



**Taskforce on Nature-related
Financial Disclosures**

TNFD Nature-related Risk and Opportunity Registers

November 2022

Risk and Opportunity Registers

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TNFD Nature-related Risk and Opportunity Registers

The TNFD Risk and Opportunity Registers outline different categories of nature-related risks and opportunities, indicate useful information for each risk and opportunity identified and provide connections to the different types of metrics and prioritisation criteria outlined in the TNFD beta framework. The TNFD Risk and Opportunity Registers have been prepared as part of v0.3 of the beta framework as a tool to help organisations apply the Assess phase of LEAP. The Registers provide a template that can be completed by an organisation as they work through the four components of the Assess phase of the LEAP approach, to:

- identify nature-related risks and opportunities (A1);
- identify the specific risk mitigation and risk and opportunity management processes and elements that may need to be adjusted to integrate nature-related risks and opportunities (A2);
- incorporate nature-related risks and opportunities into the existing risk taxonomy and inventory used by the organisation (A3); and
- adapt existing risk and opportunity management processes and key elements based on information gained in the previous components of LEAP, including prioritisation and measurement of risks and opportunities (A4).

The Registers should be applied in assessing risks and opportunities relevant to direct operations and upstream and downstream in the value chain.

An illustrative example is provided for a nature-related risk and opportunity at the start of each register.



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TNFD Nature-related Risk Register – Worked Example

Nature-related risk category	Nature-related risk	Nature-related risk sub-categories	Illustrative example	Realm (Land, freshwater, ocean, atmosphere)	Organisational level (Product, entity, site/facility or area)	Location	Risk generated by Change in state of nature Change in flow of ecosystem services Impact on society	Exposure metrics	Magnitude metrics	Risk rating (based on prioritisation criteria)	Responsibility for management	Connection to other environmental and social risks/opportunities
Physical risk – acute	Changes in the state (condition and/or extent) of ecosystems the organisation depends on or impacts, resulting in changes to the flow of ecosystem services: • Changes to the supply of natural inputs (provisioning services)	<i>Water condition – freshwater</i> <i>Water resources</i>	<i>Degradation of freshwater ecosystems due to pollutants released by the organisation and other stakeholders</i>	<i>Freshwater</i>	<i>Area</i>	<i>Europe</i>		<i>Quantity and concentration of pollutants emitted (impact driver)</i> <i>Change in mean species abundance in freshwater ecosystems (ecosystem condition)</i> <i>Concentration of pollutants in water (ecosystem condition)</i>	<i>Costs associated with the relocation of operations and suppliers</i> <i>Reduction in revenue due to interruption of operations / supply chain</i> <i>Increased costs due to interruption of operations / supply chain</i> <i>Restoration costs</i> <i>Value of assets / revenue dependent on area</i> <i>Number of locations / business lines / facilities exposed</i>	<i>High</i>	<i>Sustainability manager</i>	<i>Potential for disruption of local community due to reduced water quality</i> <i>Potential for reduced carbon sequestration in area due to negative impact on freshwater plants</i>

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Physical Risk – acute or chronic	Changes in the state (condition and/or extent) of ecosystems the organisation is dependent on or impacted by ¹ (e.g. soil condition, water condition, air condition), resulting in changes to the flow of ecosystem services. Including:	Land condition Water condition (freshwater and marine) Air condition Others								
	Changes to the supply of natural inputs (provisioning services)	Water resources Timber Plants Renewable energy sources Fossil fuels Minerals Other resources								

¹ Caused either by business activities or external influences, including natural disasters – see impact drivers section of the beta v0.2 release and list of driving forces in the TNFD scenarios discussion paper.

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	Changes to protection from natural hazards due to change in hazard mitigation services	<ul style="list-style-type: none"> Floods (river, coast, surface) Landslides, subsidence, coastal erosion Drought Extreme temperature events Wildfire Storms Diseases and plagues Other 								
	Changes in other regulating and maintenance ecosystem services	<ul style="list-style-type: none"> Carbon sequestration Light and noise pollution mediation Antimicrobial and agrochemical resistance Waste treatment Water input and output treatment Nutrient cycling & acidity regulation Pollination Pest control Other ecosystem services (see TNFD framework) 								
	Changes in recreational value of area	<ul style="list-style-type: none"> Species of high tourism interest Condition of ecosystems of high tourism interest 								

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	Changes to species the organisation is dependent on (e.g. composition, population size, level of connectivity associated with species ranges) resulting in changes to the flow of ecosystem services provided	Composition Population size Connectivity of species range Introduction of invasive species								
Transition – policy and legal	Changes to legislation/regulations aimed at achieving nature-positive outcomes/reducing nature-negative outcomes (e.g. trade restrictions, taxes, permits and allocations, protected areas / OECMs ²)	Current or future project / operation-specific interventions Current or future site-specific legislation								
	More stringent nature-related reporting obligations	Current or future activity specific legislation								
Transition risk – market	Shifting customer/investor values or preferences to products and/or services that have positive impacts on nature/ mitigate negative impacts on nature									
	Stakeholder conflicts e.g. due to competition for ecosystem services									
	Decline in brand and value proposition due to nature-performance being perceived worse than competitors	Due to environmental impact Due to social impact Due to impact on local economic capabilities Due to stigmatisation of industry and/or media scrutiny								

