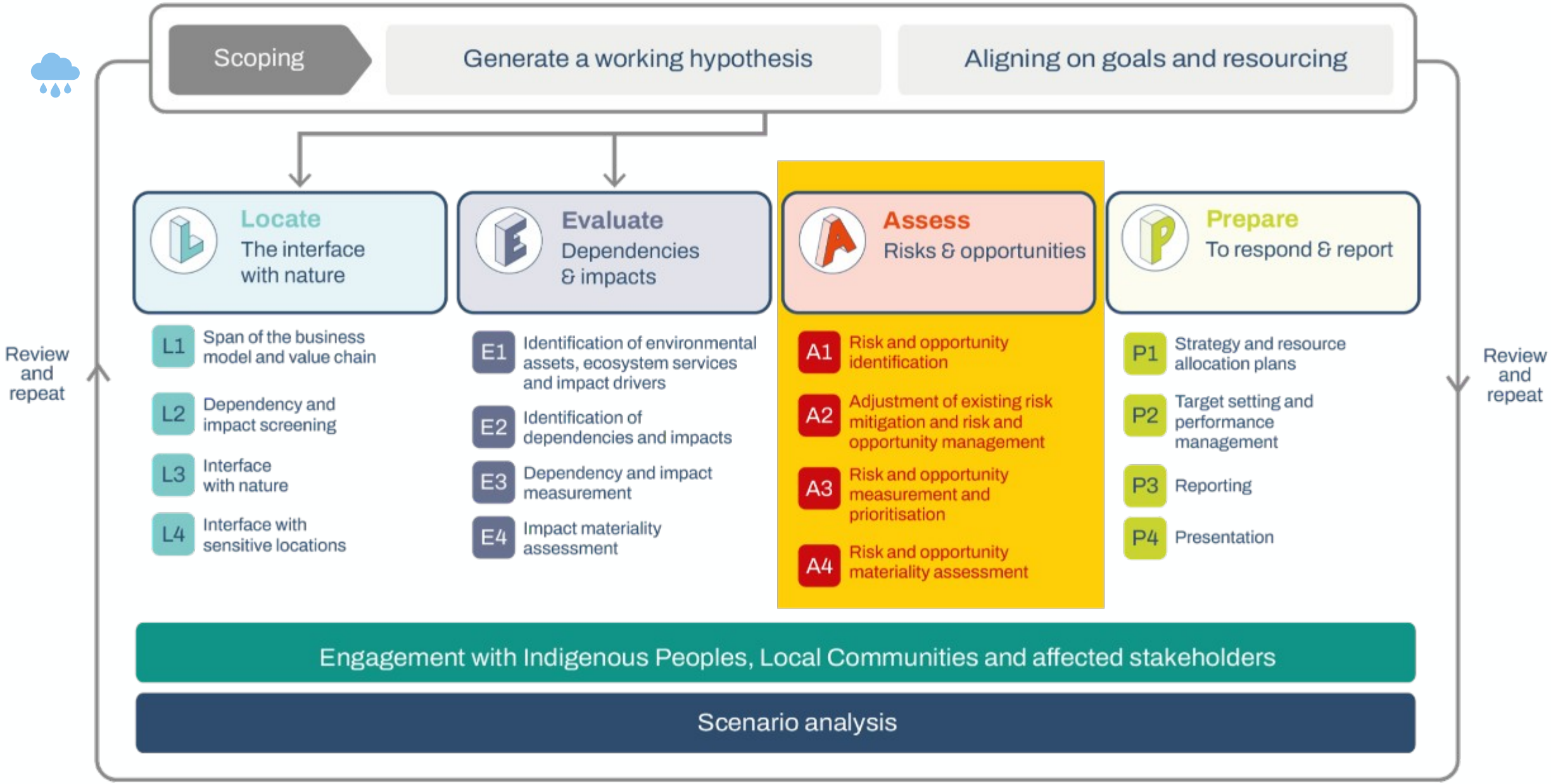
# In this video…

1. Introduction to assess
2. Case studies
3. Scenario analysis

## Key Objectives

- Understand the role of the assess step and how it benefits your organisation.
- Understood how the case study organisations undertook the assess step.
- Understand how scenario analysis can be used to support the assess step.

# Assess




Source: TNFD (2024) TNFD in a Box

# Assess

*What is the purpose of the assess step?*

The aim of the assess step is to take your list of impacts and dependencies and your sensitive locations and work out from that list, which are material **risks** and **opportunities**.

## Tips

- *Essentially what you want to produce are two lists: a longer list of all nature risks and opportunities and a shortlist of material risks and opportunities + priority locations.*
- *An idea of how to integrate this into existing risk management processes.*
- *There is some overlap with international risk management frameworks like the ISO 31000 Risk Management Guidelines.*



# Assess

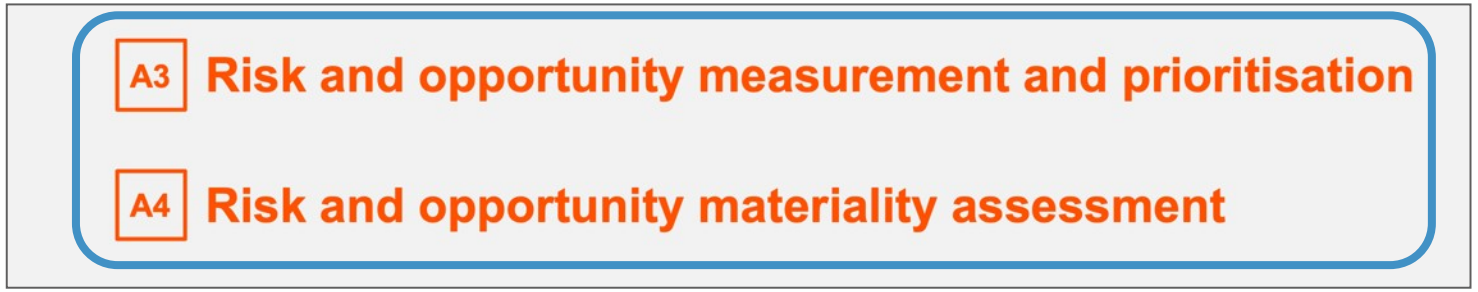
*What is the purpose of the assess step?*

**More tips!**

- *It can be helpful to do this step at the same time as assessing your climate risks as there are often overlaps*
- *The assess phase is also helpful if you are disclosing the "material information needs of capital providers" for the IFRS (International Financial Reporting Standards).*



# Measuring risks and opportunities, and materiality




A recommended method for nature-related risk/opportunity assessment is to use:

**Exposure metrics** – based on the magnitude of impacts and dependencies

AND

**Magnitude metrics** – how large are the financial implications?

# Case Studies

# Assess case study – Vale S.A.

*How did Vale assess their nature-related risks and opportunities in plain English?*

→ They used their list of impacts and dependencies to identify risks – looking at ecosystem service dependencies as physical risks, and potential impact drivers behind physical risks then categorised them.

