Assessing and acting on nature-related issues:

Insights from business case studies in the built environment system

(through the lens of the ACT-D framework)

SUSTAIN | Strengthening Understanding and Strategies of Business to Assess and Integrate Nature

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1. Introduction

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1.1. About the SUSTAIN project and this document

The SUSTAIN – Strengthening Understanding and Strategies of Business to Assess and Integrate Nature – project aims to provide businesses, financial institutions, and regulatory bodies with the knowledge and resources to better understand, assess, and monitor the dependencies and impacts on nature from activities across different sectors of the economy.[i]

This document offers practical insights that build on existing resources, including the **Roadmaps to Nature Positive: Foundations for all businesses** and **Taskforce on Nature-related Financial Disclosures (TNFD) LEAP** (Locate, Evaluate, Assess, Prepare) approach. Its aim is to enhance understanding of how companies can strategically identify and manage nature-related issues.[1] This is illustrated through real company examples.

This document presents case studies of businesses in the built environment system, which accompany similar documents focusing on energy and the agri-food. Each of these documents presents how companies are working to identify and assess nature-related issues in alignment with the **High-level Business Actions on Nature to Assess, Commit, Transform and Disclose (ACT-D)** framework.

While all four steps of ACT-D are addressed, the primary focus is on the initial step, Assess, emphasizing the importance for companies to systematically address relevant nature-related dependencies, impacts, risks and opportunities (DIROs). By doing so, a company is more likely to develop a credible strategy on nature, in line with the **Now for Nature** campaign, and be on the right path towards contributing to the **Global Goal for Nature** – to halt and reverse nature loss by 2030 on a 2020 baseline, and achieve full recovery by 2050.

This document on the **built environment system** presents three built environment company case studies showcasing their nature journey through the strategic steps of ACT-D framework: **Sacyr**, **Holcim** and **AECOM**. Each case study is different, as there is no 'one-size-fits-all' approach: the case studies are included to inform and inspire action in other companies. Given the evolving nature of sustainability practices, it is advisable to continuously review and update strategies in line with emerging industry standards, regulatory changes, and evolving best practices.

Who is this resource for?

Sustainability and nature teams within companies, civil society organizations working with the business community, financial institutions (investing in the focus sectors) can all use this document to deepen their understanding how to start identifying and assessing nature-related issues, and to apply further strategic steps. It provides an opportunity to learn about the challenges, risks, and opportunities experienced by peers.

[1] Nature-related issues: organisations have dependencies and impacts on nature, which give rise to nature-related risks and opportunities (TNFD, 2023)

1.2. The business-nature loss nexus and the role of the built environment system

Nature and business

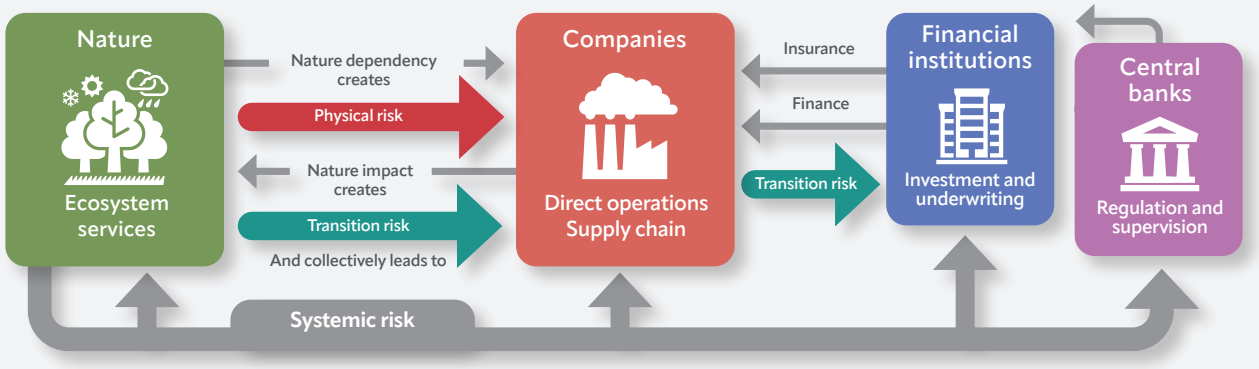
All businesses depend on nature and its services, whether through direct operations or their value chains.[ii] This means every sector is **exposed to nature risk**, either directly or indirectly, due to reliance of economic activities on the stock of natural capital and the ecosystem services that flow from it. This impact extends to all stakeholders *(see Figure 1)*.[iii]

In 2022, the **Kunming-Montreal Global Biodiversity Framework (GBF)**, also now known as **The Biodiversity Plan** was adopted by 196 countries, setting the global mission of 'halting and reversing biodiversity loss by 2030'. Governments together with other stakeholders, including business, need to play their role to ensure the achievement of the global plan's 4 goals and 23 targets.[iv]

By proactively managing **nature-related risks,** companies can prepare for impending policy and regulatory requirements and identify priority actions that reduce negative impacts on nature, while unlocking opportunities across the value chain.[v]

Furthermore, **climate and nature are interconnected**: restoring nature and protecting biodiversity is a mutually supporting goal to address the climate crisis. Climate change is the third major driver of nature loss by order of impact. Conversely, the loss of nature and unsustainable use and management of natural resources represents the second largest source of carbon emissions and is a key driver of climate change. Addressing one crisis necessitates addressing the other simultaneously.[vi]

Figure 1: Nature impacts and dependencies create nature-related risks



Source: Adapted from TNFD, BloombergNEF (2023)

Role of the built environment system

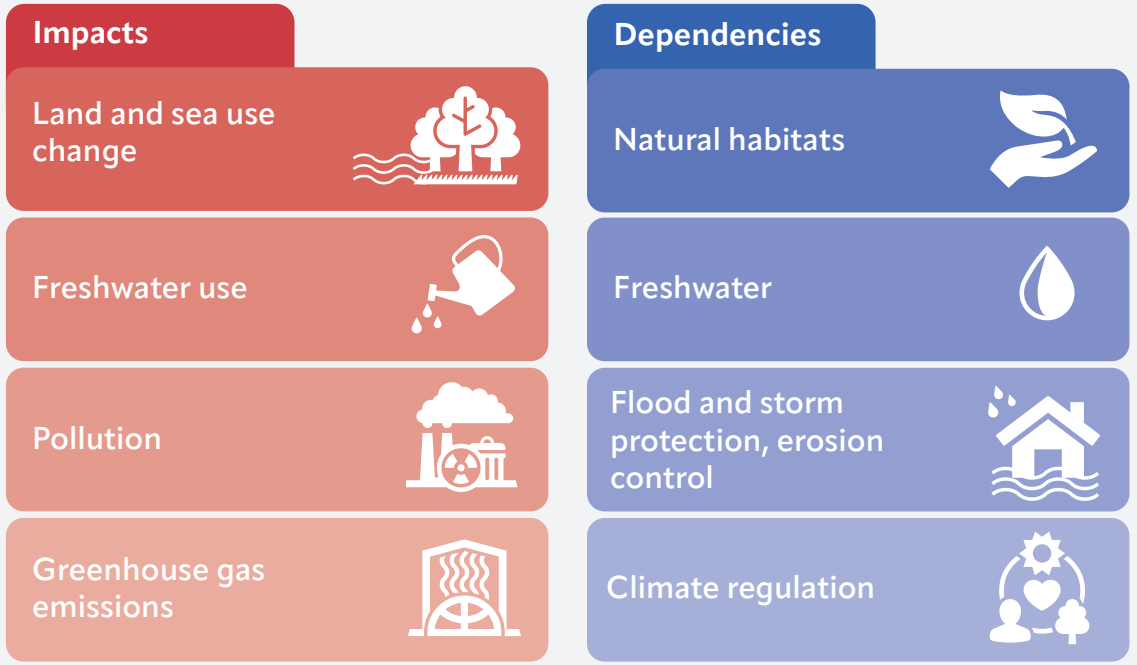
The built environment system is responsible for 40% of global CO^2 emissions, 40% of global resource use and 40% of global waste streams. It is also one of the four value chains, along with food, energy and fashion, responsible for approximately 90% of nature and biodiversity loss worldwide.[vii]

