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BUSINESSES AND BIODIVERSITY

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What is biodiversity?

- Variety of life on Earth
- 1.75 m species identified (estimated to be 3-100m)
- Genetic differences within species
- Variety of ecosystems (deserts, forests, wetlands…)
- In each ecosystem living creatures including humans form a community, interacting with one another and with the air, water and soil around them

Biodiversity provides a large number of goods and services

Nature = business provider



REALMS
Land
Ocean
Fresh Water
Atmosphere

→ **BIOMES**
Ecosystems

→ **ENVIRONMENTAL ASSETS**

→ **ECOSYSTEM SERVICES**

↓



SOCIETY, ECONOMY, BUSINESSES

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What is the issue?

- Businesses are dependent on nature (eg pharmaceuticals
- Nature is rapidly deteriorating
- Nature has been until now the free provider of unlimited resources (water, pollination, etc)



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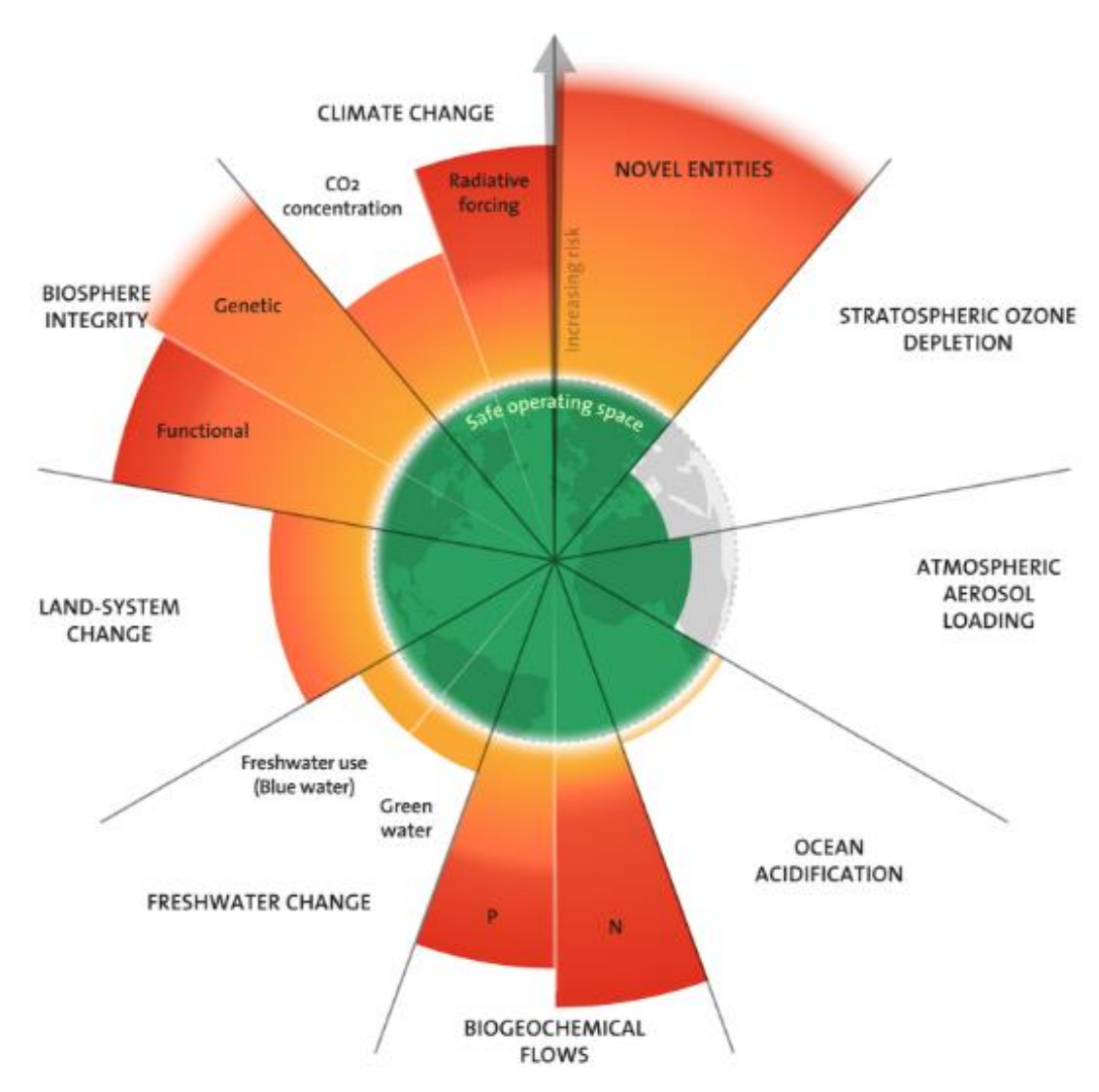
The planetary boundaries



- Climate Change
- Novel entities
- Stratospheric Ozone Depletion
- Atmospheric Aerosol Loading
- Ocean acidification
- Modification of biochemical flows
- Freshwater change
- Land system change
- Biosphere Integrity

Source: Stockholm Resilience Centre

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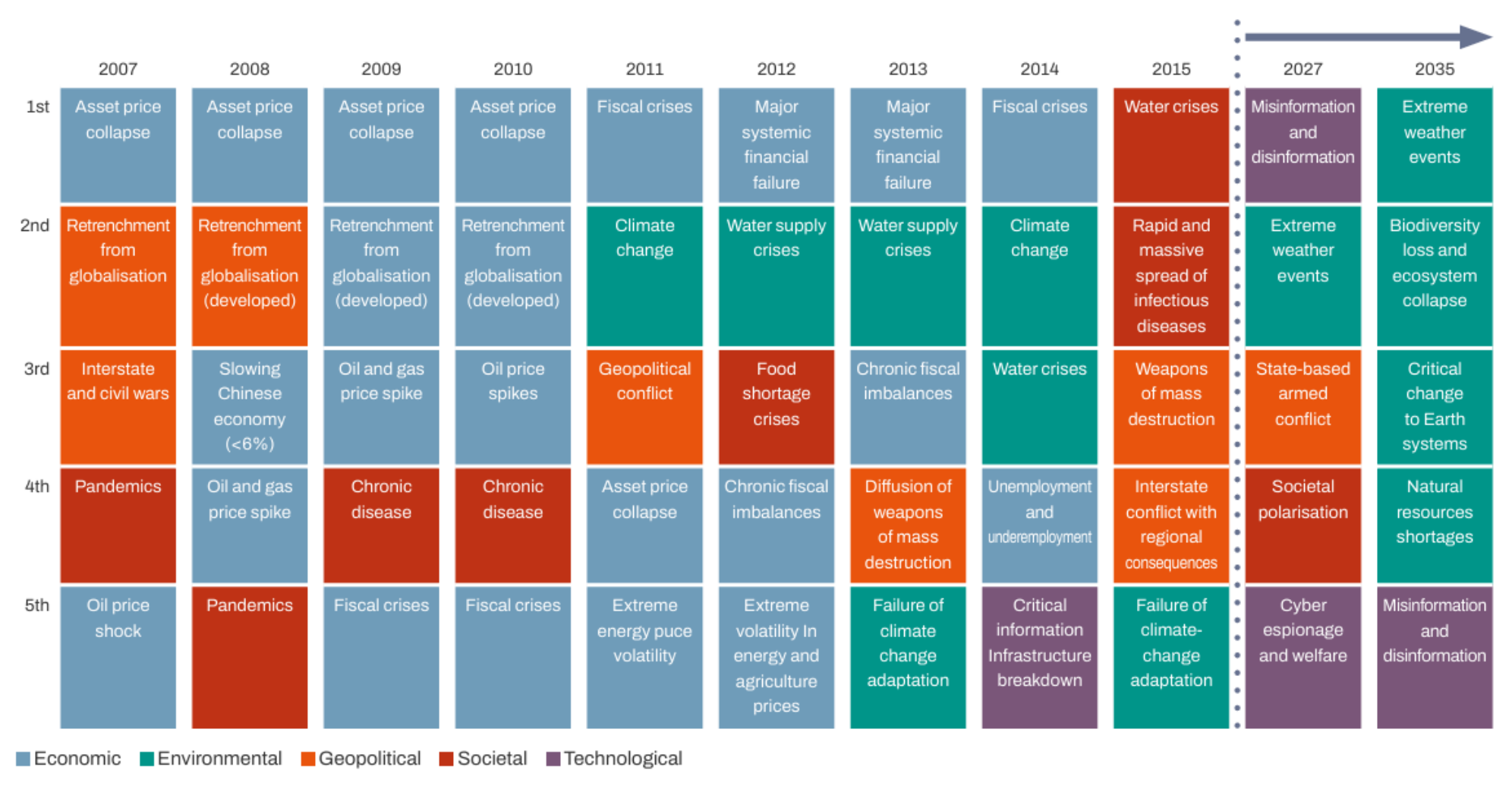
DIVER

