

UNDP BIOFIN – TNFD Training

Nature-related issues understanding the commercial implications of nature

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).



Gerhard Mulder

CEO

gerhard@climateriskservices.com



Ben Mitchell

Senior Analyst

ben@climateriskservices.com

In this video

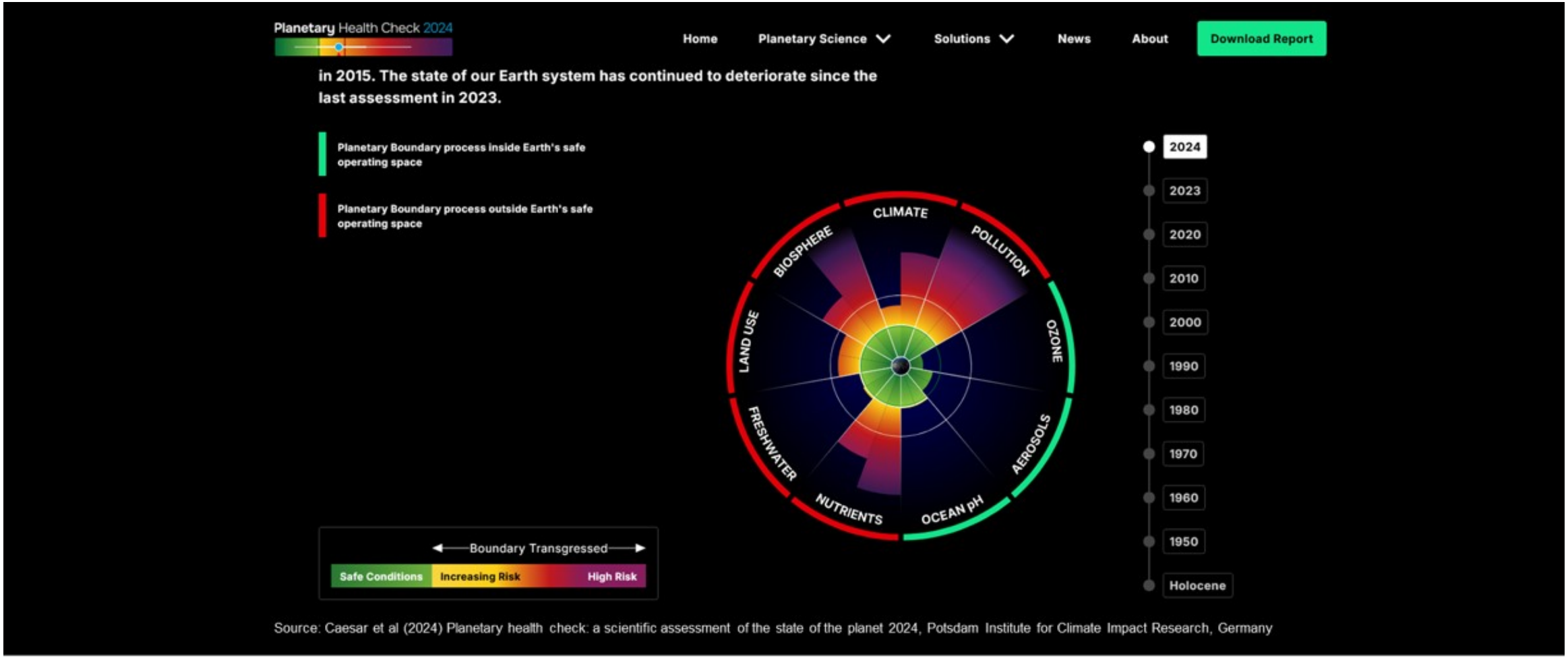
1. Nature as a core strategic risk and opportunity management issue
2. Nature-related dependencies and impacts
3. Nature-related risks and opportunities

Key Objectives

- Understand how nature is core strategic risk that needs managing.
- Understand the relevance of nature dependencies and impacts.
- Understand how dependencies and impacts can be risks and opportunities.

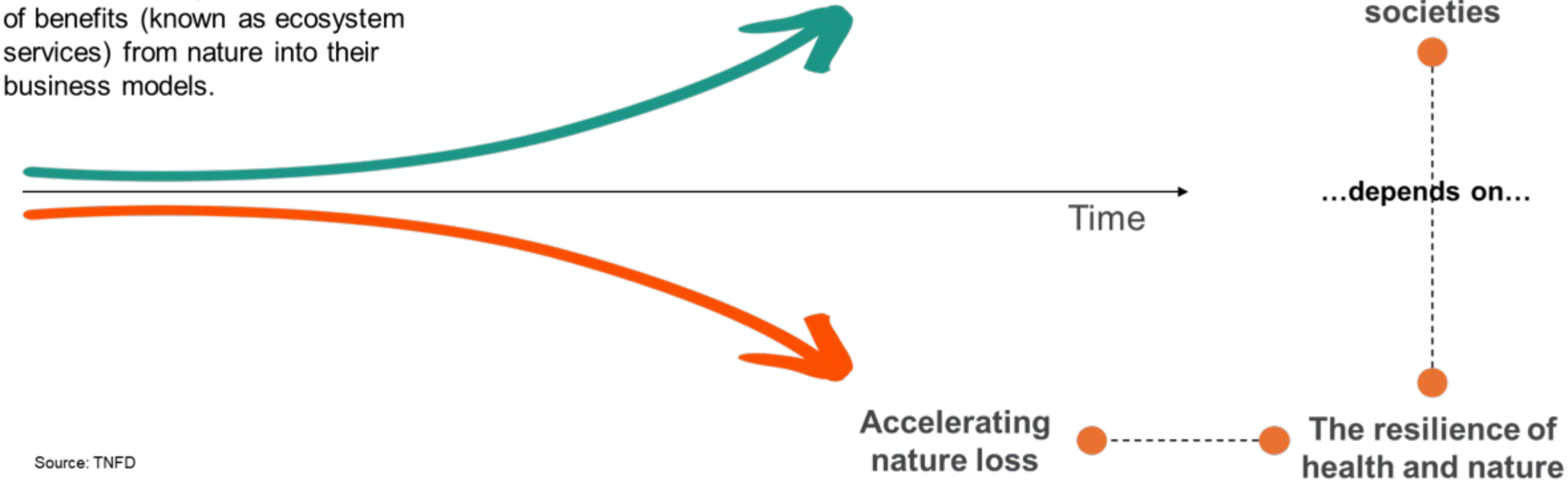
Nature as a core strategic risk and opportunity management issue

Our first video outlined the scope and scale of global challenges…



… and highlighted how business resilience depends on nature resilience…

The future cash flows of businesses – both corporates in the real economy and financial institutions – depend on the flow of benefits (known as ecosystem services) from nature into their business models.