The system is set to double[viii] in size as the global population is expected to reach 9.8 billion in 2050[ix], putting high pressure on nature through increased use of water, release of pollutants and production of waste and associated greenhouse gas emissions.

In particular, the growth in urban areas, already estimated to impact nearly one-third of threatened and near-threatened species,[x] has significant negative impacts on nature and biodiversity through land conversion, habitat fragmentation, disturbance, and pollution during construction, not to mention the harmful indirect effects of upstream and downstream processes. *Figure 2* illustrates key typical nature-related impacts and dependencies for the built environment system.[2] [xi]

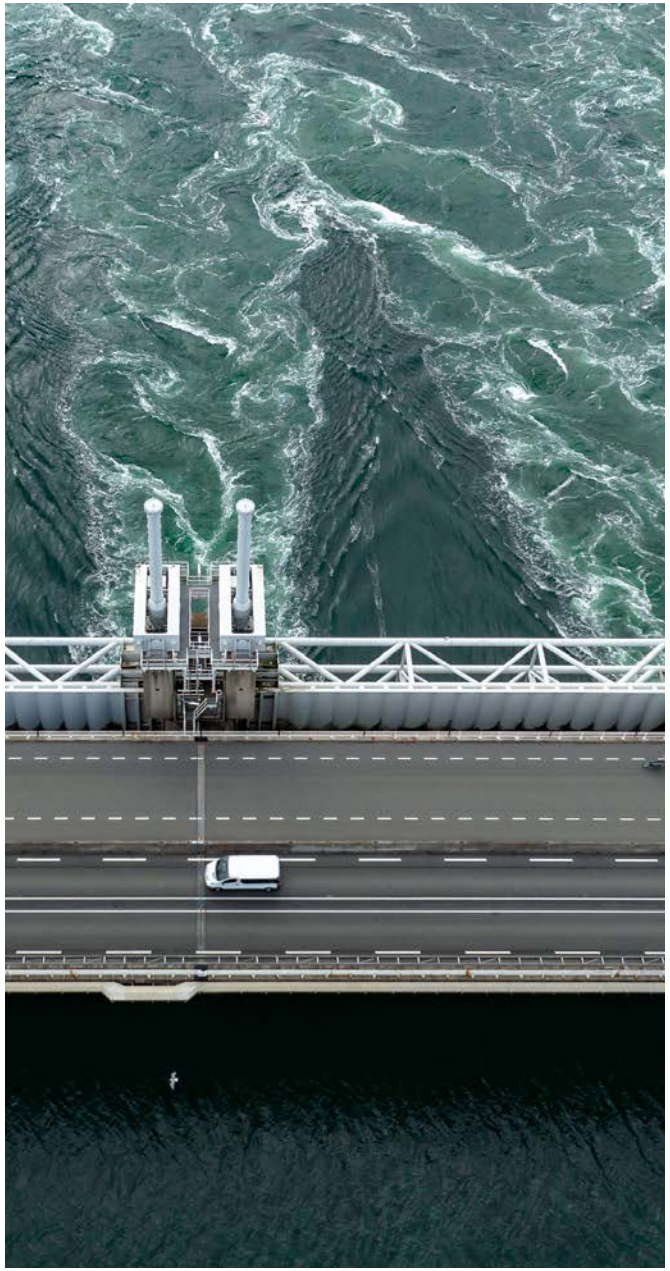
A massive systemic transformation of the built environment is essential to solve the interlinked climate and nature crises. It is essential to accelerate this transformational change if the world is to meet the goals of the Paris Agreement and the societal goal of Nature Positive.[xii]

Figure 2: Typical nature-related impacts and dependencies of the built environment system



Source: Adapted from Business for Nature, Sector Actions Towards a Nature-Positive Future (2023)

[2] The summary represented in this document considers the built environment system (SICS code: IF.2) as encompassing: buildings, urban infrastructure, transport infrastructure, marine and coastal infrastructure, and upstream mining and extraction activities.



Examples of common risks in the built environment system

Transition risks:

Material extraction and production

- Habitat loss and degradation leading to loss of ecosystem services for local communities, such as change in water, food or timber quality/ quantity
- Materials sourced from value chains associated with significant biodiversity and/or human rights impacts

Operations and maintenance

- Increased costs caused by increasing water use and water treatment needs

Design and construction

- Increased regulation on material use, building prescriptions, location limitations
- Reduced value of construction location due to pollution, vulnerability to flooding, lack of green space

Demolition and waste

- Inappropriate disposal of construction and demolition waste leading to soil and water pollution/remediation cost

Physical risks:

Material extraction and production

- Erosion and floods due to land degradation

Operations and maintenance

- Urban heat island (UHI) effect
- Extreme weather events, associated costs for management, and potential damage claims
- Flood risk due to soil sealing

Design and construction

- UHI effect[xiii]

Learn more in detail about DIROs for the built environment system: **Roadmap to Nature Positive: Foundations for the built environment system**

- Dependencies & impacts (p. 16-18)
- Risks & opportunities (p. 19-26)

Additionally, see here **12 sector-specific overviews**[3] that outline the key dependencies and impacts on nature and biodiversity and set out the priority actions that businesses in each sector should take now to credibly contribute to a nature-positive future.

[3] Produced by Business for Nature, WBCSD and WEF.

1.3. Understanding what is material – a key step for a credible strategy to address nature loss

ACT-D approach

To coordinate business efforts and to have a consistent approach to accelerate nature action, leading organizations[4] developed the high-level business actions on nature, also known as **ACT-D framework**. ACT-D framework builds on existing action frameworks and guidance and guides businesses through the various tools, frameworks and initiatives to support in assessing their relationships with nature, committing to goals and target setting, transforming their direct operations and beyond, and disclosing nature-related information.

Assess:

Measure, value and prioritize your impacts and dependencies on nature to ensure you are acting on the most material ones.

Commit:

Set transparent, time-bound, specific, science-informed/based targets to put your company on the right track towards operating within the Earth's limits.