# Assess case study – Vale S.A.

*How did Vale assess their nature-related risks and opportunities?*

LEAP Approach

## Assess

**1**

**Identification of risks**

Using the impact and dependency relations, it was possible to identify those risks related to nature in each stage of Vale's production process and catalog two types of risks: physical risks and transition risks.

**2**

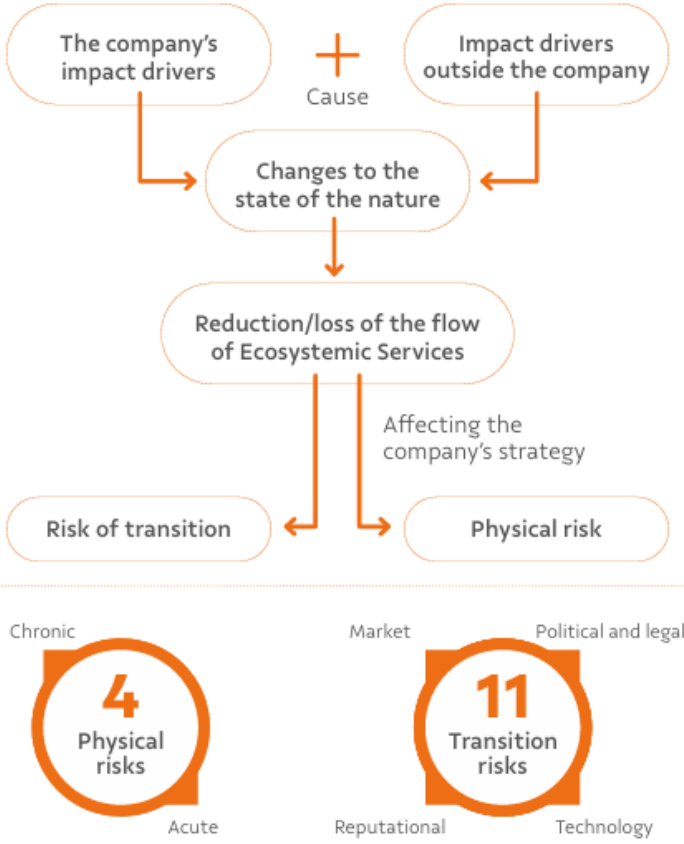
**Risk mitigation measures**

Based upon the nature-related risks identified, Vale's mitigation measures relating to such risks were analyzed.

**3**

**Identification of opportunities**

The opportunities related to nature were identified based upon the orientations provided by TNFD v0.4 and the risks identified.




Each physical risk was related to the main Ecosystemic Service upon which the production process depends and which will be affected in the event the risk materializes, along with the main impact drivers that cause the risk. Next, the physical and transition risks were described and classified according to their nature and the defined categories. Finally, the length of time the impact of the risk would last, if it were to materialize, was estimated.

**Data and tools consulted/used:**
Assessment of Environmental Impacts and Aspects (LAIA) and those of Vale's risks that have already been mapped, Integrated Report, EY Climate Risk Universe (EY's climate risk tool), ENCORE, Biodiversity Risk Filter, Biodiversity Risks and Opportunities in the Apparel Sector (Aiama et al. 2016) and the Natural Capital Leaders Platform (Cambridge University).

Below are details on the main risks mapped, with the different types of classifications and risks associated to the actions mapped for mitigation and control.

# Assess case study – Vale S.A.

*How did Vale assess their nature-related risks and opportunities?*

| Risk | Classification | Manufacturing Process | Environmental Asset | Mitigation/Control |
|---|---|---|---|---|
| Reduction in the availability and flow of the water necessary for the production process | Physical – Chronic |  |  | Expansion of the water monitoring network; Management for a reduction in the use of water; Water Target; storage and reuse; innovation to reduce withdrawal of new water; ITV studies |
| Interruption of operations due to the reduction of the capacity of nature (structure of the ecosystems) to protect against floods and storms. | Physical – Acute |  |  | Vale Climate Forecast; Installation of radar systems; ITV Studies (climate, water resources); periodic analyses of operational risks |
| Loss of access to markets due to non-compliance/ failure to adhere to new commitments related to nature | Transition/Market |  |  | Stakeholder engagement program; relationship with investors; mapping and implementation of market trends |
| Exposure to litigation related to new regulations related to nature | Transition/Legal Political |  |  | Stakeholder engagement program; Compliance measures and monitoring of the external environment |
| Scrutiny and loss of investments due to the impacts on critical ecosystems and/or areas of essential importance to the conservation of biodiversity | Transition/ Reputational |  |  | ITV and partner studies (biodiversity, ecosystemic services, genomics, recovery); Biodiversity management plans (hierarchy of mitigation of impacts); Stakeholder engagement program; relationship with investors |

Key



# Assess case study – Vale S.A.

*How did Vale assess their nature-related risks and opportunities?*

| Category | Opportunities |
|---|---|
| Performance on sustainability – Protection, restoration and regeneration of ecosystems | Work on the conservation of protected areas, such as the Vale Natural Reserve; Recovery of areas through investment in sustainable productive systems (Forest Target); Investment in research and conservation of biodiversity (Vale Technology Institute and partnerships) |
| Performance on sustainability – Sustainable use of natural resources | Expansion of the water monitoring network and search for new technologies for the efficient use of water resources in the operations; Development of new technologies that reinforce the prevention of wildfires; Adoption of short, medium and long-term strategies for the responsible and transparent management of water resources; Sentinela Project, Artificial Intelligence for the optimization of diesel consumption by trucks off the highway |
| Performance in business – Efficient use of resources | Reuse of iron ore tailings at the Gelado Dam, in Carajás (PA); Reuse and commercialization of the sand generated from the iron ore tailings; Pico Blocks Factory, pilot unit producing products for civil construction using waste from the mining activities; Development of new operational technologies for the treatment of solid waste, wastewater and atmospheric emissions; Waste to Value Program |
| Performance in business – reputational capital | Stakeholder engagement program; ESG Portal, Community Relations Plans, active participation in forums, entities and associations related to sustainability and nature |
| Performance in business – products and services | Investment in businesses with a positive socio-environmental impact (Vale Fund), *Jornada Amazônia, Floresta Viva* (BNDES and companies), initiatives related to the generation of income and socio-productive inclusion (e.g. *Quebradeiras* Project) |

# Assess case study - PIDG

*How did PIDG assess their impacts and dependencies as risks and opportunities in plain English?*

