An aerial photograph of a glacier, showing large, jagged ice chunks and a narrow channel of water. The image is overlaid with a semi-transparent teal color, which serves as a background for the text on the right side of the page.

# STATE OF NATURE-RELATED DISCLOSURES

Assessing TNFD alignment of nature-related disclosures by firms in high-risk sectors

July 2024

**First Sentier MUFG**  
Sustainable Investment Institute



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The First Sentier MUFG Sustainable Investment Institute (the Institute) provides research on topics that can advance sustainable investing. As investors, both First Sentier Investors and MUFG recognise our collective responsibility to society and that investment decisions should be made with consideration to our communities both now and in the future.

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### About the Trust Bank

Mitsubishi UFJ Trust and Banking Corporation, as a core member of MUFG, provides its customers with a wide range of comprehensive financial solutions leveraging unique and highly professional functions as a leading trust bank. Such financial solutions include real estate, stock transfer agency, asset management and investor services, and inheritance related services, in addition to banking operations. We aim to realize our vision to be the trust bank that creates “a safe and affluent society” and “a bright future with our customers together” by always supporting our customers' and society's challenges based on Trust, and thus created a new key concept: “Trust Drives Our Future”.

<https://www.tr.mufg.jp/english>

1. The SFC has not reviewed the contents of this website.



# Executive Summary

The science is irrefutable; nature is being degraded at rates unparalleled in human history. With forecasted effects to the global economy estimated to be in the US\$ trillions per year, the impetus to realign global financial flows with a nature-positive world has never been greater.

In response to growing investor demand for the tools and data necessary to support this transformation, the industry-led Taskforce for Nature-related Financial Disclosures (TNFD) has launched a voluntary nature reporting framework for corporates and financial institutions (TNFD, 2023). By providing a framework for organisations to report on material impacts and dependencies arising from nature-loss, the TNFD aims to provide financial institutions (and corporates) with the information necessary to integrate nature-related issues into decision making.

In this report, we assess the current state of nature-related reporting against the TNFD's 14 Core Disclosure Recommendations according to a sample of 16 companies, two from each of the TNFD's eight priority sectors.<sup>2</sup> The companies assessed were further selected based on:

- Their high environmental performance and/or ratings according to existing benchmarks or providers.<sup>3</sup>
- Geographic location by head office (we aimed for a globally distributed sample from both developed and developing economies).

By balancing attributes such as environmental performance, geographic spread, and economic maturity we further aim to create a nature disclosure benchmark that is both representative and sits at the upper boundaries of current practice for each sector, thus enabling investors to set high, but realistic expectations for investees on nature. To further support investors in their stewardship work and investment decision making, we also provide a separate Appendix, presented as an excel databook (available upon request), which contains de-identified disclosure exemplars for each firm assessed across each TNFD disclosure recommendation, and, where relevant, Nature-loss driver.<sup>4</sup> These exemplars provide tangible evidence of how firms are reporting on their nature-related impacts and dependencies today.

Overall, our assessment of the state of nature-related disclosures reveals that firms assessed from most sectors are well on the way to aligning their disclosure with the TNFD framework, with 56% of the 16 firms in our sample disclosing information relevant to all 14 Core Recommendations, and 100% of firms having set relevant<sup>5</sup> nature-related targets.

In the following pages we present key findings from the report at the sector and TNFD pillar level<sup>6</sup>, followed by recommendations for all sectors on how nature-related disclosures can be strengthened in the future.



2. Extractives & Processing, Consumer Goods, Food & Beverage, Health Care, Resource Transformation, Infrastructure, Transportation (Marine), and Renewable Resources & Alternative Energy (SASB Sustainable Industry Classification System)

3. Providers/rankings included the Sustainability Policy Transparency Toolkit (SPOTT) rankings of commodity producers and traders across palm oil, timber and pulp, and natural rubber, the Global Benchmarking Alliance's Nature Benchmark, and London Stock Exchange Group's (formerly Refinitiv) ESG data.

4. One of five direct nature-loss drivers identified by the Intergovernmental Policy Science Platform for Biodiversity and Ecosystem Services (IPBES).

5. Here 'relevant' means aligned to the material nature-related impacts and dependencies identified for the sector.

6. 'Pillar' refers to each of the four TNFD pillars, namely Governance, Risk Management, Strategy, and Metrics & Target Setting.

## State of Disclosures: Sector Insights

In the disclosure snapshots below we offer readers preliminary insight into the current state of nature-related disclosures at the sector level, which are explored in progressively more depth throughout this report. These snapshots highlight how firms from the sectors assessed, namely Extractives & Minerals Processing, Resource Transformation, Consumer Goods, Transportation, Food & Beverage, Infrastructure, Health Care, and Renewable Resources & Alternative Energy are navigating and responding to the unique set of challenges, pressures, and threats to business resilience that are arising from nature loss.

### Extractives & Minerals Processing



Regulatory constraints and ongoing resource conflicts with local communities is driving progress on nature-related reporting by firms in this sector, whilst also presenting a source of significant financial risk. Firms are conducting ongoing assessments of nature-related risk through a double materiality lens to better understand these risks, and are already setting Global Biodiversity Framework (GBF) aligned targets to achieve a net positive gain in biodiversity over the lifecycle of mining operations.

### Resource Transformation



Resource Transformation companies are already developing nature-positive strategies and have conducted location specific nature risk assessments, which have clearly impacted business practices. However, disclosure coverage is weak for most material issues except climate change. Furthermore, targets to reduce nature-related impacts seem incompatible with targets to expand nature-related business opportunities.

### Consumer Goods



Disclosures indicate that Land Use Change and Resource Exploitation are key threats to supply chain stability for firms in this sector. For example, trade volatility and commodity supply issues are forecasted to cost one firm US\$970 million per year by 2030 for soy alone. In response, firms are investing heavily in raw material tracing, and deforestation tracking through DNA technology, remote sensing, and GPS.

### Transportation



Transportation sector disclosures are clear and explicitly discuss all five key drivers of nature loss. Of the issues identified and assessed, ship recycling represents a key risk and opportunity for firms in this sector. The need to reduce end-of-life impacts on nature is already affecting firms' strategies, R&D, and sourcing practices, e.g., through investing in recycling infrastructure, and developing 'green fleets.'

### Food & Beverage



Food & beverage disclosures demonstrate a well-developed understanding of the lifecycle impacts and dependencies of packaged food and beverages on nature. Disclosures by one firm showed a clear and systematic approach to managing risks arising from dairy production. Both firms are adjusting their business strategies to enhance circularity and reduce both resource intensity and plastic waste.

### Infrastructure



Infrastructure disclosures indicate that firms have already conducted natural capital risk assessments and are reporting on the severity and likelihood of material impacts, dependencies, and opportunities, which include issues like mandatory nature-related disclosures and biodiversity loss. Efforts to mitigate nature-related risks are focused on enhancing the operational resource efficiency of buildings, but neglect upstream risks associated with the exploitation of resources.

### Health Care



Health Care firms have adapted their internal processes to align with the Convention on Biological Diversity, specifically, the Nagoya Protocol on access to genetic resources and equitable sharing of benefits arising from their utilisation. The high direct dependency of firms on biodiversity for drug discovery has also prompted firms to conduct assessments of sensitive areas that exceed expectations set by the TNFD. However, disclosures generally lack depth and firms provide little insight into the methods and processes informing decision making.

### Renewable Resources & Alternative Energy



Renewable Resources & Alternative Energy disclosures demonstrate leading practice on both the integration of Indigenous Peoples perspectives into the assessment and management of nature-related issues. One firm has established a dedicated stakeholder engagement team comprising members of Indigenous Communities who work with traditional knowledge holders to develop sustainable harvesting strategies and manage nature-related risks.



## State of Disclosures: Cross-Sector Insights

No organisation from the sectors assessed excelled in their reporting on nature-related issues across all areas. Within each TNFD pillar, namely Governance, Strategy, Risk Management, and Target Setting, we identified disclosures by firms in each sector that were leading and lagging, as well as areas where disclosures by all firms in all sectors were mature<sup>7</sup> or required improvement. Below we compare and contrast the key disclosure strengths and gaps identified between sectors.

### Governance



- The Board has ultimate responsibility for nature for firms in all eight sectors assessed.
- Executive remuneration has been linked to nature-related metrics for five out of eight sectors.
- The Board has clear oversight in reviewing and guiding the nature strategy for firms in seven out of eight sectors.
- Firms from Renewable Resources & Alternative Energy were the only companies assessed to have fully integrated engagement with Indigenous Peoples and local communities into the assessment and management of nature-related issues.

### Strategy



- The effects of nature-loss are already materialising for firms in sectors like Extractives & Minerals processing, Health Care and Consumer Goods.
- 60% of firms are already disclosing current and anticipated financial effects of nature-related issues. One company reports that supply issues (resource scarcity) and environmental regulations are anticipated to result in increased expenditures of ~ US\$970 million/yr for Soy alone by 2030, while another reports that US\$14.8 billion in production value (equal to 36% of total revenue) is at risk from water scarcity.
- The effects of nature-related issues on the business are most pronounced for firms assessed from Extractives & Minerals Processing, Resource Transformation, and Consumer Goods.
- At the nature-loss driver level, land use change, exploitation of raw materials, and water scarcity are the most pressing nature-related issues faced by the firms assessed.
- No company has assessed the resilience of its business to nature-loss.
- Firms from five out of eight sectors assessed are integrating the mitigation hierarchy into their management of nature-related issues.
- Firms from all sectors except transportation are conducting spatially explicit assessments of nature-related impacts and/or dependencies that at least consider areas of importance to biodiversity.
- Material issues like Invasive Species, Air Pollution and Soil Pollution are acknowledged, but otherwise underreported across the board — especially by mining companies.

### Risk Management



- Firms from the Renewable Resources and Transportation sectors are the only firms to acknowledge all five of the IPBES direct drivers of nature-loss in their disclosures.
- A total of 10 firms from six sectors apply a double materiality lens. Only firms from Resource Transformation, and Food & Beverage did not state that they applied a double materiality lens.
- Firms in six out of eight sectors are disclosing the phases in the risk management cycle for at least one nature-related issue. Risk management processes are most clearly articulated for firms in Resource Transformation, Food & Beverage, and Health Care.
- Disclosures on monitoring mechanisms are weak for most sectors and issues assessed, revealing a lack of accountability for nature-related Key Performance Indicators (KPIs).
- Disclosures on the methods and processes in place to identify and assess nature-related issues lack transparency in sectors like Health Care, Transportation, and Food & Beverage. In contrast, firms assessed from Renewable Resources and Consumer Goods disclose detailed methodology documents to enhance transparency and credibility.

### Target Setting



- Firms assessed from Consumer Goods and Food & Beverage are partially to fully reporting on at least 80% of the TNFD Recommended Core Global Metrics, compared to 60-70% by firms from Extractives & Minerals Processing, Infrastructure, Renewable Resources, and Resource Transformation. Firms assessed from Health Care & Transportation are collectively reporting on less than 50%.
- For firms assessed in sectors such as Extractives & Minerals Processing, and Consumer Goods some nature targets require the development of capabilities that do not yet exist (e.g., cultural change, new technologies...).
- All 16 firms assessed have set relevant nature-related targets.
- 25%, or firms assessed from two out of eight sectors, namely Consumer Goods, and Extractives & Minerals Processing, have set 'no net loss' and 'net positive gain' in biodiversity and/or nature targets aligned with the GBF.
- Firms in 50% of sectors, namely, Consumer Goods, Renewable Resources & Alternative Energy, Food & Beverage, and Infrastructure have set 'No Deforestation' and/or 'No Land Clearing' targets for upstream activities, such as raw material sourcing.

7. Meaning all the TNFD core recommendations were satisfied.



## Recommendations for all sectors

*To strengthen nature-related disclosures, we recommend that firms across all sectors:*

- Ensure that disclosures describe not just the actions the organisation is taking in response to nature, but the processes informing these actions.
- Deepen their understanding of how nature-loss is likely to impact business strategy resilience.
- Report transparently on how engagement with affected stakeholders is integrated into the assessment and management of nature-related issues.
- Ensure all nature-related targets align with Specific, Measurable, Achievable, Relevant, and Timebound (SMART) criteria, with a focus on improving the specificity, and ambition of targets, as well as ensuring they are outcomes focused. Furthermore, targets on nature-related opportunities should be assessed for compatibility with targets on impact reduction.
- Strengthen and clarify the language used in policy documents and codes of conduct so that it is clear what nature-related expectations are being imposed on the firm and its suppliers, as well as the consequences for non-compliance.





# Introduction

## Context

Nature is being degraded at unprecedented rates. In economic terms, the yearly value of ecosystem services foregone due to land-use change impacts alone are estimated to be between US\$6.3 – 15.2 trillion.<sup>8</sup> If ecosystem service declines continue along their current trajectory, the cost to the global economy is conservatively estimated to be US\$2.7 trillion in Gross Domestic Product (GDP) per year by 2030.<sup>9</sup>

Disruptions to the availability of ecosystem services can materialise in financial losses for businesses through reduced productivity (both yields and labour),<sup>10</sup> higher operating costs, higher insurance premiums (or being unable to insure certain assets/activities at all),<sup>11</sup> costs associated with destroyed physical assets,<sup>12</sup> adapting to shifting regulatory and legal landscapes,<sup>13</sup> and loss of access to resource reserves.<sup>14</sup> These financial risks are particularly potent for firms in high-risk sectors such as agriculture, infrastructure, and mining that not only depend on nature, but are key drivers of nature-loss.<sup>15</sup>

As financiers of businesses that impact and depend on nature, financial institutions are indirectly exposed to the risks associated with nature-loss (see Figure 1). In fact, a report by the European Central Bank found that 75% of loans in the euro area were highly dependent on at least one ecosystem service, with the Finance for Biodiversity Initiative further estimating

the dependency risk of Public Development Banks alone to be US\$4.6 trillion.<sup>16</sup> The risks posed to financial flows by nature loss are only exacerbated by the investments in activities that harm nature. As of 2023, the UN Environment Programs' annual 'State of Finance for Nature' report estimated total 'nature negative' financial flows to be US\$ 7 trillion annually, equal to 30 times the value of investments in nature-based solutions.<sup>17</sup>

With the health and resilience of the financial system so inextricably linked to the health and resilience of the natural environment, it is therefore unsurprising that the crisis engulfing nature is widely perceived to be a global threat to financial markets, one similar in its scale and magnitude to climate change<sup>18</sup> – and fundamentally inseparable from it.

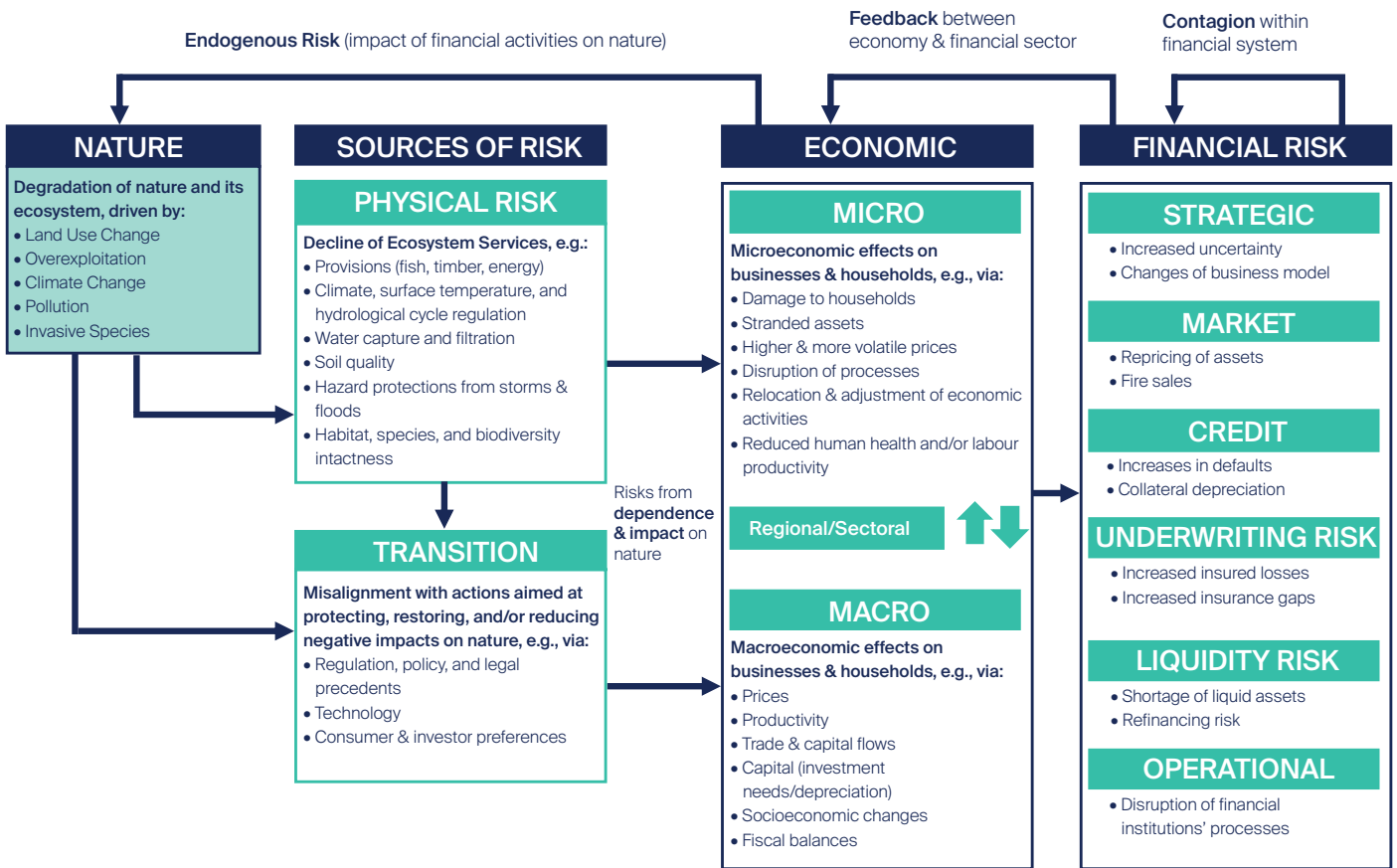


Adapted from the Network for Greening the Financial System (NGFS, 2023),<sup>19</sup> the flow chart (Figure 1) illustrates the relationship between nature and financial risk for capital allocators.

As a result of growing concerns regarding the financially material impacts of nature loss,<sup>20</sup> the need to develop tools and strategies that support financial institutions to mitigate and manage their nature-related risks and direct financial flows to the restoration of nature have been brought sharply into focus. Launched in 2021, the Taskforce for Nature-related Financial Disclosures (TNFD) represents a key industry-led initiative formed in direct response to this need.<sup>21</sup>

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Figure 1: Relationship between nature and financial risk



Credit to: Network for Greening the Financial System (2023), adapted from Svartzman, R. et al. (2021) A "Silent Spring" for the Financial System? Exploring Biodiversity-Related Financial Risks in France.

## Introducing the Taskforce for Nature-related Financial Disclosures (TNFD)

As described in Figure 1, the TNFD’s core mission is to provide a framework for organisations to report on material impacts and dependencies arising from biodiversity loss and ecosystem degradation.<sup>22</sup> In doing so, the TNFD aims to address information gaps and enable corporates and financial institutions to integrate nature-related issues more accurately and reliably into decision-making.<sup>23</sup>

Built to align with the recommendations of the Taskforce for Climate-related Financial Disclosures (TCFD) and to be interoperable with the International Sustainability Standards Board (ISSB) Sustainability Disclosures Standards (SDS), the TNFD final recommendations (published in September of 2023) comprise four pillars:

Governance, Strategy, Risk and Impact Management, and Metrics and Targets, which are underpinned by 14 core recommended disclosures (see Figure 2).



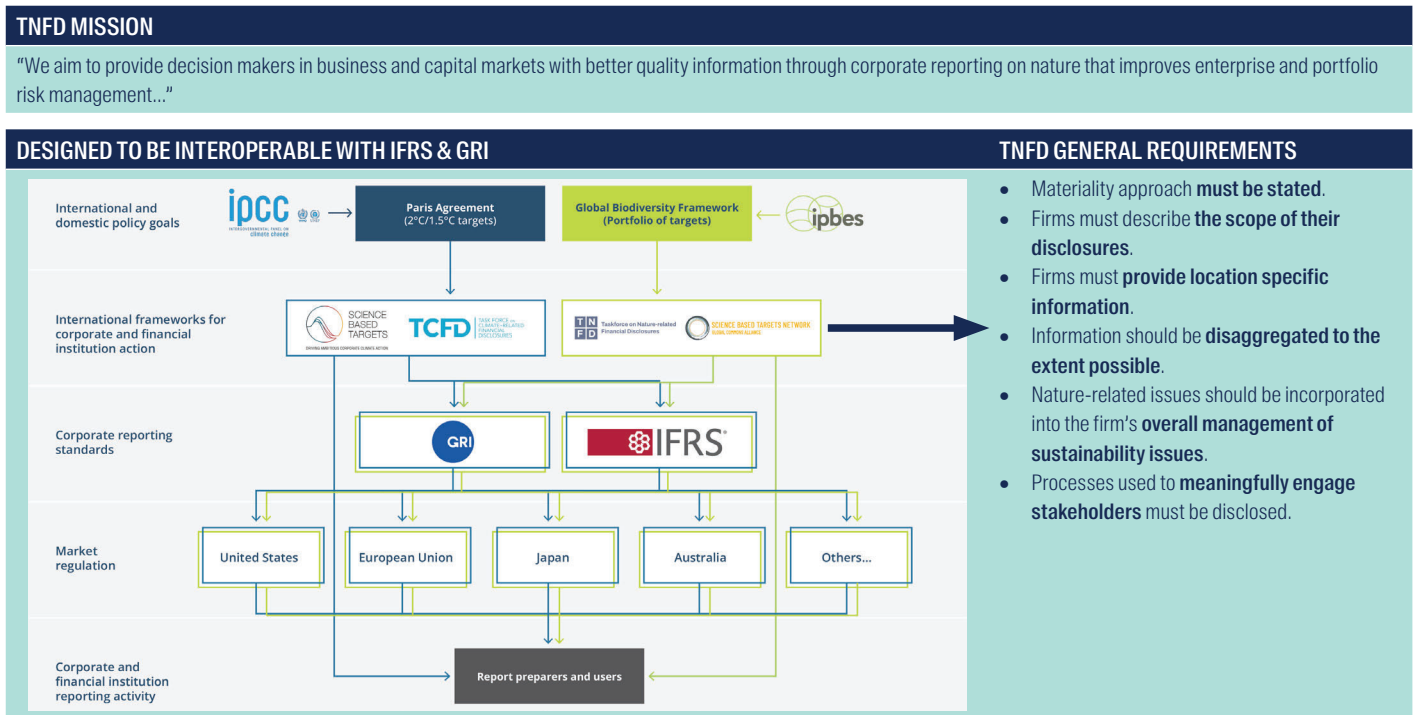
The TNFD is intended to support the finance industry to align financial flows towards the Global Biodiversity Framework’s goal of halting and reversing biodiversity loss by 2030 through facilitating the more efficient allocation of financial capital.