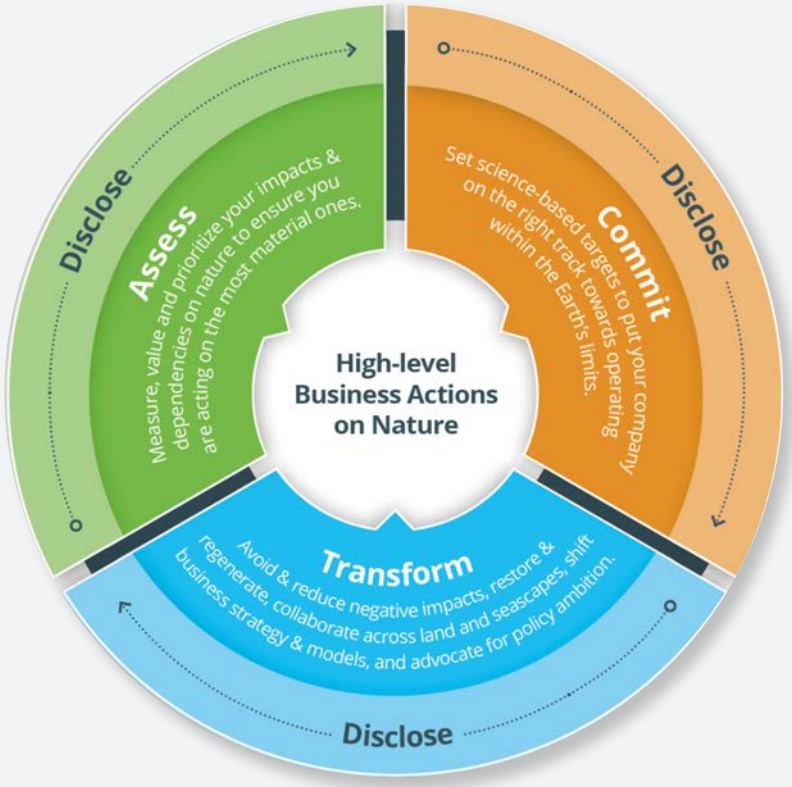
Transform:

Avoid and reduce negative impacts, restore and regenerate, collaborate across land and seascapes, shift business strategy and models, and advocate for policy ambition.

Disclose:

Track performance and prepare to publicly report material nature-related information throughout your journey.[xiv]

Figure 3: ACT-D Framework (Assess, Commit, Transform, Disclose)



Source: Business for Nature (2022)

Implementation of the ACT-D approach will be different in each company, based on their maturity on nature. To explore more in detail how it looks like for different levels of maturity, see **Roadmaps to Nature Positive: Foundations for all businesses** maturity tables for the high-level actions (p. 47-53)

[4] Capitals Coalition, Business for Nature, WBCSD, TNFD, Science Based Targets Network, WEF and WWF

Assess step – importance of identifying and assessing nature-related issues

Understanding material nature-related dependencies, impacts, risks and opportunities is at the heart of an impactful nature journey as it enables a business to further identify priority nature issues in their operations and value chains that should be addressed through targets and actions. Furthermore, evaluating risks and taking advantage of available opportunities enables a company to stay ahead of emerging issues that could impact the future success of the organization and enhance stakeholder engagement.

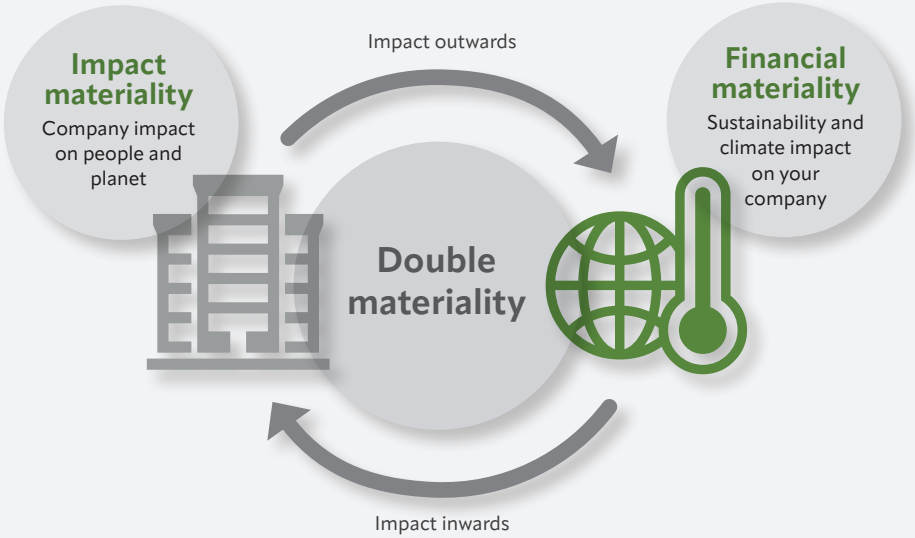
Assess step involves identifying:

- where to focus, both within the value chain and geographically
- what to focus on, both nature-related dependencies and impacts
- why these focus areas and topics matter for the organization and stakeholders in terms of risks and opportunities

*For more details on Assess step and company experience, see **page 13**.*

Importantly, the **EU Corporate Sustainability Reporting Directive (CSRD)**, which is mandatory for around 50,000 companies within the EU and many more worldwide with subsidiary businesses in Europe, prescribes a double materiality approach to reporting.[xv]

Figure 4: Double materiality



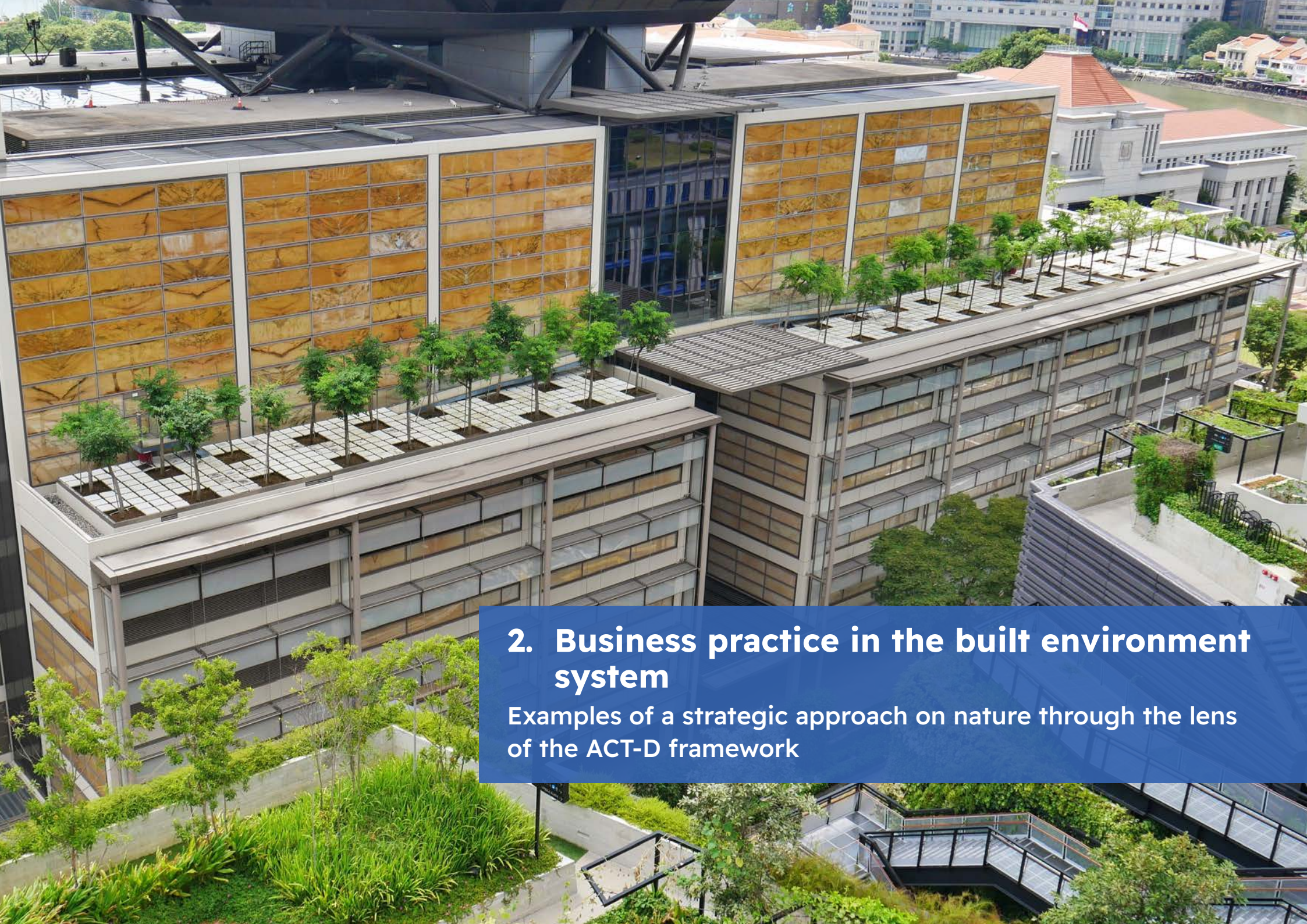
Source: Adapted from PwC (2024)