→Identified dependencies on water in the evaluate step – they create a multi-factor assessment mechanism *i.e. how big was the dependency? What will happen to those ecosystem services in the future? What is the company/project doing about it? How much has PIDG funded?*

→Similarly for impacts, they viewed their impacts through a multi-factor assessment. *How big is the impact? What are companies doing about nature e.g. no net loss commitment? Is the companies supply-chain potentially impactful? Has the company been controversial in the past?*

# Assess case study – PIDG

*How did PIDG assess its impacts and dependencies as risks and opportunities?*

More scoping →

The physical risk assessment focused on water scarcity and the water-related services that transactions are dependent on, whereas the transition risk assessment focused on policy/regulatory change and reputation risk factors. Due to data constraints, it is not currently possible

# Assess case study – PIDG

*How did PIDG assess its impacts and dependencies as risks and opportunities? – **physical risks***

Risk factors used →

**Physical risk assessment**

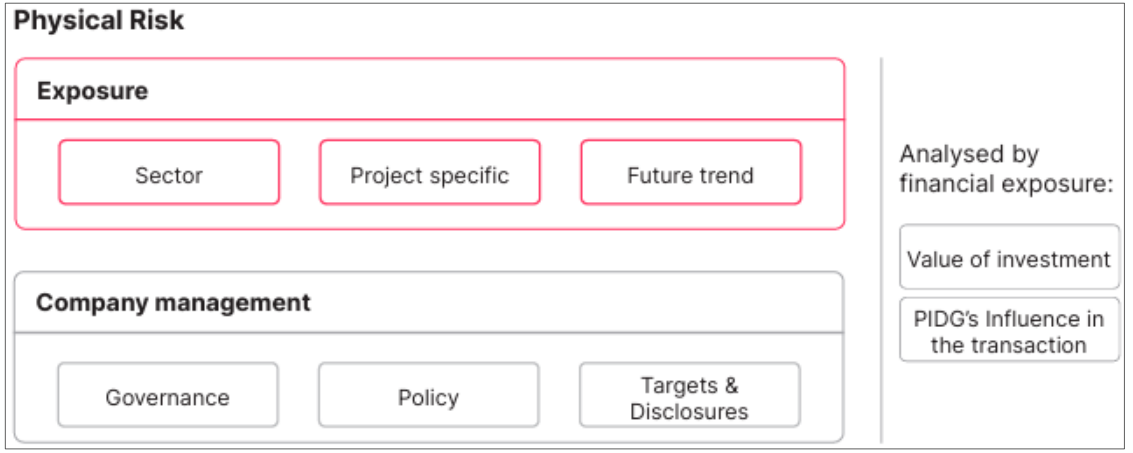
The following physical risk factors were selected (Figure 4) focusing on water use:

- **Sector exposure:** captures the relative degree of dependencies of production practices respective to each sector. Using relative risk ranking from ENCORE as an indicator (Very Low to Very High).
- **Transaction-specific exposure:** on water use, transaction, and location-specific relative dependence. Using Impact of Project on Aquatic Ecosystem assessed through PIDG's Risk Rank System.
- **Future trend:** predicted changes on the health of ecosystem assets supplying the ecosystem services. Using Scenarios Risk Assessment of Water Scarcity Index (available through the WWF Water Risk Filter tool) which is based on scenarios developed from the most relevant climate scenarios to represent future trend of supply of ecosystem services the transaction is dependent on.
- **Company governance (water):** Good practice corporate management on water issues would include executive oversight of water management and performance. Using a binary approach (y/n) this indicator is taken to represent leaders vs laggards on water management programs. It is assumed that if the water agenda is overseen by the executive, then management programs would be much more effectively implemented.
- **Company policy/management program (water):** public disclosures of water policy signify robust management due to the reputational risk it could bring if company backs down or is not aligned with their own policy. Whether or not the company has a publicly disclosed policy or commitment on water use is taken as an indicator.
- **Targets and disclosures (water):** Taken to differentiate leaders vs laggards, by disclosures with a credible standard (CDP water program) or having management programs certified (by Alliance for Water Stewardship), or whether the company is among first movers in adopting emerging best practice in terms of science-based targets for water (SBTN) and signing up to the TNFD.

These qualitative indicators are then aggregated to inform overall potential physical risk and interacted with financial exposure (value of investment) and weighted by PIDG's influence in the transaction (by transaction type).

↑

Financial exposure element added



# Assess case study – PIDG

*How did PIDG assess its impacts and dependencies as risks and opportunities? – **transition risks***

Risk factors →

**Transition risk assessment**

For transition risk, the following risk factors were selected (Figure 7).

- **Sector exposure:** Captures the relative degree of overall impacts to nature of production practices respective to each sector. Using relative risk ranking from SMT as an indicator (Very Low to Very High).
- **Jurisdictional policy change:** Informed by project team's knowledge on whether the relevant jurisdiction would likely apply more stringent regulatory requirements on nature that would affect the transaction to represent potential transition risk from policy change.
- **No Net Loss/Net Positive commitment:** No Net Loss (NNL)/net positive is an established best practice objective for biodiversity impact management (Narain et al. 2023), which is assumed to be more widely adopted in the future. Therefore, companies/projects with an existing NNL/net positive commitment could be considered to pose lower transition risk.

- **Biodiversity policy:** Applying best practice (PS6) robustly would in practice, lead to a company-wide biodiversity policy. Therefore, whether or not the transaction has a specific biodiversity policy is taken as an indicator for this risk factor.
- **Specific mitigation measures:** Robust application of PS6 would entail applying the mitigation hierarchy, which would lead to specific mitigation actions. Using project information (ESIA) and select 'typical' mitigation actions relevant to the production processes of PIDG's transactions, such as whether the transaction assess collision risks and install proper mitigation, have offset program for residual impacts that are like-for-like, or assess and have proper mitigation for managing rivers systems fragmentation impacts to migratory species.