The need to enhance the quality and transparency of disclosures on nature-related issues was reinforced by the Kunming-Montreal Global Biodiversity Framework (GBF), adopted by global leaders at the COP15 in Montreal (2022). Target 15 of the GBF calls on governments to implement policy measures that enable large transnational companies and financial institutions to regularly monitor, assess and transparently disclose their risks, dependencies, and impacts on biodiversity.<sup>24</sup>

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Figure 2: TNFD Overview



**TNFD CORE DISCLOSURE RECOMMENDATIONS**

Governance	Strategy	Risk Management	Metrics & Targets
<b>A</b> Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.	<b>A</b> Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.	<b>Ai</b> Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.	<b>A</b> 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.
<b>B</b> Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.	<b>B</b> Describe the effect that 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.	<b>Aii</b> 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).	<b>B</b> Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.
<b>C</b> 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.	<b>C</b> Describe the resilience of the organisation's strategy to nature-related risks and opportunities, taking into consideration different scenarios.	<b>B</b> Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.	<b>C</b> Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.
	<b>D</b> 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.	<b>C</b> Describe how processes for identifying, assessing, prioritising, and monitoring nature-related risks are integrated into and inform the organisation's overall risk management processes.	

- CORE TNFD PRINCIPLES**
1. Firms should **increase disclosure ambition over time**.
  2. **Material issues should be prioritised** and reflect the basis of disclosures.
  3. **Different approaches to materiality** are accommodated.
  4. Firms should **thoroughly and comprehensively assess their material impacts, dependencies, risks, and opportunities**, as well as their interconnectedness.

# About this Report

## Report Purpose & Aims

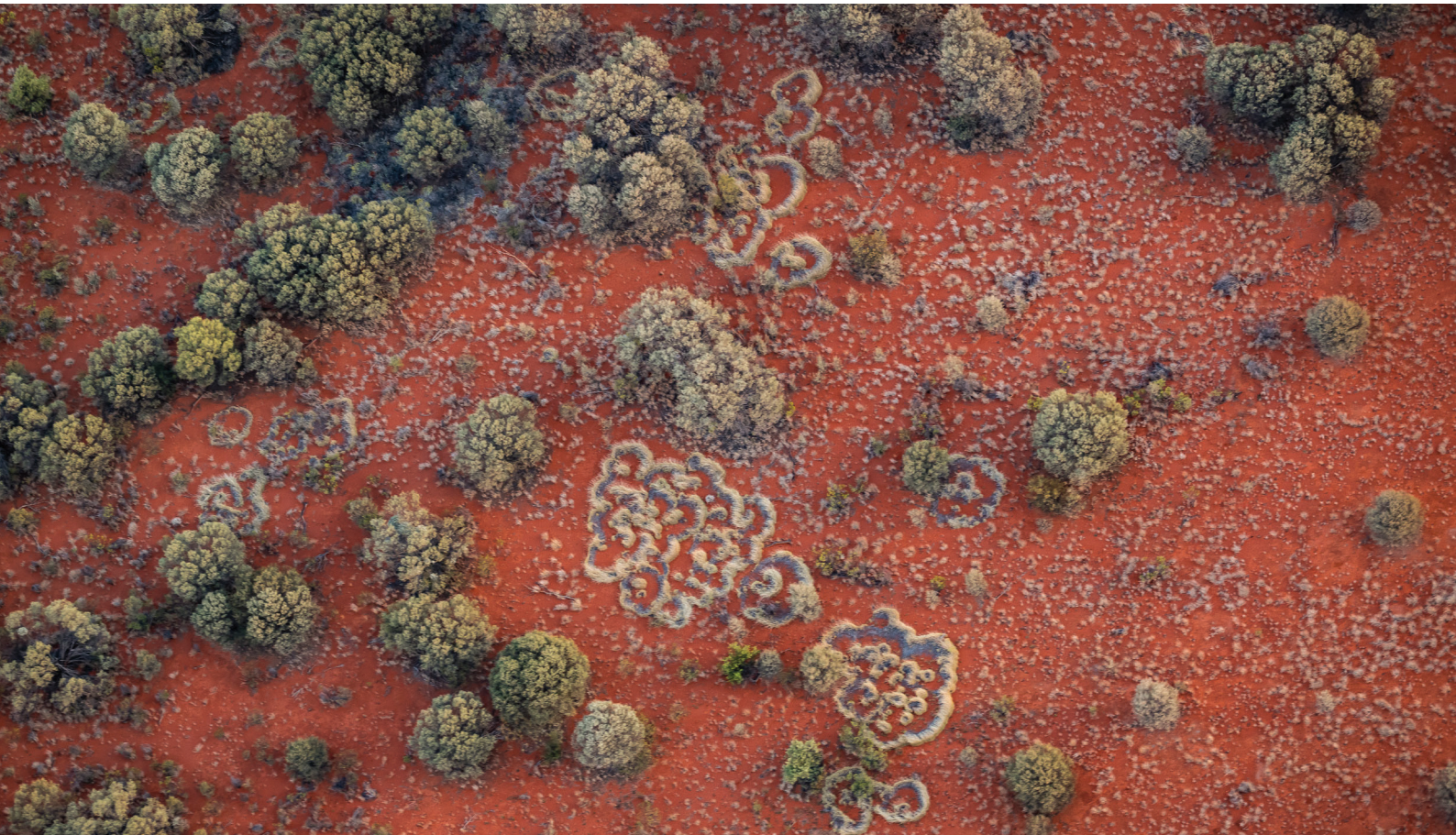
Since the publication of the TNFD's final recommendations,<sup>25</sup> over 300 corporates and financial institutions have committed to become early adopters of the TNFD by 2025 at the latest<sup>26</sup>. The purpose of this report is to assess the current state of nature-related disclosures for firms in priority sectors identified by the TNFD and determine how firms will likely need to mature their disclosures to meet emerging reporting expectations, as defined by the TNFD framework. In pursuit of this aim, the following research questions are addressed:

1. **To what extent** do nature-related disclosures by firms already align with the TNFD reporting requirements?
2. **What is the maturity and quality** of firm disclosures on nature?
3. **How will firm disclosures** likely have to evolve to meet emerging expectations.

## Value Added to Investors

By using the TNFD as a framework to assess the quality and maturity of nature-related disclosures, this report aims to support investors by:

1. **Deepening their understanding of how firms in high priority sectors<sup>27</sup> pushing the boundaries of current practice** are reporting on their material nature-related issues.
2. **Demonstrating how the TNFD can be used by investors** to interpret and understand corporate nature-related dependencies, impacts, risks, and opportunities.
3. **Informing their engagement with firms on nature-related issues** by a) highlighting potential strengths and disclosure gaps for firms in each sector, and b) providing a sector-based disclosure benchmark, that investors can reference when engaging peers within each sector.



25. TNFD (2023). Recommendations of the Taskforce on Nature-related Financial Disclosures. Available at: <https://tnfd.global/publication/recommendations-of-the-taskforce-on-nature-related-financial-disclosures/>

26. <https://tnfd.global/320-companies-and-financial-institutions-to-start-tnfd-nature-related-corporate-reporting/>

27. High priority according to the TNFD



# Methodology

## Sample Selection

A total of 16 firms were selected for inclusion in the analysis, based on the following criteria:

**Geography**  
Economically & geographically representative<sup>28</sup>

- 14** different countries by HQ
- 10** firms from advanced economies
- 4** firms from emerging economies

**Sector**  
Two firms from each of the eight priority SICS sectors identified by the TNFD.

Sectors identified by the TNFD based on Sustainable Accounting Standards Board (SASB) Sustainable Industry Classification System (SICS):

Healthcare	Transport
Infrastructure	Consumer Goods
Renewable Resources & Alternative Energy	Extractives & Minerals Processing
Resource Transformation	Food & Beverage

**Environmental performance**  
Strong environmental performance according to existing benchmarks & rankings.

- Nature Benchmark by the World Benchmarking Alliance
- ESG Policy Transparency Analysis by SPOTT
- ESG Peer Analysis by LSEG (formerly Refinitiv)

## Analysis

A document analysis was performed on public corporate disclosures.<sup>29</sup> Out of 4,500 relevant links, 2,460 were manually reviewed, and approximately 700 were included in the final analysis. Disclosures were analysed according to a multi-tiered approach as illustrated below:



i

\* The TCFD Principles for Effective Disclosure focus on the quality and characteristics of information being disclosed, while the TNFD principles focus on disclosure content. To ensure disclosure quality is integrated into the analysis, we therefore adopt several of the TCFD principles as our 'Disclosure Quality Check' in the main analysis to compliment the TNFD.

28. International Monetary Fund. (2023). World Economic Outlook Database: Groups and Aggregates [Online]. Available at: <https://www.imf.org/en/Publications/WEO/weo-database/2023/April/groups-and-aggregates>

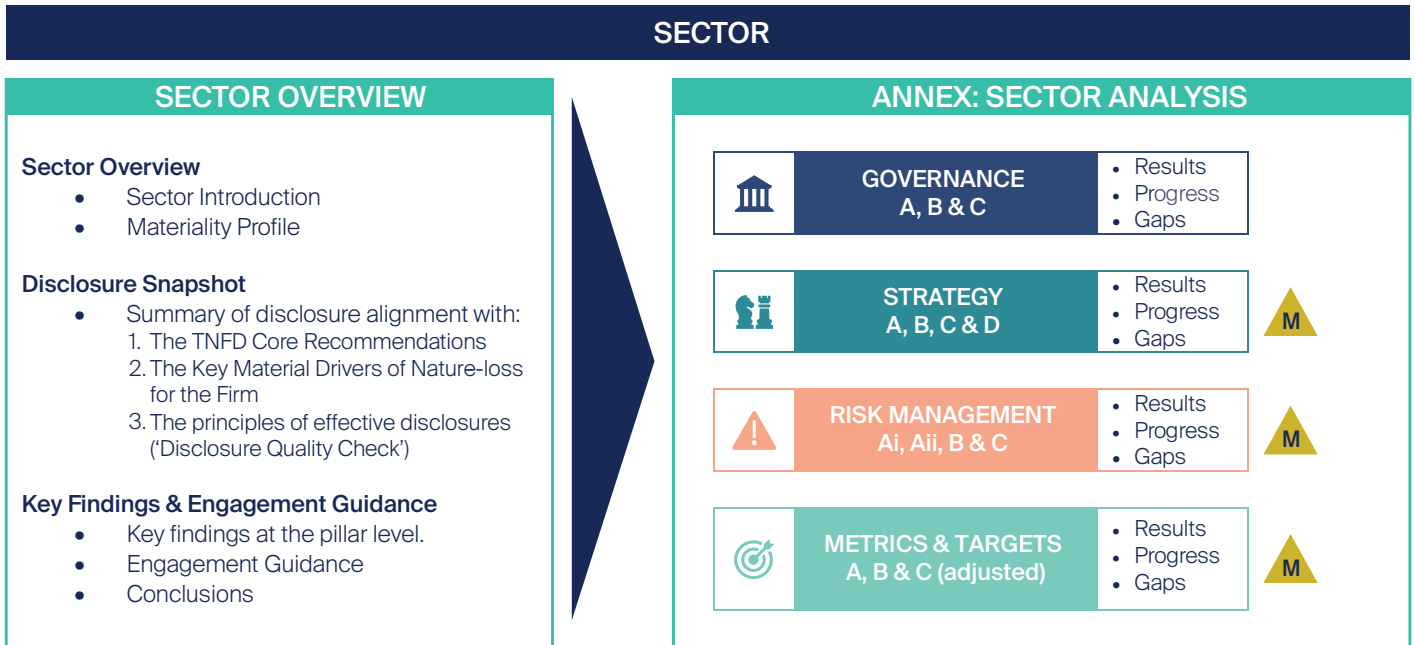
29. Only documents in English were included in the analysis.

30. For the 'Metrics & Target Setting' pillar we have assessed disclosures against the 10 Core Global Impact & Dependency Metrics proposed by the TNFD. A full list of the Metrics included can be found in the Appendix under 'Assessment Criteria'.



# Results & Discussion

## Structure Overview



= Disclosures further assessed for alignment with 'Material' (M) Topics

Figure 3: Report Structure Overview

As illustrated in Figure 3, each sector analysis comprises a 'Sector Overview' and 'Sector Analysis'. The sector overview comprises:

- A 'Sector Introduction,' containing contextual information about the sector.
- A 'Materiality Profile,' which provides a summary of the key material issues for the sector, based on the results of the sector screen.<sup>31</sup>
- A 'Disclosure Snapshot,' which summarises alignment with 1) the Core Recommendations of the TNFD, 2) the material issues identified for the sector, and 3) the principles of effective disclosures ('Disclosure Quality Check').
- 'Key Findings' by TNFD pillar<sup>32</sup>
- 'Engagement Guidance' for Investors.
- Concluding remarks

In the Annex, we provide a summary of findings at the pillar level (e.g., Governance, Strategy etc) accompanied by progress and gaps disaggregated at the Core Recommendation level (e.g., Governance A, B and C etc). Note that in some instances

progress and gaps may be synonymous where a firm has partially addressed the disclosure requirement, but further information is required to fully satisfy it. To protect the identity of institutions assessed, all firms and their information has been deidentified to the extent possible in both this document, and the separate Appendix.



In addition to the disclosure analysis presented in the Annex, readers can explore the results of the document analysis in the Appendix, which is presented as an Excel Data Book (available upon request).



Because the aim of the analysis is to capture the state of disclosures for each sector, the results are discussed at the sector level. As such, any disclosure 'gaps'<sup>33</sup> noted for the sector reflect gaps common to both firms in the sector sample. Where a disclosure recommendation has been satisfied, this indicates that disclosures have been detected for at least one firm in the sample.

31. See 'Materiality Profile' tab of the Appendix for the full results of the sector screen.

32. i.e., 'Governance,' 'Strategy,' 'Risk Management,' & 'Metrics & Target Setting'

33. Here, 'gaps' mean disclosures could not be detected, not that they do not exist. Due to a range of factors, including the format and presentation of material by firms, and the limitations of the software, 100% of disclosures could not be captured.



# Extractives & Minerals Processing

## Sector Overview & Material Issues

Firms in Extractives & Minerals Processing are primarily engaged in the exploration, extraction, production, and processing of mineral resources, including copper, potash, nickel, coal, and iron ore.<sup>34</sup>

Mining is an incredibly energy and water-intensive process that is highly vulnerable to fluctuations in the availability and cost of raw materials. This high dependency on natural resources, in concert with growing demand downstream for transition metals,<sup>35</sup> and a rapidly evolving regulatory and legislative environment, creates both nature-related risks and opportunities for firms in this sector.<sup>36</sup>



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

#### Pressures: Terrestrial & Freshwater Use

- Habitat degradation and landslides due to heavy machinery operation and explosives.
- Leaching of acidified wastewater and toxic chemicals can degrade wetlands, which are vulnerable to changes in pH.
- Land and water use impacts can result in high reclamation costs and create barriers to accessing mineral deposits in sensitive areas.

### Resource Use

#### Pressures: Water Use & 'Other'

- Water intensive activities like cooling machinery and creating leaching solutions.
- Surface mining can deplete aquifers, impacting water quantity and quality. This can lead to operational, regulatory, and reputational risks, including water scarcity, contamination, and competition for limited resources, affecting costs and operations.

### Climate Change

#### Pressure: Greenhouse Gas (GHG) Emissions

- Mining processes produce significant greenhouse gas emissions, mainly carbon dioxide.
- Emissions come from using gasoline, diesel, natural gas, coal, and propane during mining, processing, and smelting.

### Pollution

#### Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution

- Air pollution arising from the release harmful pollutants like carbon monoxide, sulphur dioxide, and dust into the atmosphere, impacting nature.
- Heavy metal release from tailings, and slags impact soil from accidental spillage.
- Leaching wastewater with high concentrations of toxic chemicals, negatively impacts habitats and species.
- Acid mine drainage post-closure can pollute local water sources, poisoning downstream water and affecting aquatic life.

### Invasives & Other

#### Pressure: Disturbances

- Seismic activity from excavation blasting can result in the migration of species from a localised area, including large scale species migration.

The material issues identified are expected to form the basis of disclosures for firms in this sector, with firms clearly prioritising owned and operated sites where nature-related impacts, dependencies, risks, and opportunities are most severe.

34. Sustainability Accounting Standards Board (SASB) (2014). Metals & Mining Industry Brief. Available at: [https://sasb.ifrs.org/wp-content/uploads/2019/08/NR0302\\_MetalsMining\\_2014\\_06\\_24\\_Industry\\_Brief.pdf](https://sasb.ifrs.org/wp-content/uploads/2019/08/NR0302_MetalsMining_2014_06_24_Industry_Brief.pdf)

35. The climate transition is increasing demand for metals that can be used in the manufacture of electric vehicles, solar panels and other low carbon technology.

36. Sustainability Accounting Standards Board (SASB) (2014). Metals & Mining Industry Brief. Available at: [https://sasb.ifrs.org/wp-content/uploads/2019/08/NR0302\\_MetalsMining\\_2014\\_06\\_24\\_Industry\\_Brief.pdf](https://sasb.ifrs.org/wp-content/uploads/2019/08/NR0302_MetalsMining_2014_06_24_Industry_Brief.pdf)

# Disclosure Snapshot







EXTRACTIVES & MINERALS PROCESSING						
Issue-Agnostic Disclosure Recommendations			DISCLOSURE SNAPSHOT			
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✓
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	✓	✓	✓	✓
	STRATEGY B	✓	✓	✓	✓	✗
	STRATEGY C	✗	✓	✓	✗	✗
	RISK MANAGEMENT Ai-Aii	✓	✓	✓	✓	✗
	RISK MANAGEMENT B	✗	✓	✓	✗	✗
	METRICS & TARGET SETTING A - B	✓	✓	✓	✓	●
	METRICS & TARGET SETTING C	✓	✓	✓	✓	✗

Table 1: Disclosure Snapshot – Extractives & Minerals Processing. ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Firms in this sector are already disclosing information aligned with all the core recommendations of the TNFD, including some Core Global Metrics.
- Firms in this sector are already performing comprehensive and spatially explicit assessments to identify and quantify their most material impacts and dependencies on nature, adopting a double materiality lens.
- Disclosures by firms in this sector are characterised by an emphasis on disclosing what actions have been taken in response to nature-related issues, but rarely provide insight into the processes supporting decision making, including the accountability, and monitoring mechanisms in place to ensure policies, strategies, and governance frameworks are being deployed effectively.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- The material issues identified broadly align with the most material drivers of nature-loss identified for this sector. However, there is a strong disparity in the maturity of disclosures between issues. In particular, soil pollution and air pollution are underreported.
- According to the snapshot in table 1, Climate-related disclosures are most mature and complete, followed by resource exploitation (water). Disclosures on material issues need to improve in areas like assessment of resilience (Strategy c), and the risk management process (Risk

Management B), particularly for Land/Water Use Change, Pollution & Invasive Species.

## 3. Disclosure Quality Check

### Understandability & Clarity

- Data fragmentation is high, which impacts understandability.
- In situ, disclosures are clearly presented, with charts and tables to aid interpretation.

### Relevance

- Disclosures are highly relevant, based on the firms' context, and up to date.

### Specificity & Completeness

- The use of footnotes and quantitative metrics enhance both specificity & completeness, but transparency varies between issues.

### Verifiability

- Most information is presented objectively, with methods, tools, data, scopes, compliance with frameworks, limitations and other important contextual information included in footnotes and separate documents, which supports the verifiability of disclosures.
- Firms have received third party assurance on some sustainability disclosures.
- Both firms aligned their reporting with internationally recognised standards, including the GRI 304: Biodiversity standard (2016).



## Key Pillar Level Findings



### Governance

- Firms in this sector have already integrated nature into their internal governance procedures and frameworks.
- Disclosures lack transparency on the monitoring and enforcement mechanisms necessary to assess the efficacy of nature-related strategies.
- Disclosures on engagement with affected communities lack transparency regarding the way stakeholder perspectives materially influence assessment and management of nature-related issues.



### Strategy

- Firms in this sector have already identified a range of nature-related issues using the language of 'impacts, dependencies, risks and opportunities,' and categorising issues according to the key drivers of nature-loss.
- Firms in this sector report significant exposures to material issues like water risks, with one firm reporting that US\$14.8 billion in production value depends heavily on water basins classed as critically water stressed.
- Changes to organisational practices as a result of material issues identified appear reactive, rather than proactive, with most practices implemented in response to regulatory breaches and court ordered reparation costs.
- There is some evidence that firms are beginning to take a more forward looking stance by aligning with international standards on mine rehabilitation practices and making investments in long term water risk reduction.



### Risk Management

- Firms are already assessing biodiversity, land-use change, water, and climate risks through a double materiality lens, but under-disclose air and soil pollution assessment methodologies (and management practices).
- Firms disclose risk management processes for most nature-related issues, but details on monitoring, enforcement and management are lacking in some areas, particularly pollution.



### Metrics & Target Setting

- Firms are partially to fully reporting against 60% of the TNFD Core Global Impact & Dependency Metrics, in addition to several biodiversity & species-related metrics.
- Firms have set SMART targets for net-positive impacts to biodiversity across the lifecycle of mining operations, context-based water targets, and targets to protect and regenerate

30% of land, water and ocean controlled by the firm (GBF-aligned).

- Firms do not consistently link the nature-related issues identified to corresponding metrics and targets, and some targets being set are unmeasurable without further elaboration on how firms define target elements and parameters.

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- How is engagement with Indigenous Peoples and local communities integrated into the assessment and management of nature-related issues?
- How does the firm enforce Free Prior & Informed Consent, as well as other requirements embedded in its nature-related policies?



- Given the fact that nature risks are already materialising in financial losses for this sector, how is the firm assessing and strengthening its resilience against nature-related financial risks?



- How does the assessment of nature-related risks (impacts & dependencies) inform the risk management process for material issues arising from the lifecycle of a mine? How is the effectiveness of these processes monitored?



- It is great to see that firms in this sector have already set GBF aligned targets on nature, how does the firm plan to measure and monitor these targets?

## Conclusion

Overall, firms in the Extractives & Minerals Processing sector are well placed to align their disclosures with the TNFD framework. However, the analysis also reveals areas for improvement, with firms in this sector failing to demonstrate how they are managing and mitigating air and soil pollution. Furthermore, disclosures related to the efficacy of risk management processes – including mechanisms to monitor and enforce management practices – are also lacking. This, in concert with significant and ongoing human rights breaches and environmental incidents, reinforces the need for firms to disclose not only what and how nature-related issues are being proactively managed, but how effectively and compared to which reference point. In doing so, firms will not only fill key disclosure gaps, but also reinforce the integrity of nature-related risk and impact management efforts already being disclosed.

# Consumer Goods

## Sector Overview & Material Issues

Firms in the Consumer Goods Sector belong to, and operate in, diverse industries and product segments. The firms assessed here are engaged in the manufacture of a diverse range of products from footwear and clothing to household cleaning and personal care products. As a consumer-facing organisation, maintaining a positive reputation and increasing brand value are essential if firms are to remain competitive.

Growing consumer demand for greater product transparency and stricter environmental standards have therefore driven firms in this sector to improve supply chain traceability, adopt more stringent sustainable procurement practices, and address the lifecycle impacts of produced goods.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

#### Pressures: Terrestrial & Freshwater Use

- Impacts driven by demand for vast areas for natural production of raw materials, leading to habitat modification and loss.
- High water dependencies for cooling and manufacturing consumer goods. Water scarcity can impact operations, posing challenges for firms in the sector. While linked to the Resource Use issues identified below, ENCORE notes this to be a 'Freshwater Use Change' issue as well.

### Resource Use

#### Pressures: Water Use & 'Other'

- High dependency on water in the production and manufacturing processes.
- High rates of water abstraction exacerbate water scarcity issues.
- High dependency on natural resources, which are affected by weather patterns and demand. Supply chain risks include disruptions, input price increases, regulatory costs, and reputational damage, with palm oil and natural fibre sourcing being a key issue.