Double materiality means that organizations need to identify which sustainability matters (including nature-related issues) are most material to the organization and its stakeholders by evaluating their impact on environmental and social factors (impact materiality), while also considering how these factors influence the organization and create financial risks (financial materiality).[xvi]

Tools as **Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)**[xvii] and the **Science Based Targets Network (SBTN) Materiality Screening Tool**[5] can be used as the first step to understand potential nature-related impacts and dependencies linked to economic activities.

Furthermore, using guidance from **SBTN**, **TNFD's LEAP approach**, **The Natural Capital Protocol** and **WBCSD's Roadmaps to Nature Positive** can support with further process of assessing and acting on nature-related issues.

[5] SBTN Materiality Screening Tool is based on ENCORE knowledge database



2. Business practice in the built environment system

Examples of a strategic approach on nature through the lens of the ACT-D framework

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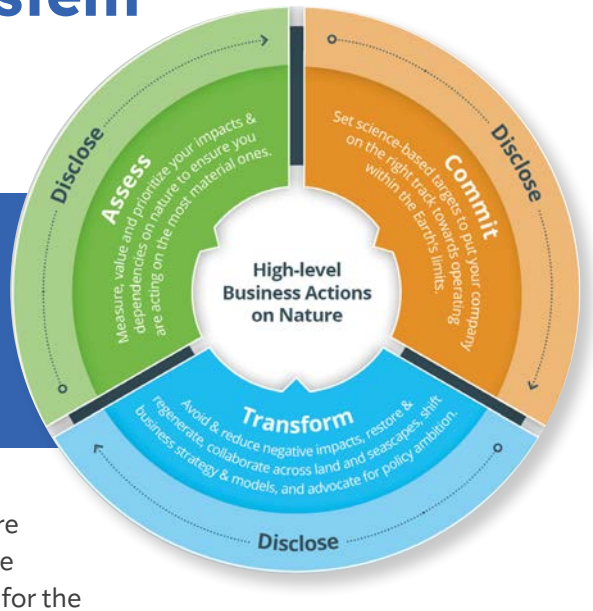
Examples of a strategic approach on nature through the lens of the ACT-D framework



This section highlights practical examples of how three built environment companies are undertaking their nature journey, framed around the steps of ACT-D framework. **The emphasis is on the Assess** step and in particular the **identification and assessment of nature-related issues**, as a critical step, with additional contextual information on Commit, Transform and Disclose to illustrate the interconnectedness of the steps.

As there is no 'one-size-fits-all' approach and the case studies are specific to the context of the respective companies, they are included to inform and inspire action in other companies. Case study content presented below is developed together with the companies (Holcim and Sacyr) or drawn from existing individual case study and further modified together with the company for the purpose of this document (AECOM).[6]

Sacyr

Sector: Engineering, infrastructure and concessions

Value chain: Infrastructure operator and developer

Holcim

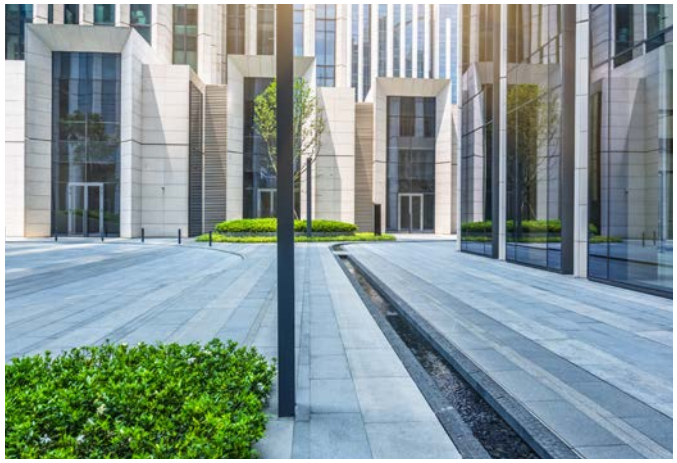
Sector: Building materials

Value chain: Building materials manufacturer, products and services for construction

AECOM

Sector: Infrastructure

Value chain: Infrastructure consulting (advisory, planning, design and engineering, program construction and management)



[6] AECOM TNFD Pilot: Nature risk screening for multiple infrastructure projects across Asia (Global Canopy, 2024)

2.1. Why built environment companies are taking action on nature

Common insights from the case studies on reasoning behind taking action

- **Understanding impacts and dependencies:** Companies recognize the importance of understanding their impacts and dependencies on nature to make more informed and successful business decisions in the long-term.
- **Corporate commitment to nature:** Companies demonstrate a strong commitment to protecting the natural environment within their operations. This commitment is integral to their corporate strategies and includes initiatives to understand and quantify their impacts on nature.
- **Enhancing competitiveness:** Prioritizing impact and risk mitigation strategies is crucial for efficient resource allocation and acting on nature becomes essential for attracting investors with environmental standards. This proactive stance not only mitigates risks but also enhances competitiveness in the investment landscape.

sacyr

Sacyr's rationale

Corporate commitment: *Caring for nature* is one of the four key pillars included in the company's Environmental Strategy. The ambition is applied throughout the entire value chain, involving the different interest groups and supported by innovation, training and internal awareness actions.

Understanding impacts and dependencies: Sacyr is aware of their dependence on the resources and services they receive from nature. Only by knowing their impacts and dependencies on nature are they capable of making better decisions when carrying projects worldwide.