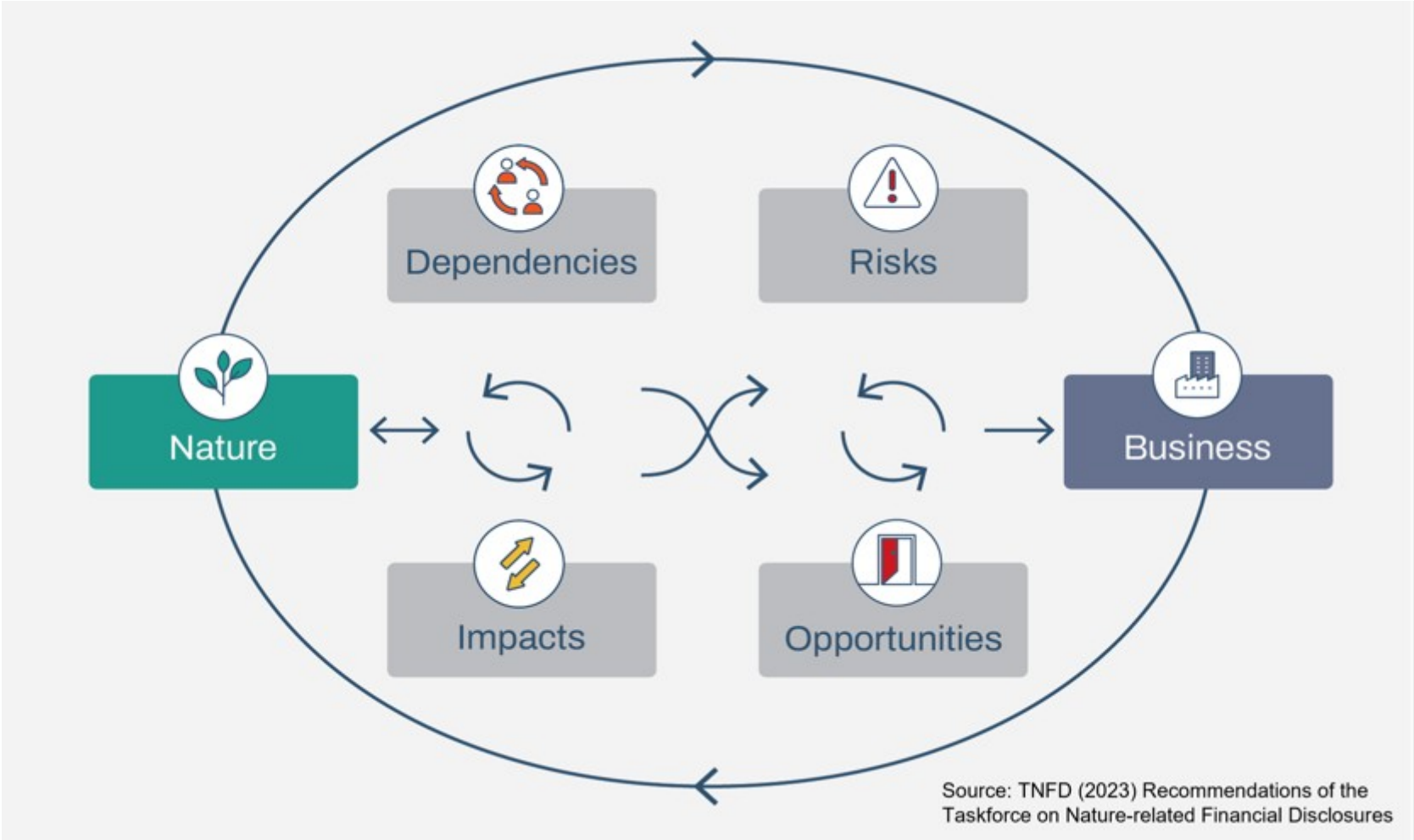


Source: TNFD

…and explored the interconnections of nature-related issues

Nature-related issues are evolving rapidly and have clear strategic implications for companies:

- today's impacts (by your business and others) can accentuate tomorrow's dependencies
- understanding dependencies and impacts is essential for understanding risks and opportunities
- pursuing opportunities can enhance the resilience of the business by investing in the resilience of nature



Source: TNFD (2023) Recommendations of the Taskforce on Nature-related Financial Disclosures

Nature-related risks and opportunities

It is important to understand the different sources of nature-related risks and opportunities

Nature-related risks

"Potential threats posed to an organisation that arise from its and wider society's dependencies and impacts on nature."

Source: TNFD (2023) Recommendations of the Taskforce of Nature-related financial disclosures

Nature-related opportunities

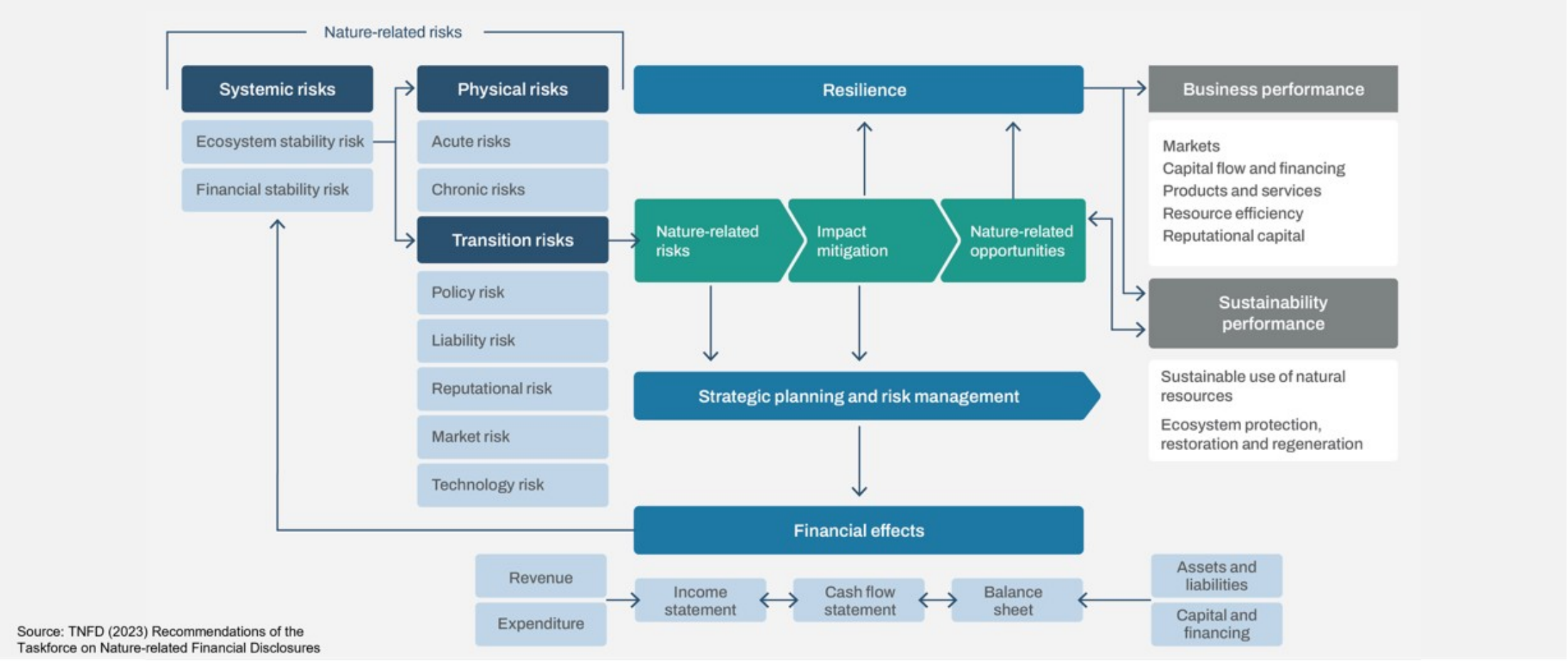
"Activities that create positive outcomes for organisations and nature by creating positive impacts on nature or mitigating negative impacts on nature."

Source: TNFD (2023) Recommendations of the Taskforce of Nature-related financial disclosures



Nature is a core strategic risk for organisations

Links between nature-related risks and organisational resilience, strategy and financial planning

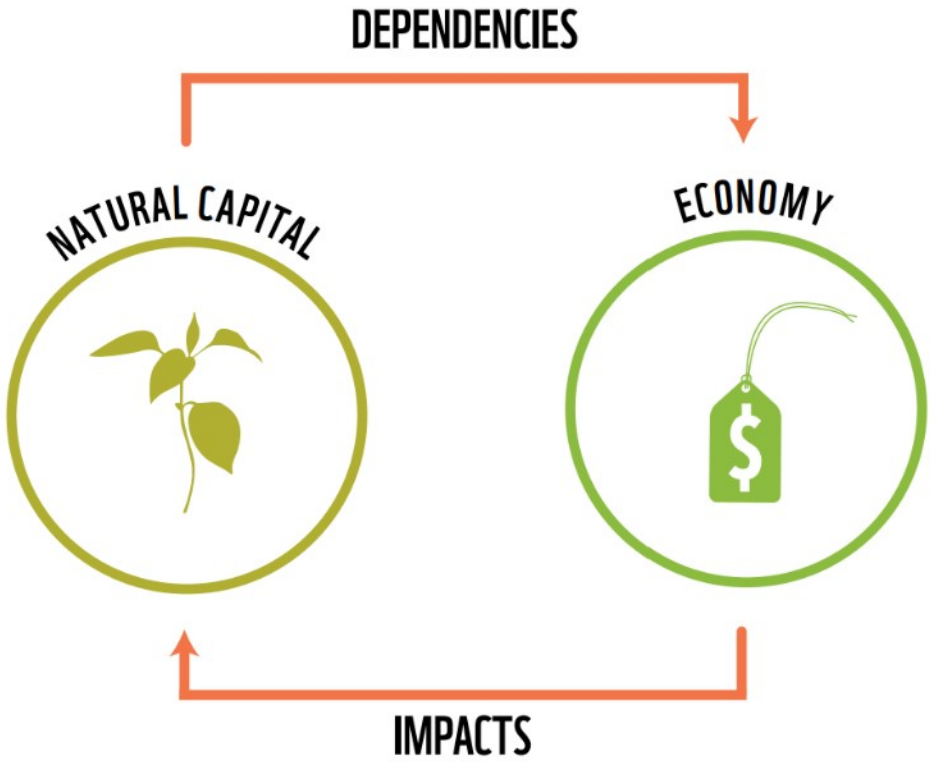


Source: TNFD (2023) Recommendations of the Taskforce on Nature-related Financial Disclosures

Nature-related dependencies and impacts

What's the relationship between businesses and nature?