### Climate Change

#### Pressure: Greenhouse Gas (GHG) Emissions

- GHG emissions arise through production of consumer goods processes. This includes Carbon Dioxide (CO<sub>2</sub>), and Carbon Monoxide (CO) emissions and pollution from various materials and substances used in manufacturing.

### Pollution

#### Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution

- Air pollution arises through manufacturing processes and distribution channels.
- Packing waste is also a key issue for this sector. Growing consumer awareness of environmental impacts is also driving demand for eco-friendly products.
- Chemical and hazardous waste discharge leads to water pollution. These issues can harm firm reputation and increase costs.

### Invasives & Other

#### Pressure: Disturbances

- No material issues identified.

The material issues identified are expected to form the basis of disclosures for firms in this sector, in particular, supply chain impacts and risks arising through upstream resource dependencies, as well as downstream impacts and risks arising from the use and disposal of manufactured products.

Given that firms assessed in this sector operate at a global level, with supplier numbers in the tens of thousands, we further expect an emphasis on improving supply chain traceability and the prioritisation of locations where the impacts and risks from raw material extraction are the highest.



# Disclosure Snapshot







CONSUMER GOODS						
Issue-Agnostic Disclosure Recommendations		DISCLOSURE SNAPSHOT				
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✓
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	✓	✓	✓	●
	STRATEGY B	✓	✓	✓	✓	●
	STRATEGY C	✓	✓	✓	✓	●
	RISK MANAGEMENT Ai-Aii	✓	✓	✓	✓	●
	RISK MANAGEMENT B	✓	✓	✓	✓	●
	METRICS & TARGET SETTING A - B	✓	✓	✓	✓	●
	METRICS & TARGET SETTING C	✓	✓	✓	✓	●

Table 2: Disclosure Snapshot – Consumer Goods. ✖ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Disclosures are fully aligned with the Core Recommendations of the TNFD, including 90% of the Core Global Metrics.
- In terms of depth and breadth, disclosures by firms in this sector are the most mature of all firms assessed.
- Firms are partially to fully disclosing against 90% of the TNFD Core Global Metrics for Impacts & Dependencies and setting targets against all material nature-loss pressures, except for Air Pollution.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- Firms are disclosing information relevant to all material issues identified for this sector in the Materiality Profile.
- Firms from this sector are yet to disclose the risk management processes in place for these issues, including how these issues are assessed, prioritised, monitored, treated, and tracked through metrics and targets.
- One firm is using an Environmental Profit & Loss accounting methodology to integrate six key direct drivers of nature loss into its assessment and management of nature-related issues.

## 3. Disclosure Quality Check

### Understandability & Clarity

- Data fragmentation is high. Relevant data spanned 120 documents, totalling approximately 1,000 coded information segments (~25% of the dataset). This made it difficult to consolidate and interpret relevant information.
- While disclosures are organised with clear sections and headings, for one firm, disclosures are highly technical, whilst for another, broad and descriptive. On both accounts, this hinders clarity. Introducing more data visualisations to communicate technical information could improve clarity and understandability.

### Relevance

- Both companies provide disclosures that are highly relevant to their industry's material issues. However, the large volume of information makes it challenging to navigate relevant material.

### Specificity & Completeness

- Only one company faces issues with specificity and completeness in their disclosures. Generally, information is detailed and thorough.

### Verifiability

- One company publishes the full methodologies and calculations underpinning its nature-related assessments, which enables the verification of information.
- Both companies have secured third-party assurance for some disclosures and adhere to internationally recognised standards, supporting the verifiability of their information.

## Key Pillar Level Findings



### Governance

- Nature-related metrics have been successfully integrated into governance structures, with Board remuneration linked to nature-related performance. Board members also possess nature-related competences.
- Both firms have robust human rights due diligence mechanisms in place, reinforcing a culture of environmental accountability.
- Despite strong governance disclosures, specifics on Board's monitoring and enforcement mechanisms for nature-related strategies are lacking, and engagement with Indigenous Peoples could be more explicitly integrated into the assessment and management of nature-related issues.



### Strategy

- Firms have integrated the full product lifecycle into their management strategies, highlighting major nature-related impacts and risks like land use change, raw material exploitation, and water scarcity.
- Resource scarcity, driven by overexploitation, is forecasted to increase costs of key commodities, with one firm estimating US\$970 million/yr in additional expenditures for Soy alone.
- Both firms are focused on improving supply chain traceability, utilising technologies like DNA tracing and GPS tracking, particularly in palm oil production.
- Locations of assets prioritised are not reported in full, however both firms have clearly prioritised high risk commodity supply chains for targeted management.



### Risk Management

- One firm has conducted a footprint analysis of over 3,000 products, which led to the identification and prioritisation of 16 high impact agricultural products, and five high risk commodities (e.g., soy, palm oil, and cocoa). Another firm uses an EP&L accounting methodology to quantify and track its nature-related impacts and risks across six key drivers, including land use change, water exploitation, GHG emissions, and pollution.
- The risk management process for issues like water and raw material scarcity clearly adopt a location-based approach, whereby firms prioritise suppliers and operations in high-risk regions for targeted risk management.



### Metrics & Target Setting

- Firms are partially to fully disclosing against 90% of the TNFD Core Global Impact & Dependency metrics, though improvements are needed for monitoring soil pollution and land/water use change impacts effectively.
- Firms in this sector have set timebound 'Nature Positive' targets, and targets to eliminate deforestation in the supply chain.
- Some targets lack specificity and may rely on developments beyond the firms' control to be achievable (e.g., local recycling infrastructure, and cultural change).

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- How does the firm manage human rights issues arising through land use change impacts upstream with its commodity suppliers?
- Given that product traceability is incomplete, how does the firm monitor and enforce supplier and land holder compliance with 'no deforestation' policies?



- Considering forecasted financial impacts arising through changing demand and availability of commodities like palm oil, what steps has the firm taken to assess its vulnerabilities to nature-related issues like overexploitation of resources across different scenarios?



- What regions have been prioritised by the firm for targeted nature-related risk management?
- How are risk management strategies for issues like water risk and deforestation monitored over time?



- How does the firm plan to eliminate supply chain driven deforestation without full supply chain traceability? What technologies and datasets are the firm developing to address this blind spot?

## Conclusion

Overall, Consumer Goods firms exhibit strong alignment with the TNFD framework integrating nature-related metrics into their governance and strategy frameworks. Nonetheless, the sector must address gaps in governance specifics, pollution vulnerabilities, and the structure of risk management processes. As firms refine their nature-related strategies and enhance transparency, particularly around Indigenous engagement and resilience planning, disclosures are expected to become more detailed and action oriented.



# Food & Beverage

## Sector Overview & Material Issues

Firms in the Food & Beverage sector are primarily engaged in the production of raw and packaged food and beverage products for human or pet consumption. Regulatory and societal trends suggest a rising concern over the environmental and social externalities that result from the manufacturing and sourcing of products and ingredients, which can threaten firms' social license to operate.

This reliance on natural resources means supply chains of firms in this sector are particularly vulnerable to the effects of nature-loss. This vulnerability can create both operational and regulatory risks as the cost of such resources rises, and as awareness of the impact of food production continues to grow.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

#### Pressures: Terrestrial & Freshwater Use

- Material impacts, dependencies and risks arise due to reliance on agricultural inputs vulnerable to weather shifts and drought. Land-use restrictions pose risks to sourcing key materials, impacting profitability.
- Impacts to aquatic environments due to water abstraction for processed food and drink production, with flow on effects to supply chains.

### Resource Use

#### Pressures: Water Use & 'Other'

- Dependencies on water creates water management challenges, with animal raising and processing operations at risk due to increasing global water demand and stress.
- Dependencies on raw materials like water, agricultural products, and commodities increases costs associated with reduced supply of raw materials, e.g., operating costs. This can affect the animal feed supply chain for meat, dairy, and poultry, which are compounded by challenges from climate change and water scarcity.

### Climate Change

#### Pressure: Greenhouse Gas (GHG) Emissions

- Companies emit greenhouse gases during production and distribution of goods.
- Regulatory risks from GHG emissions, particularly methane from animal sources, also threaten industry profitability.

### Pollution

#### Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution

- Companies produce solid waste pollution from processed food and drink production, e.g., lifecycle impacts of plastic packaging both impact nature, and result in reputational risks due to growing consumer awareness.
- Animal farming and food and beverage production have high impacts on the quality of water resources, with effluent polluting and degrading waterways.

### Invasives & Other

#### Pressure: Disturbances

- No material issues identified.

The material issues identified are expected to form the basis of disclosures for firms in this sector, with a focus on the upstream, and operational land use impacts arising from the production of agricultural products, and high-risk commodities. Such a significant natural resource and land-use footprint can create conflict with local communities and lead to land rights disputes with Indigenous Peoples. As such, it is further expected that firms in this sector have identified supply chains and locations with the largest land and resource use footprint and are working with Indigenous Peoples & Local Communities to uphold their rights.

# Disclosure Snapshot







FOOD & BEVERAGE						
Issue-Agnostic Disclosure Recommendations			DISCLOSURE SNAPSHOT			
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✓
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	✓	✓	✓	●
	STRATEGY B	✓	✓	✓	✓	●
	STRATEGY C	✓	✗	✓	✗	●
	RISK MANAGEMENT Ai-Aii	✓	✓	✓	✓	●
	RISK MANAGEMENT B	✓	✓	✗	✗	●
	METRICS & TARGET SETTING A - B	✓	✓	✓	✓	●
	METRICS & TARGET SETTING C	✓	✓	✓	✓	●

Table 3: Disclosure Snapshot – Food & Beverage. ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Disclosures are almost fully aligned with the Core Recommendations of the TNFD.
- Transparency is particularly high for disclosures on the assessment, prioritisation, and monitoring of nature-related issues, which is a disclosure weakness for other sectors.
- Although coverage is sound, disclosures lack breadth and/or depth overall.
- Metrics and targets being reported are relevant to all key nature-loss drivers for the sector, however the quality of targets, and metric coverage, reveals room for improvement.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- Firms are disclosing information relevant to all material issues identified in the Materiality Profile.
- Disclosure gaps are most pronounced for pollution in areas like business resilience and risk management.
- Firms report that nature-related risks associated with raw material sourcing and water scarcity are already materialising. As such, risk management processes and assessments are focused on these upstream and operational issues.

## 3. Disclosure Quality Check

### Understandability & Clarity

- Disclosures by firms in this sector are generally well structured and accessible. The use of graphics, charts, and specific case studies enhance clarity and help communicate complex information effectively.

### Relevance

- Disclosures are aligned with the material nature-related issues for the sector.

### Specificity & Completeness

- Disclosures are most specific and complete for management practices and target setting.
- Although some challenges are reported, firms underreport on challenges and failures, which reduces the credibility of information.
- One firm's disclosures were highly generalised and lacked specificity. As a result, relevant disclosures on how nature is impacting the firm are difficult to locate.

### Verifiability & Reliability

- Environmental performance data is assured by a third party, and firms are reporting transparently on the scope and methodology used to set nature-related KPIs.

## Key Pillar Level Findings



### Governance

- Boards are actively overseeing sustainability strategies with some integration of ESG metrics into executive remuneration. It is not clear if these metrics specifically address nature-related issues.
- Firms have strategic nature-focused teams, sustainability committees, and nature-related workstreams in place. These teams provide quarterly progress updates and have clear monitoring procedures in place.
- While human rights policies and engagement with Indigenous Peoples are disclosed, outcomes of action plans on community and environmental impacts need greater transparency.



### Strategy

- Nature-related impacts on the supply chain are recognised, with policies targeting environmental standards for suppliers and a focus on climate change effects, human rights, and land use.
- Innovations in business strategy emphasise regenerative agricultural practices and circularity but are in early stages regarding supply chain mapping and location-based assessments.
- One firm is investing over US\$1.3 billion in regenerative agriculture by 2025 to help transform its supply chains.
- While there is an emerging awareness of nature dependencies by firms in this sector, there is a need for more detailed disclosure on how these dependencies impact business resilience.



### Risk Management

- Risk management disclosures are varied, with one firm providing systematic and detailed accounts of nature-related risk management processes, while another provides generalised statements lacking in substantive detail.
- While some nature-related risk management processes are disclosed, there is an overall need for greater depth and breadth in reporting to support investor decision-making.



### Metrics & Target Setting

- Firms report on several Core Global Impact & Dependency metrics but show gaps in pollution and land use change metrics, which are critical for understanding firms' operations and impacts.

- Targets related to high-risk commodity sourcing and water usage have been set, yet some lack specificity, which reduces accountability.
- Some targets, particularly those on deforestation, are worded in a misleading way. One firm relies in part on third party deforestation risk ratings to make its deforestation free claims, which lack location specificity and reliability.

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- How do human rights action plans on nature-related issues impact the management of nature risks?
- How have human rights action plans on land-use change and water related issues materially impacted business practices?



- How does the firm plan to manage and monitor nature-related risks from raw material production by sub-suppliers, like smallholder farmers, who fall outside the direct scope of nature-related policies?



- Can the firm provide insight into how the risk management process for raw material dependencies, and water scarcity have influenced the production and manufacturing of food & beverage products?



- What methods, tools, and processes are used by the firm to develop nature-related targets for high-risk commodities?
- What monitoring mechanisms are in place to ensure that the targets developed reduce nature-related impacts and dependencies in 'real terms',<sup>37</sup> and are not reliant on proxy indicators?

## Conclusion

Disclosures by the Food & Beverage firms assessed are partially aligned with the TNFD framework. Firms are actively incorporating nature-related issues into Governance frameworks and Strategies, with a focus on upstream sourcing practices, deforestation risk and water scarcity. However, there is room for improvement regarding the completeness and specificity of risk management processes, relevant metrics, as well as transparency in target setting. As firms progress, they are expected to increase the granularity of disclosures on their nature-related impacts and risks, ensuring that disclosure quantity does not dilute disclosure quality.

37. Here, 'real terms' refers to the practical, tangible, or actual impact of targets, as opposed to theoretical impacts derived from activities designed to induce real world outcomes indirectly.



# Health Care

## Sector Overview & Material Issues

Firms in the Health Care sector predominantly research, develop, manufacture and market a range of medications and health care products and devices. These products are designed for hospital, clinic, laboratory, and personal use and range from disposable or consumable items to specialised equipment. The industry is characterised by a strong emphasis on research and development, and high rates of product failure.

Research and manufacturing processes rely heavily on environmental capital such as clean water. This can lead to risks associated with exploitation of resources and increasingly stringent regulation.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

**Pressures: Terrestrial & Freshwater Use**

- Companies are highly dependent on ecosystem service provision from freshwater environments. Services provided by ecosystems are critical and irreplaceable in production processes.

### Resource Use

**Pressures: Water Use & 'Other'**

- Health Care companies rely heavily on water as an input into production processes, e.g., as a solvent to facilitate chemical reactions for the development of medication.
- Companies also rely heavily on species (biodiversity), which support bioprospecting activities during the research and development phase of pharmaceutical manufacturing.

### Climate Change

**Pressure: Greenhouse Gas (GHG) Emissions**

- The use of fuels and chemicals leads to emissions of CO<sub>2</sub> and other greenhouse gases during the production and distribution of health care products.

### Pollution

**Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution**

- Companies generate nature-related risks and impacts through spills and disposal of waste (e.g., packaging, and hazardous chemicals), causing air emissions, water pollution and soil pollution.
- Improper handling of packaging and chemicals can worsen pollution. These issues arise through operational and upstream activities.

### Invasives & Other

**Pressure: Disturbances**

- Companies disturb wildlife through noise pollution from terrestrial, marine, and airborne vehicles during distribution.

Overall, disclosures by firms in this sector are expected to align with the material issues described, focusing on direct dependencies on the genetic resources provided by biodiversity, water use for drug manufacturing, and the production of waste, including wastewater, by both end users, as well as hazardous waste by-products from the manufacturing of pharmaceuticals and medical devices.

# Disclosure Snapshot







HEALTH CARE						
Issue-Agnostic Disclosure Recommendations		DISCLOSURE SNAPSHOT				
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✓
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	✓	✓	✓	✓
	STRATEGY B	✓	✓	✓	✓	✗
	STRATEGY C	✗	✗	✓	✗	✗
	RISK MANAGEMENT Ai-Aii	✓	✓	✓	✓	✗
	RISK MANAGEMENT B	✗	✓	✓	✓	✗
	METRICS & TARGET SETTING A - B	✗	✓	✓	✓	●
	METRICS & TARGET SETTING C	✓	✓	✓	✓	●

Table 4: Disclosure Snapshot – Health Care . ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Health Care firms are disclosing information relevant to all Core TNFD Disclosure Recommendations.
- Disclosures are particularly mature regarding the nature-related risk management processes in place, including location bases assessments, prioritisation, and monitoring of nature-related issues in the operational scope.
- The depth of disclosures must improve across all areas, but most notably, Strategy C on business resilience and Strategy B regarding the financial effects of nature-related issues.
- While firms have set nature-related targets, these targets are qualitative, lack objectivity and the baseline year is not reported.
- Coverage of nature-related metrics is low, with only 40% of Core Global metrics partially-fully reported against.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- Firms are disclosing information relevant to all material issues identified through the sector materiality screen.
- Disclosures are most robust for biodiversity and water resource dependencies/impacts, although gaps still remain on metrics and target setting.
- Despite being recognised as a material issue, disclosures on invasive species (disturbances) are limited.
- Disclosures on the assessment and management of upstream resource exploitation issues lack transparency.

## 3. Disclosure Quality Check

### Understandability & Clarity

- Disclosures are well-structured, with clear delineation of sections such as commitments, performance, and actions, making it accessible to readers.
- The inclusion of definitions and explanations enhances understandability.

### Relevance

- The disclosures are highly relevant to firms' operations and the broader pharmaceutical industry, which relies significantly on natural resources.
- By focusing on pollution, water resource exploitation, biodiversity and climate change, the report aligns with material nature-related issues that are crucial for the sector and its stakeholders.

### Specificity & Completeness

- Disclosures comprehensively cover exposures to nature-related impacts, including governance, strategy, and performance metrics.
- Disclosures generally lack depth – it is clear what actions firms have taken, but not the decision making and processes informing these actions.

### Verifiability & Reliability

- To enhance credibility, disclosures are aligned with a range of Global Reporting Initiative (GRI) and International Standards Organisation (ISO) reporting frameworks (e.g., GRI 304: Biodiversity).
- Disclosures lack the level of detail necessary to verify the quality of disclosures.

## Key Pillar Level Findings



### Governance

- Firms have established robust structures for sustainability governance, with clear Board involvement in the oversight of sustainability-related issues, including the development and review of nature-related metrics and performance targets.
- While internal processes align with international frameworks like the Convention on Biological Diversity (CBD) and the Nagoya Protocol, there is a lack of detail regarding stakeholder engagement in the assessment and management of nature-related issues, as well as the specifics of monitoring and enforcement mechanisms.



### Strategy

- Direct dependencies on biodiversity for drug discovery and the environmental impacts of pharmaceuticals are recognised as significant risks, with some firms beginning to publish reports on environmental resilience.
- Disclosures regarding the effects of nature-related issues on business practices lack depth, and neither firm has transition plans in place for climate or nature.



### Risk Management

- Mature risk management processes are evident, including biodiversity sensitivity assessments using tools like the Integrated Biodiversity Assessment Tool (IBAT)<sup>38</sup> and the development of biodiversity management plans for prioritised sites.
- However, disclosures on risk management are incomplete, with gaps in the management of invasive species and the integration of nature-related risks into overall risk management frameworks. Furthermore, the treatment of risks focuses on implementing initiatives, not management strategies.



### Metrics & Target Setting

- Reporting is currently limited to partial coverage of the Core Global Impact & Dependency metrics, with significant gaps in metrics related to land, freshwater, or ocean use change, and specifics of pollution metrics.
- Targets lack specific and objective parameters, particularly for biodiversity, which raises concerns over the capacity of these goals to mitigate and manage nature-risks in 'real terms.'

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- Given the firms high direct dependency on biodiversity, including knowledge about the medicinal properties of plant and animal species, how does the firm ensure equitable knowledge sharing and respect for Traditional Knowledge Holders?



- What steps has the firm taken to assess how land use change is impacting biodiversity, with flow in effects to drug discovery? What steps has the firm taken to mitigate and adapt its business strategies to such business vulnerabilities?



- How are nature-related risks associated with the discovery and manufacturing of drugs integrated into the firm's enterprise risk management framework? How do these risks inform overarching risk management processes?



- Through which metrics does the firm plan to track progress towards managing and mitigating nature-related risks arising from biodiversity loss, water scarcity, and, and land use change? For example, through disclosing the TNFD recommended Core Global Metrics?

## Conclusion

Overall, disclosures by the Health Care firms assessed are almost fully aligned with the recommendations of the TNFD framework. Firms are clearly describing their nature-related dependencies and impacts and have clear risk management processes in place to respond to the issues identified. However, metric coverage is low, disclosures on resilience are immature, and target quality must improve. Overall, while the breadth of disclosure is relatively sound, the depth of disclosures will need to improve to fully satisfy the recommendations of the TNFD and demonstrate to investors that nature-related exposures are being substantively managed.

38. <https://www.ibat-alliance.org/>



# Resource Transformation (Chemicals)

## Sector Overview & Material Issues

Both firms assessed from the Resource Transformation Sector are engaged in the **manufacture of agricultural chemicals, namely fertilisers**. Due to the industry's substantial energy and resource demands and the negative environmental externalities created by the chemical production phase (such as GHG emissions, air and water pollution, and hazardous wastes), this sector faces progressively stringent regulation and public concern over the lifecycle impacts of chemical products. Regulation related to environmental concerns such as climate change, as well as increasing resource constraints, could lead to higher costs or unstable supplies of these resources, affecting company valuation.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

#### Pressures: Terrestrial & Freshwater Use

- These pressures have not been identified as material through the SASB or ENCORE for the manufacturing of agricultural fertilisers,<sup>39</sup> which is the target industry for this analysis. As such, Land, Freshwater, and Sea Use Change issues are not included here, but may be material for other industries in the sector.

### Resource Use

#### Pressures: Water Use & 'Other'

- Exploitation of water resources, as an input into chemical fertiliser manufacturing, and impacts groundwater and surface water sources.
- Other resources used in manufacturing including energy consumption, fossil fuel use, and phosphate and nitrogen also contribute to resource availability challenges.

### Climate Change

#### Pressure: Greenhouse Gas (GHG) Emissions

- Resource transformation companies face challenges due to energy consumption and emissions. Rising demand, energy security, and climate change may lead to higher prices and limited fossil fuel availability.

### Pollution

#### Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution

- Synthetic fertiliser production emits nitrogen oxides, while grinding phosphate rock for processes like nitro phosphate emits carbon dioxide.
- Chemical manufacturing produces hazardous wastes like nitrate compounds, manganese, and ammonia. Key hazardous by-products include wastewater treatment sludge and substances like acetonitrile and methanol, which pollute waterways and soils.

### Invasives & Other

#### Pressure: Disturbances

- No material issues identified for this sector.

Overall, disclosures by firms in this sector are expected to align with the material issues described. In particular, the exploitation of nitrogen, phosphate, and water resources for fertiliser production, and the production of hazardous by-products, which pollute waterways, soils, and air during manufacturing and consumption by end users.

39. For ENCORE, 'material' issues are those with a materiality rating of High or Very High. 'Medium' and 'Low' have been excluded from our assessment, which means that these issues could be somewhat material for the sector. Investors should review the main product segments and production processes for specific companies to determine which activities are material for the Land/Water/Sea Use Change driver.