Compliance to the evolving frameworks and regulations: The company has strengthened commitment to natural capital and to improving their reporting systems to align with the latest benchmark standards, in particular the reporting requirements of the Taskforce for Nature-related Financial Disclosure (TNFD), to prevent future risks and adapt their business model and analyze innovative opportunities. As an Ibex35 listed company, it is essential that Sacyr aligns with new regulations such as the EU Corporate Sustainability Reporting Directive (CSRD).

HOLCIM

Holcim's rationale

Dependencies on nature: Holcim's business is highly dependent on nature. Its operations are linked to natural resources from the raw materials that are extracted to the ecosystems that support supply chains. Commitment to take a rigorous science-based approach on nature to tackle biodiversity loss and freshwater protection is a strategic necessity to protect and use natural resources wisely for continued business operations in the long term.

Attracting investments: As investors are increasingly focusing on environmental, social and governance (ESG) factors, particularly those related to nature, Holcim considers that it is essential to act on nature to attract them.

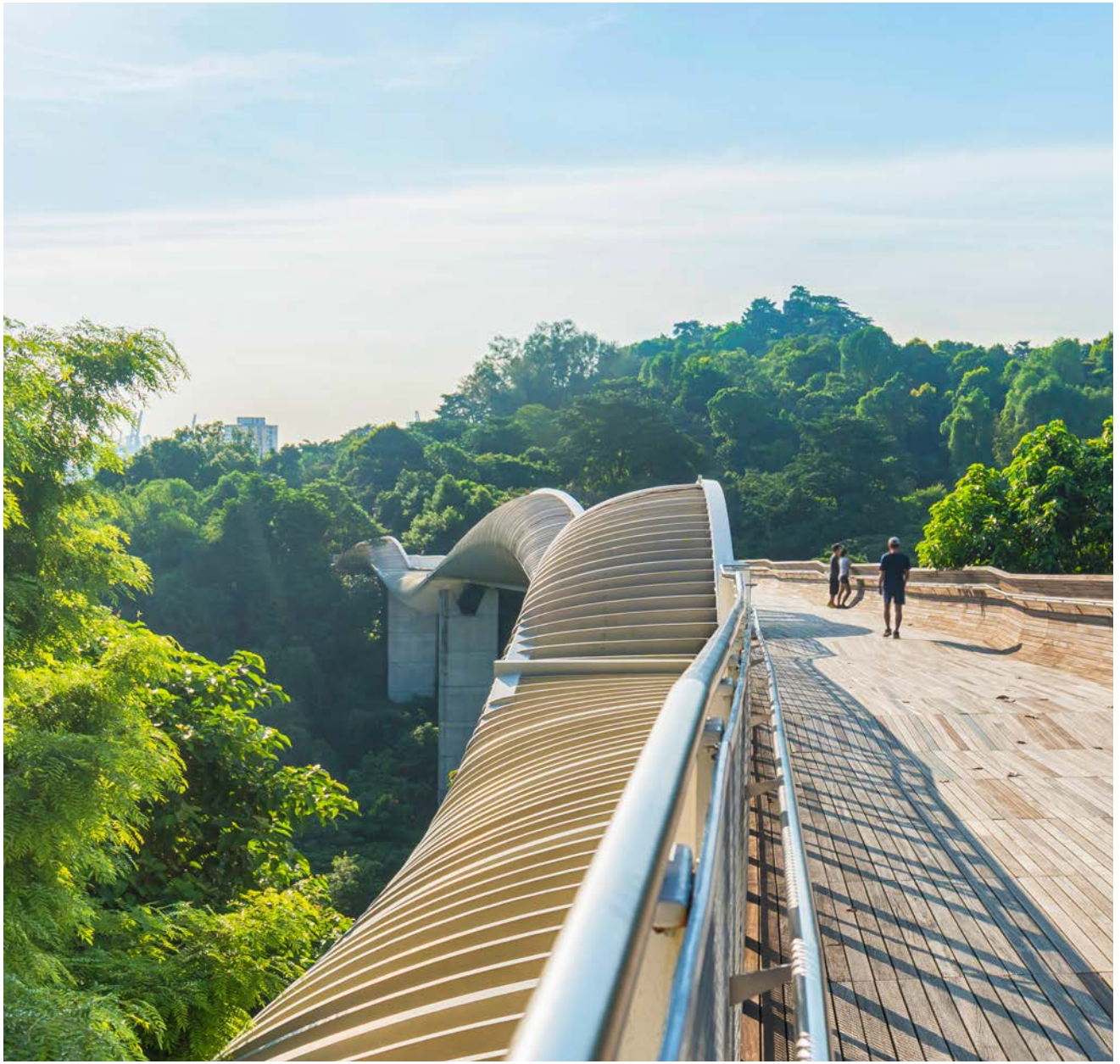
Corporate commitment: The company announced its strategy to contribute to nature-positive future by restoring and preserving biodiversity and water while bringing more nature into cities, which also means continuing to develop and deploy its nature-based approach across its operations, products and solutions.

AECOM

AECOM's rationale

Improve risk management and competitiveness: Enhancing understanding of impacts and dependencies on nature within AECOM's infrastructure portfolio presents opportunities to address both climate and nature impacts jointly, paving the way for a transition towards nature-positive infrastructure development. This endeavor not only advances the company's expertise and experience in facilitating projects to achieve nature-positive outcomes but also strengthens internal capacity for technical risk assessment.

Efficient resource allocation: AECOM manages diverse infrastructure portfolios in diverse locations. In order to ensure efficient resource allocation, it is necessary to prioritize impact and risk mitigation strategies that consider nature to secure long-term success.



2.2. Strategic approach: Step 1 – Assess

This section describes how the companies have assessed and are continuing to deepen their assessment of dependencies, impacts, risks and opportunities (DIROs). Commonly used approaches for organizations looking to identify and assess their nature-related issues as part of the Assess step are the ***TNFD LEAP approach*** and ***SBTN*** **step 1a and 1b,** as also summarized and presented in the ***Roadmaps to Nature Positive: Foundations for all businesses***:

- **Scope and Locate** – to identify the company's main sectors and sub-sectors and key parts of the value chain and their location.
- **Evaluate dependencies and impacts** – to prioritize potentially high impacts and dependencies on nature typical for the business and associated value chains for further assessment.
- **Assess risks and opportunities** – to identify risks and opportunities for the business and stakeholders and prioritize further action.

Common insights from the case studies on Assess step

Stakeholder engagement is practiced in all three case studies, including consultations and inputs from various stakeholders such as investors, communities, partners, and suppliers. This engagement helps to define material priorities and understanding key risks and opportunities (including nature-related risks and opportunities) from external perspective.

Integrated risk management approach: Integrating nature-related risks into the overall Enterprise Risk Management (ERM) processes helps to balance nature risks against other material risks (strategic, operational) and to facilitate prioritization of issues.

Iterative materiality assessment process: Materiality is approached as an iterative process involving scoping, locating, and assessing. This iterative approach is necessary as it often uncovers detailed information that requires continuous refinement.

Note: The following case study examples are structured around the above mentioned sub-steps and are illustrative in nature and not intended to represent full implementation of the different assessment frameworks.