Biodiversity loss – a source of business risk



Source: WEF 2025

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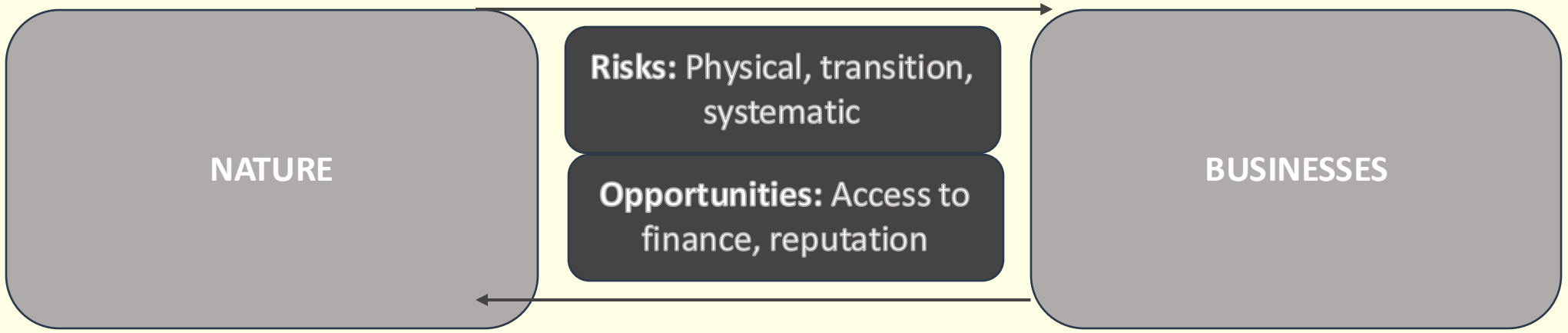
Relevance for businesses

Dependencies: eg agri-food business Water, pollination, healthy soil, flooding protection



Impact eg agri-food business: deforestation (-), regenerative agriculture (+)

Nature is no longer a corporate social responsibility issue but a core and strategic management issue, TNFD 2023

The Global Context

- Rio Earth Summit (1992)– Convention on Biological Diversity (CBD) - humans to live in harmony with biodiversity by 2050
- National biodiversity strategies and action plans
- Global targets for diversity 2030 and global goals for 2050 – Kunning-Montreal Global Biodiversity Framework (COP-15)(2022)
- COP 17 (different from COP climate) – 2026 Armenia

The Kunning – Montreal Framework – The goals (for 2050)



GOAL A: Protect and Restore

Increase natural ecosystems by 2050

Halt human-induced species extinction

Enhance species abundance and genetic diversity



GOAL B: Prosper with Nature

Maintain and enhance ecosystem services

Restore declining ecosystems

Support sustainable development for future generations



GOAL C: Share Benefits Fairly

Equitable sharing with indigenous and local communities

Protect traditional knowledge

Strengthen access and benefit-sharing mechanisms



GOAL D: Invest and Collaborate

Close $700 billion biodiversity finance gap

Ensure accessible financial and technical support

Align financial flows with global biodiversity framework

Living in harmony with nature where by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.

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The Kunning-Montreal Framework



2030

23 Targets

Source: https://www.biodiversityplan.org/

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The Kunning – Montreal Framework - Targets

Plan and Manage all Areas to Reduce Biodiversity Loss	Restore 30% of all Degraded Ecosystem	Conserve 30% of Land, Waters and Seas	Halt Extinction, Protect Genetic Diversity and Manage Human Wildlife Conflict	Ensure Sustainable Harvesting and Trade of Wild Species	Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact
Reduce Pollution to Levels That Are Not Harmful to Biodiversity	Minimize Impacts of Climate Change on Biodiversity and Build Resilience	Manage Wild Species Sustainably to benefit people	Enhance Biodiversity and Sustainability in Agriculture, Aquaculture, Fisheries and Forestry.	Restore, Maintain and Enhance Nature's Contributions to People	Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity
Increase the Sharing of Benefits From Genetic Resources, Digital Sequence Information and Traditional Knowledge	Integrate Biodiversity in all Decision-Making at all levels	Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts	Enable Sustainable Consumption Choices To Reduce Waste and Overconsumption	Strengthen Biosafety and Distribute the Benefits of Biotechnology	Reduce Harmful Incentives by at Least $500 Billion per Year, and Scale Up Positive Incentives for Biodiversity

Mobilize $200 Billion per Year for Biodiversity From all Sources, Including $30 Billion Through International Finance	Strengthen Capacity-Building, Technology Transfer, and Scientific and Technical Cooperation for Biodiversity	Ensure That Knowledge Is Available and Accessible To Guide Biodiversity Action	Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all	Ensure Gender Equality and a Gender-Responsive Approach for Biodiversity Action



The national context – the UK

UK Climate Change Act 2008/ England Environment Act 2021 – legally binding biodiversity targets

- Reduce the risk of species extinct in 2042 compared to 2022
- Create or restore 500,000 hectares of wildlife rich habitats by 2042
- Overall increase of species abundance by 2030, increase by 10% by 2042, compared with 2030

UK Biodiversity Framework (2024) Meet targets of the Biodiversity Framework

Some business implications

- Developers to provide 10% more or better quality natural habitat than before development
- Farmers' rewards
- Focused on conservation areas

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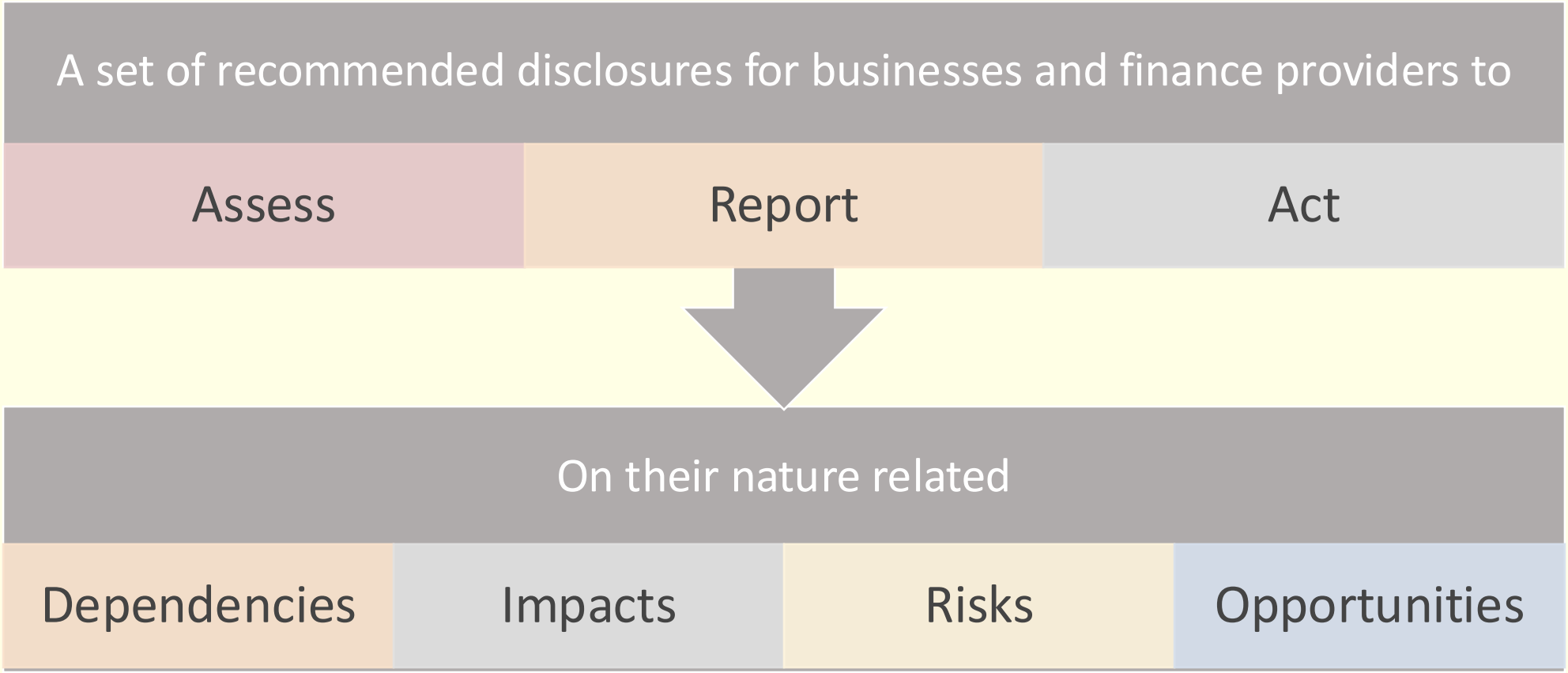
Enabling disclosure and decision taking – TNFD – Taskforce on Nature-related Financial Disclosures