From Impacts and Dependencies to Nature-related Risks

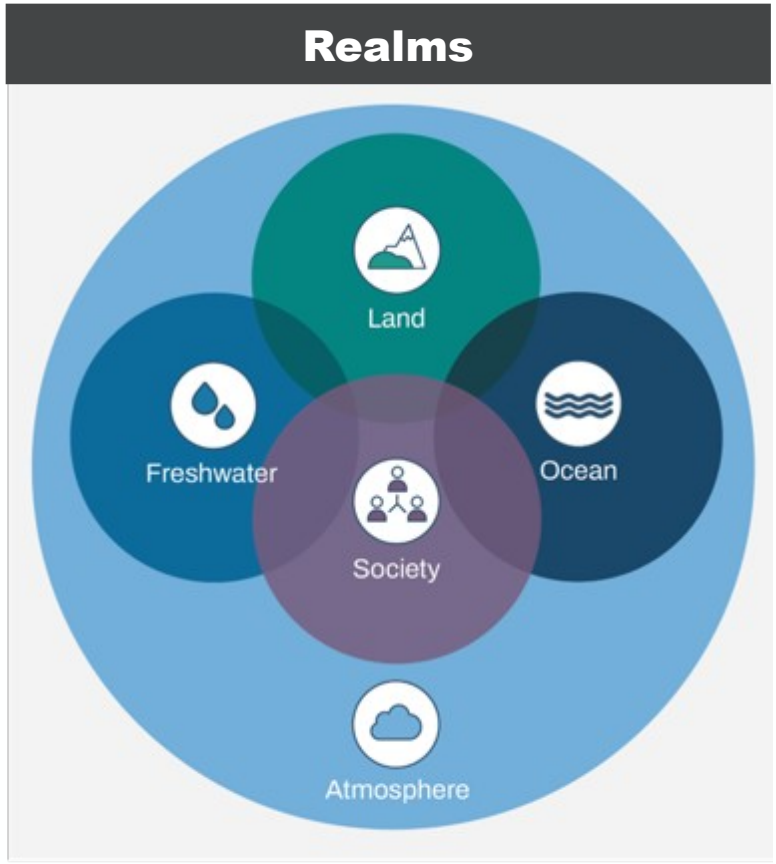


WWF & AXA, 2019. INTO THE WILD Integrating nature into investment strategies WWF France and AXA recommendations for the members of the G7 Environment meeting in Metz, 5-6 May 2019

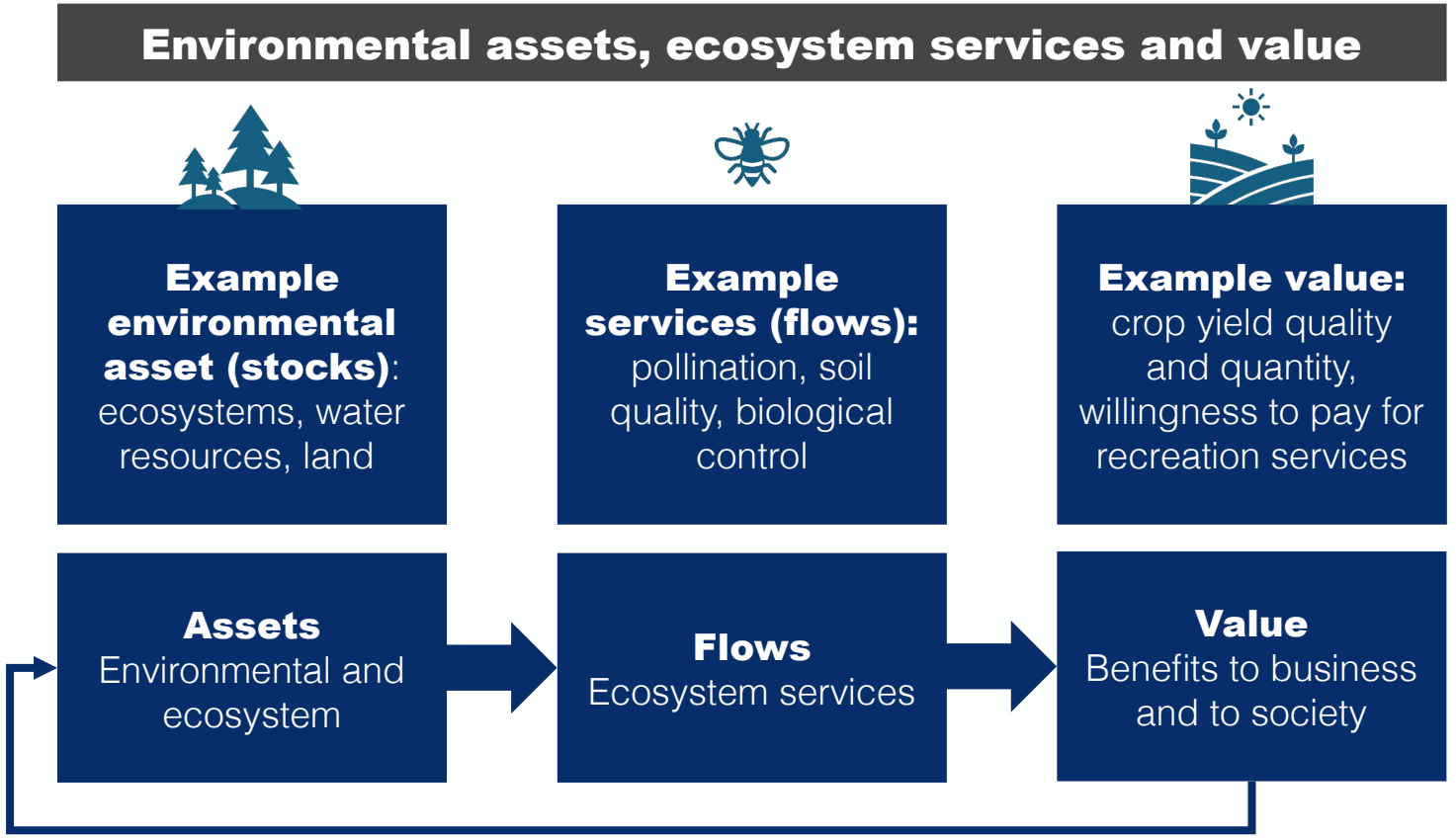
Understanding your dependencies and impacts on nature

Dependencies and impacts depend on the type and state of nature in each operating location

Nature in any given location is, in simple terms, a complex arrangement of environmental assets and ecosystem services



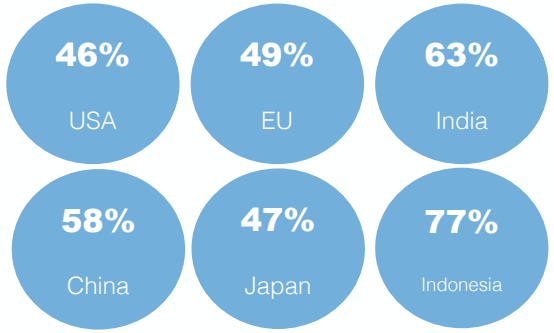
Source: TNFD (2023) Recommendations of the Taskforce of Nature-related financial disclosures



Dependency: economies are highly dependent on nature and its services

Nature underpins our economies, societies, and business models

Countries around the world are now assessing the extent to which their economies are moderately to highly dependent on nature.



Source: WEF (2020) Nature risk rising: why the crisis engulfing nature matters for business and the economy

"…it's an illusion to think we can preserve financial stability if this (nature) degradation continues."

Klaas Knot, DNB and FSB Chair, 7 September 2023

Reduced pollination, fisheries, timber production, and related ecosystem services could result in an annual decline in global GDP of USD 2.7 trillion by 2030, with Sub-Saharan Africa and South Asia being most at risk.

The World Bank (2021) Protecting Nature Could Avert Global Economic Losses of $2.7 Trillion Per Year



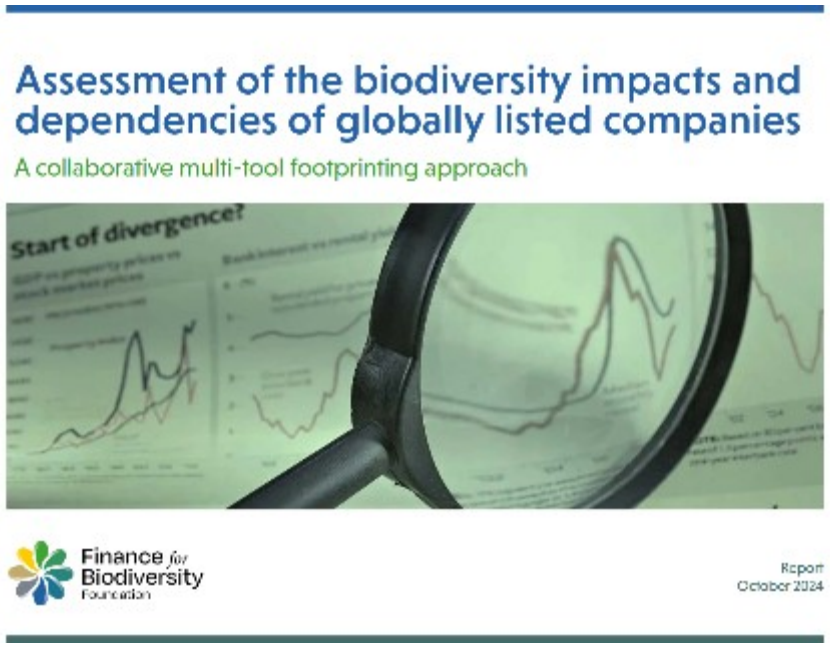
Sovereign credit rating changes by 2030 due to partial nature collapse

"Biodiversity and nature-related risks can have significant impacts on sovereign creditworthiness, default probability, and the cost of capital."