Useful tools used by case study companies at this step:

- **Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)** tool and **STBN Materiality Screening Tool** – to identify potential impacts and dependencies, validated in combination with regional sector assessments and internal expertise to reflect the reality of the company's activities
- **SBTN High Impact Commodities List** – to identify high impact commodities associated with the business
- **World Database on Protected Areas (WDPA)**, **Biodiversity Integrity Index (BII)**, **IUCN Global Ecosystem Typology data source**, **Integrated Biodiversity Assessment Tool (IBAT)**, **Biodiversity Indicator and Reporting System (BIRS)** – to identify sensitive locations and biodiversity hotspot
- **World Resources Institute (WRI) Aqueduct Water Risk Atlas** – to identify water risk areas
- **Global Land Governance Index (LandEx)** – to assess the presence of indigenous groups or populations highly dependent on nature in the territories
- **TNFD recommendations** – to improve risk analysis and to better understand nature-related risks and opportunities
- **Swiss Re's Biodiversity and Ecosystem Services (BES)** Index – to understand physical nature-related risks at a local level

Sacyr's approach on Assess

Sacyr has a Comprehensive Risk Management System, based on internal control and risk management standards. As established within the framework of the Environmental Management System implemented according to ISO 14001, environmental risk management is one of the key aspects in any business. Sacyr carry out a robust process under this framework, including an identification and assessment of the risks and opportunities associated with their activities. Once identified, the company establishes plan for management and monitoring.

In order to continue improving their risk analysis, adapting to new frameworks, the company has followed the guidelines established in the **TNFD LEAP** methodology.

Image source: Sacyr

Scope assessment and potential relationship with nature; Locate

- The **relevant sectors** to which the company's activities belong were identified using the **Sustainable Industry Classification System (SICS)**. In addition, the company's direct operations were located, including all lines of business.[7]
- Using the **SBTN Materiality Screening Tool**, the key impacts of each type of activity in each country were identified and classified on a five-level scale, with 1 – very low materiality and 5 – very high. The values provided by the tool were reviewed based on the impacts and dependencies indicated by the company and then pre-material impacts (moderate, high or very high) have been identified for almost all of Sacyr's activity groups.
  - Once the areas of vulnerability were known, the company categorized activities and impacts and dependencies according to the five impact drivers: *changes in land use, pollution, use of natural resources, climate change and impact on biodiversity* to create impact and dependency matrices (in the construction phase and in the operation phase).
  - In carrying out this analysis the company also used other databases and layers:
    - **ENCORE** tool has been taken as a reference standard to select metrics related to ecosystem services
    - **World Database of Protected Areas (WDPA)** for the assessment of areas important for biodiversity;
    - **Biodiversity Integrity Index (BII)** for assessing ecosystem integrity
    - **WRI Aqueduct tool's Overall Water Risk (OWR)** for assessing water stress areas
    - **Global Land Governance Index (LandEx)** to assess the presence of indigenous groups or populations highly dependent on nature in the territories where Sacyr operates.

Image source: Sacyr

- **Interface with nature:** To define the interactions between Sacyr's business activities and nature, data was collected on all facilities, such as geographical location and occupied area. In addition, an area of influence of 100 meters was defined for all typologies. This information was combined with the **IUCN Global Ecosystem Typology** data source about the biomes present in each company's locations (terrestrial, freshwater, wetlands etc.).
- For all activities for which a moderate, high or very high materiality relationship with nature has been identified, a **sensitive location analysis was carried out**.

[7] Sacyr's main activities include the *construction of transport infrastructures such as airports, roads and highways, as well as hydraulic works, oil and gas distribution infrastructures or electrical installations and renewable energy generation plants*. In addition, it also operates *transport infrastructures and different facilities related to the integral water cycle, waste assessment and landfill management.*

Evaluate impacts and dependencies

- **Identification of environmental assets, ecosystem services and drivers of impact:** Starting from the priority facilities identified in previous phase, the material impact drivers (value 3- 5) related to each technology and priority phase were related to the environmental assets (such as terrestrial, aquatic) and the ecosystem services provided by these assets.
- **Identification of impacts and dependencies:** For all facilities classified as priorities, a detailed analysis was carried out on the impacts and dependencies of each of the activities in the different phases of the life cycle of the projects, specifically in the construction and operation phases. The impacts and dependencies were rated 1 to 5, 1 – very low; 5 – very high importance.
- **Measurement of impacts and dependencies:** Taking into account the impacts and dependencies classified as material in the previous step, three types of metrics[8] were selected for each type of priority activity and phase.
- **Prioritization of impacts:** For all impacts considered material, the extent and frequency of impacts were defined. To assess the extent, a semi-quantitative scale was used for two levels of impact: *local extent and non-local extent.* For the evaluation of frequency, a similar scale was used, but with three different levels: *punctual impacts, frequent impacts and permanent impacts.*

Figure 5: Example of Sacyr's impact on nature matrice associated with the technologies/activities

	Changes in land use			Resource exploitation		Climate change	Pollution				Biodiversity	
	Terrestrial	Fresh water	Marine	Water	Other	GHG emissions and others	No GHG Emissions	Water	Soil	Solids	Disturbance	Biological alteration
Highways	5	NA	NA	NA	3	3	NA	NA	2	NA	4	NA
Urbanization	3	NA	NA	NA	1	1	NA	NA	1	NA	1	NA
Hydraulic works	1	NA	NA	1	NA	1	NA	1	NA	NA	1	NA
Airports	5	NA	NA	NA	2	3	NA	NA	2	NA	3	NA
Water treatment	2	NA	NA	NA	1	1	NA	2	NA	NA	1	NA
Port works	5	NA	NA	NA	4	2	NA	5	NA	NA	4	NA
Power generation plants	4	NA	NA	NA	3	1	NA	NA	1	NA	NA	NA
Dams	5	NA	NA	NA	5	4	NA	3	NA	NA	4	NA
Railway works	5	NA	NA	NA	3	3	NA	NA	2	NA	4	NA

Classified in five levels according to their magnitude: 1 – very low, 2 – low, 3 – moderate, 4- high and 5 - very high

Source: Sacyr

Key material impacts: Regarding the rest of the activities, the results of the analysis identified several impact drivers as material. These include drivers related to changes in land use, the use of natural resources or changes to biodiversity for most of the technologies, and climate change and pollution (second place and only for some of the technologies). Priority impacts have been discarded for hydraulic works (both in the construction and operation phase) and water treatment plants (in the construction phase).

Key material dependencies: For most activities, priority material dependencies have been identified related to changes in land use and biodiversity, specifically with the presence of protected habitats and species of conservation interest in the areas where Sacyr carries out its activities. No material dependencies have been identified for urbanization and hydraulic work activities.

For the set of material and priority impacts and dependencies, this project has enabled the company to identify a series of metrics that allow it to report both the impacts and dependencies, as well as their effect on nature and ecosystem services.

[8] The metrics were selected based on TNFD recommendations. In cases where no appropriate metric was recommended by TNFD, the company selected a metric independently

Assess risks and opportunities

Some of the Sacyr's identified **risks** are:

- **Physical risks:** Delay in environmental processing if there are protected habitats in the area of influence, which can also cause increased costs; worsening water conditions resulting in operational shutdowns, payment of fines, etc.; changes in environmental or meteorological conditions that restrict the location of new infrastructures.
- **Transition risks:** More restrictive policies in relation to the protection of biodiversity or climate change, which reduces the options for building new infrastructure; increase in the requirements for ratings and corporate reports in relation to nature; possible conflicts with landowners and increased costs of purchasing, leasing or custody of land; loss of competitiveness related to meeting the expectations of interest groups.