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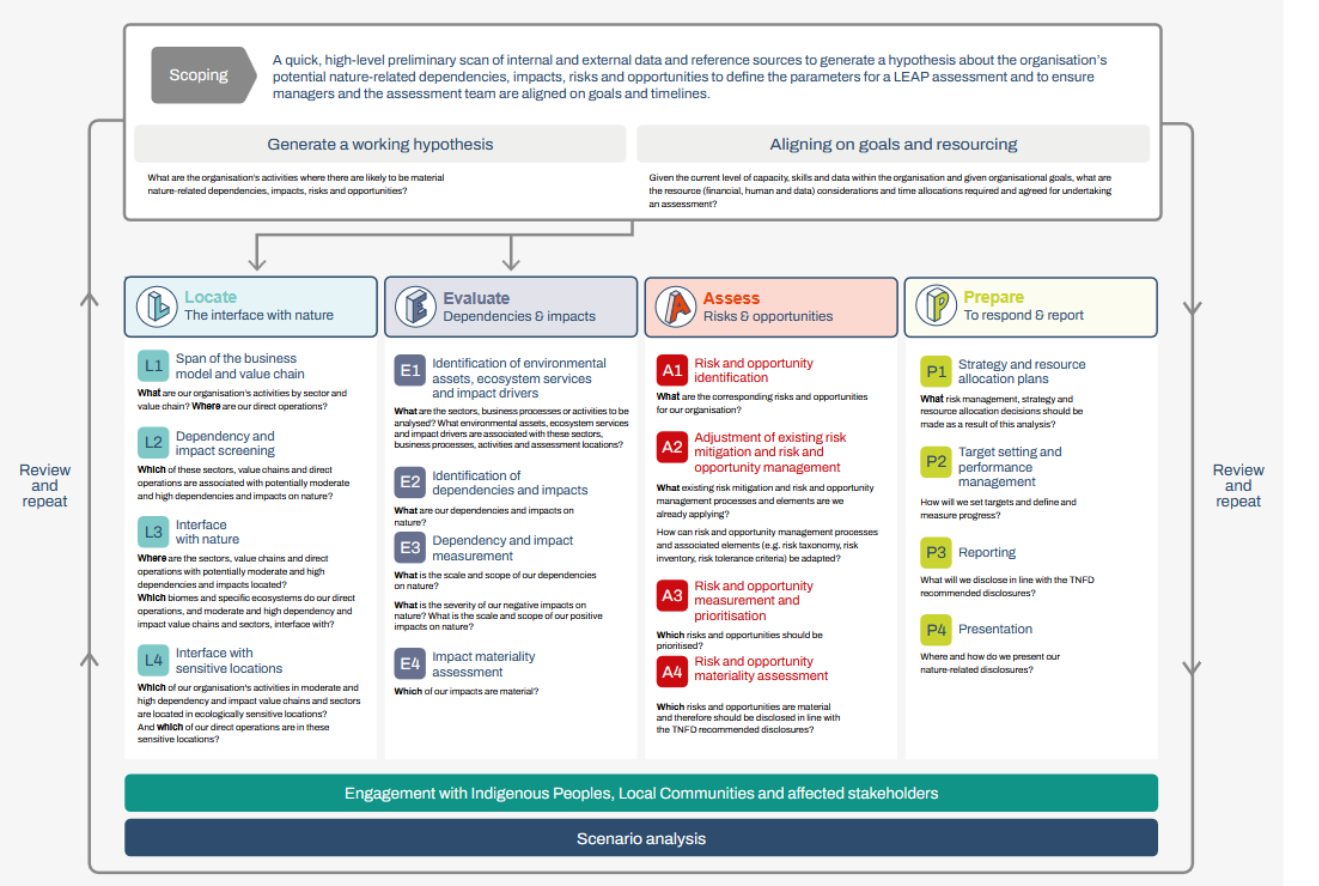
TNFD - The Framework

Governance	Strategy	Risk and Impact Management	Metrics and Targets
Consider scope and priorities Consider skills, knowledge development and resource needs Identify potential integration opportunities Identify potential ways to address data limitations Consider value chains			
Identify governance structure and processes Identify support for board and management Consider stakeholder engagement activities	Consider locations Identify time horizons Consider strategic implications	Consider assessment methods (including scenario analysis) Identify appropriate risk management processes	Consider metrics Consider targets

Source: TFNC

TNFD – The LEAP Approach (Locate Evaluate Assess Prepare)

Locate the interface with nature
Evaluate dependencies and impacts on nature
Assess nature-related risks and opportunities
Prepare to respond to nature-related risks and opportunities and to report on material nature-related issues



Source: TNFD

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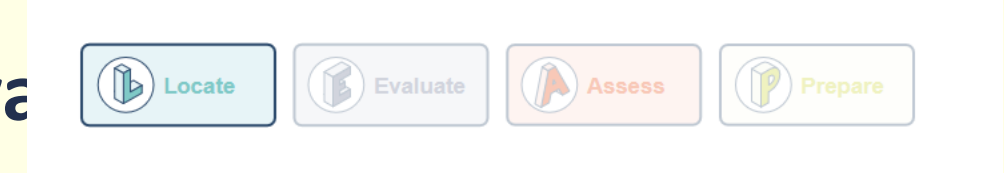
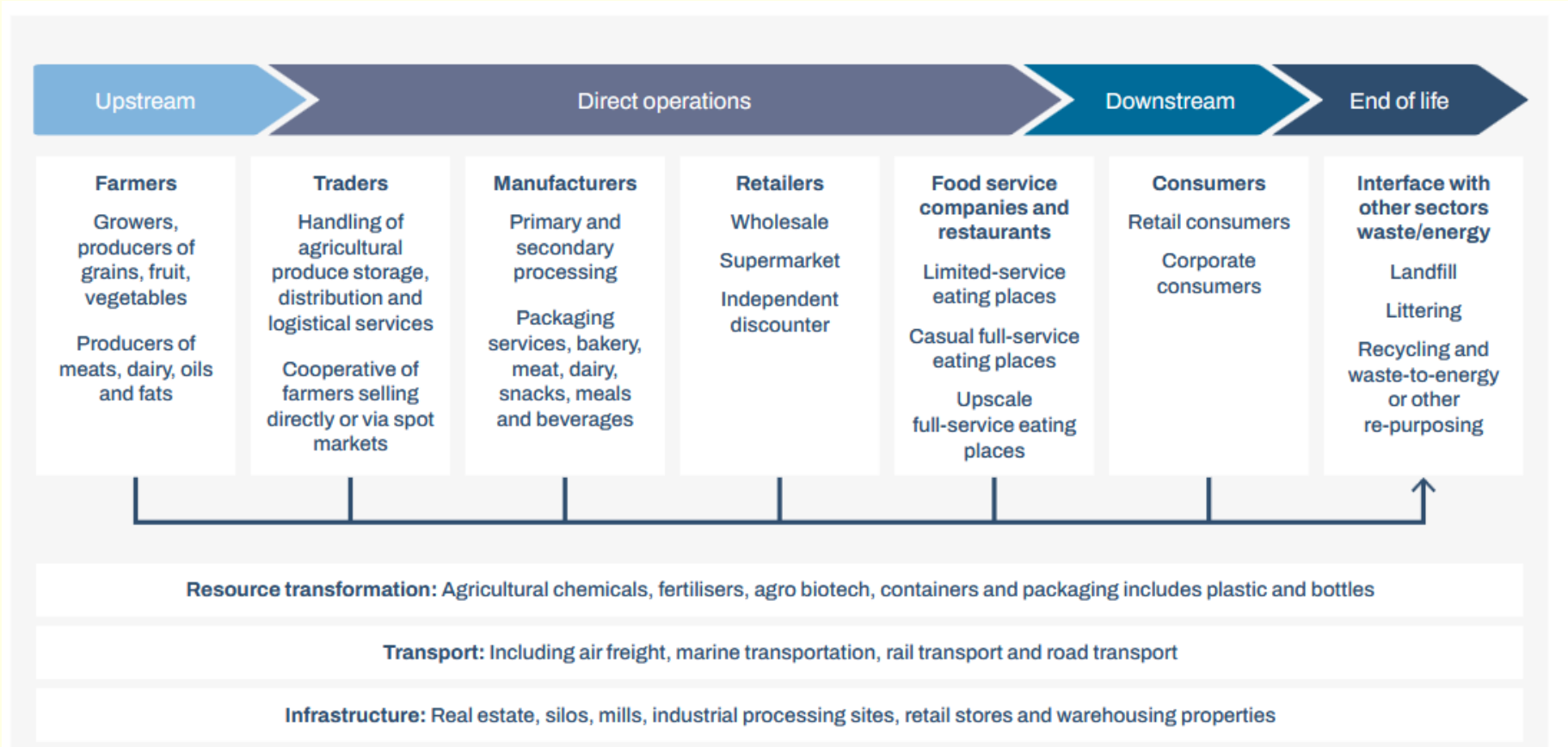
LEAP - Locate – consider the entire va