Source: Agarwala et al. (2022) Nature loss and sovereign credit ratings, University of Cambridge, Bennett Institute for Public Policy

Dependencies at a Business level

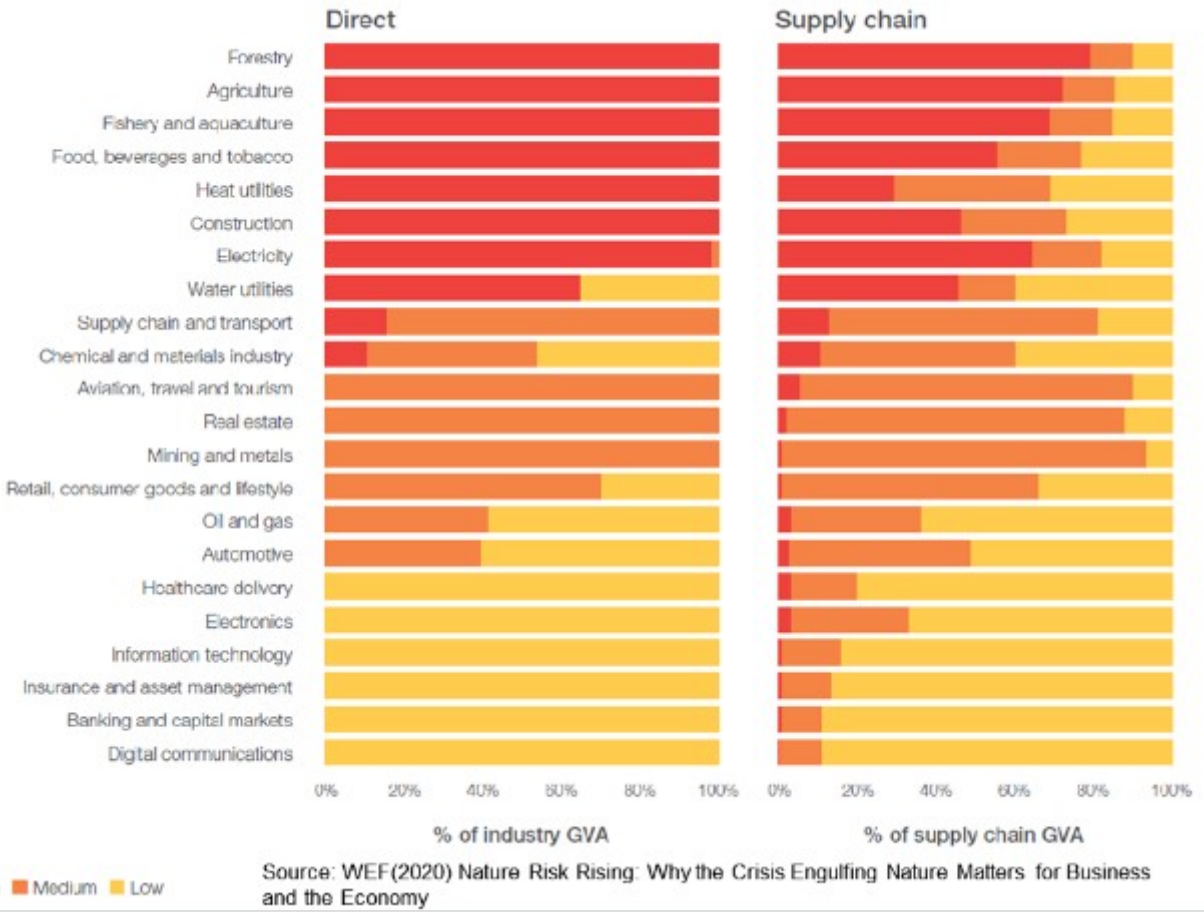
All sectors and business models have some level of dependency on nature



"All companies and industries depend on ecosystem services (ES) to some degree."

Finance for Biodiversity Foundation (2024) Assessment of the biodiversity impacts and dependencies of globally listed companies

The direct and supply chain Gross Value Added (GVA) of many sectors have a **high or medium dependency on nature**



Source: WEF(2020) Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy

Different types of nature dependencies

It is critical that business executives understand the source of their dependencies on nature

Dependencies are aspects of environmental assets and ecosystem services that a person or an organisation relies on to function.

The future cashflows of business are dependent on the future flow of nature's inputs into business processes and activities (known as ecosystem services).

Some dependencies will be more obvious than others.

Source: TNFD (2023) Recommendations of the Taskforce of Nature-related financial disclosures



e.g. freshwater



e.g. pollination and food



e.g. healthy, fertile soil



e.g. flood prevention

Dependency Case Study – Bosman Family Vineyards

Dependencies for a wine production SME

Vineyards and businesses in the Cape Town and Stellenbosch region, such as Bosman Family Vineyards rely on water from the Berg River Scheme.

↓

This is a dependency on nature, specifically a dependency on water flow regulation as an ecosystem service.



Stellenbosch vineyard *source: South African Wines*



Berg River Dam *source: Daniel Saaiman*

Different types of impact on nature

Impacts on nature are not just bad for the planet but are also a potential source of risk for organisations

Nature-related impacts refer to 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
- the result of an organisation's or another party's actions
- direct, indirect or cumulative.

A single impact driver may be associated with multiple impacts.

Source: TNFD (2023) Recommendations of the Taskforce of Nature-related financial disclosures



e.g. pollution of rivers



e.g. resource use



e.g. land clearance



e.g. bleaching of corals

Impact Case Study – Harmony Gold Mining Company 2005

Pollution of the environment as an impact upon nature led to financial consequences for the company

Harmony Gold Mining Company's operations in the Klerksdorp-Orkney-Stilfontein-Hartebeesfontein (KOSH) area led to acid mine drainage.

This is an impact on nature, pollution of groundwater with acidic, heavy-metal laden water causing issues for water quality.



Kusasalethu *source: miningmx*



Gold mine *source: WWF*

Organisations can positively impact the state of nature

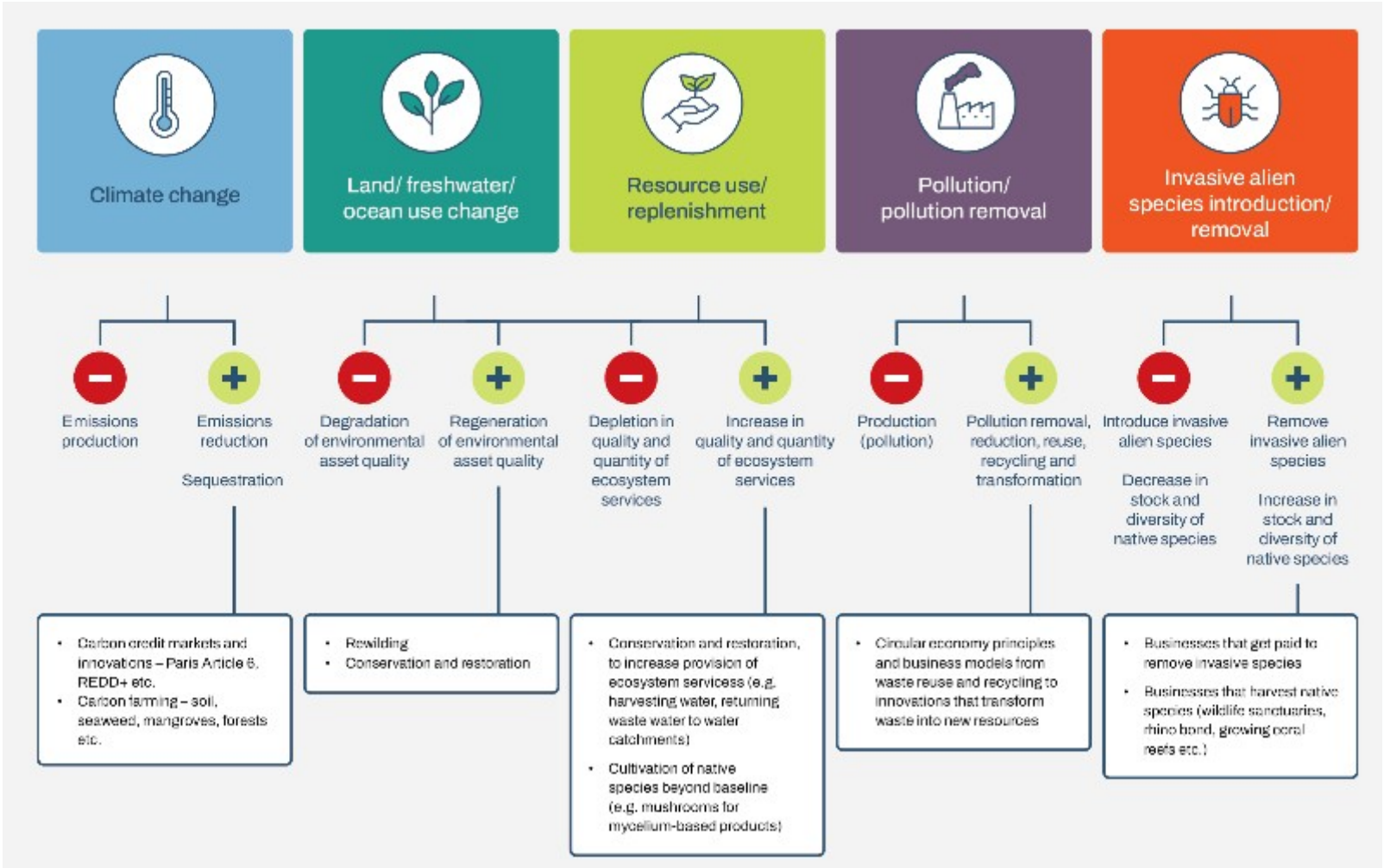
There are opportunities to build back the resilience of nature and create new commercial opportunities