# Disclosure Snapshot







RESOURCE TRANSFORMATION (CHEMICALS)						
Issue-Agnostic Disclosure Recommendations			DISCLOSURE SNAPSHOT			
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✓
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	●	✓	✓	✓	●
	STRATEGY B	●	✓	✓	✓	●
	STRATEGY C	●	✓	✓	✗	●
	RISK MANAGEMENT A1-A11	●	✓	✓	✓	●
	RISK MANAGEMENT B	●	✗	✓	✗	●
	METRICS & TARGET SETTING A - B	●	✓	✓	✓	●
	METRICS & TARGET SETTING C	●	✓	✓	✓	●

Table 5: Disclosure Snapshot – Resource Transformation. ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Disclosures relevant to all TNFD recommendations are detected. However, this coverage is tenuously maintained by climate disclosures, which was incorporated into the analysis due to its materiality as a nature-loss driver for this sector.
- Neither firm in this sector has adopted a double materiality lens, which is recommended by the TNFD to develop a full understanding of financially material risks arising from nature loss.
- Nature-related metrics align closely with the material issues.
- The compatibility of nature-related targets is questionable. High level strategic objectives aimed at expanding business opportunities in areas like agricultural production and natural gas potentially undermine impact reduction targets in areas like soil health, water pollution, and climate change.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- Firms are reporting against all issues identified in the sector materiality profile.
- Both firms emphasise the effects of resource scarcity and climate change on business continuity, not just from a direct use perspective, but in terms of the downstream impacts of such issues on customers.
- Despite this, risk management processes for resource scarcity cannot be detected by either firm. Issues like soil pollution are also under reported.

## 3. Disclosure Quality Check

- Understandability & Clarity**
- The disclosures combine qualitative and quantitative information, graphics, and tables effectively, making even lengthy reports (>250 pages) easy to navigate.
- Relevance**
- The Natural Capital section in one firm's report highlights key issues like water stress and sustainable agriculture, showcasing relevance to nature-related challenges.
- Specificity & Completeness**
- Disclosures are thorough, detailing assessments, strategies, investments, and targets for nature issues. Yet, they tend to focus on current practices with limited forward-looking insights.
- Verifiability**
- The firms adhere to reporting standards (GRI, SASB, UNGC) and parts of its sustainability disclosures have third-party assurance. The methodology for data collection and analysis could be more detailed to enhance verifiability.

## Key Pillar Level Findings



### Governance

- Firms in the Resource Transformation sector demonstrate strong governance structures with board-level oversight of nature-related issues.
- Disclosures lack specificity on how stakeholder inputs, particularly from Indigenous Peoples and Local Communities, are incorporated into nature-related risk management strategies.
- Disclosures lack details of the nature-related monitoring and enforcement mechanisms and/or procedures employed.



### Strategy

- Strategic disclosures articulate operational impacts and dependencies, identifying significant risks such as raw material exploitation and downstream pollution.
- One firm has commenced surveys of wildlife to develop a more granular and accurate understanding of species composition at its owned and operated sites.
- Nature-related issues have already prompted firms in this sector to make large capital expenditures on developing green ammonia and investing in water risk reduction measures.
- In response to land use change impacts and resource scarcity, one firm has developed customisable fertilisers tailored to local soil conditions to replace general use products that can negatively impact soil health and reduce productivity over time.



### Risk Management

- Risk management processes for nature-related issues have been established, utilising tools like Lifecycle Analysis to inform the prioritisation and management of material issues.
- Disclosures on the risk management process, including how nature-related issues are integrated into and inform this process are the most detailed and mature of all sectors assessed. One firm has developed a risk map, which is updated regularly to reflect the changing severity, likelihood, and impact of a range of issues across the value chain, of which nature is one.



### Metrics & Target Setting

- Partial to full disclosures are noted against six (6) TNFD Core Global Metrics, emphasising pollution, water resource exploitation, and climate change, with an opportunity to broaden metric coverage.

- The compatibility of nature-related targets aimed at developing business opportunities are of questionable compatibility with impact reduction targets, thus reinforcing the importance of a double materiality lens that incorporates impacts to nature as well as financial risks to the business into the risk management process.

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- Can you provide examples of how stakeholder dialogue has influenced the firm's nature-related risk management practices, particularly those associated with managing the impacts of phosphate, and potassium mining?



- What mechanisms are in place to ensure policies and standards of practice are effective at reducing the firm's material exposure to nature-related issues?
- How are the impacts and dependencies on nature arising from fertiliser production being integrated into the firms' business strategies?



- At present, the sector's response to nature-related issues is predominantly focused on exploiting nature-related opportunities. What processes are in place to address risks arising from nature-related impacts and dependencies?



- How does the firm ensure that targets aimed at business opportunities align with the firm's quantitative and timebound impact reduction targets across waste, water, and climate change?

## Conclusion

Overall, firms in the Resource Transformation sector are beginning to integrate nature-related issues into decision-making. However, while mature in areas such as the identification and assessment of nature-related issues, disclosures on engagement with Indigenous Peoples & Local Communities, and the resilience of business strategies to nature-related issues are among the weakest of all firms assessed. Furthermore, some targets aimed at expanding business opportunities raise red flags over their compatibility with impact reduction objectives. As nature-related disclosures evolve, we expect firms in this sector to demonstrate how they have considered the interconnectedness between nature-related impacts, dependencies, risks, and opportunities, as well as how these issues intersect with human rights and long-term business resilience.



# Transportation (Marine)

## Sector Overview & Material Issues

This analysis focuses on firms in the Marine Transportation industry. Firms in Marine Transport provide deep-sea, coastal, and riverway freight shipping services. Key activities include transportation of containerised and bulk freight, including consumer goods and a wide range of commodities.

Firms in Marine Transportation are exposed to a host of nature-related risks. One key challenge is the regulation of GHG and other air pollutants from shipping operations. These regulations can affect fuel costs by requiring use of cleaner-burning, more expensive fuel, and may require extensive capital investments to upgrade equipment. Furthermore, accidents, such as collisions, spills, and load loss at sea can have significant impacts on the environment and lead to high operating costs.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

#### Pressures: Terrestrial & Freshwater Use

- Operations, including dredging and waste disposal, can deplete valuable sediments and impact marine ecosystems.
- Companies rely on marine primary producers (mangroves, kelp forests) for flood and storm protection, highlighting vulnerability to disruptions.
- Shipping routes also impact marine ecosystems, with new Arctic routes posing risks and opportunities.

### Resource Use

#### Pressures: Water Use & 'Other'

- Not material.

### Climate Change

#### Pressure: Greenhouse Gas (GHG) Emissions

- Companies are highly dependent on climate regulation services disrupted by climate change.
- Regulations on greenhouse gas emissions and air pollutants in shipping operations can also increase fuel costs and require costly equipment upgrades, impacting operational efficiency and profitability.

### Pollution

#### Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution

- Companies contribute to air pollution from ship movement and activities in ports and at sea. Emissions of SO<sub>x</sub> and NO<sub>x</sub> compounds from ships contribute to acidification through oxidation in the atmosphere.
- Solid waste and water pollution from transport operations also pose risks and impacts for companies in this sector. Waste disposal, and accidental releases from ship wash, oil leakage, antifouling paints spillage, chemical emissions, and bilge water accumulation are just some sources of pollution.
- Dredging during port construction can pollute soils.

### Invasives & Other

#### Pressure: Disturbances

- Airborne and ambient noise in port areas are the most significant concerns, potentially disturbing marine animals, and birds.
- Companies contribute to the transmission of invasive species when ships discharge ballast water carrying invasive species into different bodies of water. This poses ecological and economic threats.

Overall, firms in Marine Transportation are expected to align their disclosures with the material issues outlined above, focusing on the lifecycle impacts of shipping vessels, and on operational disturbances to marine life, including through the spread of invasive species.

# Disclosure Snapshot








TRANSPORTATION (MARINE)						
Issue-Agnostic Disclosure Recommendations			DISCLOSURE SNAPSHOT			
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✗
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	●	✓	✓	✓
	STRATEGY B	✓	●	✓	✓	✓
	STRATEGY C	✗	●	✓	✗	✗
	RISK MANAGEMENT Ai-Aii	✓	●	✓	✗	✗
	RISK MANAGEMENT B	✗	●	✗	✗	✗
	METRICS & TARGET SETTING A - B	✗	●	✓	✓	●
	METRICS & TARGET SETTING C	✓	●	✓	✓	✓

Table 6: Disclosure Snapshot – Transportation. ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Firms in this sector align with TNFD recommendations, showing mature governance disclosures, including advanced human rights due diligence and clear Board oversight.
- One firm has incorporated all five IPBES nature-loss drivers into its identification and assessment of nature-related issues.
- This was the only sector where neither firm had performed spatially explicit assessments to identify and prioritise high risk areas (Strategy D).
- Risk Management and Target Setting are areas of weakness, with noticeable gaps in assessing, prioritising, and monitoring risks, despite adopting a double materiality lens.
- Nature-related targets are time-bound but lack specificity and quantifiability, undermining their accountability.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- Disclosures align closely with the results of the materiality profile. As captured in the disclosure snapshot above, disclosures against all material nature-loss drivers are recorded for Strategy A, B, and Metrics & Target Setting C.
- This indicates that firms are aware of their material nature-related exposures, including the effects of nature on the business, and have set targets to address these issues. However, there are gaps in the decision-making processes captured by disclosures between identifying issues and setting targets.

## 3. Disclosure Quality Check

### Understandability & Clarity

- Disclosures combine data and narrative well, offering clear insights into nature-related strategies and actions.

### Relevance

- Disclosures address critical nature-related issues, including GHG emissions reduction, biodiversity, and responsible resource use.

### Specificity & Completeness

- Disclosures provide a broad overview of actions and strategies impacting nature, such as efforts to reduce the spread of invasive species.
- Disclosures lack depth, however. Firms identify material issues well, but do not provide a complete overview of the risk and impact management processes in place. Where these are available, they are generic in nature. Firms could consider providing this information in footnotes or separate scope and boundary or methodology reports.

### Verifiability

- The inclusion of recognised standards and third-party assurance for certain disclosures enhance reliability.
- Detailing methodologies used for collecting and analysing environmental data would further solidify the reliability of nature-related disclosures.

## Key Pillar Level Findings



### Governance

- Firms demonstrate robust governance disclosures on Board and Management oversight over nature-related issues, with environmental metrics clearly integrated into executive remuneration to enhance accountability.
- It is unclear if or how frequently the Board discusses nature-related issues.
- There is a lack of detailed disclosure on engagement with Indigenous Peoples and Local Communities, and it remains unclear how stakeholder engagement influences the assessment and management of nature-related issues.



### Strategy

- All five key direct IPBES nature-loss drivers have been considered by the firm in its identification of nature-related issues.
- The effects of nature-related issues on the business are clear, with firms engaging in activities such as investing in ship recycling infrastructure and developing 'green fleets.'
- Disclosures on the resilience of business strategies to nature-related risks are limited. Firms are only just beginning to acknowledge business vulnerabilities to nature-loss.
- Consideration for the upstream and downstream impacts of nature-loss of the business are limited.



### Risk Management

- At least one firm in this sector states that it employs a double materiality lens, meaning both impacts and dependencies are said to be considered.
- There are notable gaps in the risk management process for most issues, namely how issues are assessed, prioritised, and monitored, thus reducing environmental accountability, and preventing investors from interrogating the quality of the risk management process.



### Metrics & Target Setting

- Firms are partially to fully reporting against just 40% of the Core Global Metrics, with a concentration on water, waste, and climate change metrics.
- Nature-related targets except for climate change, are qualitative and vague, making it difficult for investors to assess how meaningful targets are. Some targets, like creating global ship recycling opportunities, are activity focused, not outcomes focused, meaning outcomes are only indirectly measured.

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- Which nature-related metrics have been linked to executive remuneration, and what % of remuneration is tied to these metrics?
- How does firm engage with its stakeholders on nature?



- How does the firm plan to incorporate nature-loss scenarios into its strategic resilience planning, across upstream and downstream exposures, as well as operational?



- What methodologies and tools does the firm use to assess, prioritise, and monitor nature-related risks across its operations and value chain?



- What steps are being taken to expand the reporting of TNFD's Core Global Impact & Dependency metrics? Particularly for Land and Ocean use Change?
- What metrics are being used to track progress in real terms against nature-related targets for issues like invasive species in ballast water?

## Conclusion

Overall, nature-related disclosures by firms in the Transportation sector are among the most clearly communicated and presented. Firms are also considering all five key direct nature-loss drivers in their identification of nature-related exposures and have set targets in response to the effects of nature-related issues on the business. However, disclosures lack maturity and transparency across key areas such as business resilience, assessment methods, risk management processes, and metrics. As disclosures evolve firms will be expected to provide insight into each phase of the nature-related risk management process, as well as demonstrate how nature-positive plans and targets are expected to reduce negative material risks and impacts.



# Infrastructure

## Sector Overview & Material Issues

The firms analysed from the infrastructure sector are engaged in the development, purchase and sale or lease of power plants, dams, oil and gas pipelines, hotels, residential and non-residential developments, and other civil engineering works.

The infrastructure managed and sold by firms in this sector consumes significant amounts of natural resources, including energy and water, while the construction of large non-residential facilities and major civil infrastructure projects has an inherent impact on local ecosystems, particularly if the land is being developed for the first time. Global concerns over the efficient use of these resources, as well as the physical risks of climate change, put pressure on firms in this sector to improve the way in which properties consume resources from nature.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

#### *Pressures: Terrestrial & Freshwater Use*

- Infrastructure leads to habitat clearing, biodiversity loss, and soil compaction during property development.
- Construction activities can also lead to flooding and environmental impacts on local ecosystems, especially when developing land for the first time.

### Resource Use

#### *Pressures: Water Use & 'Other'*

- Companies heavily depend on surface water for construction and operations. Stakeholder demand for improved energy and water efficiency, presents a business opportunity to meet consumer demand and reduce operating costs.
- Dependencies on raw materials for construction can pose risks to companies as resources become scarcer. Additional capital expenditures during the construction phase may be necessary to reduce resource consumption and comply with local regulations.

### Climate Change

#### *Pressure: Greenhouse Gas (GHG) Emissions*

- Heavy machinery used in infrastructure operations contributes to greenhouse gas emissions. Infrastructure projects in energy, oil, and gas industries also contribute to greenhouse gas emissions.
- Climate change impacts, such as coastal inundation and extreme weather events, pose risks to infrastructure companies.

### Pollution

#### *Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution*

- Real estate and construction activities generate large volumes of solid waste like glass, metal, plastic, paper, wood, and rubber.
- Excavation and grading can harm ecosystems, leading to environmental pollution and potential legal violations due to non-compliance with regulations and community opposition.

### Invasives & Other

#### *Pressure: Disturbances*

- Noise pollution, small pollution, and the general operation of excavators and heavy machinery can all disturb local flora and fauna.
- Land clearing and temporary transport corridors can further fragment ecosystems and disturb species.

Overall, disclosures are expected to align with the material issues identified above for this sector. However, we note that upstream impacts and risks associated with raw material extraction are not captured by the screening tool. Given that these embedded impacts and risks will likely form a significant portion of the firms' nature-footprint, we expect firms in this sector to be assessing and managing nature-related issues upstream as well as those arising through the direct operations of the firm.

# Disclosure Snapshot







INFRASTRUCTURE						
Issue-Agnostic Disclosure Recommendations			DISCLOSURE SNAPSHOT			
	GOVERNANCE A					✓
	GOVERNANCE B					✓
	GOVERNANCE C					✓
	STRATEGY D					✓
	RISK MANAGEMENT C					✓
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	✓	✓	✓	✓
	STRATEGY B	✓	✓	✓	✓	✗
	STRATEGY C	✗	✗	✓	✗	✗
	RISK MANAGEMENT Ai-Aii	✓	✓	✓	✓	✗
	RISK MANAGEMENT B	✗	✗	✗	✗	✗
	METRICS & TARGET SETTING A - B	✗	✓	✓	✓	●
	METRICS & TARGET SETTING C	✓	✓	✗	✗	✗

Table 7: Disclosure Snapshot – Infrastructure. ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Disclosures relevant to most Core Recommendations are present but generally less mature compared to other sectors.
- One firm conducted a Natural Capital Risk Assessment to identify impacts, dependencies, risks, and opportunities, but Strategy and Risk Management disclosures lack detail.
- Assessments of upstream and downstream scopes are not detected, with a focus on employee-led initiatives rather than strategic risk management.
- Specific risk management processes for nature-related issues are not evident.
- While firms are setting SMART targets on nature, they are less ambitious compared to other sectors.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- The material issues discussed by firms in this sector align closely with the issues identified in the materiality profile.
- Though acknowledging the impacts that the firm has on nature, nature-related dependencies are rarely discussed.
- Disclosures on issues such as wildlife disturbances (Invasive Species) are particularly weak, with firms in this sector identifying this as an issue, but not reporting transparently on how it is assessed, managed, and monitored.
- No nature-loss driver is consistently addressed across all relevant Core Disclosure Recommendations.

## 3. Disclosure Quality Check

### Understandability & Clarity

- Disclosures effectively communicate nature-related issues using clear language, supported with a mix of tables and data visualisations, making the disclosures accessible to a broad audience.

### Relevance

- Disclosures focus on issues like climate change mitigation, water scarcity and biodiversity impacts, which align closely with the material issues for this sector.

### Specificity & Completeness

- Disclosures provide a thorough overview of nature-related issues and how they are managed, however, firms underreport on the challenges they face, with one firm focusing heavily on ‘initiatives’ rather than risk management practices.

### Reliability

- The inclusion of third-party assurance and adherence to international reporting standards (GRI, SASB, TCFD, etc.) enhances the reliability of the nature-related disclosures.
- Deeper insights into methods, tools, and data sources could further enhance reliability.

## Key Pillar Level Findings



### Governance

- Nature-related governance is decentralised, with firms delegating oversight of nature-related strategies to sustainability teams, and nature-related working groups within business units. As a result, the Board plays a less prominent role in setting, developing, and monitoring nature-related strategies and goals.
- Human Rights Policies and stakeholder engagement practices are disclosed, but as with most sectors assessed, disclosures on engagement with Indigenous Peoples and Local Communities are lacking, in this case regarding upstream impacts related to raw material sourcing.



### Strategy

- One firm in this sector has conducted Natural Capital Risk Assessments to evaluate biodiversity risks from its activities and its site – regional dependencies on biodiversity (double materiality). The outcomes are summarised in a table detailing the identified impacts, dependencies, risks, and opportunities, along with their severity and likelihood across short-, medium-, and long-term horizons.
- Firms are starting to respond to nature-related issues by developing green financing frameworks, and implementing biodiversity management strategies, however considerations of business resilience are still lacking.
- Policies developed in response to material nature-related issues fail to set clear expectations for firms and their suppliers.



### Risk Management

- Firms are focusing on operational impacts and risks, using advanced IT systems to support site level biodiversity management.
- Neither firm discloses the full risk management process for any material issue identified. Gaps in the process are most pronounced for the methods used to conduct assessments and monitor nature-related issues.
- Firms are yet to disclose details of upstream and downstream assessments, including how issues embedded in the value chain are integrated into risk management processes.



### Metrics & Target Setting

- Firms are partially to fully disclosing against 70% of the Core Global Impact & Dependency metrics.

- However, firms are not reporting on any land use change metrics, despite land use change from agriculture being a significant impact and dependency.
- Firms are setting SMART targets for climate and waste, yet nature-specific targets, particularly concerning deforestation and biodiversity, lack ambition.

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- Can the firm elaborate on the Board's specific roles and activities in developing and monitoring nature-related strategies and goals?
- How is the firm engaging Indigenous Peoples and Local Communities impacted by raw material sourcing and resource exploitation in the assessment and management of nature-related issues?



- How is the firm establishing and enforcing clear expectations regarding supplier and contractor conduct, given the lack of detail provided in current nature-related policies and procedures?
- How has the firm considered the upstream nature-related impacts and dependencies of sourcing construction materials on the business?



- What methodologies and criteria does the firm use to assess and prioritise assets and business activities in high-risk locations across the value chain?
- What risk management processes are in place for material issues like water risk, land use change, invasive species, and biodiversity loss?



- What steps is the firm taking to ensure that nature-specific targets, especially those related to biodiversity and deforestation, are both ambitious and cover the entire scope of operations, including upstream and downstream impacts and risks?

## Conclusion

In summary, while Infrastructure firms show progress towards identifying and assessing material nature-related issues across all key drivers, significant gaps remain, particularly regarding Board involvement, stakeholder engagement, upstream impact management, and the ambition of nature-specific targets. Future disclosures are expected to address these gaps, providing clearer, more comprehensive insights into how Infrastructure firms are meaningfully integrating nature into decision making.



# Renewable Resources & Alternative Energy (Forestry, Pulp & Paper)

## Sector Overview & Material Issues

The firms assessed from the Renewable Resources & Alternative Energy sector operate across the Forestry and Pulp & Paper industries (i.e., 'Renewable Resources'). Manufacturing of pulp and paper produces industrial wood pulp as well as a range of paper products. Located upstream, Forestry & Logging firms own and/or manage natural and planted forestry lands and timber tracts and conduct logging and harvesting operations that produce timber.

Forestry and logging activities have the potential to impact fragile forest ecosystems as well as forest-dependent communities, while climate change will affect forest productivity in unpredictable ways. The production of pulp and paper is also highly resource dependent. Rising demand for agricultural land, wood building materials, and paper, combined with the effects of a changing climate, will likely place increasing strain on the world's forests.



A breakdown of material risks and opportunities, categorised according to the relevant nature-loss pressures, is provided in the following materiality profile.

## Materiality Profile

### Land, Freshwater & Sea Use Change

**Pressures: Terrestrial & Freshwater Use**

- Companies in the forestry and pulp and paper industries rely heavily on forest biomass. Harvesting this biomass can cause habitat degradation, increase fire risk, degrade soils, and cause landslides due to clear cutting for forestry.
- Lack of consent from Indigenous Peoples to carry out these activities can create further risks for companies.
- Companies depend on ecosystem services provided by forests and freshwater ecosystems, such as biomass production, erosion control, flood, and storm protection.

### Resource Use

**Pressures: Water Use & 'Other'**

- Pulp and paper production uses large amounts of water, impacting local water resources.
- The water-intensive processes involved in paper and pulp production rely on both surface and groundwater, making it vulnerable to disruptions.

### Climate Change

**Pressure: Greenhouse Gas (GHG) Emissions**

- Companies heavily rely on climate regulation services for production, and thus vulnerable to climate change.
- Waste products like charcoal and sawdust contribute to increased greenhouse gas emissions, impacting operations and exacerbating physical climate risks.

### Pollution

**Pressures: Non-GHG Air Pollutants, Solid Waste, Water Pollution & Soil Pollution**

- Pulp and paper mills contribute to air pollution through Hazardous Air Pollutants (HAPS) and volatile organic compounds (VOCs) like SOx, NOx, carbon monoxide, particulate matter (PM), formaldehyde, and methanol. These emissions can harm nature and contribute to acidification of soils and water bodies.

### Invasives & Other

**Pressure: Disturbances**

- The impact of companies on forest ecosystems, such as through harvesting biomass unsustainably, or through the pollution and exploitation of resources, can lead to the disturbance of species populations, and make forests vulnerable to pests.
- Firms in this sector depend heavily on pest prevention services provided by healthy forest ecosystems to ensure the continued provision of biomass.

Overall, the significant and direct dependence on ecosystem services provided by forests, in concert with the impacts arising from the extraction of forest biomass, make firms in this sector particularly vulnerable to changes in forest health arising from operational and upstream impacts. As such, firms are expected to have conducted detailed spatial assessments of forest assets and have comprehensive forest monitoring practices in place at the site level.