Some of the identified **opportunities**:

- **Resource efficiency** – investment in nature-based solutions or processes with lower impact
- **Products and services** – transition to new technologies with less impact
- **Market and financial opportunities** – public and private incentives to develop conservation and restoration actions
- **Reputation** – actions and collaborative management that improve the perception of the company.

Sacyr will continue to refine this analysis of risks and opportunities and measure the impact of their assets.

Valuation of Natural Capital and designing a methodology

In 2020 Sacyr began with the design of the natural capital strategy, moving forward with the measurement of impacts and dependencies and analysis of the risks and opportunities linked to natural spaces. The company has designed a standard natural capital valuation methodology applicable to all of their projects at any phase of their execution stage. Read more about the methodology in the company's **Natural Capital Report**, here (p. 30-37).

Image source: Sacyr

Holcim's approach on Assess

Holcim has fundamentally redesigned its materiality assessment to align closely with the risk assessment process and significantly broaden the stakeholder groups it engages with to capture additional insights and deepen understanding of key risks and opportunities facing the business. These insights help to further adjust strategic and operational activities to address those areas where the company can have the greatest impact for stakeholders.

Holcim has aligned with relevant material ESG topics:

- **Stakeholder perspectives:** Impact on decision-making and key stakeholder groups implicated, including partners, suppliers and communities.
- **External impact:** Impact on both people and the planet.
- **Internal impact:** Impact on financial performance and business in terms of risks and opportunities that also impact corporate value.

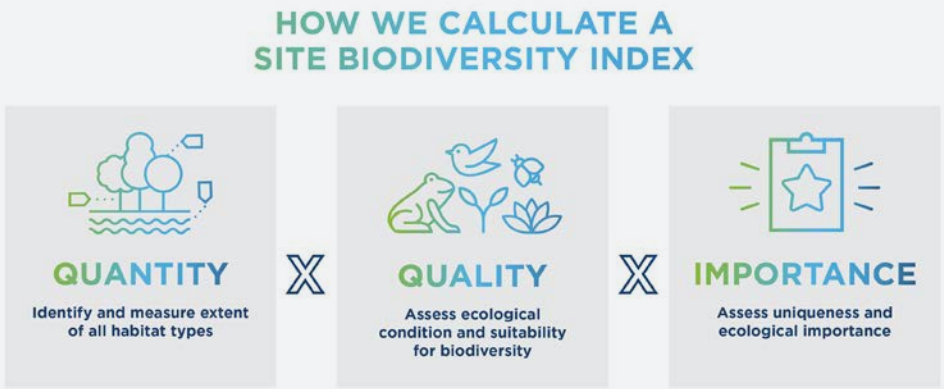
Image source: Holcim

Scope assessment and potential relationship with nature; Evaluate impacts and dependencies

Holcim assesses impacts and dependencies on biodiversity at multiple levels, from site to global, using complementary tools.

- Holcim uses the **ENCORE** tool to identify the potential material nature-related impacts and dependencies in the sectors and sub-sectors where it works and the **SBTN Materiality Screening Tool** to identify the potential impacts: *water use, land use including biodiversity, solid waste and greenhouse gas emissions.* It then considered them in the overall ERM process.
- The company uses the **Integrated Biodiversity Assessment Tool (IBAT)** to conduct assessments of all extractive sites (with a 5-km buffer) to identify priority locations with high biodiversity importance and help prioritize actions in high biodiversity areas.
    - All company's extractive sites are required to assess their importance related to biodiversity through an internal evaluation methodology, the **Biodiversity Importance Category (BIC)**, that defines biodiversity importance of each location *(1 – location of global importance, 2 – national importance, 3 – local importance, 4 – low importance).* All sites classified as BIC 1 and 2 are considered to be of high biodiversity importance, and require to develop and implement biodiversity management plans in accordance with the impacts and risks identified.
- **The Biodiversity Indicator and Reporting System (BIRS)** methodology developed in partnership with the **International Union for Conservation of Nature (IUCN)** also helps assess impacts on biodiversity at the site level, determining how the company is affecting habitats and ecosystems, the effectiveness of biodiversity mitigation and habitat rehabilitation measures, and how the company measures and reports on its management activities. With the BIRS biodiversity baselines for all managed land will be established by 2024 and Holcim will use the same method to confirm company's positive biodiversity impact by 2030.
- Holcim uses the **WRI Aqueduct tool** to prioritize water risk areas. Water is essential for Holcim's operations, and local conditions and climate change strongly affect its availability. The company performs water risk assessment at each of sites annually to prioritize actions and design tailored water solutions.
- It validates the information it gathers through **stakeholder consultations**, collecting quantitative inputs from almost 400 stakeholders, both internal and external, to define all material priorities for the company, including the environmental priorities. It complements this quantitative analysis by conducting interviews with a broad range of stakeholders, resulting in a deeper qualitative understanding. See **Holcim's materiality matrix** (p.223).

Figure 6: BIRS* methodology applied by Holcim



*BIRS developed in partnership with the International Union for Conservation of Nature (IUCN).

Source: Holcim

Image source: Holcim

Assess risks and opportunities

Holcim's climate risk and opportunity assessment is embedded in its ERM process. Leveraging the integration of the TCFD into the ERM process, the company performed a gap analysis and has started to fully embed all nature elements into the ERM process to ensure full compliance with TNFD in 2024.

Working with the Risk Management team and leveraging the annual risk assessment exercise, the company identifies short- to medium-term threats at the local level. This enables operational teams to anticipate and adapt their business strategy to, for example, reduce freshwater withdrawal, engage with key local stakeholders and prepare for potentially more stringent regulations and new market conditions.

Adopting an integrated risk and opportunity approach allows Holcim to balance climate and nature risks against other material risks and opportunities, such as those related to strategic, operational or external topics, and to facilitate the prioritization of the main threats.

- To identify **physical risks and opportunities at a site level**, Holcim used **Swiss Re's Biodiversity and Ecosystem Services (BES)** index tool at its cement sites and quarries. The tool includes a collection of science-based data and couples the global information on the state of BES, based on the BES index, with the dependency and impact of economic activities.
    - The company is integrating the results identified as high (H) and very high (VH) into a questionnaire for sites in different countries to validate these risks and identify what kind of mitigation measures are in place, the financial impact these specific risks can have and how to reduce them with existing mitigation measures. This is an ongoing process and Holcim will have a more robust conclusion on this analysis by the end of 2024.
- To identify **transition risks and opportunities at a country level**, Holcim is setting up a questionnaire on the risk and opportunity categories identified by TNFD recommendations (on risk – policy, market, technology, reputation, liability; and on opportunities – markets, resource efficiency, reputation). This is at the country level because policy and market changes and opportunities are specific to each country rather than each site. Via the questionnaire, the group representatives in the countries indicate any potential or expected changes in these risks and opportunities at a country level to determine the potential financial impacts.

Holcim is committed to regularly conducting materiality assessments, and to strengthening and adjusting their process. The materiality assessment will be updated in 2024 to ensure full alignment with stakeholder priorities and upcoming regulations such as Corporate Sustainability Reporting Directive (CSRD).