Example: Value chain in the food business

Source: TNFD

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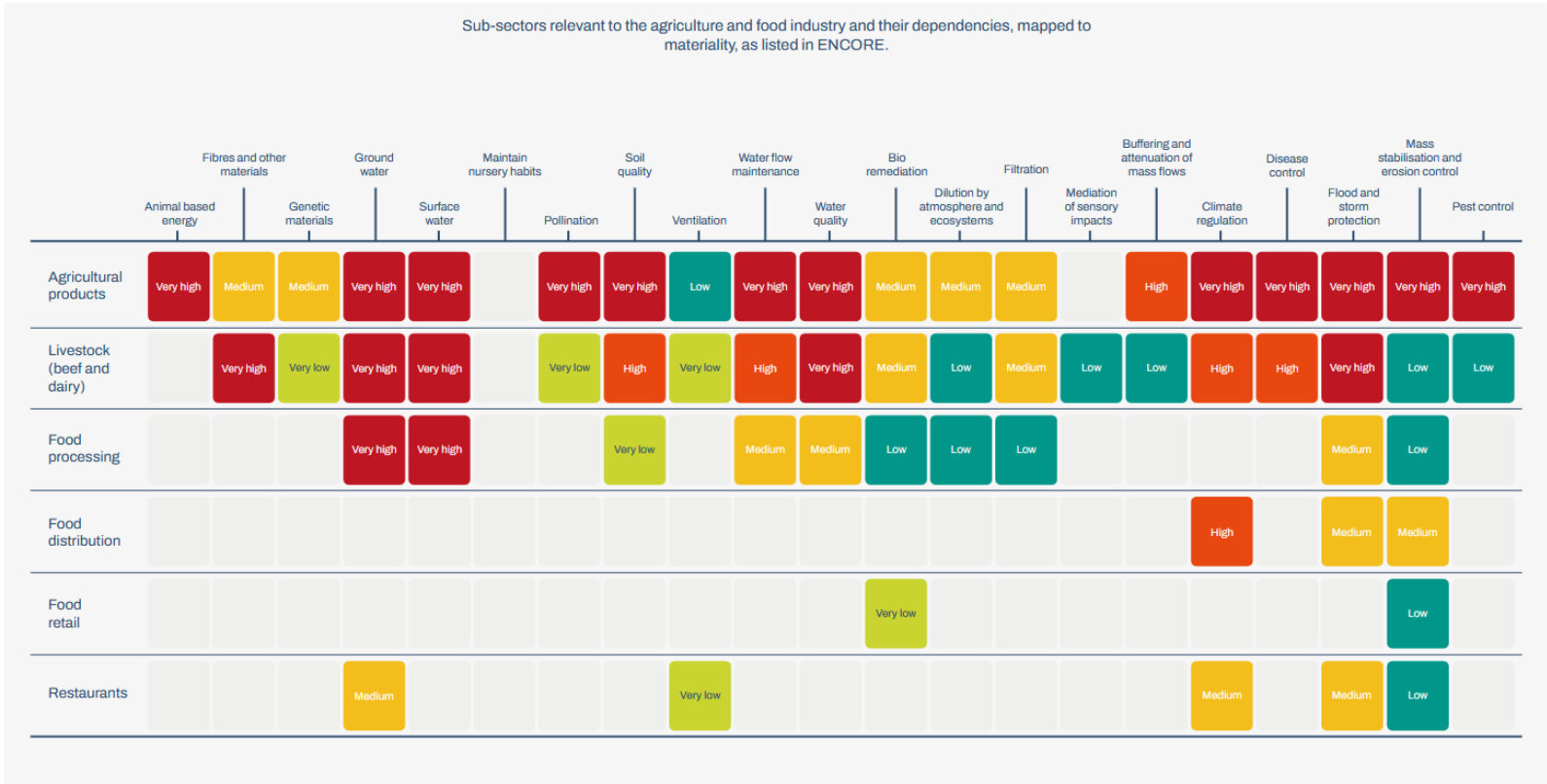
LEAP - Locate - example

Locate | Evaluate | Assess | Prepare

Figure 4a: Materiality ratings of ecosystem services the food and agriculture sector typically depends on (based on ENCORE 2018-2023 data)



Source: TNFD

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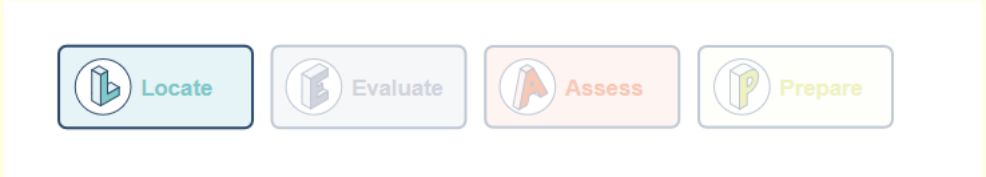
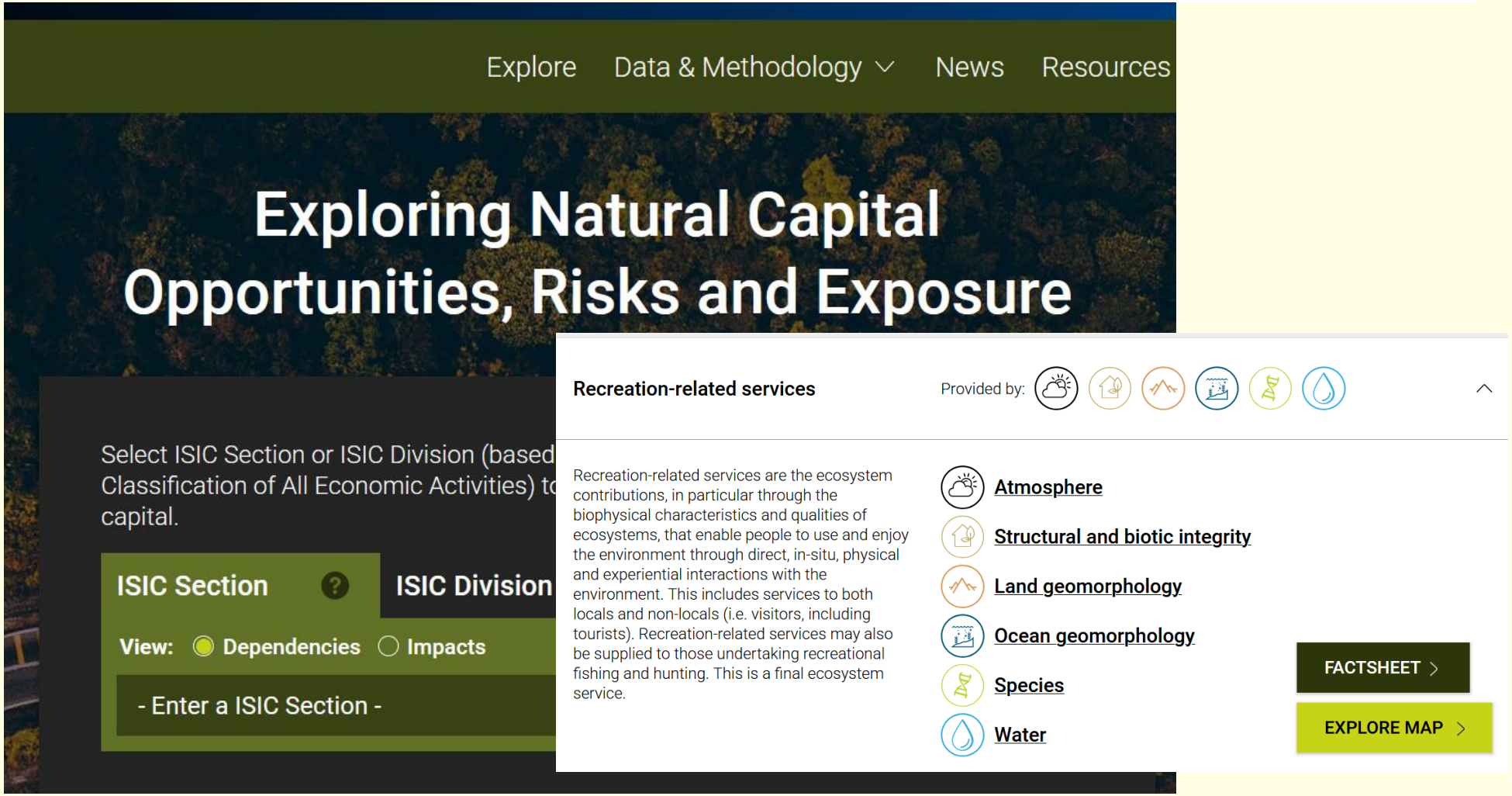
ENCORE - A tool for businesses and finance