# Disclosure Snapshot







RENEWABLE RESOURCES & ALTERNATIVE ENERGY (FORESTRY, PULP & PAPER)						
Issue-Agnostic Disclosure Recommendations			DISCLOSURE SNAPSHOT			
	GOVERNANCE A		✓			
	GOVERNANCE B		✓			
	GOVERNANCE C		✓			
	STRATEGY D		✓			
	RISK MANAGEMENT C		✓			
Issue-Specific Disclosure Recommendations		Land, Water & Sea Use Change	Exploitation of Resources	Climate Change	Pollution	Invasive Species
	STRATEGY A	✓	✓	✓	✓	✓
	STRATEGY B	✓	✓	✓	✓	✗
	STRATEGY C	✗	✗	✓	✗	✗
	RISK MANAGEMENT Ai-Aii	✓	✓	✓	✓	✗
	RISK MANAGEMENT B	✓	✗	✗	✓	✗
	METRICS & TARGET SETTING A - B	✓	✓	✓	✓	●
	METRICS & TARGET SETTING C	✓	✓	✓	✓	✗

Table 8: Disclosure Snapshot – Renewable Resources & Alternative Energy. ✗ = No disclosures, ✓ = Disclosures present, ● = Not applicable

## 1. Extent to which disclosures align to the recommendations of the TNFD.

- Firms disclose nature-related info aligned with all Core TNFD Recommendations.
- Disclosures show comprehensive natural capital assessments already being conducted and transparently reported.
- Firms actively involve Local Communities & Indigenous Peoples in nature-related issues through surveys, tree harvesting strategies, risk management plans, and forest management.
- Nature-related targets focus on sustainable forest management but lack ambition for improving outcomes over time.
- Business strategy resilience to nature-related issues is still in early stages, with firms yet to demonstrate how they are assessing business strategy resilience to future nature-loss scenarios.

## 2. Extent to which disclosures align with the most material drivers of nature-loss for the sector.

- Disclosures align closely with the material issues identified in the results of the materiality sector screen (see 'Materiality Profile' for a summary).
- One firm has clearly integrated all five key nature-loss drivers into its natural capital assessments.

- Disclosures against material nature loss drivers are only complete for Strategy A & B, on the identification of material issues and the effects of nature loss on the business respectively. This is primary because of the lack of transparency on how firms are assessing and managing disturbances to species (Invasive Species Driver).

## 3. Disclosure Quality Check

### Understandability & Clarity

- Although the language is accessible, and the document structure is clear, some disclosures are difficult to follow. One firm often directs readers to external links and previous reports, which are often broken or have been moved.

### Relevance

- Disclosures align strongly with material issues for this sector, including forest conservation, climate change, biodiversity, and water scarcity.

### Specificity & Completeness

- Disclosures provide detailed insights into sustainable forest management practices, certification efforts, and biodiversity protection strategies.
- Disclosures on stakeholder engagement are the most comprehensive of all sectors assessed.

### Reliability

- The adherence of firms to recognised sustainability and forestry management standards, along with third-party certifications, support the reliability of disclosures.

## Key Pillar Level Findings



### Governance

- The Board plays a less prominent role in overseeing nature-related strategies. Instead, one firm in particular works closely with its stakeholders to develop strategies and risk management plans.
- Firms in this sector have fully integrated engagement with Local Communities & Indigenous Peoples into the assessment and management of nature-related issues.
- Both firms have worked to establish cultures of collaboration and environmental accountability with the organisation, adopting a ‘collaborative management model.’



### Strategy

- The identification of nature-related issues is supported by comprehensive natural capital assessments that take into consideration all key nature-loss drivers.
- Both firms have identified sensitive areas through High Conservation Value Assessments, presenting these locations on forest monitoring dashboards on their main websites. Users can view satellite images of the Forest Management Units (FMU) and toggle between key features in the concession areas.
- The effects of nature-related issues on current business practices are well documented, however, considerations of future business strategy resilience are still nascent.



### Risk Management

- Disclosures on nature risk management processes are among the most comprehensive of all firms assessed.
- Firms are reporting the full results of High Conservation Value assessments, which use advanced satellite data for real-time monitoring of forestry operations.
- Firms transparently disclose the risk management process for forest concession areas but do not indicate how these processes are integrated into any informed broader risk management frameworks.



### Metrics & Target Setting

- Firms are partially to full disclosing against 60% of the TNFD Core Global Metrics, with coverage highest for land use change and high-risk commodity metrics.
- Firms in this sector lead in setting nature-specific targets compared to others assessed. Their 2030 goals include zero deforestation in forest concessions, enforcing no deforestation in supplier areas, preserving critical wildlife and plant habitats, and reducing illegal poaching tools by 90% from a 2019 baseline.

## Engagement Guidance

- To support investors in their engagements with firms in this sector, we propose the following engagement questions targeted at disclosure gaps:



- How does the firm ensure strategic alignment between nature-related management strategies, and the broader corporate strategy (given that a decentralised governance model is evidenced)?
- What procedures are in place for management to monitor nature-related strategies and goals?



- How does the company plan to incorporate nature-loss scenarios into considerations of business strategy resilience? How is the forest management strategy likely to change in response to forecasted nature-loss scenarios?



- How does the firm integrate nature-related risk management processes into the firms overarching risk management process?
- Can the firm provide examples of how nature risk management has influenced the overarching risk management process?




- What steps are being taken to ensure that nature-related targets are increasing in ambition over time? How is the firm planning to progress its targets beyond maintaining sustainable forest management to achieving a net positive gain in forest health over time?

## Conclusion

Overall, firms in this sector have adopted a decentralised approach to managing nature-related issues, as evidenced through efforts to foster a strong culture of environmental accountability, predicated on a collaborative management model. Through this model, firms have been able to fully integrate engagement with Indigenous Peoples & Local Communities into each phase of the risk management process, from assessment to management. However, disclosure gaps signal the need for firms to strengthen their considerations of business strategy resilience so that forest management strategies remain fit for purpose under future nature-loss scenarios.

# Conclusion & Recommendations

The assessment of nature-related disclosures reveals that while no sector excels across the board, most of the firms assessed are well on the way to fully aligning their disclosures with the TNFD Core Recommendations. Furthermore, firms in each sector demonstrated innovative and leading approaches to managing, mitigating, and reporting on nature-related issues across a range of key areas. These practices include:




Setting Nature Positive targets that account for the lifecycle impacts on mining operations and align with the GBF on objectives such as 'Net Positive Gain in Biodiversity by 2030' and 'Protect, Restore, or Conserve 30% of land and ocean in and adjacent to mining concession areas by 2030.'




Achieving 98% Supply chain traceability for high-risk commodities through partnerships and technologies like DNA testing, as well as transparently reporting on material nature-related issues through an interactive Environmental Profit & Loss account.



Developing comprehensive Human Rights Action Plans for salient Human Rights issues that consider the human rights-nature nexus in areas like land rights.




Disclosing a stand-alone report for each material nature-related issue, which clearly states the assessments performed, the risk management processes in place, and how each issue is monitored and mitigated.



Commencing surveys of wildlife to develop a more granular and accurate understanding of species composition at owned and operated sites, as well as using this information to prioritise high-risk sites for management.



Being the only sector to have developed management strategies and targets for reducing invasive species risk arising from the firms' operations.



Disclosing the results of Natural Capital Risk Assessments, which report the severity and time horizon for each risk to nature arising from the firm's activities, and the site to regional level dependencies of the business on nature (double materiality).



Developing and deploying risk management practices in partnership with Indigenous Peoples & Local Communities to ensure the long-term sustainable management of forest resources, though, for example, 30-year rotational harvesting, and maintaining a spatially explicit forest inventory database.


**Recommendations for all sectors**

- Ensure that disclosures describe not just the actions the organisation is taking in response to nature, but the processes informing these actions.
- Deepen their understanding of how nature-loss is likely to impact business strategy resilience, ideally through scenario analysis.
- Report transparently on how engagement with affected stakeholders is integrated into the assessment and management of nature-related issues.
- Ensure all nature-related targets align with SMART criteria, with a focus on improving the specificity, and ambition of targets, as well as ensuring they are outcomes focused. Furthermore, targets on nature-related opportunities should be assessed for compatibility with targets on impact reduction.
- Strengthen and clarify the language used in policy documents and codes of conduct so that it is clear what nature-related expectations are being imposed on the firm and its suppliers, as well as the consequences for non-compliance.




# Engagement Guidance

To further support investors in their stewardship activities with companies, we propose the following engagement questions aimed at addressing disclosure gaps common to all sectors at the pillar level.




- How does the firm ensure effective governance mechanisms for nature-related issues, including enforcement and monitoring?
- Can the firm demonstrate meaningful integration of Indigenous Peoples' and local communities' perspectives into nature-related assessment and management?
- What incentives and/or mechanisms are in place to ensure a culture of environmental accountability is being cultivated by the firm?



- How does the firm manage the interconnectedness of nature-related issues in its management processes?
- How does the firm ensure the quality and effectiveness of its risk management processes for nature-related issues?
- Can the firm provide insights into how its risk management processes for nature-related risks are integrated into the enterprise risk management framework and inform strategic decision-making?
- What methodologies and tools does the firm use to assess, prioritise, and monitor nature-related risks across its operations and value chain?



- What methods and tools has the firm used to understand both the impacts and dependencies of nature-related issues on its business models, strategies, value chains, and financial standing?
- How have biodiversity strategies influenced the firm's business model and operations?
- Can the firm provide detailed information on its resilience to nature-related risks?
- How does the firm prioritise locations for managing nature-related impacts in its supply chain, and how has this influenced business decisions?
- How does the firm ensure that its policies effectively enforce standards of practice for suppliers and the business? What enforcement mechanisms are being used, and how is policy effectiveness tracked?



- How has the assessment and identification of material nature-related issues, including impacts of these issues on business model resilience, influenced target setting, including scope and boundaries?
- What progress has been made towards expanding disclosures on the core global nature-related metrics recommended by the TNFD?
- How does the firm ensure that targets aimed at expanding business opportunities are compatible with risk and impact reduction targets?
- How do the nature-related targets set align with the Global Biodiversity Framework objectives of no net loss of biodiversity by 2030? And does the firm plan to set science-based nature targets? If so, when?





# Acronyms

ACRONYMS	
Acronym	Definition
ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
IBAT	Integrated Biodiversity Assessment Tool
IPBES	Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services
SASB	Sustainable Accounting Standards Boards
SBTi	Science Based Targets Initiative
SBTN	Science Based Targets Network
SICS	Sustainability Industry Classification System
TCFD	Taskforce for Climate-related Financial Disclosures
TNFD	Taskforce for Nature-related Financial Disclosures
GBF	Global Biodiversity Framework (i.e., the Kunming-Montreal Global Biodiversity Framework)
CBD	Convention for Biological Diversity
COP15	Conference of the Parties
CSR	Corporate Social Responsibility
IUCN	International Union for Conservation of Nature
CDP	Carbon Disclosure Project
FPIC	Free, Prior & Informed Consent
UN WCMC	United Nations World Conservation Monitoring Centre

# Glossary of Terms

GLOSSARY	
Term	Definition
<b>Aggregate</b>	Aggregate data is when multiple data sources are combined into one set to create a larger idea of a particular issue.
<b>Biodiversity</b>	The diversity of life on Earth.
<b>Circular Economy</b>	An economic system in which the value of products, materials and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, and minimising waste and the release of hazardous substances at all stages of their life cycle, including through the application of the waste hierarchy.
<b>Core Disclosure Requirements</b>	One of the TNFD's 14 disclosure recommendations. Each core recommendation is identified by a pillar and letter code: 'Governance A', 'Governance B', 'Governance C', 'Strategy A', 'Strategy B', 'Strategy C', and so on.
<b>Core Global Indicator</b>	A quantitative or qualitative factor or variable that provides a simple and reliable means to measure performance. An indicator can be measured through one or multiple metrics. Here, the Core Global Indicator is the title given to one of the Indicators associated with each TNFD Core Global Metric.
<b>Core Global Metric</b>	One of 10 Impact & Dependency Metrics required to be disclosed to market participants in line with the TNFD's disclosure recommendations.
<b>Dependency</b>	Reliance on nature.
<b>Disaggregate</b>	The splitting of data sources into their constituent parts, for example, splitting 'Total GHG emissions' into Scope 1, Scope 2, and Scope 3 emissions.
<b>Disclosure Analysis</b>	The analysis of nature-related disclosures reported by companies in their public information.
<b>Disclosure Principles</b>	The characteristics of disclosures that relate to what and how information is reported.
<b>Disclosure Quality Check</b>	A brief analysis of disclosure quality, according to the core disclosure principles proposed by the TCFD.

<b>Double Materiality</b>	Double materiality has two dimensions, namely: impact materiality and financial materiality. European Commission (2023) Annex 1 to the Commission Delegated Regulation, supplementing Directive 2013/34/EU as amended by Directive 2022/2464 (CSRD), as regards sustainability reporting standards (ESRS E1).
<b>Downstream</b>	All activities that are linked to the sale of products and services produced by the company. This includes the use and re-use of the product and its end of life, including recovery, recycling, and final disposal. Adapted from Science Based Targets Network (2023) SBTN Glossary of Terms.
<b>Ecosystem Services</b>	The provisioning, regulating, supporting, and cultural services provided to humans when the living and non-living elements of nature interact. For example, pollination, climate regulation, and storm protection.
<b>Impact</b>	Impact on nature.
<b>Impact Pathway (transmission pathway)</b>	An impact pathway describes how, because of a specific business activity, a particular impact driver results in changes in natural capital, and how these changes in natural capital affect different stakeholders.
<b>Location-based Assessment</b>	Assessment methodologies that integrate spatially explicit tools, data sources and/or parameters, for example, conducting site assessments at high-risk sites, or tracking deforestation using satellite data.
<b>Material Issue</b>	An issue that has a direct or indirect impact on an organisation's ability to create, preserve, or erode economic, environmental, and social value.
<b>Materiality Profile</b>	A snapshot of the material issues identified for each sector based on results of the sector materiality screen.
<b>Materiality Screen</b>	The high-level assessment process undertaken to identify the material issues relevant to a particular economic activity, production process, supply chain, company, or sector.
<b>Mitigation Hierarchy (and Conservation Hierarchy)</b>	The mitigation hierarchy is the sequence of actions to anticipate and avoid, and where avoidance is not possible, minimise, and, when impacts occur, restore, and where significant residual impacts remain, offset for biodiversity-related risks, and impacts on affected communities and the environment. The conservation hierarchy goes beyond mitigating impacts, to encompass any activities affecting nature. This means that conservation actions to address historical, systemic, and non-attributable biodiversity loss can be accounted for in the same framework as actions to mitigate specific impacts. The TNFD aligns to the SBTN AR3T Framework that covers actions to avoid future impacts, reduce current impacts, regenerate, and restore ecosystems, and transform the systems in which companies are embedded. It is built on the mitigation hierarchy set out in the International Financial Corporation's (IFC) Performance Standard 6 and the Conservation Hierarchy.
<b>Natural Capital</b>	The stock of renewable and non-renewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.
<b>Nature</b>	The natural world, with an emphasis on the diversity of living organisms (including people) and their interactions among themselves and with their environment.
<b>Nature-loss Driver</b>	The source of loss and/or decline in the state of nature, as described by the IPBES (2019).
<b>Nature-loss Pressure</b>	A sub-category of nature-loss drivers defined by ENCORE (12 key pressures in total).
<b>Nature-Positive</b>	A high-level goal and concept describing a future state of nature (e.g., biodiversity, ecosystem services and natural capital) that is greater than the current state.
<b>Resilience</b>	Resilience is defined as having the capacity to live and develop with change and uncertainty. It provides capacities for turning risks into opportunities. This includes: (1) adaptive capacities to absorb shocks and turbulence and avoid unpleasant tipping points, thresholds, and regime shifts; (2) capacities to prepare for, learn from, and navigate uncertainty and surprise; (3) capacities for keeping options alive and creating space for innovation; and (4) capacities for systemic transformation in the face of crises and unsustainable development pathways and traps.
<b>Risk</b>	Magnitude of Threat x Hazard; the likelihood and severity that an event will occur.
<b>Sensitive Location</b>	Locations where the assets and/or activities in an organisation's direct operations – and, where possible upstream and downstream value chain(s) – interface with nature in locations that are important to biodiversity and ecosystem functioning across several key dimensions.
<b>Sustainability</b>	The practice of operating in a manner that ensures long-term environmental, social, and economic well-being.
<b>TNFD Pillar</b>	One of four key disclosure thematic, namely 'Governance', 'Strategy', 'Risk Management', and 'Metrics & Target Setting'

# ANNEX - Extended Results & Analysis

## Extractives & Minerals Processing



### Governance

#### Key Results & Analysis

Firms in this sector show a relatively<sup>40</sup> mature approach to integrating nature-related issues into internal governance processes and procedures.

Firms have already explicitly integrated nature-related metrics into executive and employee remuneration and have established communication channels with Indigenous Peoples on the assessment and management of nature-related issues.

Despite clearly demonstrating that the necessary 'governance infrastructure' is in place, governance gaps remain. Most notably, it is unclear: 1) if or what controls and procedures are in place for monitoring nature-related issues, and 2) if or how due diligence processes, such as consultations with Affected Communities and Indigenous Peoples, have influenced firms' assessment and management of nature-related issues.

Overall, these gaps raise concerns over the efficacy of existing governance infrastructure. To fill disclosure gaps, firms will need to demonstrate how they are operationalising governance structures and disclose the monitoring and enforcement procedures in place to ensure these structures are of sound integrity.

#### Disclosure Progress & Gaps

**A.** Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.

- ✔ Firms have already integrated nature into sustainability-related governance structures and frameworks.
- ✔ Firms have already integrated nature-related issues into executive remuneration.
- ✘ Firms are not yet disclosing if Board members have nature-related competencies.

**B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

- ✔ Firms clearly state who has ownership over nature related issues, including disclosing the various functions of sustainability-related organisational structures.
- ✘ Disclosures lack transparency regarding what procedures are in place for monitoring nature-related issues.

**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.

- ✔ Firms already publish Human Rights Policies, and clearly demonstrating how these policies are integrated into operational practices.
- ✔ Firms are already engaging Indigenous Peoples and other affected stakeholders in the assessment and management of nature-related issues.
- ✔ Firms require Free, Prior, and Informed Consent (FPIC).
- ✘ Firms face ongoing controversies related to human rights and the environment, including land-grabbing, involuntary resettlements, environmental crimes, and homicide charges.
- ✘ While due diligence structures are in place, it is not clear how these are integrated into the organisation's day to day operations.

40. In the context of this report, 'Relatively' is used to indicate how firms' disclosures compare to firms in other sectors assessed as part of the analysis. It does not refer to other peers in the industry, or external benchmarks.



## Strategy

### Key Results & Analysis

The firms assessed report transparently on a range of material nature-related issues, including land use change impacts and water risks (including water conflict with communities), which are both key issues identified in the materiality profile. Disclosures on material issues are uneven, however. Both firms state that pollution is a significant impact and risk, but information on hazardous waste, soil pollution, and air pollution is markedly lacking in depth.

Firms state that they have prioritised owned and operated sites based on the identification of sensitive areas, including areas of high-water risk, and areas crucial for biodiversity and Indigenous Peoples.

Firms are publishing lists of assets in priority areas, and some spatial maps to indicate regions of high-water risk. Several sensitive features at these locations are also disclosed, such as world heritage sites and IUCN Red List species.

Disclosures indicate that these sensitive areas reportedly pose significant regulatory and physical risks to firms in this sector.

One firm reports that US\$14.6 billion in production value (equivalent to 36% of global revenue) is currently dependent on water basins in a state of critical water stress. In the year 2022 alone, the firm had to pay just under US\$8 million in water related fines across 23 legal violation, in addition to US\$7 in compensatory costs alone to Indigenous Peoples and Local Communities resulting from one of multiple tailing dam ruptures that have occurred in the last 10 years.

Overall, the effects of nature on the business lean towards reactive risk management practices as opposed to proactive practices, i.e., responding to legal risks that have already materialised, as opposed to mitigating against future risk. Strategies aimed at reducing the lifecycle impacts of mining operations, and investments in long term water risk reduction indicate that this approach may be shifting. As disclosures evolve we expect further evidence of forward thinking mitigative strategies to manage material nature-related issues.

### Disclosure Progress & Gaps

#### A.

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.



Firms have already identified nature-related impacts, dependencies, risks, and opportunities.



The issues identified align with the material nature-loss pressures assessed for this sector.



Firms do not consistently disclose the time horizons over which nature-related issues are anticipated to materialise, nor the severity of the issue and the likelihood of occurrence.

#### B.

Describe the effect that 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.



Firms have begun to assess the implications of nature-related issues on the firm's business model, value chains & financial planning.



Firms are already developing & deploying biodiversity strategies that are site specific and consider the lifecycle impacts of mining operations.



Disclosures on the business model, value chain and financial impacts of nature-related issues are fragmented.



Changes to business models appeared reactive as opposed to proactive.

#### C.

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



Firms have begun linking between business resilience and the resilience of ecosystems, with one firm disclosing that it takes biodiversity risk scenarios into consideration.



Climate Change Scenario Analyses lack detail on how different climate scenarios will impact the firm's future strategy and resilience.



Assessments of resilience to other material nature-related issues are not yet reflected in public disclosures.

#### 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.



Firms have deployed a range of spatially explicit tools to identify sensitive areas, including areas of high-water risk and areas of importance to biodiversity.



Firms already publish lists of assets located in sensitive areas.



Peer reviewers note that for one firm, disclosures are insufficient for key locations.



Neither firm provides spatial maps for all priority areas.





## Risk Management

### Key Results & Analysis

In this sector, firms are responding to stringent legal requirements by conducting comprehensive assessments of biodiversity impacts, water risks, and climate change risks. However, pollution of air and soils are still under-disclosed issues. There is a lack of transparency regarding the methods and tools used to conduct assessments, as well as the management approaches used to mitigate pollution related impacts.

Firms demonstrate a mature approach to risk management overall, tailoring governance structures, strategies, and management approaches to specific nature-loss drivers such as land use change and water scarcity. Integration of nature-related issues into broader risk management processes is also evident.

Where disclosures remain immature is regarding monitoring and enforcement mechanisms – a key stage in the risk management process. While monitoring is reported to be in place, disclosures lack details on monitoring mechanisms and frequency, and employee incentives for reporting incidents and the effectiveness of management practices. Additionally, some management approaches indicate a lack of consideration for issue interconnectivity. For instance, addressing water dependencies through seawater desalination, which can negatively impact the environment, or mitigating climate risks by divesting or merging coal assets, rather than decommissioning assets to mitigate physical risks and impacts to nature.

To address these gaps, we expect firms to improve the transparency of disclosures on how management practices are enforced and monitored, and how the interconnectivity between nature-related issues is considered in the development of management approaches.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.



Firms are already assessing their nature-related impacts, dependencies, risks, and opportunities for the operational scope, and are reporting transparently on the methods and tools used to complete their assessments.



Disclosures lack transparency regarding pollution-related assessments (particularly tools and data).



Disclosures lack detail on upstream and downstream risk management processes, focusing mostly on operational issues.

#### Aii.

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).



Operational Scope is most material for this sector.



No gaps detected.

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.



Firms in this sector adopt a double materiality approach.



Firms already have issue-specific risk management processes in place, and demonstrate sound transparency on the governance structures, tools, strategies, and management approaches deployed in response to material nature-related issues.



Firm disclosures lack detail on the enforcement mechanisms in place, including the methods used to monitor nature-related issues and track progress over time.



Disclosures are poorly structured and lack detail, making the risk management processes difficult to comprehend and assess.