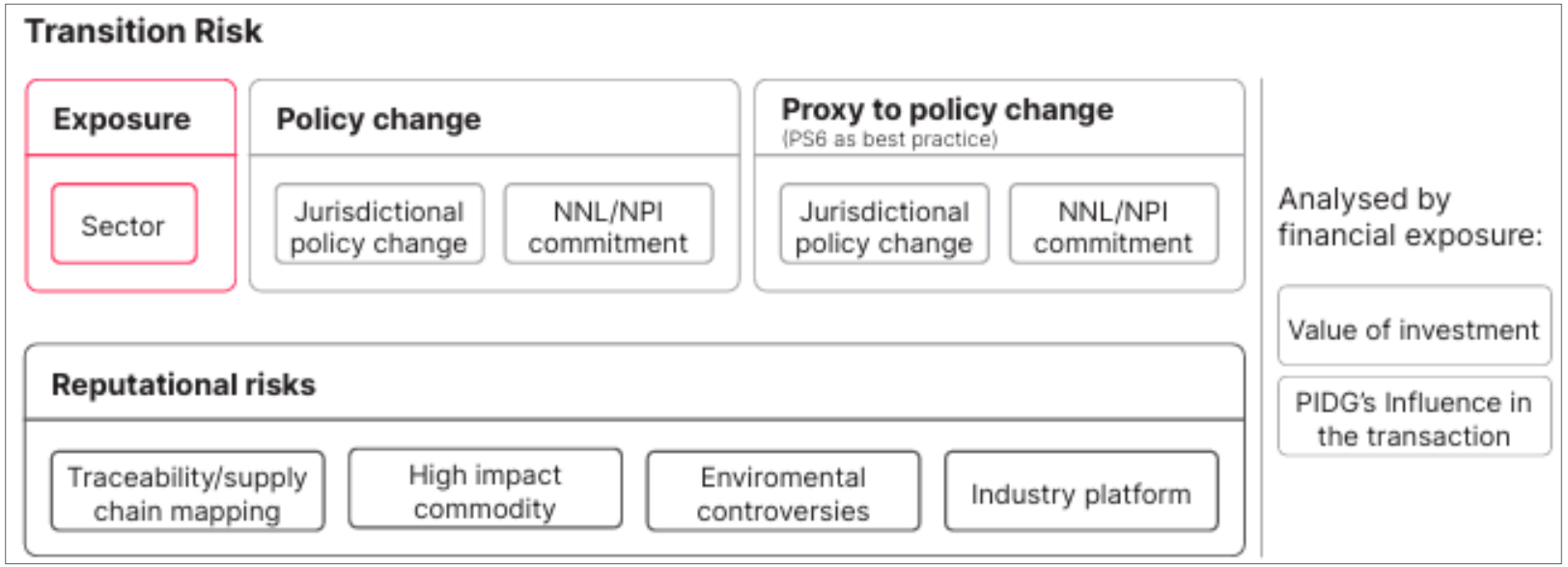
- **Traceability/supply chain mapping:** Companies could be considered to pose lower transition risk where despite challenges on traceability, remain committed to make advances in mapping their supply chain, and/or select suppliers based on sustainability considerations (e.g., certified products or do a suppliers' due diligence) as established industry good practice across sectors in managing supply chain impacts. Using project information on whether the transaction publicly commits to work on their supply chain mapping/traceability or whether the company/project selects suppliers based on sustainability considerations, this is taken as an indicator to inform this reputational risk factor.
- **High impact commodity:** These hidden risk factors from the supply chain could often lead to reputational risks. HICL is taken as a proxy to represent stakeholders' level of scrutiny based on whether or not the production process is associated with a high impact commodity.

- **Environmental controversies:** Companies associated with past environmental controversies are considered to pose higher reputational risks. Research on whether or not the company has ever been publicly scrutinised on an environmental issue is taken as an indicator.
- **Industry platform:** Companies committed to sustainability platforms will present higher readiness to adopt sector transformational actions and therefore reduce reputational risks.

← Makes use of existing work e.g. PS6 assessments and normal due diligence

# Assess case study – PIDG

*How did PIDG assess its impacts and dependencies as risks and opportunities? –* ***transition risks***



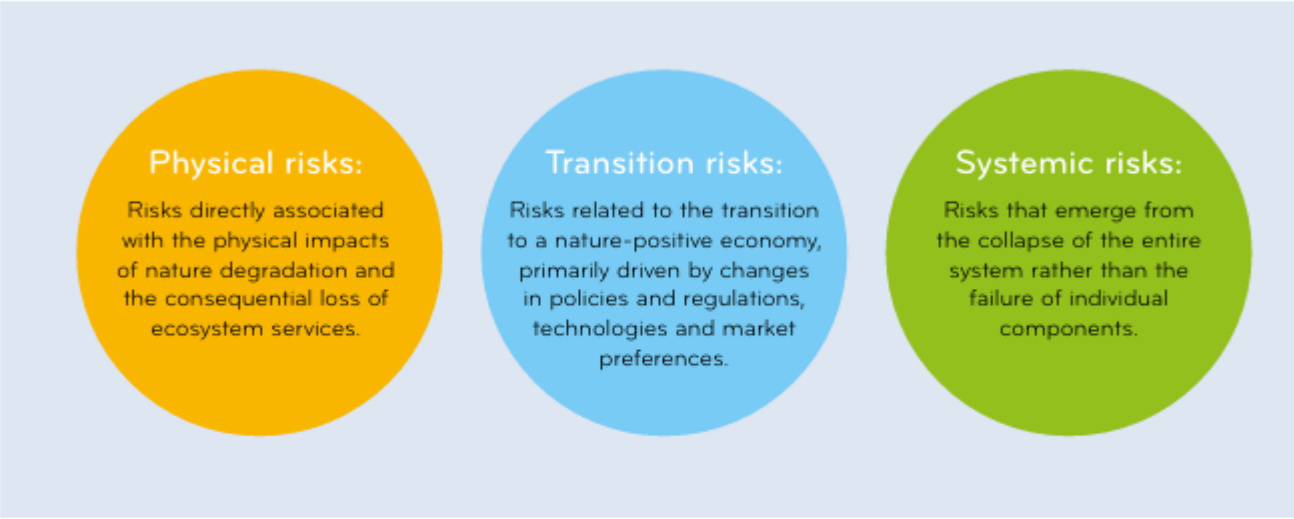
# Assess case study – Cibus Capital

*How did Cibus assess their impacts and dependencies as risks and opportunities in plain English?*

→ Used a location-based approach to identify potential risks and then added financial exposure as an extra layer on top.

## 2. Analysis of Nature-related Risks

In line with the TNFD, Cibus divides nature-related risks into three categories:




Following the sector-based materiality assessment of dependencies and impacts and their translation into risks linked to business activities, the second phase of the pilot portfolio-level assessment concentrated on analysing the specific physical and transition risks associated with the environmental context in which portfolio companies operate.

# Assess case study – Cibus Capital

*How did Cibus assess their impacts and dependencies as risks and opportunities?*

## Methodology

The WWF Risk Filter Suite was the primary tool used to analyse physical and transition risks linked to the environmental landscapes where CFI and CFII portfolio companies operate. Available site data of portfolio companies' direct operations was uploaded into the tool, which generates a risk score from 0 (no risk) to 5 (very high risk) across each assessed risk category.