e.g. regeneration



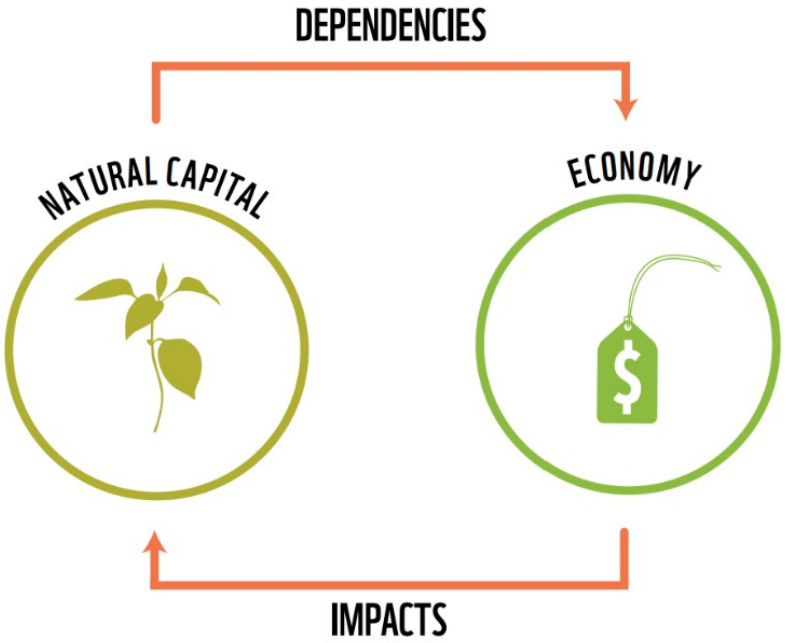
e.g. nature-based product innovation



Nature-related risks and opportunities

From dependency and impact to risk and opportunity

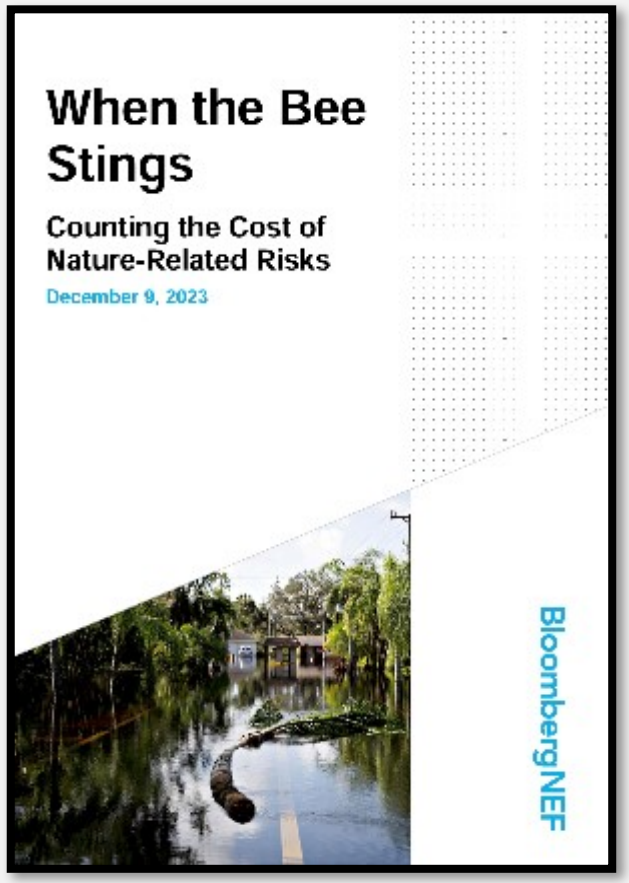
Dependencies and impacts on nature can become material risks… but also can present opportunities



Risks and Opportunities

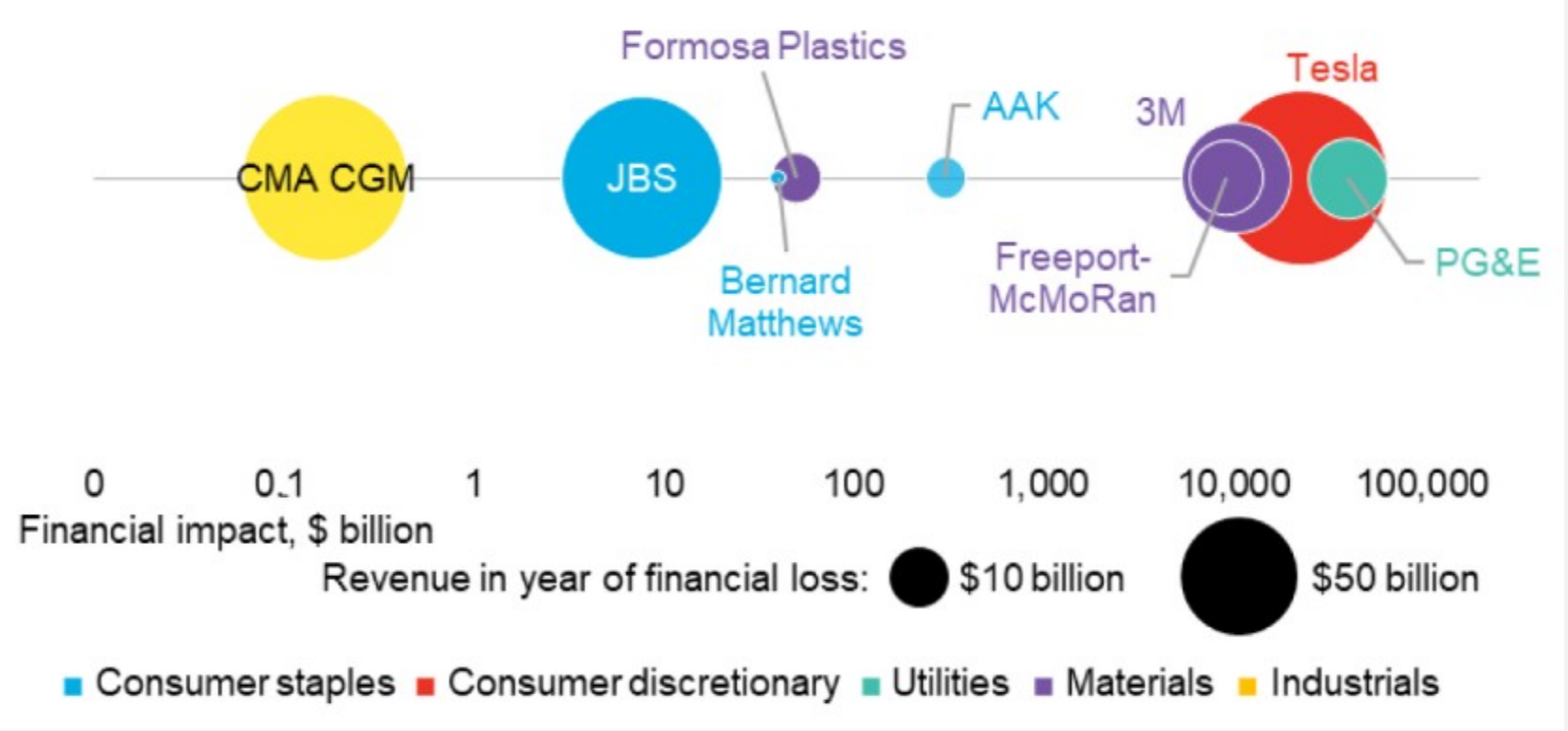
Nature risk is financial risk

There are growing examples demonstrating a clear link between nature and financial risk