#### 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.



Firms are already disclosing details of the organisation's overarching risk management process, and state that climate issues are integrated into this process.



Firms are conducting periodic reviews to ensure strategic alignment between decision-making, performance, and risk tolerance approved by the Board.



No gaps detected.



## Metrics & Target Setting

### Key Results & Analysis

Firms in this sector are already partially to fully<sup>41</sup> disclosing against six (6) out of 10 of the TNFD Core Impact & Dependency Metrics.<sup>42</sup> These metrics broadly align with the material issues faced by firms in this sector. As such, metrics focused on reporting the total landside spatial footprint (including extent of land use change by business activity, and extent of land restored/rehabilitated), pollutants released to the air and water, and total water withdrawal by level of water scarcity.

Climate change metrics align with the full recommendations of the GHG Protocol, which means metrics on this nature-loss driver are relatively robust compared to other firms assessed. In addition to aligning with a host of the draft Core Global Metrics recommended by the TNFD, firms in this sector are also publishing metrics on IUCN Red List species by location & status, and number of species benefiting from protected habitat.

On target setting, firms are already disclosing SMART (i.e., specific, measurable, achievable, relevant, & time bound) targets against all relevant nature loss drivers. However, it is not always clear based on existing information which targets connected to which metrics. Furthermore, progress is not consistently reported, and not all targets are accompanied by enough contextual information (methods, scope etc..) to verify their quality.

Firms have already published targets on no net loss of biodiversity for the operational scope and set goals to have 30% of the mining concession area under protection, restoration, or regeneration by 2030, in alignment with the global Biodiversity Framework (GBF) '30 by 30' target.<sup>43</sup>

### Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics for Impacts & Dependencies.

#### A-B.

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.

B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Firms in this sector are already partially-fully disclosing against 6 out of 10 of the TNFD Core Global Impact & Dependency Metrics.



Firms are also reporting on a range of biodiversity- and species-related metrics, indicating an existing consideration for biodiversity impacts.



Metrics disclosed align with all the material drivers of nature loss identified for this sector, except for soil pollution.



Firms are not yet clearly linking all targets set to the relevant metrics published by the firm, which makes it difficult to determine which metrics in firms' data books are connected to which targets.



Methodologies and assumptions used to calculate metrics are not being consistently reported.

#### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Firms are disclosing a range of SMART targets that are aligned with the nature-related dependencies, impacts, risks, and opportunities faced by the firm.



Firms are demonstrating alignment with the GBF, and the United Nations 2030 Agenda.



Firms are employing the Science Based Targets Initiative (SBTi) methodology to develop their climate-related targets.



Not all targets are time bound and quantifiable, with many open to interpretation and lacking in clear scope and boundaries.



Firms are not setting ambitious water targets, with one firm putting a non-timebound target in place to set context-based water targets at some point in the future.



Firms are not disclosing enough contextual information on the methods, data, assumptions, and scopes of targets necessary to verify their quality.

41. Partially – Fully means metrics are being disclosed that align with some to all of the elements of each Core Global metric. In the TNFD, 'Metrics' are actually a set of measures that target a particular type of impact, like 'Extent of Land Use Change by Type AND activity'.

42. See Metrics & Targets A-B of the Appendix.

43. See 'Metrics & Targets C' of the Appendix for targets.

## Consumer Goods



### Governance

#### Key Results & Analysis

Results show that Consumer Goods companies are already integrating nature-related issues into their governance structures, with Board members having clear oversight of nature-related issues and specific competences in nature. Nature-related metrics are clearly being incorporated into Board remuneration and staff incentives.

Firms in this sector also employ a decentralised governance approach, with teams and working groups in each business unit dedicated to overseeing specific nature themes and discuss aspects of the broader sustainability strategy, such as financing landscape restoration projects. Being diverse and globalised companies, leveraging both centralised and decentralised governance structures helps create a culture of accountability, and ensures sustainability is more deeply embedded across the business.

Both firms also demonstrate a mature approach to integrating human rights due diligence into the organisation. Human rights policies are aligned with international standards (e.g., OECD guidelines & UN Guiding Principles) and detailed grievance mechanisms, including grievance reports, are being disclosed. Stakeholder engagement is also being used by firms in this sector to enhance due diligence and support the assessment and managing nature-related issues.

However, disclosures still lack transparency in some areas – particularly in detailing the Board's monitoring and enforcement mechanisms for nature-related strategies. One firm is developing a structured monitoring plan, which indicates firms are actively addressing this gap. Furthermore, despite the emphasis on stakeholder engagement, there is a need for clearer articulation of engagements with Indigenous Peoples specifically, and how engagements with stakeholders more broadly influence strategic responses to nature loss.

#### Disclosure Progress & Gaps

**A.** Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.

- ✓ Nature-related metrics are already being integrated into Board remuneration, and into incentives for employees.
- ✓ The Board has oversight over nature-related issues specifically, with the Board Committee clearly stated to track progress against sustainability goals.
- ✓ Some Board members have nature-related competences.
- ✗ Specifics regarding the Boards oversight over nature-related expenditures not clearly stated.

**B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

- ✓ Firms have already established organisational structures, embedded in key business units, dedicated to addressing nature-related issues.
- ✓ Firms disclose transparently on the reporting structure.
- ✗ Disclosures lack details on the controls and procedures in place for monitoring nature-related issues.

**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.

- ✓ Nature has been clearly integrated into human rights due diligence processes.
- ✓ Full grievance reports and resolutions published.
- ✓ Stakeholders clearly engaged on nature-related issues.
- ✓ There are mandatory requirements in place for suppliers to secure Free, Prior and Informed Consent (FPIC).
- ✗ Unclear how engagements with Indigenous Peoples are integrated into the assessment of nature-related issues.



## Strategy

### Key Results & Analysis

Firms in this sector have identified key nature-related issues spanning their entire value chain, including land use change impacts, raw material exploitation, and water scarcity. They attribute resource scarcity risks to supply-demand mismatches, trade volatility, and shifting consumer preferences. In fact, Soy trade volatility and supply-demand mismatches are expected to cost one firm an additional US\$970 million per year alone by 2030.

Both firms have responded to these issues by developing comprehensive nature-related policies and strategies,<sup>44</sup> enforcing minimum standards on suppliers, leading to the termination of some relationships. They are also heavily focused on improving supply chain traceability, utilising technologies like DNA tracing and GPS tracking, particularly in palm oil production. Locations of assets prioritised are not reported in full, however both firms have clearly prioritised high risk commodity supply chains for targeted management.

Unique to this sector is the integration of the Conservation Hierarchy into management strategies for nature-related issues. The Conservation Hierarchy builds on the Mitigation Hierarchy and is tailored specifically to the management of nature-related issues. Use of the Conservation Hierarchy pushes the boundaries of internationally recognised best practice.

Overall, as disclosures evolve, we expect to see further maturation of supply chain tracing, and with it, a greater understanding of business resilience to nature-related issues.

### Disclosure Progress & Gaps

#### A.

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.



Firms in this sector employ Lifecycle Analysis to ensure that upstream and downstream impacts and risks are captured in their nature-related assessments.



Firms are investing heavily in tools and data to improve monitoring of nature-related issues embedded in the supply chain, e.g., through DNA mapping technology.



Firms are clearly prioritising sites and assets based on the severity of impacts and risks identified.



No gaps detected.

#### B.

Describe the effect that 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 in place or analysis in place.



Firms in this sector clearly understand the effects of nature-related issues on the business, with an emphasis on supply chain and sourcing impacts



Firms in this sector do not yet have transition plans in place for nature.

#### C.

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



Firms are clearly beginning to describe the resilience of their organisational strategies to nature-related issues.



Both firms have conducted scenario analyses, which consider flow on effects to resource scarcity and other nature-related issues.



Disclosures on resilience are still in their infancy and are lacking in granularity overall.

#### 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.



Firms have invested heavily in technology to improve supply chain traceability and identify locations upstream and downstream that should be prioritised for management.



One firm has embedded an interactive satellite map in its website that allows users to explore the firm's country-level and commodity level environmental footprint across six nature-loss drivers.



Full lists of assets and maps are not disclosed.

44. See 'Strategy B' of the Appendix.





## Risk Management

### Key Results & Analysis

Results show that both firms are identifying, assessing, and prioritising nature-related issues. Firms transparently disclose the methodologies used to conduct assessments, which, in both cases, employ a lifecycle approach to capture the upstream, downstream, and operational impacts and risks associated with individual products, processes, or ingredients.

One firm has conducted a footprint analysis of over 3,000 products, which led to the identification and prioritisation of 16 high impact agricultural products, and five high risk commodities (e.g., soy, palm oil, and cocoa). The other uses an Environmental Profit & Loss accounting method to assess its impacts and dependencies on nature across six key nature-loss drivers.

The results are presented as an interactive matrix and dashboard. Users can explore the ecological footprint of each stage in the production lifecycle according to all six drivers of nature loss. Change over time can also be observed, and filters can be adjusted to investigate the lifecycle impact of a range of individual commodities.

Overall, disclosures on the operational, upstream, and downstream risk and impact management processes in place are the most complete in terms of coverage for Consumer Goods companies, out of all sectors assessed. The risk management processes reported align with each material nature-loss pressures for the sector, except for invasive species.

Although comprehensive, disclosures are fragmented over a large number of documents, making the risk management process for each material issue challenging to elucidate. For one firm, this is exacerbated the fact that disclosures also lack the level of detail necessary to judge the quality of risk management processes in place. As disclosures evolve, we expect firms in this sector to refine and improve the quality of existing disclosures, as opposed to expanding coverage of nature-related issues.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.



Firms are already publishing transparently on the methods and tools used to identify assess, prioritise, and monitor nature-related issues in the direct operational scope.



The issues targeted by firms align closely with the results of the sector materiality screen.



No gaps detected.

#### Aii.

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).



Firms in this sector employ Lifecycle Analysis to ensure that upstream and downstream impacts and risks are captured in their nature-related assessments.



Firms are investing heavily in DNA mapping and Spatial data to enable the identification and monitoring of nature-related issues embedded in supply chains.



No gaps detected.

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.



Disclosures indicate that firms already have risk management processes in place for key operational, upstream, and downstream risks and impacts, like water pollution from tanneries, and land use change impacts from soy and palm oil plantations.



Invasive species are not being clearly managed or monitored.

#### 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.



Both firms have an enterprise risk management framework in place, and clearly state that nature-related risk management processes are integrated into this framework.



Not all firms detail the phases in the overarching risk management process, nor how the management of nature-related risks is integrated into it.



## Metrics & Target Setting

### Key Results & Analysis

Results show that Consumer Goods companies are already disclosing on nine (9) out of 10 of the Core Global Impact & Dependency metrics proposed by the TNFD.<sup>45</sup> Pollutants released to the soil by type was the only metric not detected. However, the presence of reporting metrics for all other pollution-related metrics, including plastics, effluent, and hazardous waste, indicate that firms are still monitoring a range of potentially harmful environmental releases.<sup>46</sup>

In response to regulatory scrutiny and growing consumer awareness, one firm has set targets to make all ingredients biodegradable by 2030 and ensure plastic packaging is recyclable, reusable, or compostable by 2025. Here, the firm distinguishes between "technically recyclable" and "practically recyclable" plastics, as recommended by the TNFD.

Other areas for improvement include metrics under the "Total Spatial Footprint" indicator. While firms disclose their total spatial footprint (km<sup>2</sup>) and the area disturbed, rehabilitated, and restored (km<sup>2</sup>), neither details ecosystem change by type or amount of sustainably managed land. These elements of the metric are particularly relevant, given that firms have set land use related targets.

One firm has set a target to achieve a net positive impact on biodiversity by 2025 by regenerating and protecting an area of land about six times their total land footprint. This includes regenerating one million hectares of farms and rangelands in their supply chain landscapes and protecting one million hectares of critical, 'irreplaceable' habitat outside of their supply chain.

Overall, firms in this sector are making good progress towards disclosing nature-related metrics and targets. As disclosures evolve, we expect coverage of soil pollution and land use change metrics to improve to ensure ambitious nature-positive and deforestation targets are being monitored effectively.

## Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics for Impacts & Dependencies.

### A-B.

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.

B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Firms in this sector are already disclosing (at least partially) against 90% of the core Global Impact & Dependency metrics assessed.



Disclosure coverage could be improved to ensure material issues like soil pollution and land/water use change impacts and risks are being monitored effectively.

### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Firms are already setting quantitative and timebound Net-Positive targets for biodiversity (2025).



Firms are already setting quantitative and timebound targets for eight (8) out of 10 of the material nature-loss pressures for this sector.



To be met, some targets rely on changes that may be beyond the control of the organisation (e.g., existence of recycling infrastructure), impacting 'achievability'.



'Net Positive' and 'Deforestation free' targets lack sufficient contextual information to verify parameters.

45. Partially – Fully means metrics are being disclosed that align with some to all of the elements of each Core Global metric. In the TNFD, 'Metrics' are actually a set of measures that target a particular type of impact, like 'Extent of Land Use Change by Type AND activity'.

46. For further details on the metrics being disclosed, please see 'Metrics & Target Setting A-B' of the Appendix.

## Food & Beverage



### Governance

#### Key Results & Analysis

Food & Beverage companies report that the Board is actively involved in overseeing nature-related issues, with ESG metrics embedded into executive remuneration. However, it is unclear if nature-related metrics are incorporated into Board remuneration specifically, highlighting the importance of disaggregating data to the extent possible. Furthermore, governance disclosures lack detail on Board competences and the frequency of updates to the Board on nature-related issues.

Disclosures on management's responsibilities over nature-related issues are detailed.

One firm stated that it has a dedicated ESG Strategy Deployment Unit and Sustainability Council overseeing workstreams like sustainable packaging and sourcing. Another firm utilises an internal sustainability strategy monitoring dashboard to track progress against core sustainability indicators and improve environmental accountability.

Both firms disclose human rights policies and provide evidence of close engagement with Indigenous Peoples and local communities on nature-related issues.

One firm has published a Human Rights Framework and roadmap. The roadmap is underpinned by action plans addressing specific issues like Land Rights of Indigenous Peoples. These action plans indicate that firms are already beginning to integrate human rights due diligence into their management of nature-related human rights issues.

To strengthen disclosures, we expect firms in this sector to improve transparency on the outcomes of human rights action plans, and how these plans materially influence the assessment and management of nature-related issues.

#### Disclosure Progress & Gaps

**A.** Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.

- ✓ The Board has oversight over the firm's sustainability strategy and plays an active role in setting performance related objectives.
- ✗ It is not clear if nature-related issues specifically are incorporated into executive remuneration.
- ✗ It is unclear if Board members have nature-related competences.
- ✗ The frequency with which the Board meets to discuss sustainability issues is not disclosed.

**B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

- ✓ Firms disclose transparently on the role of management in assessing and managing nature-related issues.
- ✓ Firms have established a mix of centralised and decentralised governance structures to ensure firms remain responsive to and accountable for nature-related issues.
- ✓ Firms in this sector have developed internal tools and incentives to facilitate the monitoring and enforcement of nature-related strategies and management practices.
- ✗ No gaps detected.

**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.

- ✓ Firms already clearly integrate human rights due diligence into their nature-related business strategies.
- ✓ Firms are already engaging Indigenous Peoples and Local Communities on land use change and resource related issues.
- ✓ Human Rights Policy in place, and a Human Rights Framework.
- ✗ Lack of transparency on the outcomes of human rights action plans related to nature.



## Strategy

### Key Results & Analysis

Results show that both firms are considering the effects of nature on the entire supply chain. Similar to the Consumer Goods sector, material issues disclosed focus on land-use change impacts from raw material sourcing, and pollution from packaging waste, as well as climate change risks associated with dairy supply chains. In response, firms have published nature-focused policies that set standards for the firm and their suppliers (excluding sub-suppliers), targeting issues like forest management, sustainable sourcing, and packaging circularity.

The effects of nature on the business are most well understood for climate change, leading firms to adopt lower-emission distribution methods and develop plant-based products to reduce emissions. Consumer demand is also pushing firms to address human rights issues linked to raw material extraction, with land use conflicts being a significant issue for one firm.

One firm is investing US\$1.3 billion in regenerative agricultural practices and enhancing circularity by 2025 to reduce risks associated with resource scarcity and packaging waste. Other innovations include new dairy cow diets, developing recyclable packaging, and making advancements in supply chain mapping and sustainability performance verification.

Despite these promising investments, we note that supply chain mapping is still in its infancy compared to other firms assessed, meaning the land use impacts from agriculture have not been fully mapped. This may explain why disclosures on the locations of assets/activities in sensitive areas could not be detected.

Overall, firms demonstrate growing awareness of both nature-related issues and their effects on the business, with an emphasis on the impacts of food and beverage products embedded upstream (e.g., deforestation & resource scarcity) and downstream (e.g., changing consumer preferences). As disclosures evolve, we expect further improvements in supply chain traceability, and with it, for firms to be more transparent about their priority locations.

### Disclosure Progress & Gaps

#### A.

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.

- ✓ Firms have identified a range of nature-related impacts, dependencies, risks, and opportunities.
- ✓ Firms are taking into consideration upstream, downstream, and operational issues.
- ✗ Disclosures lack detail on key areas such as water resource exploitation, invasive species, soil pollution, and air pollution.

#### B.

Describe the effect that 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.

- ✓ Firms are beginning to disclose the effects of nature-related issues on business models, strategies, and value chains, with an emphasis on upstream supply chain risks.
- ✓ Firms are publishing policies that enforce stricter environmental standards on suppliers of commodities.
- ✓ Firms are decarbonising their business models and investing in technologies to improve product circularity.
- ✗ Disclosures are fragmented, high level and lacking in detail overall.
- ✗ Firms are yet to disclose the financial effects of nature related issues on the business.
- ✗ Neither firm has any transition plans in place.

#### C.

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

- ✓ Firms in this sector are regularly conducting climate scenario analysis, with some results disclosed.
- ✓ Firms in this sector clearly recognise that their dependency on natural resources and land productivity is a threat to future resilience and have begun to describe these threats.
- ✗ However, firms are yet to progress beyond recognising nature as a threat to resilience to assessing resilience.
- ✗ Methods and tools used to conduct climate change scenario analyses cannot be detected.

#### 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.

- ✓ Firms are beginning to pilot spatial assessments to track deforestation and improve product traceability.
- ✗ Disclosures on sensitive areas and how sites are prioritised for assessment and management cannot be detected.





## Risk Management

### Key Results & Analysis

Results show that disclosures on Risk Management lack transparency. Overall, disclosures lack depth and are highly generalised. One firm rarely links the systemic threat posed by nature-loss to idiosyncratic business risk and impacts, which makes it difficult to understand precisely how nature-loss impacts the business, nor the businesses response to its material exposures. Furthermore, details on how risks are being 'treated' (i.e., managed) as part of the risk management process focus heavily on partnerships and engagement with stakeholders. Although important tools, partnerships are not in and of themselves mitigative and adaptive practices, but a channel through which these can be cultivated.

In contrast, the second firm in our sample presents a more systematic approach to risk management, despite disclosing less on nature overall.

This firm details a comprehensive five-dimensional risk management strategy, deployed for each operational site. This risk map incorporates diverse data and tools, including flow maps and biodiversity impacts, which then informs the development of targeted management plans. This approach is complemented by rigorous monitoring and specific risk metrics and targets.

Overall, results reinforce that disclosure quantity and quality are not synonymous. As the sector progresses, enhancing the depth and quality of disclosures will be crucial so that investors can make more informed decisions about the sufficiency of the risk management processes in place.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.



Firms are currently disclosing a range of methods and tools used to identify and assess nature-related issues in the operational scope, including water risks and pollution.



Firms are also disclosing details of the processes in place to identify and assess biodiversity risks, which consider a range of material nature-related issues, and address both direct and indirect impacts and risks.



The magnitude of the firm's exposure to nature-related issues is not always clear based on disclosures, making it challenging to determine the extent to which nature-loss may affect the business.

#### Aii.

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).



Firms are describing the processes used to identify and assess upstream land use change impacts, water risks and risks arising from raw material exploitation using a range of tools and data.



Firms are disclosing processes for prioritising sites and assets across all key material nature-loss pressures.



The magnitude of the firm's exposure to nature-related issues is not always clear based on disclosures, making it challenging to determine the extent to which nature-loss upstream and downstream may affect the business.

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.



Disclosures indicate that one firm has a clear risk management process in place for managing nature-related issues like water scarcity and biodiversity loss.



Disclosure depth and breadth on nature-related risk management processes is lacking overall.

#### 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.



One firm reports on how sustainability issues are being integrated into the firm's enterprise risk management framework.



Neither firm discusses how nature-related issues specifically are integrated into and inform the overarching risk management process.



## Metrics & Target Setting

### Key Results & Analysis

Results show that Food & Beverage companies are already partially or fully reporting on seven (7) out of 10 of the Core Global Impact & Dependency metrics. Both firms are reporting against all Resource Exploitation related metrics, including water withdrawal & consumption (m<sup>3</sup>), and quantity of high-risk commodities sourced (t) by type, and certification. This is unsurprising given that both firms have identified risks associated with water scarcity and raw material exploitation to be particularly potent.

One firm has set targets to achieve 100% RSPO certified sustainable palm oil<sup>47</sup> and implement more than 100 water saving and water use reduction projects around 48 global priority water sites by 2025.

However, the latter target lacks specificity and is an activity, not an outcome; it describes what the firm will do, not what it will achieve. This leaves the target open to interpretation: what constitutes a 'project'? Does the project have to be effective? If this information is not clarified, then the meaningfulness of the target cannot be judged. Other targets on issues like deforestation raise similar red flags.<sup>48</sup>

Overall, while it is promising to see that firms in the Food & Beverage sector are reporting a range of nature-related metrics and targets relevant to the sector's material nature-related issues, to address gaps, we expect firms to improve the coverage of metrics and wording and specificity of targets as disclosures evolve, ensuring that targets are specific and worded accurately.

## Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics for Impacts & Dependencies.

### A-B.

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.

B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Firms in this sector are already (at least partially) disclosing against 70% of the Core Global Impact & Dependency metrics assessed.



Reported metrics demonstrate sound coverage on High-Risk Commodity Sourcing and Water consumption/withdrawal, which both align closely with key nature-loss pressures for this sector.



Disclosure coverage is poor for metrics associated with Pollution and Land/Freshwater/Ocean Use Change.

### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Targets set by firms in the sample clearly align with the most material nature-loss pressures for this sector, with a focus on sustainable and deforestation free sourcing practices.



The wording of some targets is misleading and lacking in specificity, which may lead to reputational risks from greenwashing.

47. RSPO stands for the 'Roundtable on Sustainable Palm Oil' which is a common certification.

48. For example, one firm has an 'aiming for deforestation free palm oil, cocoa, and coffee by 2025' target. Not only does the word 'aiming' imply that the firm does not have to meet the target but upon investigation 'deforestation free' is partially determined based on third party deforestation risk rankings. To avoid misleading readers, firms should take care to word targets as accurately as possible. In this instance, perhaps '100% of commodities sourced from suppliers with low risk of deforestation by 2025' would be more accurate, and less likely to be perceived as greenwashing. More details on targets set by firms in this sector are in the Appendix.

## Health Care



### Governance

#### Key Results & Analysis

Results show that governance disclosures are clear and concise.

Both firms publish stand-alone Sustainability Governance documents which state the Board's role in overseeing sustainability-related issues, including the development of metrics, performance targets, and progress reviews.

One firm notes that its steering committee assesses and manages nature-related issues, including climate change, water stewardship, and biodiversity stewardship. Regular performance updates are made to the Board quarterly, with full progress reports provided annually.