Source: Encore

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LEAP – Evaluate - example



Material dependencies and impacts

Business activity	Impact drivers	Examples of environmental assets affected	Examples of ecosystem services affected
Agricultural products, and meat, poultry and dairy			
Application of pesticides	Pollution/pollution removal: Soil pollutants.	• Land; • Freshwater ecosystems; • Marine ecosystems; • Atmospheric systems.	• Genetic material; • Biomass provisioning; • Pollination; • Biological control; • Nursery population and habitat maintenance; • Soil quality regulation.
Wastewater discharge (e.g. from livestock watering and cleaning, discharge from food processing facilities, from restaurants)	Pollution/pollution removal: Water pollutants.	• Land; • Freshwater ecosystems; • Marine ecosystems.	• Genetic material; • Biomass provisioning; • Global climate regulation; • Soil quality regulation; • Water purification.

Source: TNFD

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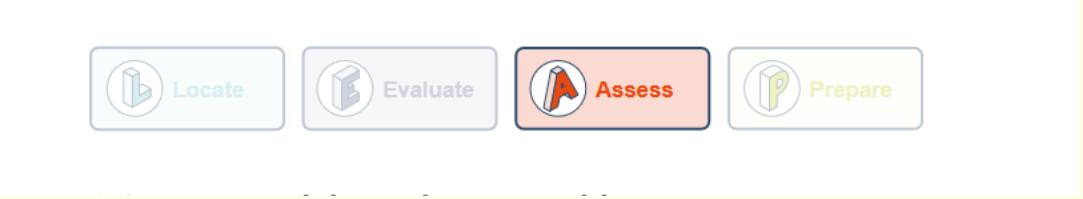
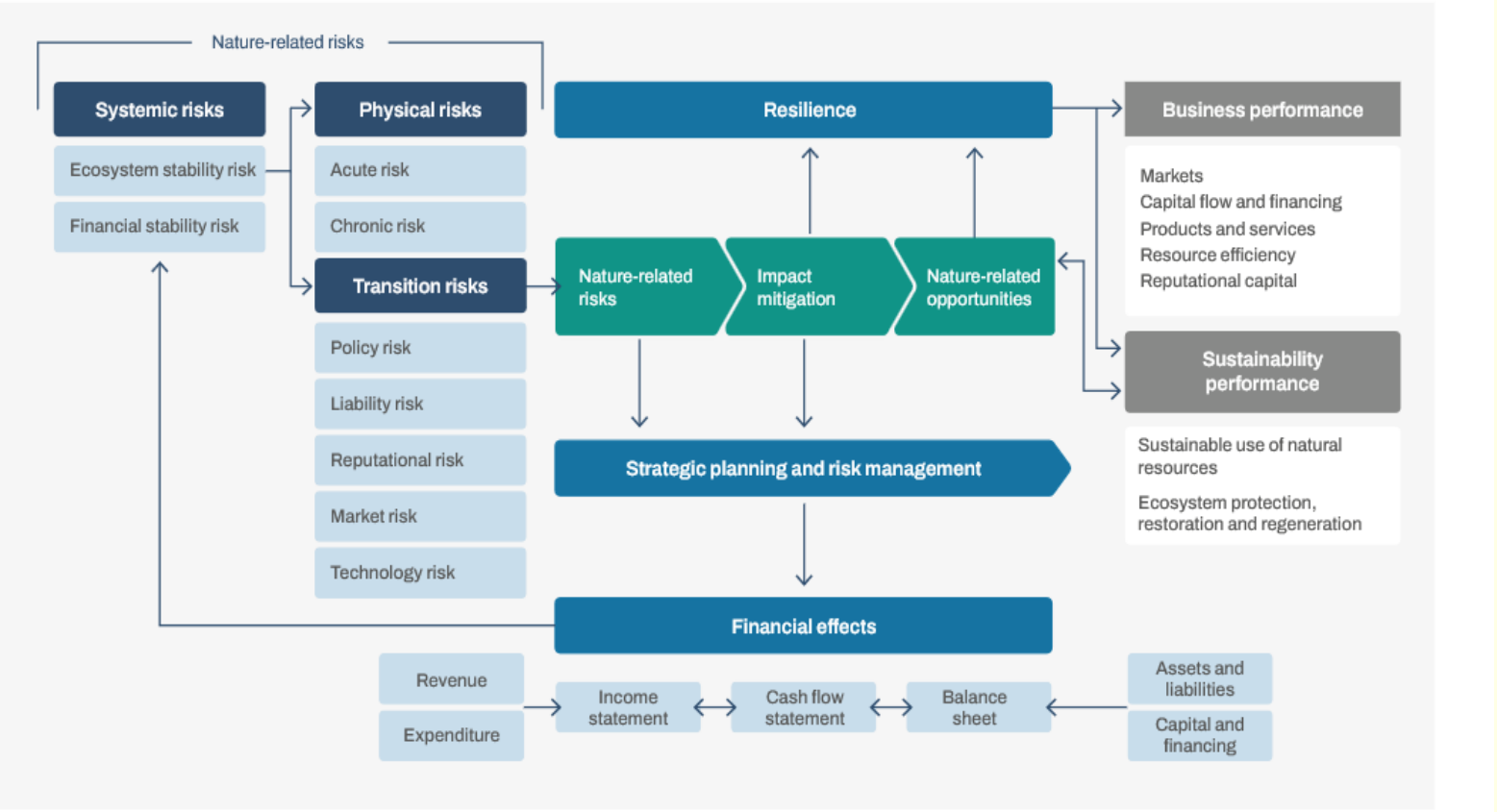
LEAP - Assess



Material risks and opportunities



Source: TNFD

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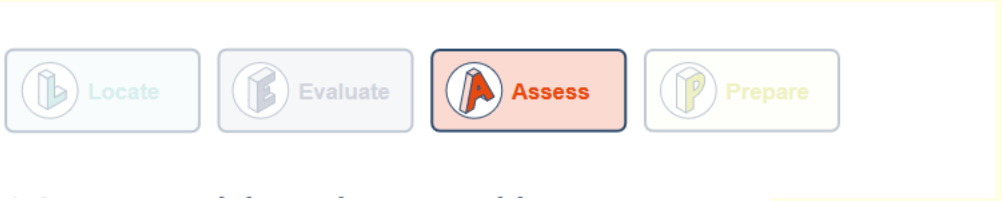
LEAP - Assess



Example in the food sector

Risk and opportunity type		Examples of risks and opportunities
Physical risk	Chronic	Decreasing land productivity and climate hazard regulation services as a result of soil health degradation leads to profit loss for farmers due to yield losses and to downstream corporations due to supply chain disruption.
		Increase in production and sourcing costs due to dependency on agricultural products (including meat, dairy and poultry) from areas with concentration of water pollutants.
		Increase in capital expenditure for mechanical and/or hand pollination due to decline in natural pollinators.
		Asset devaluation due to proportion of land with soil degradation.
		Costs associated with the relocation of agricultural operations and agricultural product suppliers due to lost productivity of agricultural land.
		Increase in capital expenditure on water purification and desalination technologies and soil cleaning technologies due to pollution concentration and water stress.
		Land asset depreciation due to pesticide land concentration/soil health condition and water chemical and nutrient concentration.
		Increased climate hazard insurance costs due to decreased climate and hazard regulating ecosystem services (storm regulation, local (micro and meso) climate regulation, flood mitigation, soil and sediment retention etc).
		Reduction in yield in areas with low to no natural pest control and declining pollinator abundance.