The following 18 risk categories were evaluated to assess nature-related scape physical risks:

### WWF Biodiversity Physical Risk Filter

- Limited wild flora and fauna availability
- Soil condition
- Air condition
- Ecosystem condition
- Pollination
- Landslides
- Fire hazard
- Plant / forest / aquatic pests and diseases
- Herbicide resistance
- Extreme heat
- Tropical cyclones
- Land, freshwater and sea use change
- Tree cover loss
- Invasives
- Pollution

### WWF Water Risk Filter

- Water scarcity
- Flooding
- Water quality

19 risk categories were evaluated to assess nature-related landscape transition risks, focusing on indicators that may signal increased regulatory or reputational risks. Certain areas are likely to face increased scrutiny and, therefore, increased reputational risks, such as regions with a high concentration of protected or conserved areas or those with a history of political conflicts over limited water resources, for example.

### WWF Biodiversity Transition Risk Filter

- Protected / conserved areas
- Key Biodiversity Areas
- Other important delineated areas
- Ecosystem condition
- Range rarity
- Resource scarcity
- Labour / human rights
- Financial inequality
- Media scrutiny
- Political situation
- Sites of international interest
- Risk preparation

### WWF Water Risk Filter

- Enabling environment
- Institutions and governance
- Management Instruments
- Infrastructure and finance
- Cultural importance
- Biodiversity importance
- Conflict

To calculate the portfolio-level risk scores for each risk category, the average risk score was first calculated for each portfolio company with multiple sites. Then, the overall portfolio-level score was determined by averaging the scores across all portfolio companies.

Given that Cibus holds varying ownership stakes in its portfolio companies with differing percentages of AUM invested in each, the distribution of AUM plays a critical role in assessing portfolio-level risk and should not be overlooked. As such, we calculated the adjusted risk scores for the portfolio by factoring in the total investment cost for each company. The methodology used is outlined below:

**Adjusted Risk Scoring Methodology:**

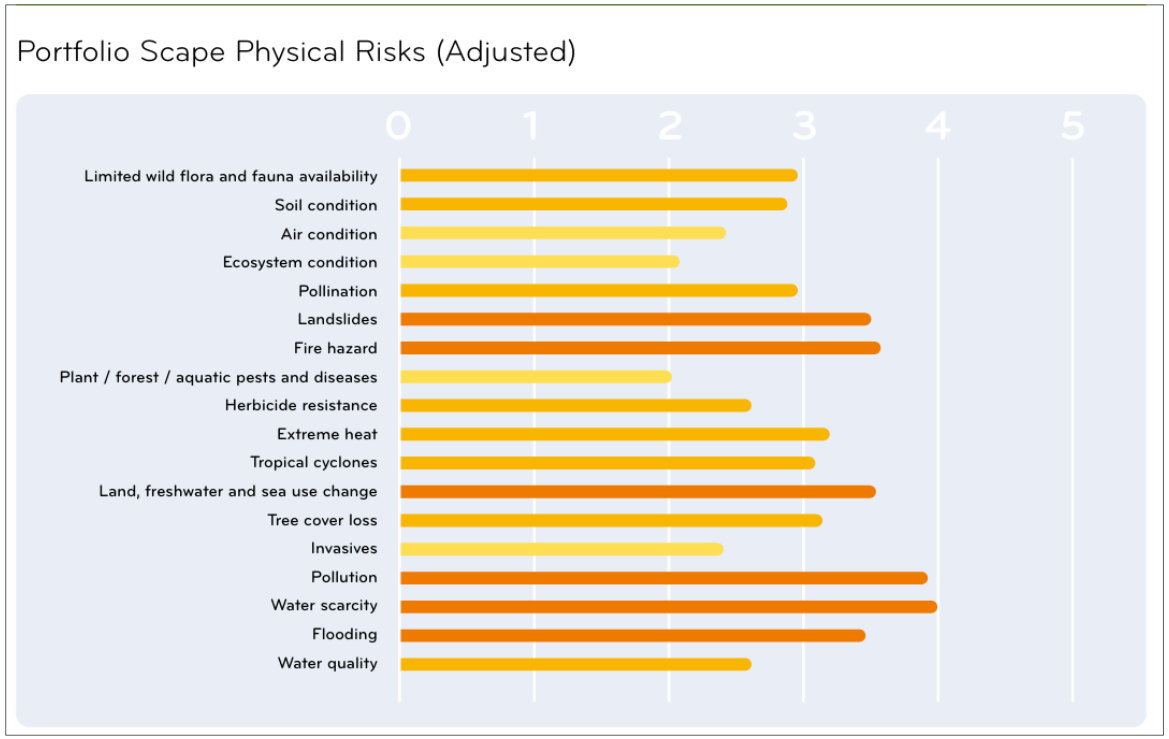
$$\text{Weighted Risk} = \text{Risk Score} \times \text{Investment Amount}$$

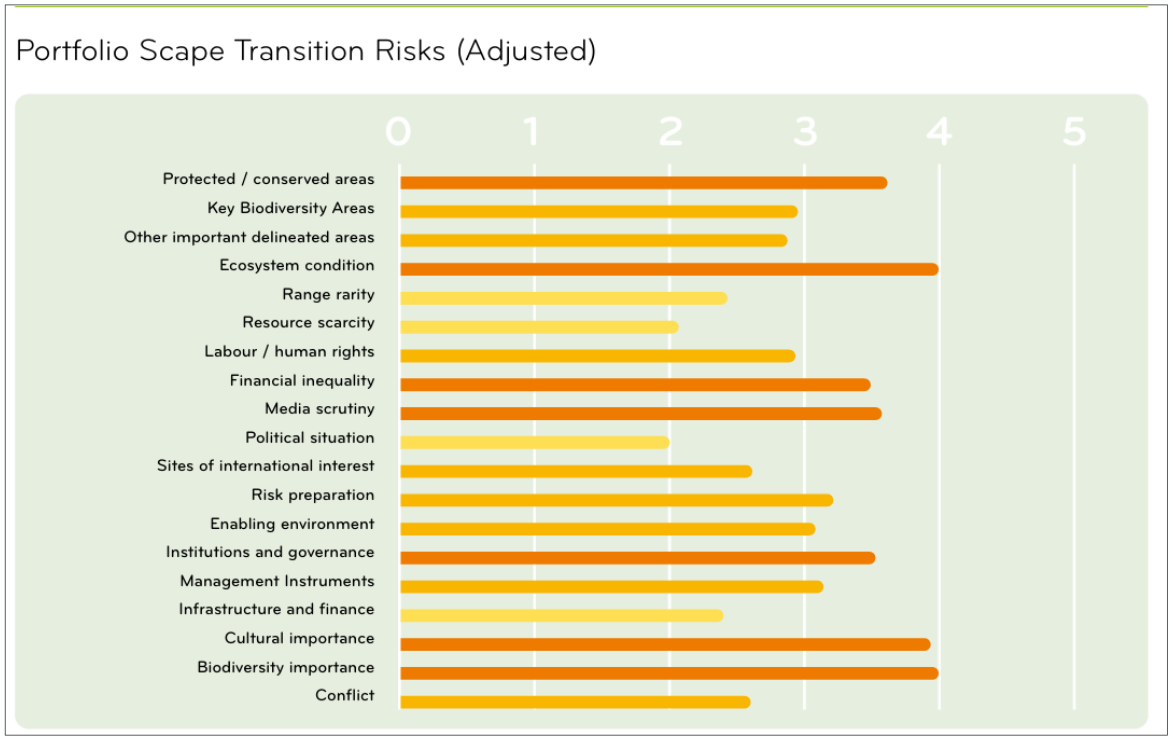
$$\text{Total Weighted Risk for Category} = \sum \text{Weighted Risks for Companies in Category}$$

$$\text{Adjusted Risk Score} = \frac{\text{Total Weighted Risk}}{\text{Total Investment}}$$