Internal processes have been adapted to comply with the principles of the Convention on Biological Diversity (CBD), and specifically, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation (Convention on Biological Diversity, 2010).

Both firms also disclose detailed due diligence procedures, with one firm publishing a Human Rights Due Diligence report that discusses the human rights-environment nexus in the context of Indigenous Peoples & Local Communities.

Despite this progress, it is unclear if or how stakeholders are engaged in the assessment and management of nature-related issues. Furthermore, disclosures, monitoring procedures, and controls in place also lack detail. To improve governance disclosures, we expect firms in this sector to clearly state how stakeholder engagement is integrated into the assessment and management of nature-related issues, as well as demonstrate what mechanisms are in place to monitor and enforce nature-related governance procedures and strategies.

#### Disclosure Progress & Gaps

**A.** Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.

- ✓ Disclosures on the Board's oversight of nature-related issues is comprehensive and clear.
- ✓ The Board is engaged in both quarterly and annual reviews of progress against the sustainability strategy, and regularly discusses environmental risks and opportunities.
- ✗ It is unclear if Board members have nature-related competencies.

**B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

- ✓ Firms provide granular information about the delegation of responsibilities over nature-related issues to various organisational structures.
- ✓ There are dedicated sustainability strategy implementation teams and councils in place with oversight over nature-specific workstreams.
- ✗ Monitoring controls and procedures in place lack detail.

**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.

- ✓ Firms align their due diligence governance procedures with internationally recognised frameworks such as the CBD, and the Nagoya Protocol. There are dedicated teams in place to operationalise these procedures.
- ✓ Firms in this sector extend compliance with Nagoya Protocol, and international human rights treaties such as the ILO fundamental conventions, to all suppliers, both direct and indirect.
- ✓ Human Rights Policies/Due Diligence Reports make explicit reference to human rights issues related to the environment.
- ✗ Unclear information on the stakeholders involved in assessing and managing nature-related issues.
- ✗ Inadequate information on the application of Free, Prior, and Informed Consent (FPIC) principles in the firms' operations.



## Strategy

### Key Results & Analysis

The Health Care firms assessed have identified direct dependencies on biodiversity for drug discovery to be a top risk to the business. Equally, firms note that the manufacturing, consumption, and disposal of such drugs can significantly impact biodiversity. Water resource dependencies have been identified as a significant risk, given the heavy reliance of healthcare companies on purified water for the synthesis of pharmaceutical ingredients. These issues are said to be exacerbated by climate change.

One firm has clearly considered how material issues like water scarcity, biodiversity loss, and climate change may affect their strategies, sourcing practices, and, to some extent, business model. The firm has published a report on its resilience to environmental threats, including climate change and nature loss.

While a promising start, disclosures on resilience are still high level, with scenario analyses not yet incorporating biodiversity loss scenarios. As disclosures evolve, we expect firms to take nature-loss scenarios into consideration when assessing business strategy resilience.

Transparency is also lacking on the results of spatially explicit assessments. Neither firm publishes lists of assets or maps of priority locations.

However, one has clearly assessed and prioritised sensitive areas, which encompasses the most comprehensive list of sites by any firm assessed, including areas of high-water risk, RAMSAR wetlands, IUCN Protected areas, Zero Extinction areas, IFC critical habitat, Important Bird & Biodiversity Areas, UNESCO World Heritage Sites and more. This firm has mapped its owned and operated sites to these sensitive areas, identifying 13 sites for targeted management. The locations are not disclosed.

As disclosures evolve, we expect firms to provide more insight into the locations being assessed and prioritised by the firm.

### Disclosure Progress & Gaps

#### A.

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.

- ✓ Firms in this sector are already disclosing a range of nature-related impacts, dependencies, risks, and opportunities.
- ✓ Nature-related issues identified clearly align with the material issues for this sector.
- ✗ Time horizons are not reported consistently.

#### B.

Describe the effect that 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.

- ✓ Firms in this sector are systematically describing the effects of nature-related issues, such as biodiversity loss, on the organisations' business model, strategy, and value chains.
- ✓ Firms have shifted their strategies and internal processes to align with the CBD and the Nagoya Protocol.
- ✗ Disclosures lack transparency regarding the financial effects of nature-related issues.
- ✗ Neither firm has transition plans in place.

#### C.

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

- ✓ Firms are beginning to disclose how environmental changes like resource scarcity and biodiversity loss threaten business resilience.
- ✗ Disclosures lack detail on climate change scenario analysis. One firm defers readers to external CDP submissions for more information.
- ✗ Disclosures on resilience to nature loss are still in their infancy.

#### 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.

- ✓ Firms in this sector are already disclosing details of biodiversity risk mapping assessments.
- ✓ Firms have developed a comprehensive and inclusive definition of 'sensitive areas.'
- ✓ Firms in this sector clearly state that all operations occurring in sensitive areas are prioritised for strategic management.
- ✗ Spatial assessments only consider the operational scope.
- ✗ Lists of priority assets or spatial maps are not published.





## Risk Management

### Key Results & Analysis

Results show that firms are disclosing information relevant to all Risk Management Core Recommendations. One firm's disclosures are particularly mature.

The firm is already conducting biodiversity sensitivity assessments on its non-urban sites using the Integrated Biodiversity Assessment Tool (IBAT)<sup>49</sup> and global-scale geospatial data to identify and assess business vulnerabilities to biodiversity-loss. Assessment results are being used to identify priority locations based on proximity to sensitive areas and potential impacts to biodiversity. Every site prioritised must have a biodiversity management plan in place by a predetermined deadline.

The firm has also created a Biodiversity Toolbox, based on guidelines from the United Nations World Conservation Monitoring Centre (UN-WCMC),<sup>50</sup> to assist in preparing the site-specific biodiversity management plans.

Assessments have been conducted to quantify the firm's biodiversity footprint by analysing dependencies and impacts on biodiversity throughout the value chain using 'tools recommended by the IPBES' (results & tools not published).<sup>51</sup> The firm also publishes a standalone report for key material issues, in which a description of these tools, as well as the risk management process is methodically described.<sup>52</sup>

Despite the mature approach to Risk Management reporting overall, gaps are still identified. Neither firm describes how the risk management processes for nature have been integrated into overarching risk management frameworks. As disclosures evolve, we expect firms to increase reporting on invasive species, and provide more detail on how risk management processes at the issue level are integrated into and inform firms' overarching risk management processes.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.

- ✓ Firms have performed assessments across all material nature-loss drivers for the operational scope.
- ✓ Firms disclose transparently on how assets and locations are prioritised based on their exposure to nature-related issues.
- ✗ It is not clear if species disturbances have been assessed (invasive species driver).

#### Aii.

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).

- ✓ Firms have performed whole of value chain/ lifecycle assessments across all material nature-loss drivers.
- ✓ Firms have clearly prioritised assets and prioritised locations and assets based on their exposure to material nature-related issues, e.g., water risk and biodiversity loss.
- ✗ It is not clear if species disturbances have been assessed (invasive species driver).

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.

- ✓ Both firms adopt a double materiality lens.
- ✓ One firm discloses the full risk management process for key nature-related issues, such as biodiversity loss, water scarcity, and pollution.
- ✓ Disclosures indicate that location specificity is integrated into the risk management process.
- ✗ The risk management process for Invasive Species (disturbances) could not be detected.
- ✗ Disclosures on the risk management process by one firm are still in their infancy.

#### 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.

- ✓ Both firms have an enterprise risk management framework in place, into which sustainability issues are clearly integrated.
- ✗ Disclosures on how the risk management process for nature-related issues informs the organisations overall risk management process is not clear.

49. <https://www.ibat-alliance.org/>

50. <https://www.unep-wcmc.org/en>

51. <https://www.ipbes.net/>

52. Here, we define the 'Risk Management Process' as being the core phases in the risk management cycle, namely, identifying, assessing, treating, prioritising, and monitoring (split into monitoring tools, metrics, and targets) risks. For the risk management process to be considered 'fully disclosed' disclosures must clearly address all five phases.



## Metrics & Target Setting

### Key Results & Analysis

Results reveal low metric coverage for the Health Care companies assessed, with firms partially-fully disclosing against four (4) out of 10 of the Core Global Impact & Dependency metrics. Metrics for land/freshwater/ocean use change are absent, and disclosures on the total plastic footprint and specific disposal methods, as well as water pollutant concentrations, are incomplete – despite both being identified as material issues. Firms are disclosing other relevant pollution metrics, however, such as hazardous and non-hazardous waste disposal (t), wastewater volume (m<sup>3</sup>), and non-GHG air pollutants (tCO<sub>2</sub>e), indicating that firms are still partially monitoring pollution metrics.

Results also find mixed results for Target Setting. Targets are relevant, quantitative, and timebound, but varied in quality, with targets lacking objectivity and specificity. For example, one firm has a target in place to, by 2025, implement biodiversity protection programs at all sites close to sensitive spaces, with 100% of sites operating at least one initiative. Here, the firm does not clarify what constitutes a 'biodiversity protection program', nor if the 'initiatives' in place must be successful. By omitting such information, firm's lower accountability and make it difficult for readers to determine how meaningful targets are.

Overall, while firms in this sector are beginning to report on nature-related metrics, and clearly have targets in place for material nature-related issues, coverage of the Core Global Metrics assessed is limited and some targets lack specificity for important issues like biodiversity. As disclosures evolve, we expect firms to expand their reporting on nature-related metrics, and establish clear, objective parameters for their targets.

### Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics.

#### A-B.

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.  
 B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.

- ✓ No strengths to report.
- ✗ Coverage of nature-related metrics is relatively low, compared to other sectors.
- ✗ Firms only partially report on pollution, and resource exploitation, while land use change metrics cannot be detected at all.

#### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.

- ✓ Targets set by firms in the sample clearly align with the most material nature-related issues for the sector.
- ✓ Targets are explicitly integrated into the risk management process for each material nature-related issue.
- ✗ The wording of some targets is misleading and lacking in specificity, which may lead to reputational risks.

## Resource Transformation



### Governance

#### Key Results & Analysis

Disclosures by firms in the Resource Transformation sector are well structured and clear. The Sustainability Committee has clear ownership over environmental risk management, including climate-change risk, and reports directly to the Corporate Management Committee and the Board of Directors for approval on risk management strategies.

External consultants and a Sustainability Advisory Board provide advice to the Board on nature-related issues, with some Board members stated to have competences in agriculture, governance, and energy.

Furthermore, there is a clear delineation of responsibilities over nature-related issues, with firms in this sector formally engaging external experts to advise on a broad range of sustainability matters. To ensure nature-related strategies developed to address key sustainability issues are being implemented effectively, firms in this sector have established a range of monitoring controls and procedures, however details of these cannot be found.

Regarding human rights due diligence, firms in this sector have robust human rights risk assessment processes in place that take into consideration a range of internationally recognised conventions and frameworks, above and beyond the recommendations of the TNFD, such as the ILO (International Labour Organisation) Declaration on Fundamental Principles and Rights at Work, the United Nations Guiding Principles on Business and Human Rights and the Ten Principles of the United Nations Global Compact and conduct.

One firm has also held stakeholder dialogue sessions to discuss natural capital and the TNFD framework. However, it is not clear if or how these 'dialogues' are integrated into the assessment and management of nature-related issues.

As disclosures evolve, we expect firms in this sector to improve the depth of disclosures on by clearly stating how stakeholder perspectives influence the assessment and management of nature-related issues.

#### Disclosure Progress & Gaps

##### A.

Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.



Firms in this sector provide detailed information on the Board's oversight over nature-related strategies and performance objectives.



Firms in this sector are engaging with external advisors and consultants to support informed decision-making on nature-related issues.



Board members have specific competences in nature-related issues.



It is unclear if nature-related metrics are integrated into executive remuneration.

##### B.

Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.



A structured governance cycle is in place for monitoring and reviewing the sustainability strategy.



Firms have controls and procedures in place for monitoring sustainability strategies, including nature-related issues.



The process by which management and the Board receive updates on sustainability-related issues is detailed and transparent.



Disclosures are lacking in detail on the controls and procedures in place for monitoring nature-related issues.

##### 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.



Firms in this sector disclose details of human rights risk assessment processes, which align with international standards.



Firms in this sector have already held specific engagement sessions with stakeholders on the TNFD and Natural Capital.



Firms have explicitly integrated the rights of Indigenous Peoples into their due diligence frameworks.



Human Rights Policy in place.



Disclosures lack transparency on how engagement with stakeholders impacts the management of nature-related issues.



## Strategy

### Key Results & Analysis

Firms in the Resource Transformation Sector are disclosing operational impacts and dependencies on nature, identifying material issues such as upstream raw material exploitation and downstream pollution. Supply chain risks, including climate change effects and reduced demand for hydrocarbons, are also highlighted.

One firm has begun to develop a Nature Positive Plan and has integrated the conservation of biodiversity towards nature-positive goals into its Environmental Policy. However, these commitments and plans are vaguely worded, and the scope is limited to operational impacts only.

Firms are also disclosing a range of issue-specific policies, which set out minimum standards of practice for the organisation and its suppliers across issues such as liquid effluent, land use, biodiversity, responsible procurement, water management, air pollution, and climate change.

Firms are clearly considering the effects of nature-related issues on the business and have adjusted business strategies and product offerings as a result. Firms are making significant capital investments in water risk reduction infrastructure, green ammonia, and are working with farmers to develop customisable fertilisers tailored to local soil conditions to reduce environmental externalities arising from improper fertiliser use.

Firms in this sector could further mature their considerations of the effects of nature-loss on the business by integrating nature-loss scenarios into assessments of business strategy resilience, as well as develop transition plans to demonstrate how firms are proactively adapting their business models and strategies. Overall, as disclosures evolve, we expect firms in this sector to strengthen the language and standards of practice articulated in emerging policies and codes of conduct, as well as demonstrate how they are assessing and managing nature-related threats to business resilience.

### Disclosure Progress & Gaps

#### A.

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.



Firms in this sector have already identified and disclosed their material nature-related impacts, dependencies, risks, and opportunities.



The material issues identified reflect a clear consideration for issues embedded in operations occurring upstream and downstream.



Time horizons are only provided for climate change.

#### B.

Describe the effect that 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.



Firms in this sector are already starting to describe the effects of some issues such as pollution, land use change, and resource scarcity on their business models, value chains, and strategies.



Firms in the sector are already disclosing changes to CapEx in support of sustainable procurement practices.



One firm has a biodiversity roadmap in place that aims to transition its operational impacts towards 'nature-positive' for the direct scope.



Firms are not yet disclosing transition plans.



Firms are only just beginning to assess how nature-related issues affect the organisations business model and financial planning.

#### C.

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



Firms have conducted climate scenario analysis.



Firms are beginning to describe how issues like resource scarcity threaten future resilience.



Firms are yet to incorporate nature-related scenarios beyond climate change into their analyses.

#### 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.



Firms in this sector are performing site level assessments to identify sensitive areas in and adjacent to their operations.



One firm has commenced surveys of wildlife to develop a more granular and accurate understanding of species composition at its owned and operated sites.



A definition of sensitive areas has not been disclosed; thus, it is unclear what sensitive areas have been assessed.





## Risk Management

### Key Results & Analysis

The disclosure analysis reveals that firms already have risk management processes in place for nature-related issues.

One firm has developed a risk map, which is updated regularly to reflect the changing severity, likelihood, and impact of a range of issues across the value chain, of which nature is one. To inform the risk map, the firm has conducted Lifecycle Analysis on its products. Disclosures clearly state that assessment results directly influence which sites and suppliers are prioritised for targeted management, which is then evidenced through changes to the firm's business model and financing strategies.

Despite this progress, disclosure gaps are also identified. While risk management processes are in place, it is unclear what the risk management outcomes are, or how progress is being monitored. Only monitoring procedures for pollution-related issues are detectable. Additionally, for one firm, risk management focuses heavily on adaptation,<sup>53</sup> as opposed to mitigation.<sup>54</sup> This could be because the firm has not adopted a double materiality approach, and therefore, rather than mitigating existing impacts, the firm focuses on modifying its business exposures to reduce dependencies. For example, to reduce water risks, the firm is investing in natural gas and seawater desalination, both of which can negatively impact aquatic environments and exacerbate other material issues like water pollution.

Overall, as disclosures evolve, we expect all firms in this sector to consider adopting a double materiality lens, as well as provide more insight into the selection process underpinning the use adaptive versus mitigative risk management measures – including how trade-offs and unintended consequences are considered.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.



Firms are already performing both site level biodiversity impact assessments, and whole of value chain Lifecycle assessments.



Firms have clear procedures in place for prioritising assets and locations based on the results of their nature-related assessments.



Disclosures on assessment methodologies, including data inputs and scope/boundaries are lacking.

#### Aii.

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).



Firms are already performing upstream and downstream nature-related assessments, using Lifecycle Analysis to identify relevant nature-related issues.



One firm uses a risk mapping tool to prioritise suppliers based on the severity, likelihood, and scale of impacts associated with their practices.



It is not clear if soil pollution has been integrated into the product lifecycle analysis.

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.



Firms are disclosing descriptions of their nature-related risk management processes for material issues like pollution, water risk, and climate change.



Each phase in the risk management process is communicated in a structured and systematic manner, allowing readers to interpret the risk management cycle with ease.



Issue specific monitoring procedures can only be detected for pollution related issues.



Firms do not appear to integrate a double materiality approach into their risk management processes, which may result in negative unintended consequences arising from risk management decisions.

#### 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.



This sector is one of few where firms go beyond simply stating that nature-related issues are integrated into the overarching risk management processes to further describe how the assessment and prioritisation of nature-related issues informs these processes.



No gaps detected.

53. Adaptation involves modifying systems and/or processes so as to enhance resilience, and reduce vulnerabilities to stressors.

54. Mitigation relates to actions that decrease the intensity of external stressors at their source.



## Metrics & Target Setting

### Key Results & Analysis

Results show that firms in this sector are partially to fully disclosing against six (6) out of 10 of the Core Global Impact & Dependency metrics. The metrics disclosed align closely with the material nature-related issues prioritised by firms in this sector, namely, pollution (non-GHG air emissions by type), water resource exploitation (water withdrawal and consumption in m<sup>3</sup>), and climate change (GHG emissions in tCO<sub>2</sub>e, scopes 1-3). Coverage must be improved across all metrics, however.

The firms assessed are not reporting on any land/freshwater/sea use change metrics, nor metrics on other material issues like soil, plastic, and water pollution. Furthermore, although the water, waste and climate data reported aligns with the material issues faced by firms, this may have been incidental given that these three thematic areas are staples in sustainability performance reporting.

Regarding target setting, interestingly results show that some nature-related targets set by firms in this sector focus on increasing production output and diversifying the business, as opposed to mitigating impacts. For example, firms set targets to support African farmers in increasing crop production and invest in natural gas infrastructure. Because such targets have the potential to exacerbate material nature-related impacts, as disclosures evolve, we expect firms to demonstrate how these targets work synergistically with impact reduction goals to mitigate firms' exposure to nature-related issues. To do this, expanding coverage of nature-related metrics to support performance monitoring will be key.

### Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics.

#### A-B.

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.  
 B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Metrics reported align closely with the material issues for this sector.



Metric coverage could be improved across all issues.

#### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Firms in this sector are already disclosing nature-related targets aimed at addressing impacts and risks across the value chain.



Some high-level strategic goals, like supporting customers to increase agricultural output, and investing in desalination, potentially conflict with impact reduction targets on issues like pollution and water management.

## Transportation (Marine)



### Governance

#### Key Results & Analysis

Firms assessed from the Transportation Sector demonstrate a mature approach to nature-related governance.

One firm assigns responsibility for each of its 14 material sustainability categories to a member of the Executive Leadership Team (ELT), including issues like 'Environmental Ecosystems.' Progress against these priority areas is reported to the Board twice per year.

The Sustainability Committee is ultimately responsible for formulating sustainability strategies, objectives and work plans, and monitoring progress. To support the implementation of sustainability strategies, firms have established steering groups and advisory committees that report into the Sustainability Committee and the Board. Disclosures detail each committee's role and responsibilities and that of any supporting teams.

Firms have established working groups and forums to facilitate discussions on environmental issues, thus providing bottom-up input to complement top-down governance structures.

Firms in this sector are also transparently reporting on a range of human rights due diligence activities. For example, publishing details of grievance procedures and mechanisms, conducting on-site supplier audits, annual human rights risk assessments, developing ESG risk assessment tools, and disclosing consolidated overviews of salient human rights issues supported by relevant action plans, similarly reflected by firms in the Food & Beverage Sector.

However, granular information on nature-related issues is lacking. It is not clear if or how firms' engagements with stakeholders are integrated into the assessment and management of nature-related issues. We expect firms to address these gaps as disclosures strengthen over time.

#### Disclosure Progress & Gaps

**A.**

Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.



Firms are publishing granular information about the Board and Executive Teams' oversight over sustainability-related issues.



Board competences, frequency of reporting to the Board, executive remuneration, and sustainability related expenditures are all clearly reported.



Nature is not specifically discussed.

**B.**

Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.



Firms provide granular information on the organisational structures in place to support management in the assessment and management of nature-related issues.



Firms have embedded a range of working groups and discussion forums into the organisation to complement top-down management with a bottom-up approach.



Frequency of performance updates to management about nature-related issues is unclear.

**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.



Firms already have a range of human rights due diligence mechanisms in place, including a human rights policy.



Firms clearly state how human rights issues are captured, monitored, and managed through regular updates to the Executive Leadership Team and specific governance forums within the organisations.



Firms transparently disclose which stakeholders they engage, on what issues, and how, with some engagement topics including nature-related issues.



There is a lack of transparency regarding the way engagement with stakeholders is integrated into the assessment and management of nature-related issues specifically.



## Strategy

### Key Results & Analysis

Firms in this sector have identified a range of material nature-related issues. These include impacts to marine ecosystems due to marine transport, the introduction and spread of invasive species through ballast water discharge, and climate risks caused by rising sea levels and increased storm severity, which has the potential to destroy vessels and port infrastructure, and lead to load loss at sea.

Although not discussed in the sector materiality profile, firms in this sector have also identified ship recycling to be a key challenge for the Marine Transportation industry. According to one firm, demand for ship recycling is anticipated to quadruple by 2033.

Both firms have ship recycling and demolition policies in place and discuss how the need to reduce end-of-life impacts has affected firms' strategies, business model and sourcing practices. For example, investing in green container fleets and the development of ship recycling capabilities.

While disclosures on the effects of nature-related issues on business practices are relatively mature, disclosures on strategy resilience are lacking. One firm states that making the business strategy 'ESG compatible' is essential for long-term resilience. However, what 'ESG compatible' means and how nature-related issues are incorporated is not clear.

Overall, as disclosures evolve, we expect firms to improve the robustness and specificity of information across all Strategy Recommendations – particularly regarding the effects of nature on business practices and resilience, and the locations of activities carried out in sensitive areas.

### Disclosure Progress & Gaps

#### A.

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.



Firms have already identified and are disclosing a range of nature-related impacts, dependencies, risks, and opportunities that are highly relevant to the sector.



Time horizons are not provided.



Issues focus on the direct and indirect operational impacts of firms.

#### B.

Describe the effect that 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.



Policies clearly target material issues.



Some effects on the business model evident across the value chain.



Effects on procurements strategies and relationships with suppliers well documented.



Firms disclose increased investments in ship recycling capabilities and innovating fleet design to reduce pollution and emissions.



Policies targeted at impacts and risks located upstream in the supply chain lack clear requirements for suppliers and are vaguely worded.



No mitigation hierarchy explicitly integrated into management strategies.



Financial effects not disclosed.



No transition plans in place.