2 OECMs – Other Effective Area Based Conservation Measures

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	Volatility/changes to costs of materials	<p>Due to sourcing restrictions/ supply</p> <p>Due to change in global abundance of resource</p> <p>Due to changes in demand</p>								
Transition risk - reputation	Changes in sentiment towards the organization / brand due to impacts on nature	<p>Due to environmental impact</p> <p>Due to social impact</p> <p>Due to impact on local economic capabilities</p> <p>Due to stigmatization of industry and/or media scrutiny</p>								
Transition risk - technology	Requirements to transition to more efficient, resilient and less environmentally damaging technologies (e.g. precision agriculture, protein technologies)									
	New monitoring technologies used by regulators and other stakeholders									

TNFD Nature-related Opportunity Register – Worked Example

Nature-related opportunity category	Nature-related opportunity	Nature-related opportunity sub-category	Illustrative example	Realm (Land, freshwater, ocean, atmosphere)	Organisational level (Product, entity, site/facility or area)	Location	Purpose of opportunity		Exposure metrics Refer to component A4 of the LEAP approach	Magnitude metrics Refer to component A4 of the LEAP approach	Opportunity rating Based on prioritisation criteria. Refer to component A4 of the LEAP approach	Responsibility for management	Connection to other environmental and social risks/opportunities
							Risk reduction	Strategic transformation					
Ecosystem protection, restoration and regeneration Reputational capital	Direct restoration, conservation or protection of ecosystems or habitats Actions that create positive changes in sentiment towards the organisation/ brand due to impacts on environmental assets and ecosystem services that have impacts on society.	<i>Restoration</i> <i>Due to environmental impact</i>	<i>An organisation invests in the restoration of an area of degraded mangrove with the purpose to increase resilience of infrastructure</i>	<i>Marine</i>	<i>Area</i>	<i>Europe</i>			<i>Area of degraded land restored (impact driver)</i> <i>Improvement in ecosystem condition (ecosystem condition)</i> <i>Incidence of flooding events (ecosystem service)</i>	<i>Increase in revenue due to improved reputation</i> <i>Increased resilience, e.g. to natural disasters</i> <i>Reduced capital/ infrastructure costs</i> <i>Increased market valuation through resilience planning</i>	<i>Sustainability manager</i>	<i>Restoration of mangrove will increase carbon sequestration levels in local area</i>	

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Business performance opportunities

Resource efficiency

Transition to processes with reduced negative impacts on nature/ increased **positive** impacts on nature.

Increased efficiency
Reduced resource extraction

Transition to **efficient and circular production systems and value chains**

Adoption of resource efficiency/circularity mechanisms that **reduce dependencies and impacts** on nature

Diversification of use of nature-related resources (e.g. use of different plant species)

Adoption of **nature-based** solutions within service and product lines

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Products/services	New business model/ activities with positive impacts on nature/ reduced negative impacts on nature.	Resource-efficient products and services Efficient and circular production systems and value chains Innovations that reduce impact of other sectors Nature-positive products that benefit nature Products and services that utilise/create nature-based solutions									
		Development of financial solutions for nature positive outcomes (e.g. nature-related insurance risk products)									
Markets	Access to new and emerging markets										
	Access to new assets and locations										

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Capital flow and financing

Access to **nature-related green funds, bonds or loans**

Use of financial incentives for suppliers to improve nature and ecosystem management

Use of **public-sector incentives** (e.g. biodiversity credits, payments for ecosystem services)

Reputational capital

Collaborative engagement with stakeholders, including rightsholders, at local, national and international levels

Due to environmental impact
Due to social impact

Actions that create positive **changes in sentiment** towards the organisation/brand due to impacts on environmental assets and ecosystem services that have impacts on society and local economic capabilities.

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Sustainability performance opportunities

Ecosystem protection, restoration and regeneration

Direct restoration, conservation or protection of ecosystems or habitats

Restoration
Conservation
Protection

Indirect restoration, conservation or protection of ecosystems or habitats

Financing
Reduction of harmful impact drivers/pressures
Advocacy

Protection/conservation of native threatened species

Implementation of site-based **nature-based solutions**

Investment in **infrastructure** for nature positive outcomes

Integrated multi-stakeholder action at land/seascape/river basin/jurisdictional scale

Actions to improve ecological **connectivity of land, basin and seascapes**

Protection/conservation/sustainable management of threatened **species**

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Sustainable use of natural resources

Transition to processes with lower negative impacts on nature/ increased positive impacts on nature, including those with:

- Reduced resource extraction
- Reduced pollution and waste
- Other

Increased **reuse and recycling of natural resources**

Adoption of **nature-based solutions** within service and product lines

Certification for projects/ products/services

Actions that create positive changes to the **supply of natural resources** that are inputs to production

- Water resources
- Timber
- Plants
- Renewable energy sources
- Fossil fuels
- Minerals
- Other resources



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