Source: TNFD

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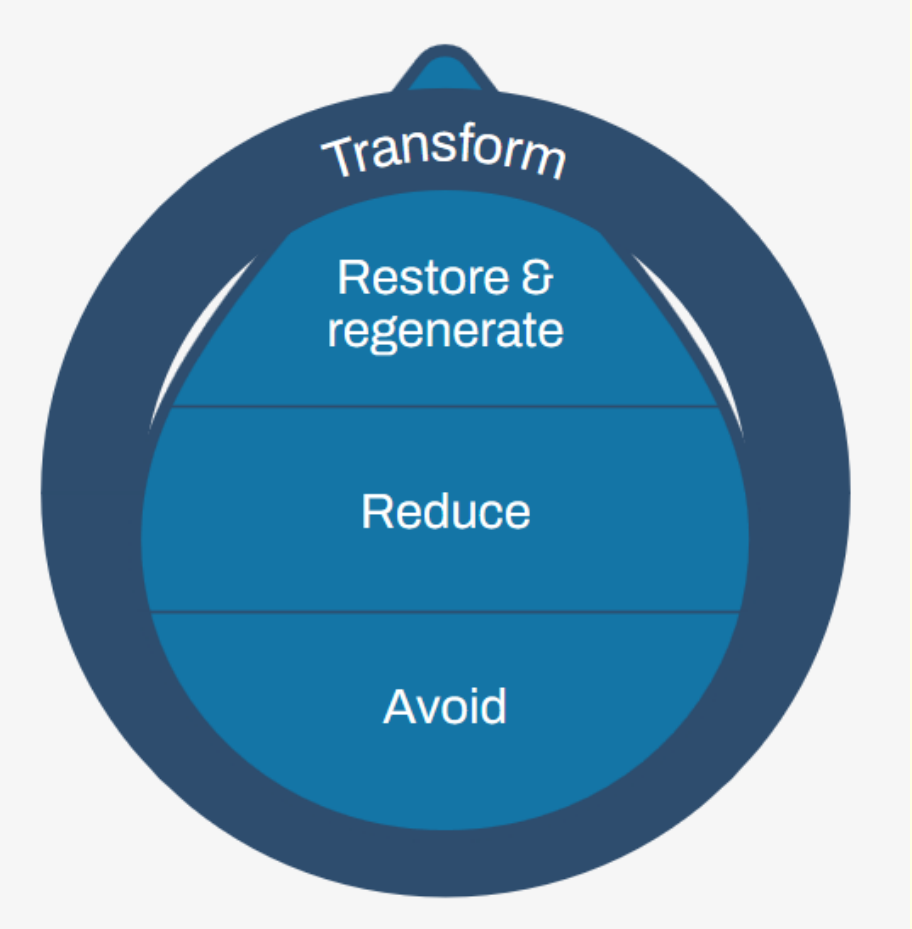
LEAP - Prepare

How to respond to the material nature-related issues identified including what and how to disclose



Source: TNFD

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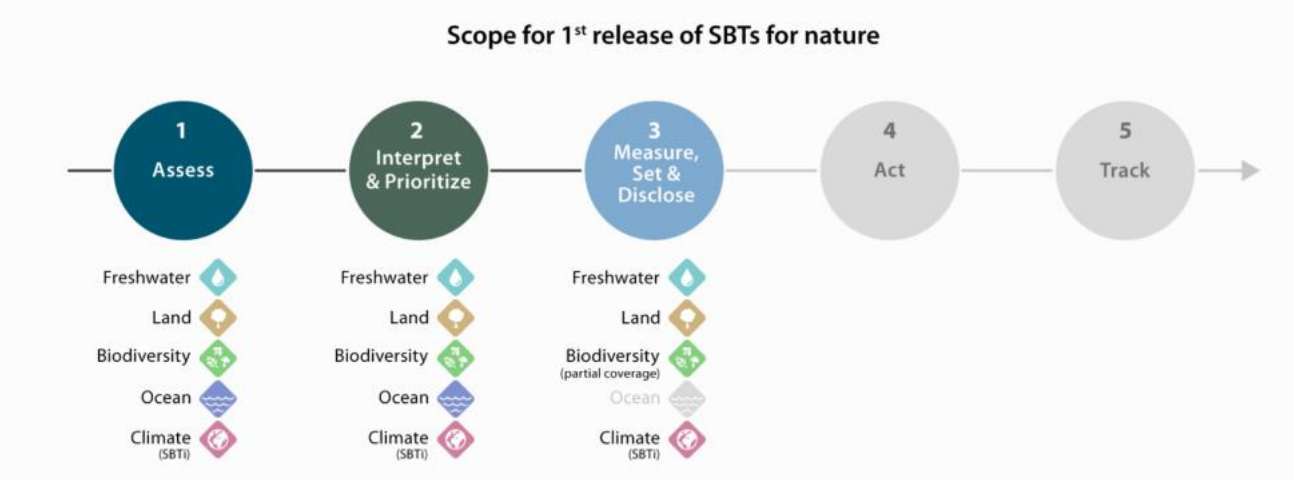
LEAP – Prepare – obtaining validation

- Developed targets for
  - Freshwater
  - Land
  - Ocean targets
- Target setting process is open source
- In order to be official, validation is required through the validation host - Accountability Accelerator – February 2025

SCIENCE BASED TARGETS NETWORK
GLOBAL COMMONS ALLIANCE



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Do businesses need to report their nature metrics and targets?

TNFD Voluntary for the time being

Aligned with

ESRS (European Sustainability Reporting Standards)	IFRS - ISSB (S2)	GRI



Building on other frameworks

SOURCE: TNFD

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Regulation is here to stay

EU

- Nature Restoration Regulation sets targets at national levels
- Revised Environmental Crime Directive (Ecocide)
- Corporate Sustainability Reporting Directive – reporting against ESRS (European Sustainability Reporting Standards)
- Biodiversity added to EU taxonomy
- CSDDD – Corporate Sustainability Due Diligence Directive

UK

- UK Green Taxonomy being developed
- Biodiversity Net Gain for new developments

Examples – Japan Airlines

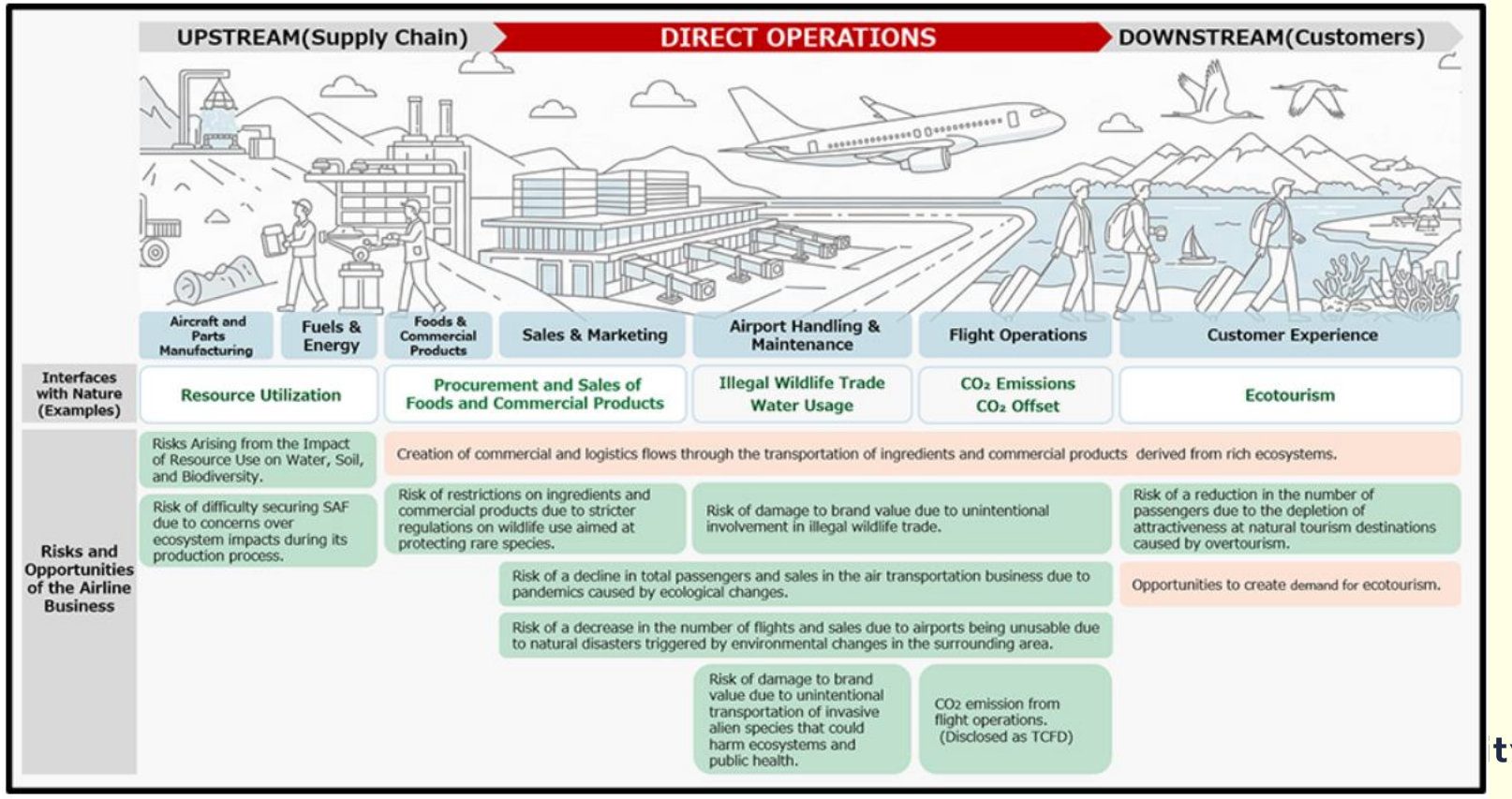
Scoping
Set the destinations for the airline business as the scope, as location information can be identified for these areas. These destinations represent key sources of revenue, accounting for the majority of JAL Group's revenues.