#### C.

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



Resilience of organisational strategies under different climate scenarios have been assessed.



Firms are beginning to acknowledge supply chain vulnerabilities and the effects of nature-related issues on supply chain resilience.



Resilience of strategies to other material nature-related issues beyond climate change not assessed.

#### 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.



Firms in this sector have set targets to avoid and minimise operations in sensitive areas.



Details of location assessments not detected.





## Risk Management

### Key Results & Analysis

Results reveal large data gaps in the risk management process for disclosures by Transportation companies.

Firms clearly describe how sustainability issues are integrated into overarching risk management processes, and one firm acknowledges how the development of the TNFD framework is anticipated to shape the firms' assessment and management of nature-related risks and impacts.

Additionally, firms have deployed a range of risk management measures to treat the material issues identified. However, transparency on how nature is being assessed, prioritised, and monitored is lacking. Omitting this information makes it challenging for investors to critically assess the cogency of the decision-making processes linking the issues identified to the management practices deployed. The result is that the firm controls the risk management narrative, with readers left to take this narrative at face value.

Overall, greater transparency on each phase of the risk management cycle, including how issues are assessed, prioritised, and monitored – as well as identified and treated – would foster greater environmental accountability and support investors to make more informed decisions about the quality of firms' nature-related risk and impact management processes.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.



Firms clearly have systems in place to identify and assess material nature-related issues in the operational scope. Most material issues are concentrated in the operational scope.



Details on the methods and tools used to identify, assess, and prioritise nature-related issues are not detected.

#### Aii.

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).



Firms have clearly considered upstream and downstream scopes in the assessment and identification of material nature-related issues.



The depth and specificity of information on upstream and downstream issues is lacking.



Details on the methods and tools used to identify, assess, and prioritise nature-related issues could not be detected.

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.



Mitigative and adaptive risk management measures have been described in good detail.



The full risk management process for nature-related issues could not be detected for issues other than climate change (both firms publish a TCFD report).

#### 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.



Firms clearly state that nature-related issues are integrated into the organisations overarching risk management processes.



Details of the overarching risk management processes are also disclosed.



Disclosures on how the processes for identifying, assessing, prioritising, and monitoring nature-related risks inform the overall risk management could not be detected.



## Metrics & Target Setting

### Key Results & Analysis

Results show that firms in this sector are partially to fully reporting against four (4) out of 10 of the TNFD's Core Global Impact & Dependency metrics, with a focus on water, waste, and climate change – similar to the Resource Transformation sector. Furthermore, despite raising concerns over firms' increasing landside (and marine) footprint, the total area of land/freshwater/sea impacted by operations could not be detected. This is also the case for material issues such as invasive species, water pollution, and soil pollution.

Reviewing the nature-related targets set by firms in this sector, results show that firms are setting nature-related targets to address invasive species and wildlife trafficking, e.g., 'Avoid transport of illegal wildlife and endangered species', and 'Avoid Invasive Species from Ballast Water'.

However, there is an overall lack of quantitative and timebound targets in place. Many are worded as high-level ambitions, for example, 'preventing invasive species through ballast water management' or 'supporting ocean health via partnerships.' To be effective, all targets must meet the SMART criteria –specific, measurable, achievable, relevant, and time-bound. Both firms demonstrate the capacity to set such targets, given that all climate targets fully satisfy the SMART criteria. For example, one firm has a 2030 target in place to reduce the absolute emissions (CO<sub>2</sub>e) of its shipping fleet by 50% from a 2008 baseline.

Overall, as disclosures evolve, firms are expected to adjust their nature-related targets to align with SMART criteria and expand reporting on relevant Core Global Metrics to ensure progress towards nature related targets is being transparently tracked.

### Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics.

#### A-B.

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.  
 B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Firms in this sector are already disclosing some relevant Core Global Metrics.



Metric coverage could be improved across all issues, in particular land/water/ocean use change and water pollution.



Metrics cannot be detected for most nature-related targets.

#### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Firms are setting quantitative and timebound targets for climate change.



Firms have begun setting high level strategic objectives for all other nature-loss drivers, including invasive species and wildlife trafficking.



Nature-related targets (except for climate change) are not quantitative or timebound and lack the specificity and objectivity necessary to be classed as 'measurable.'

## Infrastructure



### Governance

#### Key Results & Analysis

Firms in the Infrastructure sector have integrated climate objectives into remuneration for Board members, and environmental objectives into KPIs for site managers. However, disclosures lack specificity regarding the board's direct involvement in setting nature performance objectives, developing nature-related strategies, and monitoring progress against nature-related goals.

Firms in this sector have adopted a de-centralised governance model by delegating ownership to dedicated environmental teams embedded in relevant business units, including working groups and sustainable development committees.

This bottom-up approach may explain why the Board's role in overseeing sustainability issues is less pronounced for the firms assessed in this sector.

Regarding Human Rights Policies and engagement activities, further disclosure gaps are revealed. While firms in this sector have grievance mechanisms in place, and clearly engage a range of stakeholders on sustainability matters, it cannot be determined if firms in this sector engage stakeholders impacted by sourcing practices upstream. As large infrastructure and real-estate companies, nature-related risks – including the human rights issues associated with them – often occur upstream where raw materials are produced. Yet, firms do not disclose if or how stakeholders are engaged in the assessment and management of impacts and risks associated with this scope.

Overall, to improve governance disclosures, firms in this sector should expand their engagement activities to include communities and Indigenous Peoples impacted by sourcing practices upstream at the site of raw material extraction or justify why this is not required.

#### Disclosure Progress & Gaps

**A.** Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.

- ✓ There is clear integration of environmental performance objectives into Board and management remuneration.
- ✓ The de-centralised Governance Model employed enhances environmental accountability.
- ✗ Firms provide a lack of insight into the Board's role in setting performance objectives, and monitoring progress towards nature-related performance objectives.
- ✗ Lack of insight into the Board's competences.

**B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

- ✓ Firms in this sector have dedicated environmental management teams and working groups in place to manage nature-related issues.
- ✗ It is unclear how frequently performance and progress updates are made to management about nature-related issues.

**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.

- ✓ Firms are clearly engaging a range of stakeholder groups in an ongoing manner on sustainability-related issues.
- ✓ Firms have Human Rights Policies in place, which are monitored and enforced through grievance mechanisms.
- ✗ Grievance reports are not yet published.
- ✗ It is not clear how Indigenous Peoples & Local Communities impacted by upstream sourcing practices are integrated into the assessment and management of nature-related issues.



## Strategy

### Key Results & Analysis

Firms in this sector have identified a range of nature-related impacts, dependencies, risks, and opportunities. These include a lack of natural capital supply leading to business disruption through reduced ecosystem service flow, the need to enhance ecosystem protection, and the need to prevent inflows of foreign species. Interestingly, natural capital reporting is identified as a key transition risk for one firm.

As a result of these nature-related issues, both firms have identified biodiversity and nature-loss to be emerging risks for the business. Although 'emerging', firms have already developed policies for biodiversity, deforestation, waste, water, and circularity, and one firm publishes a list of sites that have been prioritised for biodiversity risk assessment. However, at present, the standards of conduct are vague and subjective. For example, one firm states that it will do "its best" to minimise deforestation at all business sites around the world. Furthermore, the scope of this firm's deforestation policy extends only to office paper product use, and not subcontractors or suppliers.

Disclosures on firm resilience to nature-related issues also reveals gaps. At present, discussions of business resilience are confined to a climate change context, with one firm reporting an increased focus on infrastructure projects for Renewable Energy, Natural Gas, and Nuclear Power in response to climate change risks.

Overall, nature-related Strategy disclosures for the firms assessed in the Infrastructure sector are among the least mature of all sectors assessed. As disclosures evolve, firms in this sector are expected to improve the granularity and robustness of disclosures across all recommended disclosure areas, focusing on how the Lifecycle impacts of projects are being integrated into firms' strategic responses to nature-loss.

### Disclosure Progress & Gaps

**A.**

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.



Firms have used Natural Capital Risk Assessments to identify nature-related impacts and dependencies.



Nature-related impacts and dependencies are being transparently disclosed, along with risk severity and relevant time horizons.



It is unclear how upstream impacts and dependencies on nature have been considered in the identification of material issues.

**B.**

Describe the effect that 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.



Firms have biodiversity and deforestation policies in place.



Firms are beginning to explore how nature-related issues are likely to impact the business through assessments of biodiversity and natural capital risk, and through involvement in the TNFD.



Nature-related policies lack detail and fail to set clear and objective expectations for the firm.



Beyond climate change, the effects of nature-loss on the business are not yet disclosed.



Transition plans are not detected for either firm.

**C.**

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



One firm publishes clear and specific disclosures on the results of its scenario analysis, with adaptation and mitigation measures systematically described alongside each risk and opportunity.



Threats to business resilience by nature-related issues beyond climate change are not yet being disclosed, with one firm still yet to conduct any scenario analyses.

**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.



One firm has conducted regional assessments of biodiversity dependencies, and currently discloses a list of priority assets.



It is unclear what criteria has been used to inform the prioritisation of sites for targeted biodiversity management.



Details of the methods and tools used to conduct location-based assessments are not disclosed.





## Risk Management

### Key Results & Analysis

According to disclosures, risk management processes developed by Infrastructure companies generally focus on operational nature risks and impacts. One firm has developed an IT-based Risk Management System, which allows for detailed assessment and monitoring of environmental impacts and risks at operated sites, such as biodiversity loss and construction waste. Here, the firm explicitly discusses how nature-related issues are integrated into the risk management system. Some monitoring tools that support this risk management system include AI-driven air quality monitoring, and on-site biodiversity risk surveys.

One firm has conducted Natural Capital Risk Assessments, which consider the risk to biodiversity from the firm's activities, and the site-regional level dependencies of the business on biodiversity (double materiality). The results of the assessment are summarised into a table which not only describes the impacts, dependencies, risks, and opportunities identified, but their likelihood over short-, medium- and long-term time horizons.

Disclosure gaps remain, however. Generally, disclosures on upstream risk management lack detail. Both firms briefly discuss sourcing risks, e.g., risks associated with 'lack of natural capital supply,' but the risk management processes and practices in place are unclear. Neither firm discloses the full risk management process for any material drivers of nature loss, including species disturbances, land use change impacts, and exploitation of resources.

As disclosures evolve, we expect both firms to provide more insight into how effectively the risk management processes deployed mitigate the firms exposure to nature-related issues.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.

- ✔ Firms in this sector are already disclosing details of natural capital risk assessments conducted for the operational scope. Risk assessments take a double materiality approach, and evaluate the likelihood that identified impacts, dependencies, risks, and opportunities will materialise over the short-, medium, to long-term.
- ✘ Assessments lack detail on the methodologies supporting them.

#### Aii.

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).

- ✔ The results of assessments conducted indicate that both upstream and downstream considerations are being made. It is unclear precisely how upstream and downstream impacts, dependencies, risks, and opportunities have been integrated into the assessment, monitoring, and prioritisation of material nature related issues.
- ✘

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.

- ✔ The nature-related risk management disclosures of firms in the Infrastructure sector are the most mature of all firms assessed. One firm in the sample has a natural capital risk management process in place. The firm clearly describes the steps in the risk management process and discusses the types of nature-related impacts, dependencies, risks, and opportunities considered as part of this process.
- ✔
- ✘ It is unclear how upstream and downstream risks are incorporated into risk management processes.
- ✘ Due to a lack of detail, the sufficiency of the risk management response to nature-related issues is difficult to gauge.

#### 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.

- ✔ Both firms state that all risks, including nature-related risks are integrated into the overarching Enterprise Risk Management framework (ERM).
- ✔ One firm describes in more detail how nature-related risks are integrated into the ERM, including how sustainability issues inform the overall risk management process.
- ✘ No gaps are detected.



## Metrics & Target Setting

### Key Results & Analysis

Results show that Infrastructure companies are partially to fully disclosing against (7) out of 10 Core Global Impact & Dependency metrics. Alongside waste, water, and climate metrics, firms are also disclosing the total quantity of high-risk commodities sourced by type. However, despite the sector's significant operational land-use scope, disclosures regarding land, freshwater, and sea use metrics, including total spatial footprint (km<sup>2</sup>), and the extent of land, freshwater, and sea use change by activity and ecosystem, remain undetected. These metrics hold high relevance for firms in this sector.

In terms of target setting, alignment with metrics is observed, particularly for waste and climate change. Targets include diverting 50% of commercial waste from landfill by 2030 and setting Science Based Targets Initiative (SBTi) approved Targets on deforestation and biodiversity.

Some nature-related targets lack ambition, however. One firm has established a net-zero deforestation target, but only for the operational scope. Another aims to conduct biodiversity assessments at only 50% of new sites by 2030. Given the concentration of operations in urban areas, operational deforestation rates are likely low, with deforestation predominantly occurring upstream during raw material extraction. Additionally, it is unclear why biodiversity at just 50% of new sites is being targeted for assessment.

In summary, while infrastructure firms are setting relevant, quantitative, and time-bound targets for some nature-related issues, ongoing disclosures should include justifications for the appropriateness and ambition of targets set. Firms must clarify how these targets support adaptation and mitigation efforts.

### Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics.

#### A-B.

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.  
 B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Firms in this sector are already disclosing some relevant Core Global Metrics in areas such as high-risk commodity sourcing, waste, water use and climate change.



Metrics broadly align with the targets being set.



Metric coverage could be improved across all issues, in particular land/water/ocean use change.

#### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Firms have set SBTi approved targets for climate change and are starting to set targets specific to nature.



Targets are quantitative, timebound, and other dimensions such as baseline year and progress are also clearly reported.



While targets are quantitative and timebound, targets on deforestation, sustainable sourcing, and biodiversity lack ambition.

## Renewable Resources & Alternative Energy



### Governance

#### Key Results & Analysis

Results show that governance disclosures are most mature in areas related to engagement with Indigenous People, and least mature in areas related to the Board's oversight of nature-related issues. Firms are clearly disclosing which organisational structures and individuals have responsibility over nature-related issues and indicate that management is updated on these issues at least quarterly. Furthermore, meetings are regularly held to discuss nature-related issues with the Board. However, further details about the Board's role and oversight of nature-related issues are not detected.

In contrast, firms are disclosing comprehensive Human Rights Policies, which align with a range of internationally recognised standards and mandated Free, Prior & Informed Consent.

One firm has a dedicated stakeholder engagement team who facilitate consultation with Indigenous Peoples & Local Communities impacted by firms' forestry operations. Through these dedicated teams, one firm engaged 100% of Indigenous tribes located in its forest concession areas, totalling 6,000 individuals. These tribes are engaged in an ongoing manner and are actively involved in the development and implementation of forest management strategies, including the selection of trees for harvest.

In addition to Indigenous groups, a range of other stakeholders are reportedly engaged in the assessment and management of nature-related issues. One firm not only discloses who they have engaged, via what channels, and on what issues, but also case studies of engagements with various groups, including how engagements are anticipated to evolve in the future. This firm recorded zero community grievances in the most recent reporting year.

Overall, to demonstrate that nature-related issues have been fully integrated into the business, we expect disclosures regarding the Board's oversight of nature-related issues to mature over time.

#### Disclosure Progress & Gaps

**A.** Describe the board's oversight of nature-related dependencies, impacts, risks, and opportunities.

- ✓ Firms emphasise the importance of nature-related competences in sustainable forest management and have forestry-related selection criteria in place for Board members.
- ✓ Scheduled meetings are held to discuss implementation of the sustainability strategy.
- ✗ Board's role in overseeing nature-related issues is not well documented.
- ✗ Board's oversight of nature-related issues, including setting performance objectives, and monitoring progress is not detailed.

**B.** Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities.

- ✓ Firms disclose who has responsibility for nature, including the role of relevant organisational structures.
- ✓ Firms consistently make regular, quarterly progress updates to management about nature-related issues.
- ✗ Reporting structure to the Board is unclear.
- ✗ Controls and procedures in place for monitoring nature-related issues is unclear.

**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.

- ✓ Firms in this sector have comprehensive Human Rights Policies in place that explicitly consider the human rights-nature nexus.
- ✓ Firms have implemented a range of human rights due diligence measures, with dedicated engagement teams in place to work with Indigenous Peoples and ensure their rights are upheld.
- ✓ Stakeholder engagement has been clearly integrated into the assessment and management of nature-related issues.
- ✗ Grievance reports and resolutions are not disclosed.
- ✗ Disclosures are fragmented and difficult to interpret.



## Strategy

### Key Results & Analysis

Results show that both firms recognise their dependencies on ecosystem services provided by forests. Healthy forests are considered critical to reducing fire risk, and ensuring production of forest biomass is maintained. Other key issues identified included invasive species, exploitation of water resources and pollution arising from skid roads and other temporary forest infrastructure.

One firm's forestry operations adhere to a 30-year harvesting schedule, limiting harvest to one tree per hectare to sustainably manage forests. Detailed site surveys and collaboration with Indigenous Peoples inform protection strategies (termed a 'collaborative management model'), preserving biodiversity and habitats. As a result, traditional nature-loss drivers, such as ecosystem connectivity, water use change impacts, and habitat degradation have not been identified as material for this firm as these issues are already being managed effectively.

Sensitive areas have been identified by both firms through High Conservation Value Assessments. The locations of these sensitive areas are presented in forest monitoring dashboards, which are embedded in the firms' main websites. Here, users can view satellite images of the forest management unit (FMU) and toggle between key features in the concession area. One firm also provides maps of all its suppliers' concession areas.

In terms of gaps, regulatory constraints and nature-related dependencies have affected firms' business strategies, and sourcing practices, but neither firm has conducted scenario analyses, nor has transition plans in place (including for climate change). One firm continuously emphasised its 'Collaboration for Resilience' ethos, but does not disclose what this ethos means, nor the issues it is 'collaborating for resilience' on. Providing more detailed insights into how resilience to nature-loss has been integrated into business strategies will be key for firms in this sector.

### Disclosure Progress & Gaps

**A.**

Describe the nature-related dependencies, impacts, risks, and opportunities the organisation has identified over the short, medium, and long term.



Descriptions of nature-related issues are comprehensive and consider all key drivers of nature-loss. These issues align with those identified in the sector Materiality Profile.



Magnitude is provided, but not time horizon.

**B.**

Describe the effect that 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.



Regulatory constraints and high dependencies on forest resources has clearly influenced business practices of firms in this sector, in particular engagement with stakeholders and harvesting practices.



Disclosures lack detail regarding the effects of specific nature-related issues on business models and financial planning.



Neither firm has transition plans in place.

**C.**

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



Firms clearly recognise the link between the resilience of forest ecosystems, and the resilience of the business.



One firm's management practice is predicated on a culture of 'collaboration for resilience', indicating that resilience as a concept has been integrated into the firms decision making.



Firms are yet to explicitly discuss how resilient their strategies are to nature-related issues.



Neither firm has conducted scenario analyses.

**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.



Spatial assessments by firms in this sector are the most comprehensive and detailed of all sectors.



Firms are publishing HCV reports for their concession areas, and one has also performed a spatially explicit natural capital assessment using the Natural Capital Protocol methodology.



Firms already maintain detailed forest inventory and leverage Indigenous knowledge through a collaborative management model to prioritise locations for protection and management.



No gaps are detected.



## Risk Management

### Key Results & Analysis

Firms in the Renewable Resources & Alternative Energy sector disclose details of High Conservation Value (HCV) and Natural capital impact and risk assessments performed across their operations. Both firms state that such assessments are required by law to retain forest concession permits. Neither firm has conducted downstream assessments, which is unsurprising given that the direct operations constituted the primary interface with nature. One firm in our sample has also conducted upstream assessments of suppliers using tools such as satellite data, surveys, and interviews with local community members.

Sustainable Forest Management demands that firms in this sector have clear risk and impact management processes in place.

For one firm, which operates just a single, large concession area, forest management involves first conducting forest surveys with the help of Indigenous tribes. The forest area is also regularly monitored via high-resolution satellite data, which can track the change in tree cover over time. A timelapse of tree cover change is available on the firm's website.

Through this process, the firm has developed a forest inventory database. Together, the data captured is used to inform the development of risk management plans for the concession area. Indigenous Peoples & Local Communities are directly involved in the development of these plans and as well as the management of forest risks.

Overall, the risk management processes disclosed are among the most mature assessed. However, gaps remain. Details of organisational risk management processes in place could not be detected for either firm, including how nature-related issues were integrated into these processes. As disclosures evolve, we expect firms to demonstrate how the management of nature-related issues is strategically aligned with broader sustainability and risk management objectives.

### Disclosure Progress & Gaps

#### Ai.

Describe the organisation's processes for identifying, assessing, and prioritising nature-related impacts, dependencies, risks, and opportunities in its direct operations.



Firms in this sector provide detailed descriptions of the processes they have in place to identify, assess, and prioritise nature-related issues.



Firms are employing RADARSAT-2 Satellite Data to achieve real time monitoring of deforestation and tree cover change.



Disclosures lack detail on upstream and downstream risk management processes, focusing mostly on operational issues.



No gaps are detected.

#### Aii.

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).



Where firms have sourced forest resources from suppliers, the process of identifying, assessing and prioritising nature-related issues has been disclosed.



No gaps are detected.

#### B.

Describe the organisation's processes for managing nature-related dependencies, impacts, risks, and opportunities.



The risk management process for nature-related issues is clearly articulated by both firms assessed.



Firms actively engage communities and Indigenous Peoples in the nature-related risk management process.



No gaps are detected.

#### 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.



No disclosures detected.



Disclosures could not be detected regarding the organisational risk management processes in place, nor how nature-related issues are integrated into and inform this process.





## Metrics & Target Setting

### Key Results & Analysis

Results indicate that Renewable Resources & Alternative Energy companies are partially to fully disclosing against six (6) out of 10 Core Global Impact & Dependency metrics. Given that both firms manage forest concession areas, it is unsurprising that where metrics are disclosed, reporting focuses on land use change and high-risk commodities. Disclosure gaps on metrics are most pronounced for pollution, including concentration of key pollutants in wastewater, pollutants released to soil, and wastewater discharge. One firm noted that the risk management strategies in place has rendered soil and water pollution immaterial, however, to demonstrate this, firms should still be transparently disclosing their performance against these metrics.

Firms in this sector have set the most nature-specific targets of all sectors assessed. 2030 targets include maintaining zero deforestation rates in the forest concession area, enforcing no deforestation in supplier concession areas, maintaining vital habitat for protected wildlife and plant species in the concession area, and reducing the total number of illegal poaching tools found in the concession area by 90% from a 2019 baseline.

Despite this progress, similarly to other sectors, these targets are not fully aligned with SMART criteria, and lack in ambition and specificity.

To improve disclosures, we expect firms in this sector to expand reporting on metrics to include all material issues, and ensure targets are clearly linked to these metrics. Furthermore, as well as ensuring targets are specific and measurable, the focus on ‘maintaining’ vital habitat and zero deforestation indicates the level of ambition could be improved by setting nature-positive and net gain targets for nature.

## Disclosure Progress & Gaps

For this analysis, we have consolidated & simplified recommendations A & B by assessing the extent to which firms are disclosing the TNFD Core Global Metrics.

### A-B.

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.  
 B: Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature.



Firms in this sector are already disclosing against 60% of the Core Global Metrics for Impacts & Dependencies. The metrics reported are clearly linked to some nature-related targets.



Coverage of pollution-related metrics, and metrics on the extent of land use change is low.

### C.

Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.



Firms in this sector have set a range of nature-specific targets related to deforestation, habitat protection, and wildlife conservation.



Firms have set targets approved by the SBTi on climate change.



Some nature-related targets lack ambition and specificity, making it difficult to assess their meaningfulness.

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