# Assess case study – Cibus Capital

*How did Cibus assess their impacts and dependencies as risks and opportunities?*



# Assess case study – Cibus Capital

*How did Cibus assess their impacts and dependencies as risks and opportunities?*

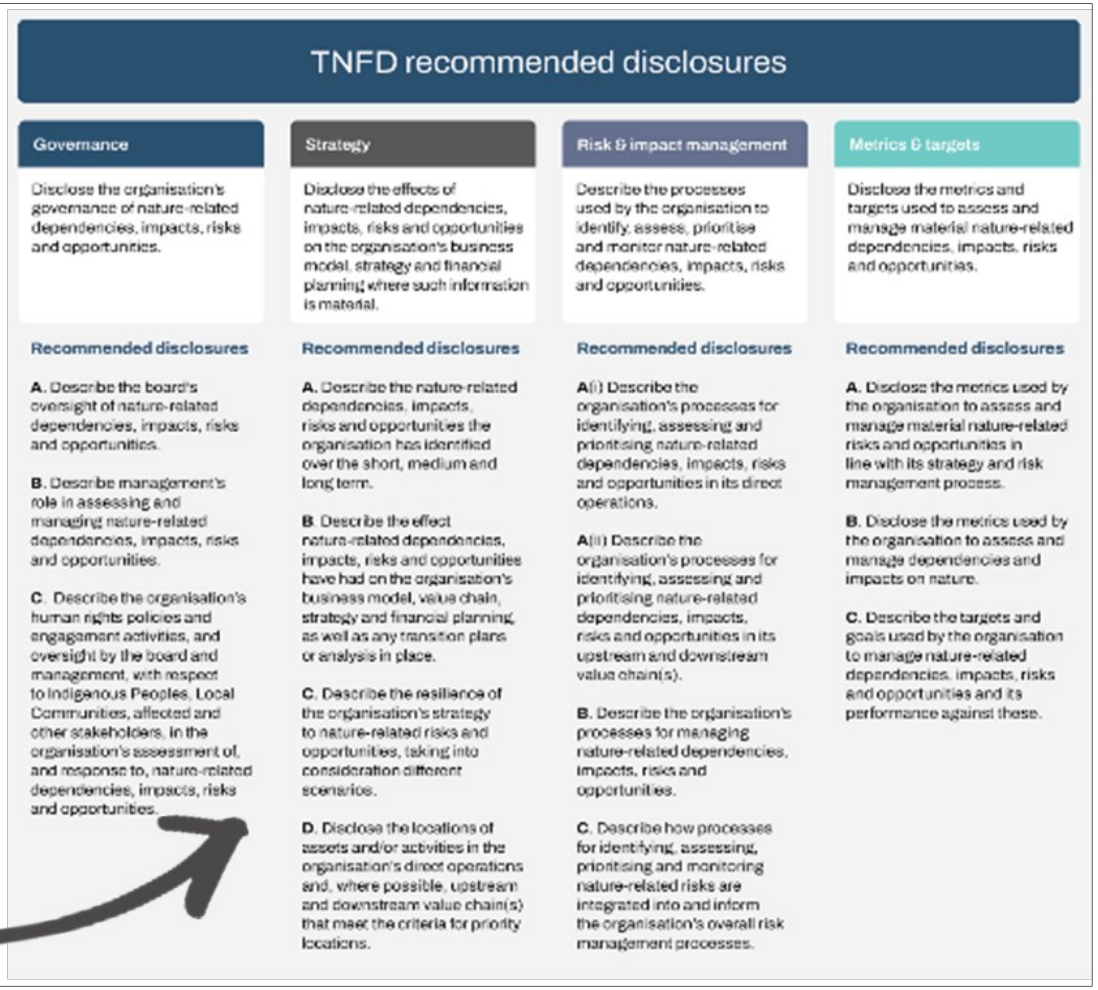
| Results | The Summer Berry Company | Amaretto Almonds | Withcott Seedlings | Prunus Nuts |
|---|---|---|---|---|
| **Key Nature Dependencies** | • Surface water<br>• Ground water<br>• Climate regulation<br>• Pollination<br>• Disease control<br>• Pest control | • Surface water<br>• Ground water<br>• Climate regulation<br>• Pollination<br>• Pest control | • Surface water<br>• Ground water<br>• Water quality<br>• Climate regulation<br>• Genetic materials | • Surface water<br>• Ground water<br>• Climate regulation<br>• Pollination<br>• Mass stabilisation and erosion control |
| **Key Dependencies at Risk** | • Surface water<br>• Ground water | • Surface water<br>• Ground water<br>• Climate regulation<br>• Pollination<br>• Pest control | • Surface water<br>• Ground water<br>• Water quality<br>• Climate regulation | • Surface water<br>• Ground water<br>• Climate regulation<br>• Pollination<br>• Mass stabilisation and erosion control |
| **Operational Impact** | • Water stress, scarcity and irregular supply<br>• Water use restrictions<br>• Reduced crop yields<br>• Reduced crop quality<br>• Soil degradation, impacting cover cropping<br>• Altered planting schedules | • Water stress, scarcity and irregular supply<br>• Water use restrictions<br>• Reduced crop yields<br>• Reduced crop quality<br>• Increased reliance on artificial pollination<br>• Lower pollination success<br>• Increased pest infestations<br>• Increased storm and flood incidences | • Water stress, scarcity and irregular supply<br>• Water use restrictions<br>• Production gaps<br>• Asset underutilisation<br>• Reduced growth rates, survival and quality of seedlings<br>• Increased diseases and pests | • Water stress, scarcity and irregular supply<br>• Water use restrictions<br>• Heat stress, affecting labour productivity<br>• Reduced crop yields<br>• Reduced crop quality<br>• Increased reliance on artificial pollination<br>• Lower pollination success<br>• Increased pest infestations<br>• Soil erosion due to storm and flood incidences |
| **Direct Economic Impacts** | • Higher operating costs for irrigation<br>• Increased CapEx for infrastructure investments.<br>• Lower revenues from lower yields | • Higher operating costs for irrigation, pest management and pollination<br>• Increased CapEx for infrastructure investments<br>• Lower revenues from lower yields | • Higher operating costs for irrigation, pest control and disease management<br>• Reduced revenue due to lower production, seedling mortality, and decreased quality<br>• Lower operational efficiency from underutilised assets | • Higher operating costs for irrigation, pest and disease control, pollination services and erosion control measures<br>• Lower revenue from reduced yields and lower-quality almonds<br>• Higher costs related to pest management and disease control |
| **Indirect Economic Impacts** | • Market price volatility<br>• Decreased revenue predictability<br>• Higher crop insurance premiums<br>• Higher fossil fuel costs<br>• Reduced customer demand due to reduced product quality<br>• Loss of contracts due to inconsistent production<br>• Reduced labour requirements due to reduced productive areas / yields | | | |