Locate
Mapped out JAL's destinations, where biodiversity and water risks are present, and set them as "Sensitive Locations" to identify points of contact with nature.

Evaluate
The demand for air transportation depends on the
nature-based tourist attractions. On the other han
which provides protection against natural disaste
airports and other related factors were identified.

Assess
Based on the identified dependencies and impact
airports located in areas of biodiversity and water
ensure that overtourism and the degradation of na
total passengers. At the same time, opportunities
through the expansion of initiatives such as ecotou
activities.

Prepare
Acceleration of initiatives to be done, including the
related disclosure contents.



Source : JAL Annual Biodiversity Report

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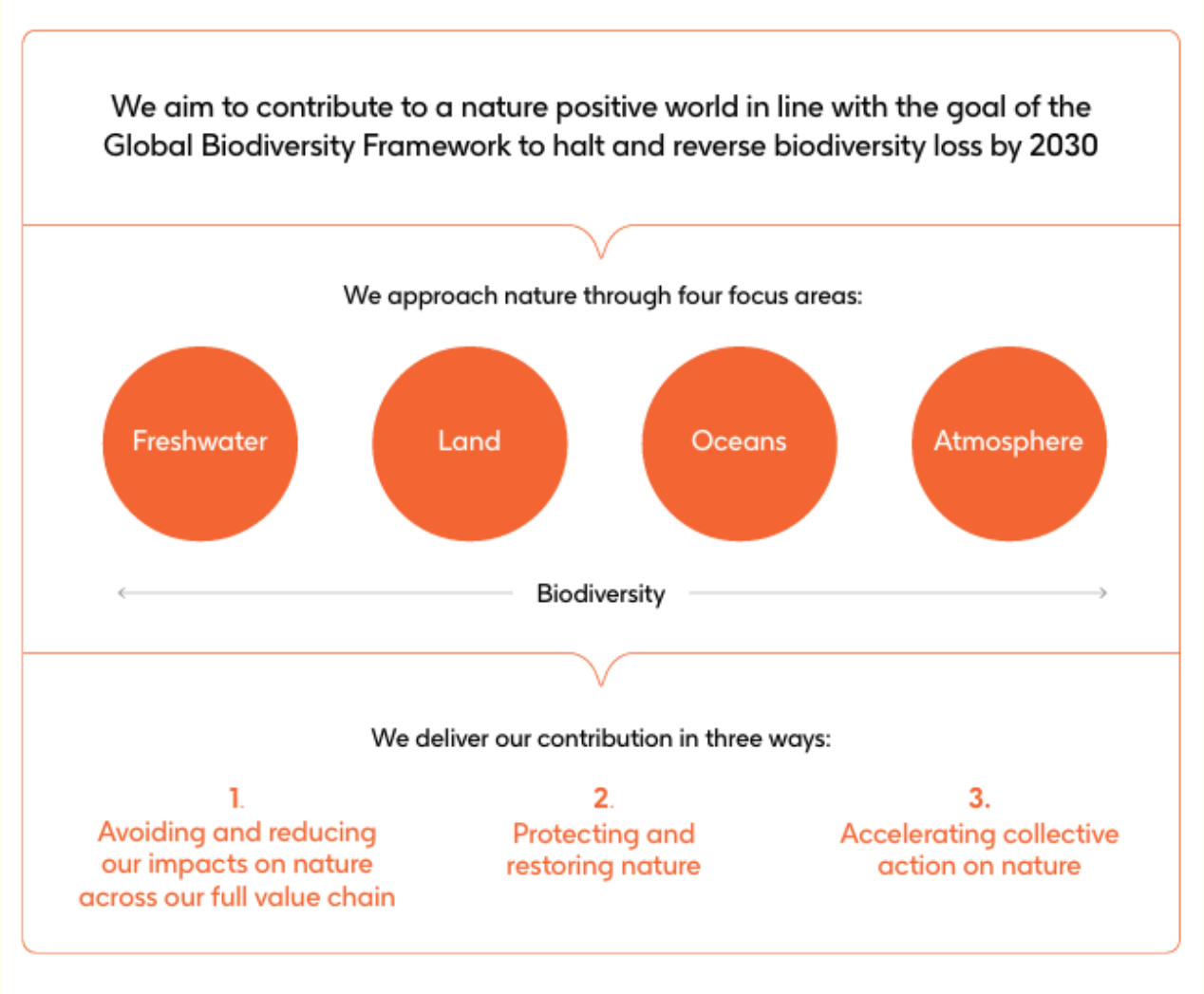
Examples - GSK



Agrovision (Peru)

Assessment of dependencies on Nature

Dependency on ecosystem services	Dependency description	Entry loss	Financial loss	Social impact
Water supply	Water is essential for crop production, packing operations, dust control, and reforestation processes (tree growth).	High	Low	Moderate
Climate regulating factors	Factors such as temperature, rainfall, and wind speed directly affect crop development.	Moderate	Moderate	Low
Pest control	Biodiversity contributes to natural pest control, reducing pesticide use and improving the health of the agricultural ecosystem.	Moderate	Moderate	Moderate
Soil quality regulating factors	Soil fertility and structure affect nutrient supply and water retention capacity, which in turn affect plant growth.	Moderate	High	Low
Pollination	Pollinator activity increases agricultural productivity and improves fruit quality.	Low	Moderate	Low
Landscape value	The landscape value of the environment influences the community's social acceptance of the agricultural project..	Moderate	Moderate	High
Carbon sequestration	Setting up living fences and reforestation acts as a carbon sink, helping to mitigate emissions generated by agricultural activity.	Leve	Leve	Leve

Agrovision (Peru)

Physical risks

Risk	Kind of risk	Opportunity	Measure of mitigation
Acute and chronic	• Damage to operations due to seasonal rains and El Niño phenomenon. • Air and soil pollution caused by sewage overflow. • Contamination of flora and soil due to poor calibration of fumigation equipment, spill of agrochemicals, among others. • Inadequate segregation of hazardous and non-hazardous waste. • Stress on flora and displacement of fauna due to mechanical faults in vehicles and machinery (noise and vibrations. • Stress on flora and displacement of fauna due to mechanical faults in vehicles and machinery (noise and vibrations). • Modification of the habitats of species endemic to the area.	• Implementation of modern infrastructure and weather forecasting systems. • Tools, equipment, and machinery suitable for the activities and in good condition. • Use of organic fertilizers and agrochemicals. • Eco-efficiency practices in integrated waste management. • Implementing renewable energy. • Implementing sustainable mobility projects • that have less impact on flora and fauna.	• Committed and trained personnel in the implementation of the ISO 14001:2015 • Environmental Management System. • Reforestation Plan. • Flora and fauna assessments and monitoring. • Sustainability policy. • Involvement of stakeholders in the preservation and care of flora and fauna. • Coordination with government agencies such as PROOLMOS and Cultivando to protect the dry forest.
Political	• More stringent policies on water use and water resources. • Sociopolitical conflicts that may affect the Peruvian economy. • Change in government policies. • Disagreements or breaches with the communities of Mórrope and Olmos that could lead to lawsuits and fines.	• Strengthening the Environmental and Social Management System. • Establishing control plans and measures to ensure profitability and asset care. • Anticipate environmental and social regulations and their amendments.	• Environmental Impact Assessment (EIA). • Community Relations Plan and Agreement Compliance. • Compliance with Integrated Environmental and Social Policies. • Compliance with current legal regulations.
Market, Technology, Reputation	• Increase in fertilizer prices. • Negative impacts on the company's reputation due to drug contamination. • Implementation of modern technological systems applied to the agricultural sector. • International banks emphasize mandatory compliance with sustainability standards. • Political unrest impacting international markets, especially in the United States.	• Alignment with international sustainability guidelines and standards. • Training and education on anti-corruption issues. • Cost efficiency plans. • Innovation, research, and development in the agro-industrial sector. • Seeking new business opportunities with strategic partners in Asia-Pacific.	• BASC audit. • Environmental assessments and monitoring. • Transparency and disclosure through the • Sustainability Report. • Anticorruption Policy. • Synergies with political actors to reduce impacts on the sector (AGAP). • HACCP plan in the production and export chain.