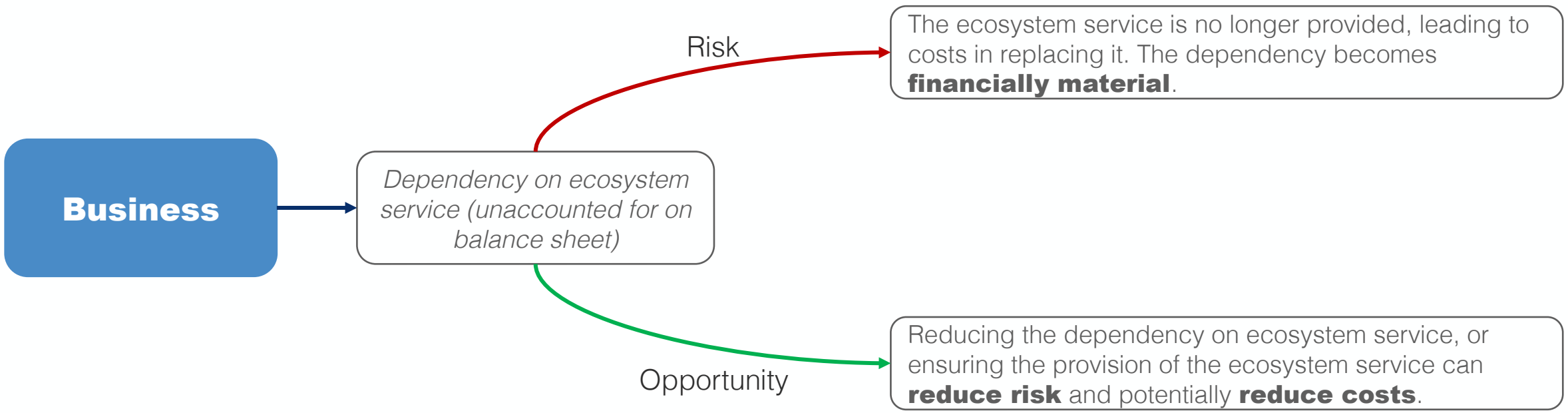
BloombergNEF (2023) When the bee stings

Ten case studies across sectors and geographies, with USD 83.2 billion in total financial impact. For example, arising from over 90% fall in market cap, credit rating downgrades, litigation settlements, major reputational damage.



From dependency to risk & opportunity

How can dependencies on ecosystem services become risks and opportunities?



Dependency Case Study – Bosman Family Vineyards 2018

Dependency upon water flow regulation as an ecosystem service led to financial consequences when the service was disrupted.

Vineyards and businesses in the Cape Town and Stellenbosch region, such as Bosman Family Vineyards rely on water from the Berg River Scheme.

↓

This is a dependency on nature, specifically a dependency on water flow regulation as an ecosystem service.

↓

In 2017-2018, under drought conditions this ecosystem service was disrupted, and the Berg river ran dry before grapes could be harvested.

↓

The dependency became financially material through loss of yields, and necessary investment into water-recycling systems and water efficiency measures. Estimated cost of losses due to the drought across the sector totalled **R500 million**. Distell, a major beverage and wine producer in the region has invested more than **R200 million** into water management.



Berg River Dam *source: Daniel Saaiman*



Stellenbosch vineyard *source: South African Wines*

How are dependencies relevant for financial institutions?

Why do business dependencies on nature matter for financial institutions?



How are dependencies relevant for financial institutions?

There is an element of systemic risk – financial institutions tend to have concentrations of exposure in specific sector and regions

Bank

Multiple lines of credit and loans.

Defaults and late repayments across multiple lines of credit, increase in NPL (non-performing loan) ratio within this section of the banks loans = ***systemic credit risk***

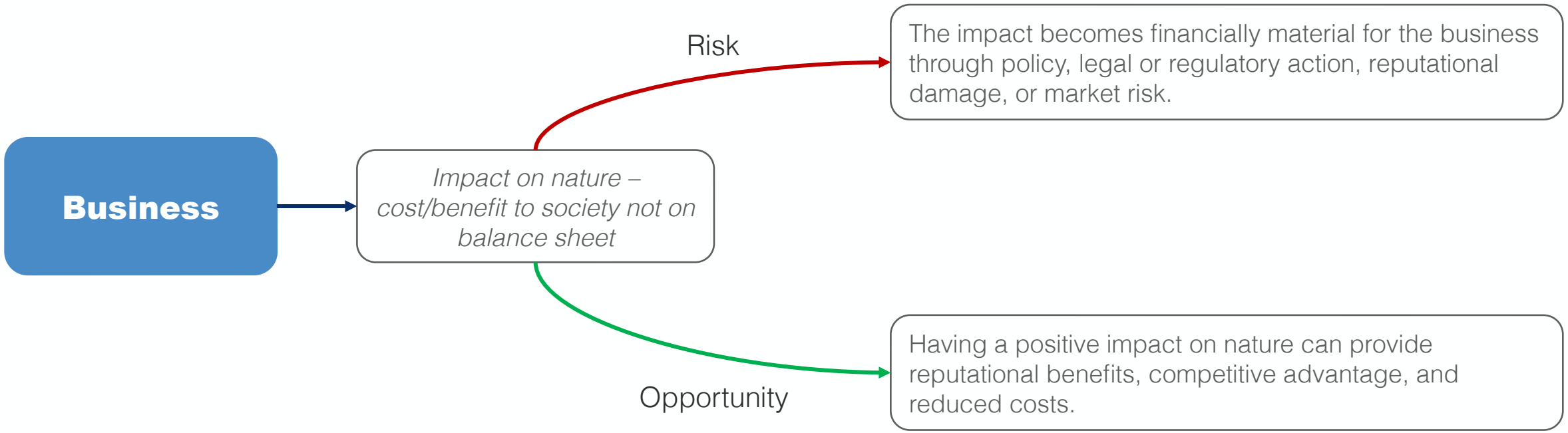






From impact to risk & opportunity

How can impacts on nature become risks and opportunities?



Impact Case Study – Harmony Gold Mining Company 2005

Pollution of the environment as an impact upon nature led to financial consequences for the company

Harmony Gold Mining Company's operations in the Klerksdorp-Orkney-Stilfontein-Hartebeesfontein (KOSH) area led to acid mine drainage.

↓

This is an impact on nature, pollution of groundwater with acidic, heavy-metal laden water causing issues for water quality.

↓

A 2005 statutory directive under the National Water Act required Harmony and other mining firms to pump and treat polluted water from their former mines.

↓

This caused the impact to become financially material for Harmony, the firm had to cover expenses of pumping and treating. The firm also had legal costs as they contested the directive after selling the assets, but their liability was upheld. Up to 2011 Harmony was spending **R26 million** in pump and treat at the site – not including legal fees and other compliance cost (from their own financial reporting).