# Scenario analysis

# Scenarios in disclosure requirements

**Strategy C**

Describe the resilience of the organisation's strategy to nature-related risks and opportunities, taking into consideration different scenarios.



## TNFD recommended disclosures

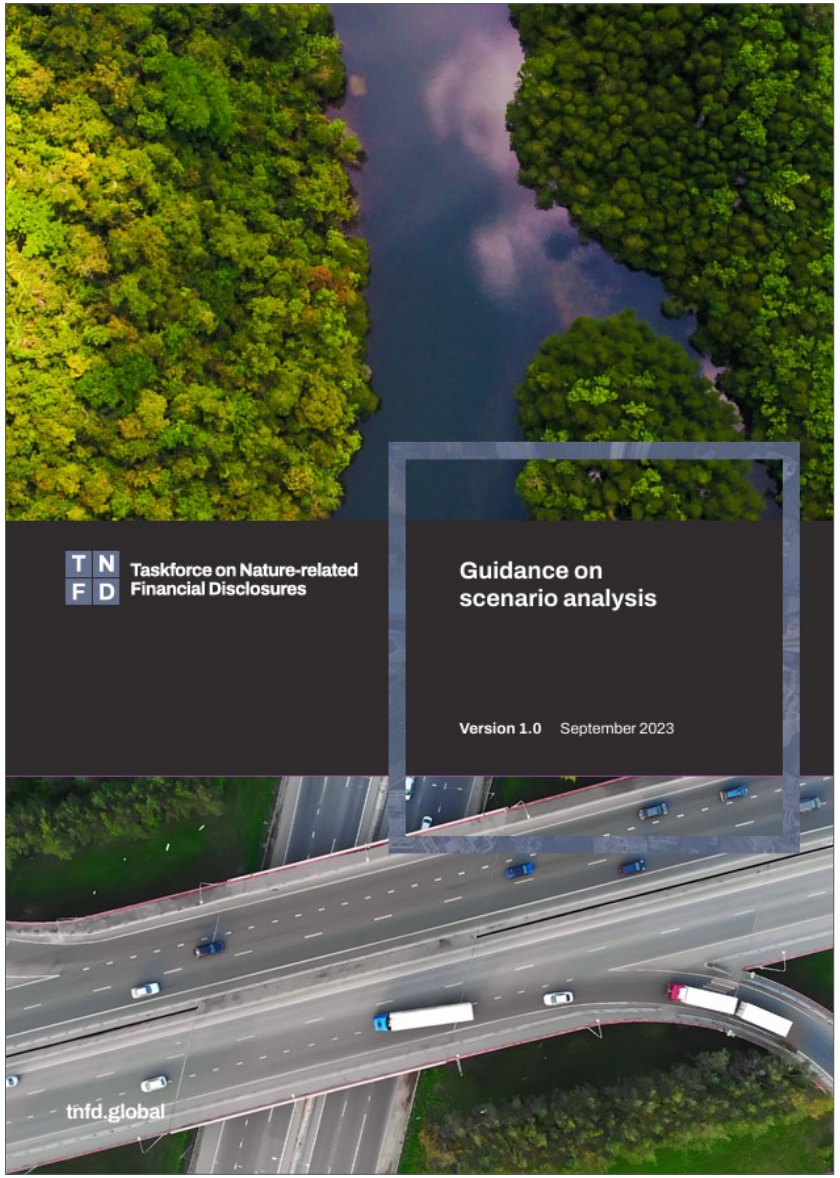
| Governance | Strategy | Risk & impact management | Metrics & targets |
|---|---|---|---|
| Disclose the organisation's governance of nature-related dependencies, impacts, risks and opportunities. | Disclose the effects of nature-related dependencies, impacts, risks and opportunities on the organisation's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

# Using scenarios in Assess

*What is the role of scenario analysis in the LEAP process?*

As part of Assess your organisation is asked to assess (measure and assess materiality) of risks and opportunities arising from impacts and dependencies.

- **Scenario analysis** is an (optional) risk assessment tool that can be used when quantitative scenarios and projections are unsuitable/unavailable (this is often the case with nature-related datasets at present)