Legal & General (UK)

Operational targets and commitments

The way we operate our businesses has an environmental impact. We continue to utilise operational controls to manage these impacts, such as our ISO 14001 accredited Environmental management system.

To continue to drive environmental improvements through our operations and to support our long-term approach to managing climate and nature risks, we have set strategic commitments and targets which are outlined to the right.

We believe these strategic themes are important to our operations and will help shape our response to the risks and opportunities in the short, medium and long term.

The energy we use

Strategic commitment
We will reduce our energy usage in line with our journey to net zero and source energy from renewable sources.

Target
We will reduce absolute scope 1 and 2 GHG emissions by 42% by 2030[1].

From 2030, our occupied offices (scope 1 and 2) will operate with net zero carbon emissions[2].

By 2025, we will purchase 100% of directly procured electricity group-wide from renewable sources.

Progress in 2024
Scope 1 and 2 emissions reduced by 30%[1].

Our occupied offices emitted 2,771 tCO_2e.

We procured 86% renewable electricity and are on track to meet our target of 100% by year end.

The way we travel

Strategic commitment
We will use hybrid working practices and technology to actively reduce the business miles we travel in line with our commitments to net zero.

Target
From 2030, our group-wide business travel will operate with net zero emissions.

Progress in 2024
Our emissions from business travel have increased 2% from 2023. This is in line with our expectations but will be an area of focus in 2025. We have some dependency on the overall sustainability of the travel sector in achieving this target by 2030. In the shorter term, we expect to need to consider using offsetting arrangements to reduce any residual emissions, including the creation of our own offsets through our nature initiatives.

Natural resources

Strategic commitment
We will protect the natural resources we use through the implementation of sustainable procurement principles.

Target
By end of 2026, 80% of our suppliers, by spend, will set a science-based carbon reduction target[3].

Progress in 2024
68% of suppliers, by spend, have a science-based carbon reduction target.

Water resources

Strategic commitment
We will protect and minimise the use of water resources in the spaces we create and occupy.

Target
By 2030, our core occupied offices will consume a maximum of 22 litres of water per person per day (lppd) in line with the Real Estate Environment Benchmark (REEB)[2].

Zero water pollution incidents.

Progress in 2024
Our core occupied offices consumed 28lppd, which is a reduction from 33lppd in 2023.

Zero water pollution incidents.

Circular economy

Strategic commitment
We aim to minimise and design out waste through the careful implementation of the principles of the circular economy.

Target
By 2025, we will divert 100% of waste from landfill in all offices and directly delivered housing development projects where we are responsible for waste management.

By 2025, we will reduce overall waste volumes per core occupied office by 20% from a 2019 base year[2].

Progress in 2024
100% of waste diverted from landfill achieved.

Target exceeded with a 41% reduction in office waste. Noting that our base year was pre-pandemic when office occupancy levels were higher than current levels.

Biodiversity

Strategic commitment
We are committed to creating diverse and valuable natural spaces and achieving overall net biodiversity gains. We are also committed to understanding and positively shaping the biodiversity impacts of the investments we make.

Target
By 2025, we will report on milestones to reduce agricultural commodity-driven deforestation related to our investments and increase our investment in nature-based solutions.

Progress in 2024
As part of our Nature Framework, published in 2024, we are continuing to work to meet our objectives on deforestation on a best efforts basis through engagement, and by developing the tools to identify potential deforestation exposure in our corporate holdings.

1. To account for the impact of the pandemic, our 2021 base year includes estimated emissions data from our Private Markets commercial portfolio based on 2019 data. All other base year emissions are from 2021.
2. Applies to occupied offices where we actively control the management of utilities.
3. We define a target as science-based if it is aligned to SBTi criteria i.e. is a mid-term reduction target with enough ambition to align with the global net zero trajectory.

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Nature exposures

Our Asset Management division has issued its Nature Framework, as we appreciate that nature-related risks could have significant macroeconomic implications and be a source of risk to financial stability[1].

Alongside these engagements, we are building our understanding of the Group proprietary assets' exposure to nature-related risks. We started by focusing on risks that cross the climate and nature risk nexus (such as risks from deforestation), while also referring to TNFD guidance for financial institutions.

Nature-related dependencies and impacts

The TNFD Financial sector guidance calls for two particular metrics as follows[2]:

- (FI.C0.0) – Exposure to sectors: The Taskforce recommends that financial institutions disclose a metric that represents the exposure to a defined set of sectors considered to have material nature-related dependencies and impacts
- (FI.C0.1) – Exposure to sensitive locations: The Taskforce recommends that financial institutions disclose a metric that represents their exposure to companies with assets and/or activities in sensitive locations.

Deforestation

Investment deforestation risk exposure generally arises from deforestation activity within complex investee supply chains making related data collection and measurement activities challenging.

That said, building on our Deforestation Policy within our Asset Management division, we can assess companies based on sector, commodity, geography, and controversies or incidents related to deforestation and human rights in operations and supply chains[3]. We categorise companies according to their degree of potential exposure to commodity-driven deforestation and its associated risks. We use data from a range of third-party providers and our analysis is informed by Global Canopy's guide, Deforestation Free Finance[4].

2024 developments

Over 2024, we continued to build our nature investment data capability, focusing on the metrics identified above. As in our 2023 report, the charts on the right highlight our exposure to issuers identified in datasets with potential deforestation risks and sectors with material nature-related dependencies and impacts.

In relation to FI.C0.1, low data coverage within industry datasets creates difficulties in reaching portfolio conclusions. However, we have observed where data coverage exists, that exposure to sensitive locations is not concentrated within certain sectors and could be a systemic challenge across all sectors, with many sizeable companies in differing locations flagging up operations in sensitive locations.

As such we will continue to engage on these topics, through our Nature Framework, while also further embedding these topics into internal risk assessment considerations.

Deforestation assessment

Chart 12 shows that c.14% of our holdings, as at end 2024, are with over 700 companies who have been identified on data sources related to tracking potential deforestation risk exposures.

Data sources include Forest 500, CDP Forest, Sustainalytics and SPOTT.

We internally score the issuers identified above, based on differing levels of deforestation management and expect our exposure to actual deforestation risks to be less than 14%, noting that 13% exposure sources from less than 150 companies.

We also monitor external developments in data capabilities in this space, helping us to continue to improve our understanding of the underlying risks. It is an area of focus for us, and our existing mitigations are covered as below:

- internal risk assessment (explained above)
- Asset Management's Deforestation Policy and engagement (see pages 37 and 17)
- exclusions (see page 36)
- membership of the NZAOA Deforestation working group.

Nature-related dependencies and impacts

Looking wider than deforestation, Chart 13 shows that 40 – 50% of our holdings are currently exposed to a set of sectors considered to have material nature-related dependencies and impacts, as described in the TNFD financial sector guidance. A range is provided, noting the data gaps and resultant uncertainties in mapping our exposures to the defined sectors.

Chart 12: Exposure to issuers identified in datasets with potential deforestation risks

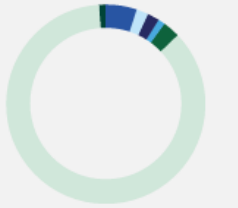
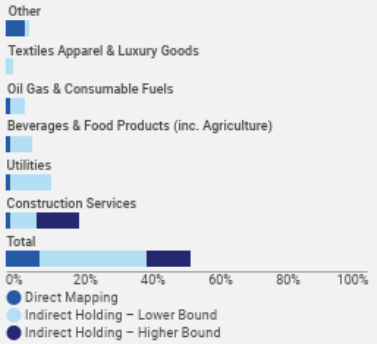


Chart 13: Portfolio exposure to sectors with material nature-related dependencies and impacts



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Thank You!

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