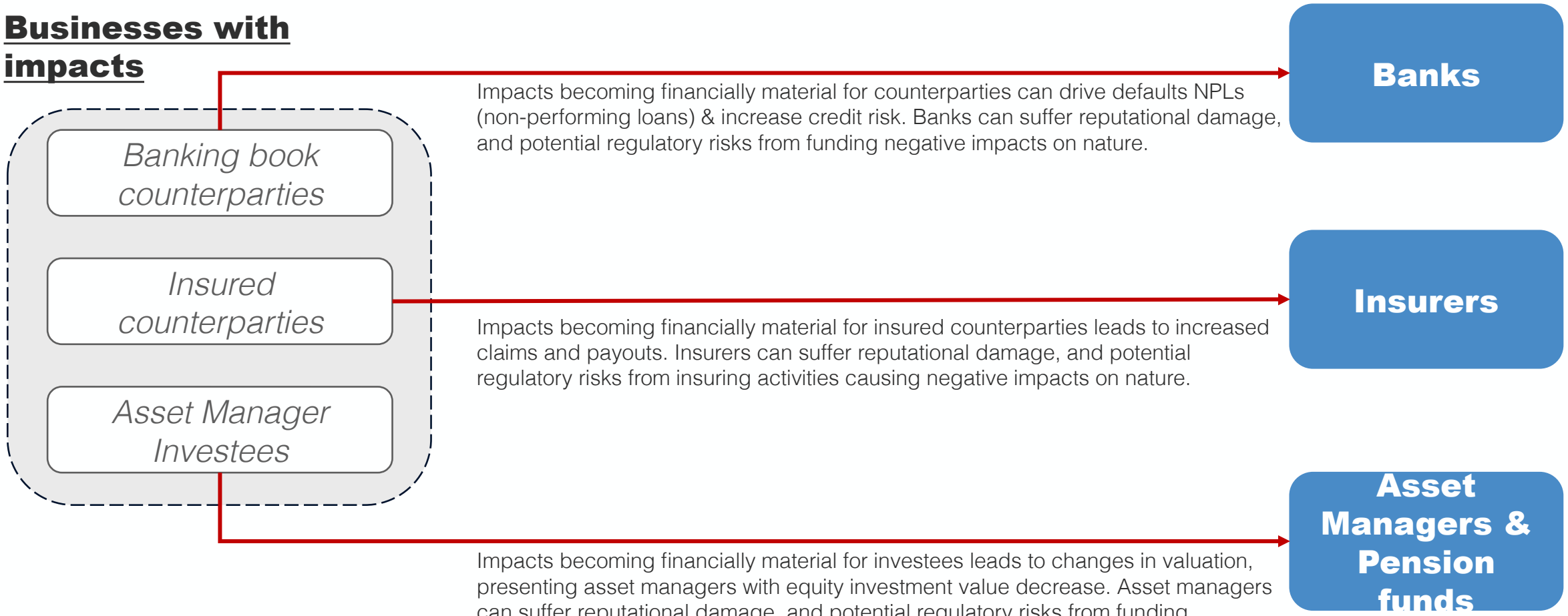
Kusasalethu *source: miningmx*



Gold mine *source: WWF*

How are impacts relevant for financial institutions?

Why do business impacts on nature matter for financial institutions?



How are impacts relevant for financial institutions?

There is an element of systemic risk – financial institutions tend to have concentrations of exposure in specific sector and regions

Pension Fund

Multiple investments.



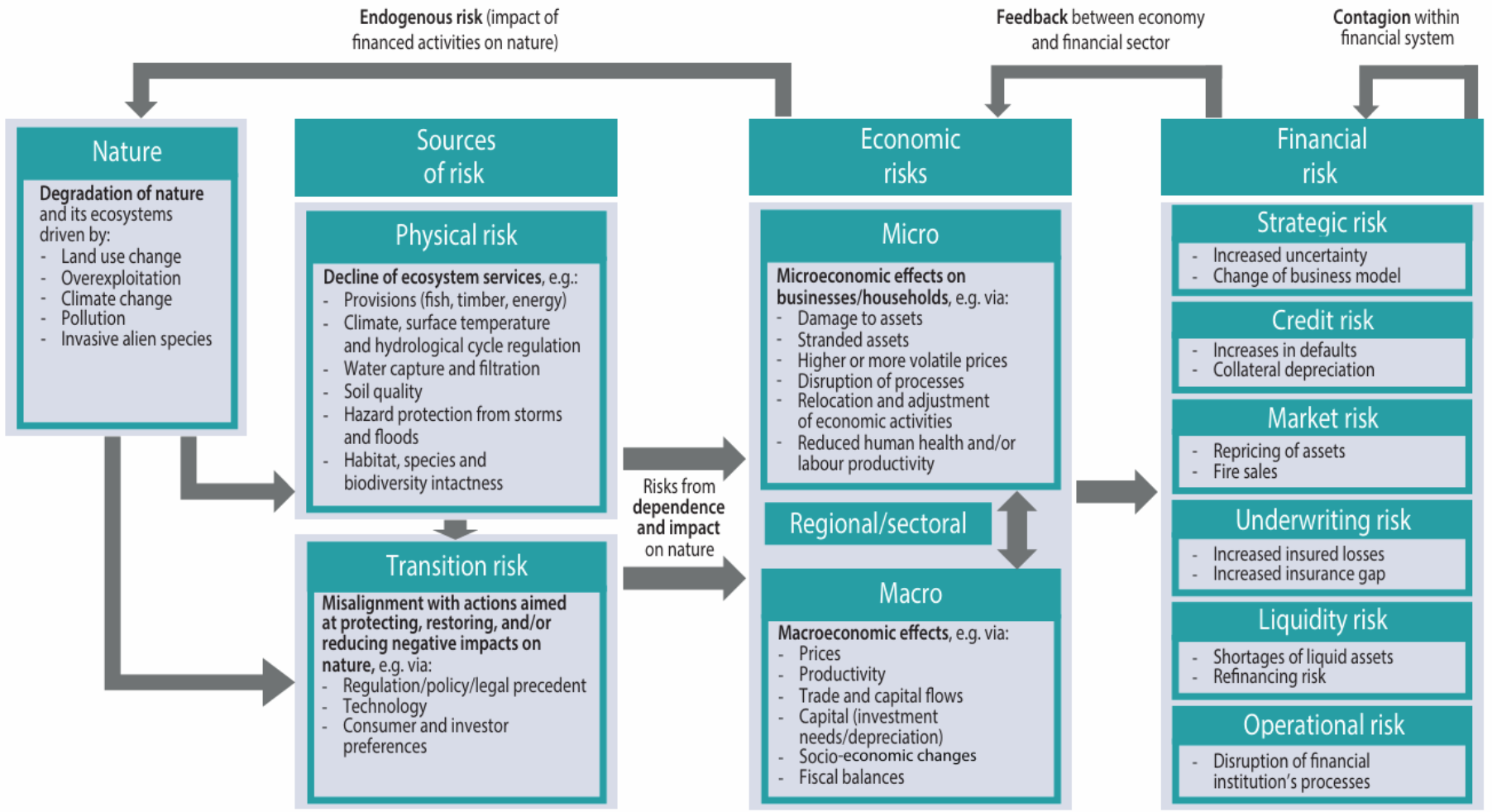




New costs on mining firm reduce valuation of company shares. Equity investment value of multiple investments decreases for pension fund. Potential reputational damage as pension fund invested capital is linked to damage to the environment