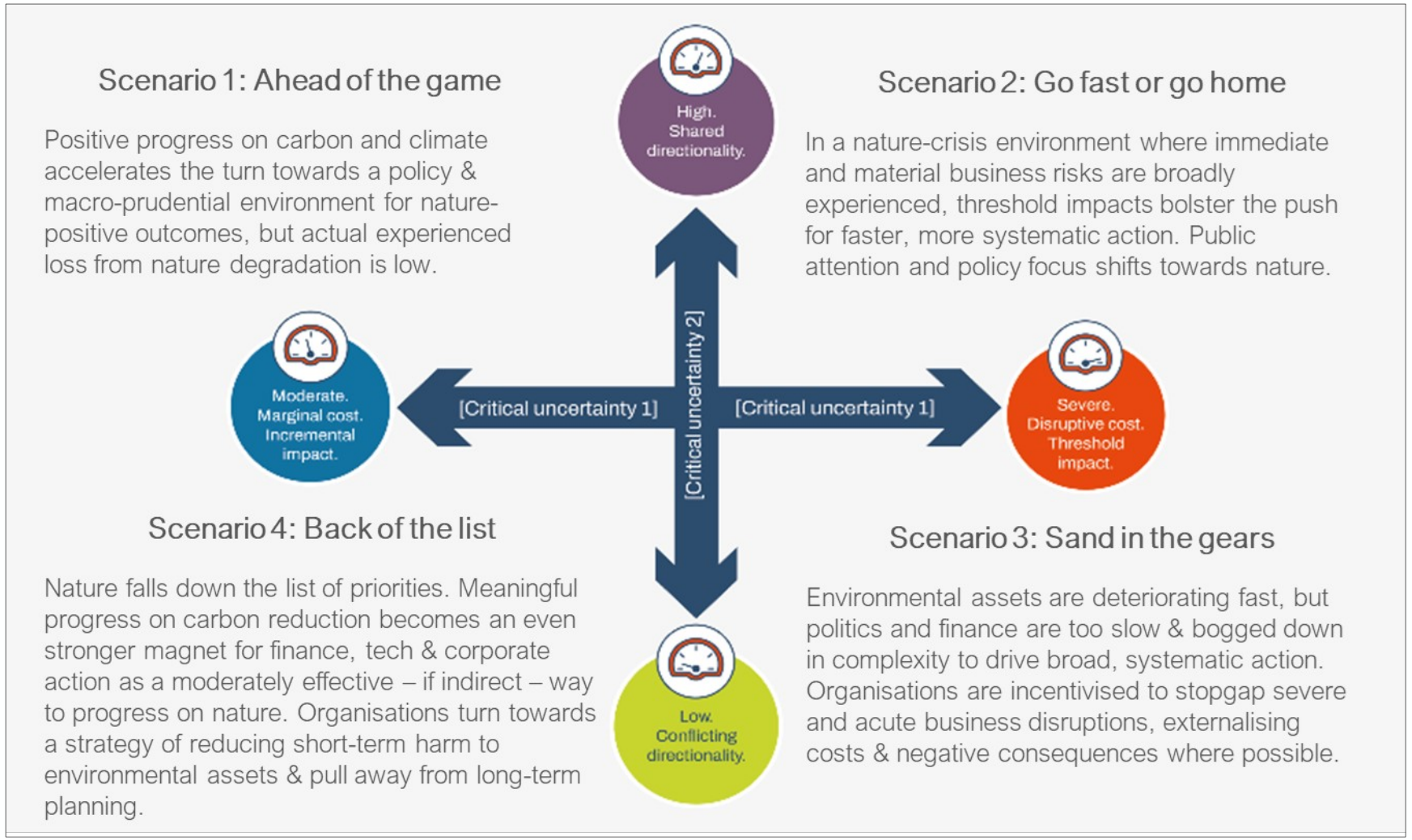


# Using scenarios in Assess

*What are the TNFD recommended scenarios?*

The TNFD has developed four illustrative narratives, one for each quadrant of the critical uncertainties matrix.

These scenarios can be adapted by organisations to meet their specific needs.

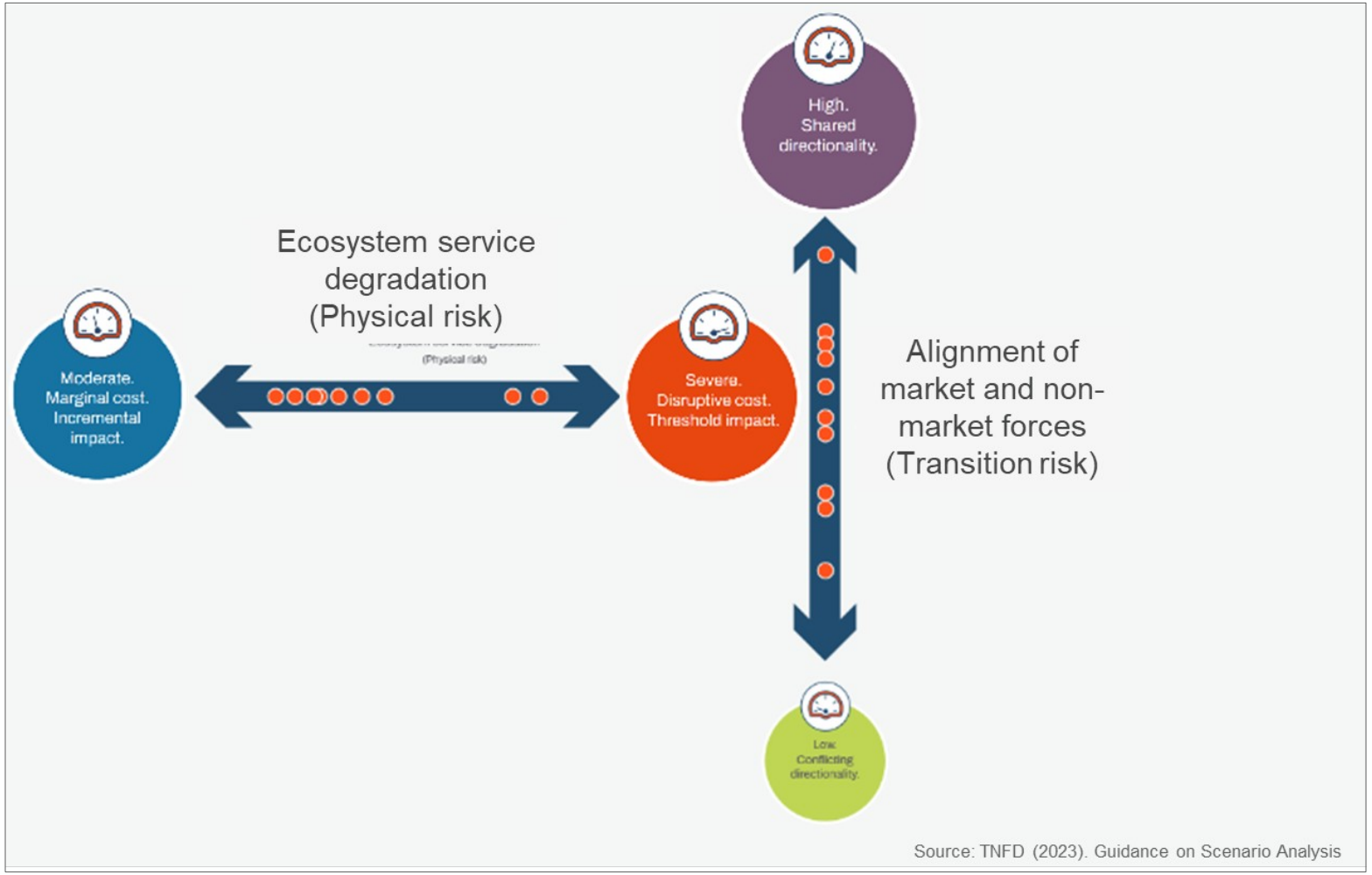


# Using scenarios in assess

*How to use this matrix*

- For each risk identified, plot where it may be on the axes currently.
- Assess what the risk may look like if it is moved on the axes in the future.
- Identify high-level business decisions in response.

*Scenario analysis can often be performed well using an in-person workshop approach with key stakeholders.*



Climate Risk Services

# Thank you!

*Building a climate-smart, net zero and nature-positive future together.*

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