Nature-related risks for FIs is a complex relationship

Nature loss can drive micro and macro economic risks

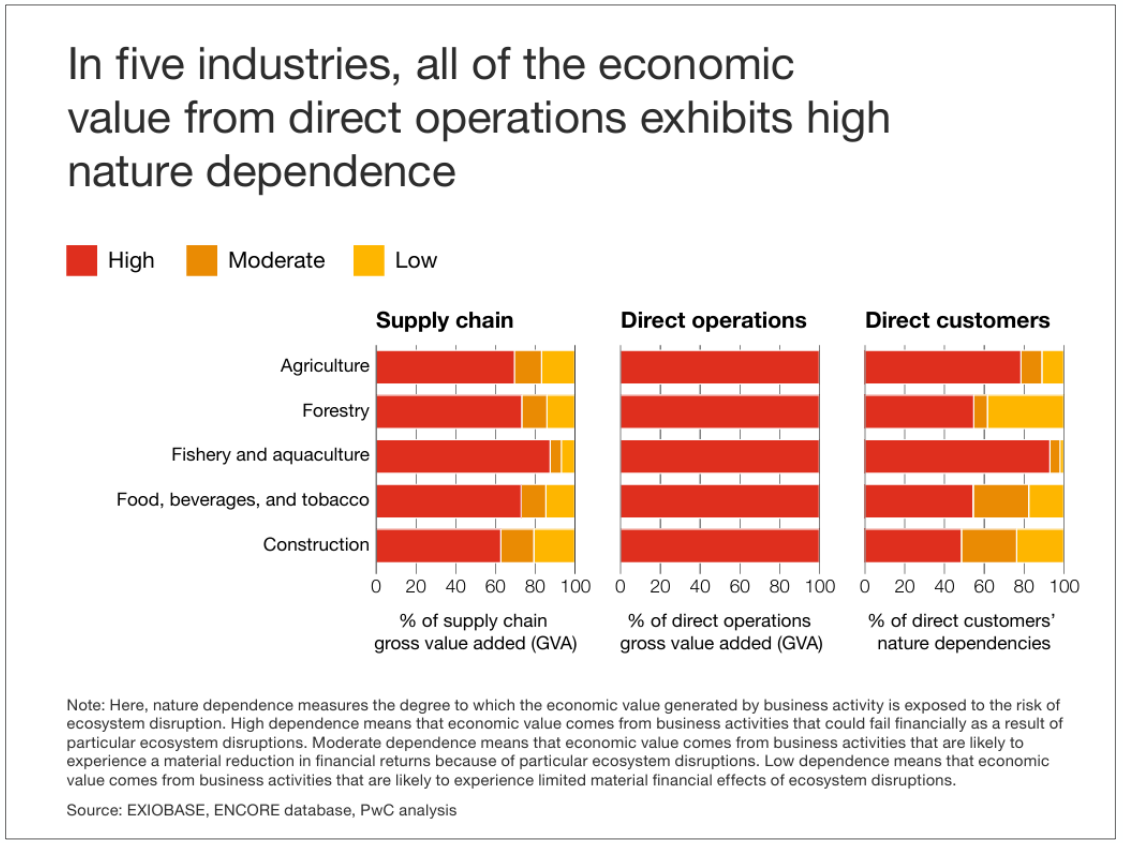


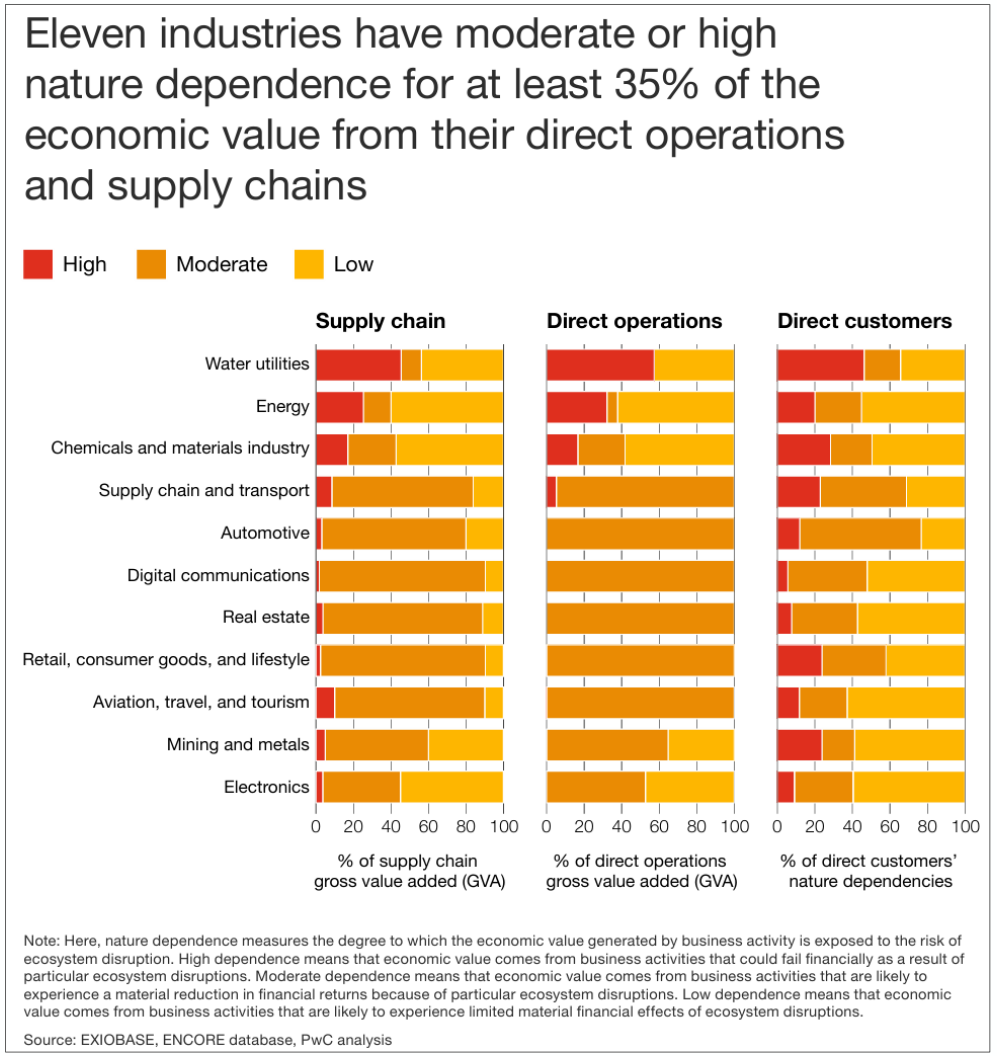
Sources: Adapted from Svartzman, R. et al. *(2021) A "Silent Spring" for the Financial System ? Exploring Biodiversity- Related Financial Risks in France.*

Nature risks and value-chains

Nature risks are often higher in supply-chains than in direct business operations

Agriculture and primary production contributes less than 3% to South Africa's GDP – does this mean that nature-related risks are only relevant for 3% of South Africa's economy?



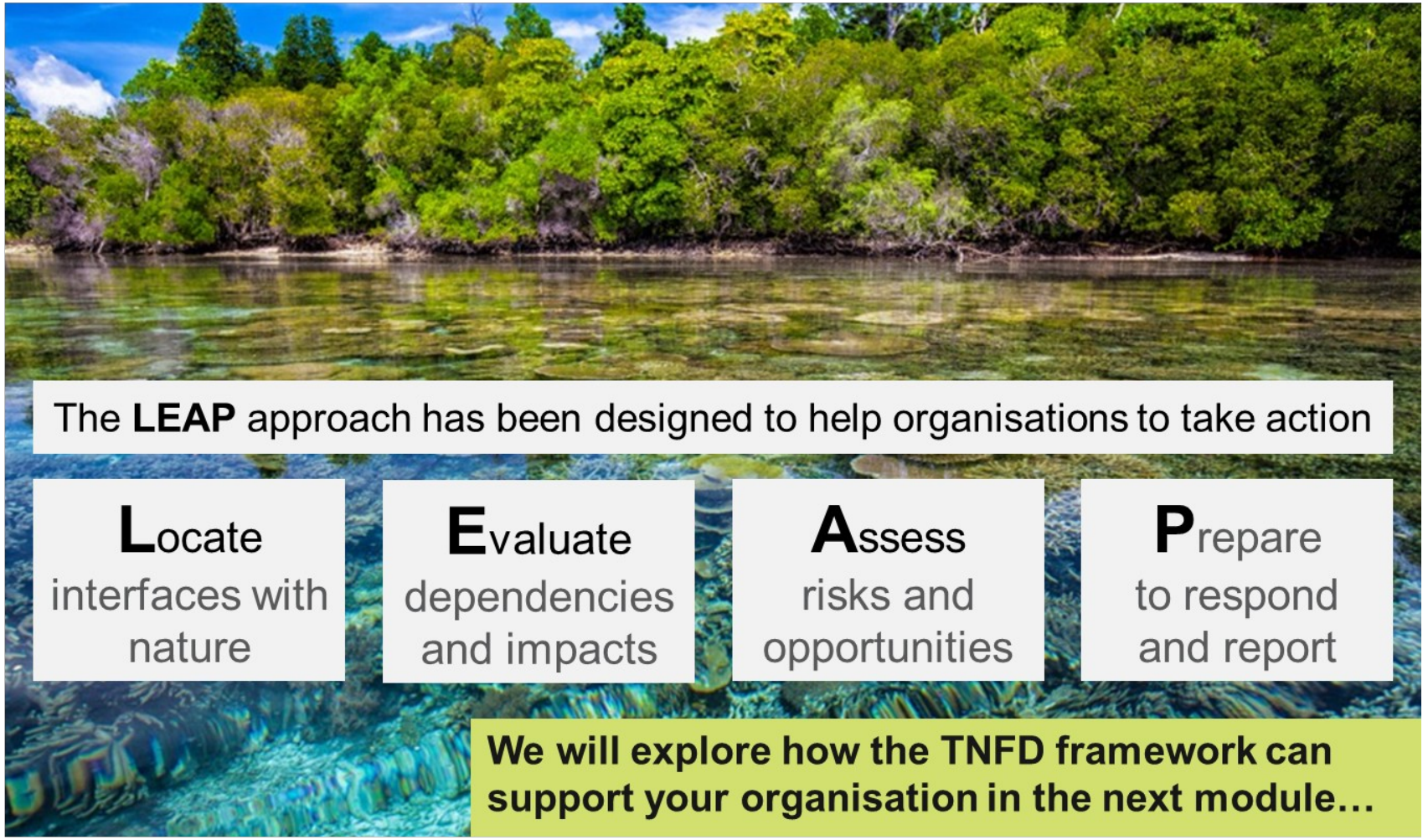


Taking action

The TNFD provides a framework for action

Understanding an organisation's dependencies and impacts on nature is essential to inform a robust understanding of its potentially material risks and opportunities. The TNFD therefore strongly recommends, irrespective of the approach to materiality taken by the report preparer, the identification and assessment of all four types of nature-related issues – dependencies, impacts, risks and opportunities. When reporting, organisations should delineate the four types of issue and explain the links between them.

Source: TNFD (2023) Recommendations of the Taskforce on Nature-related Financial Disclosures



Key take home messages

1

The future cashflows of business are dependent on the future flow of nature's services.

2

Most corporates and financial institutions today are inadequately accounting for nature-related dependencies, impacts, risks and opportunities.

3

The TNFD can help organisations identify, assess, disclose and manage nature-related issues, providing these tools in an integrated way for the first time.

Climate Risk Services

Thank you!

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

www.climateriskservices.com