AECOM's approach on Assess

As AECOM's primary focus is supporting a wide range of infrastructure development endeavours, the company has conducted thorough materiality assessments across various past projects. This was done to test the TNFD LEAP approach and explore potential applications in future projects. The goal is to enhance the identification of material nature-related impacts and dependencies, risks, and opportunities, thereby enabling informed advice to be provided to clients regarding project actions.

Scope assessment and potential relationship with nature

AECOM identified a portfolio of projects within key jurisdictions for their business activities across South, South-East and East Asia.

- Projects varied in geographical scope, from the construction of recreational areas within urban city centres to establishing power transmission lines across multiple districts within a single country.
- The infrastructure projects are situated in biomes that span: *tropical and subtropical moist broadleaf forests; tropical and subtropical dry broadleaf forests; savannah and shrublands; inland wetlands; and mangroves.*
- For each project, the impacted districts were merged into a single 'project landscape'. Where the project landscape included coastline, the project boundary was extended 20km from the coastline to capture coastal marine natural assets potentially being impacted.
- Multiple geospatial layers were later used to score and rank AECOM's infrastructure projects with regards to potential impact, the dependencies on people and nature, physical risks from natural disasters and water-related stress variables, and opportunities for extinction-risk reduction.

AECOM are expanding their sustainability provisions beyond climate and carbon-focused reporting, including the TCFD, to include nature considerations and TNFD disclosures which are addressed in this overview.

Locate

Assessing nature related variables and landscapes

- For each project landscape, AECOM mapped and summarized multiple nature-related variables (datasets) grouped into eight categories[9] aligned with the TNFD guidance.
- A summary of the variables grouped according to each of the eight categories and linking to nature-related impacts, dependencies, risks and opportunities was provided (**more details**, p. 11).
- For each variable, project landscapes were categorized into the top (3), middle (2) or bottom (1) third across the portfolio of projects. The eight categories for each landscape were scored by summing the values of the constituent variables and assigned nominal numeric scores (High – 3; Medium – 2; Low – 1). For all variables, a higher raw value corresponds to a greater contribution (except river fragmentation) (**more details**, p.15).
- Additionally the company looked at interactions in underlying datasets - potential interactions, sourced from peer-reviewed scientific literature, which may either magnify or mitigate risk *(for instance, example of how invasiveness potential could be influenced by ecosystem integrity –* **more details**, p.15).

Figure 7: Example of scoring for 10 projects out of the 87 that were assessed.

Project	Biodiversity Importance	Ecological Integrity	Ecosystem Extent	Ecosystem Change	Physical Risk	Water Stress	Rep. Risk	Dependencies and impacts on nature	Impacts	Dependencies	Risks	Opportunities
Biodiversity Action Plan - Power Transmission Lines	🟢	🟢	🟡	🔴	🟡	🔴	🔴	🟢	🔴	🟢	🔴	🟡
East Coast Rail Link	🟡	🔴	🔴	🔴	🟡	🟡	🟡	🔴	🔴	🔴	🔴	🟡
EIA for Solar Power Park in Gujarat, India	🟢	🟡	🔴	🟡	🟡	🔴	🔴	🟢	🟡	🟡	🔴	🟢
EIA for Floating PV Power Plant in Java	🟡	🔴	🔴	🔴	🔴	🟢	🔴	🔴	🔴	🔴	🔴	🔴
EIS for Onshore Wind Development in Taiwan	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
Malaysia and Singapore Infrastructure Project	🟢	🔴	🔴	🔴	🟢	🟢	🟡	🔴	🟡	🔴	🟡	🟡
Tengah Environmental Baseline Study	🟢	🟡	🔴	🟡	🟢	🟢	🟡	🟢	🔴	🔴	🟡	🟢
Environmental Social Impact Assessment for Proposed Waste to Energy Plant in Bac Ninh Province	🟢	🟢	🟢	🟢	🔴	🔴	🔴	🟢	🟢	🟢	🔴	🔴
EMP of Technology Industrial Park in Taiwan	🔴	🟢	🟡	🟢	🔴	🟡	🟢	🔴	🟢	🟡	🟡	🔴
Environmental Baseline Study for Singapore	🟡	🟡	🔴	🟡	🟢	🟢	🟡	🟢	🔴	🔴	🟡	🟢

Scores are grouped into the eight categories aligned with TNFD guidance and into nature-related impacts, dependencies, risks and opportunities. Colors represent 🔴 High 🟡 Medium and 🟢 Low scoring.

Source: AECOM, Global Canopy (2023)

[9] Biodiversity importance; Ecological integrity; Ecosystem extent; Ecosystem change; Physical risk; Water stress; Reputational risk; Dependencies and impacts on nature

Evaluate impacts and dependencies

Mapping project and supply chain activities

- To provide a fuller picture of nature-related risks and dependencies from within the project's sphere of influence, an analysis of the supply chain materials and processes used in the construction of infrastructure projects was undertaken.
- To provide this high-level assessment of the key ecosystem services and natural capital assets that infrastructure projects depend on and impact, projects were categorised by infrastructure type (roads, buildings etc.).
- Subsequently, a brief literature search of **life-cycle analysis** studies was undertaken to identify related production processes for each of these three high level Global Industry Classification Standard (GICS) codes, which resulted in twelve further production processes to analyse in **ENCORE**. The ENCORE tool can support the identification of core potential impacts and dependencies associated with a project's primary activities and the supply chain activities needed to produce the materials for the project. Further, the materiality rating can be used to weight data layers that represent the identified impacts and dependencies.
- Ten key materials that are often used in the fifteen production processes were classified as **High Impact Commodities** according to **Science Based Targets for Nature (SBTN)**. These included: *Cement, Coal, Copper, Iron, Oil (crude) Petroleum, Sand (Construction grade), Timber/roundwood, Bauxite/Aluminium, Gasoline* and *Steel*.
- The **Biodiversity Module** relating to **the mining sector** in **ENCORE** was also investigated in terms of potential opportunities to reduce nature-related risks from a procurement perspective. Organisations such as AECOM whose supply chains rely on high impact commodities such as iron and bauxite for construction can investigate the risks to nature from mining activities at various geographies around the world.
    - To use the tool, organizations must have supply chain traceability for commodities down to the level of company name and/or the country of origin for mining activities. Once companies input data into the tool, it generates a report indicating the potential to reduce species' extinction risk in 'STAR units'. The tool allows for comparison of countries and regions, and it offers suggested actions to align with global biodiversity goals.

Key impactful production processes: Using a total count of impact scores where very high equals 5 and very low equals 1 (no data equals 0), of the fifteen production processes analysed, the most impactful were those at the raw material supply stage of the life cycle and included:[10] *Oil & gas drilling and Coal & consumable fuel mining*, followed by *Diversified metals and mining* and *Aluminium mining*.

Key potentially material impact drivers[11] for all fifteen production processes analysed in ENCORE were *water use* (in terms of volume of groundwater consumed, volume of surface water consumed etc., by the production process), followed by *terrestrial ecosystem use* (e.g., area of land/habitat modification), and then *greenhouse gas emissions* (e.g., volume of carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), etc. as a non-product outputs of the production processes).

Key potentially material dependencies: *climate regulation, water flow maintenance, mass stabilisation* and *erosion control.*

[10] It must be noted that over time the 'no data' points in ENCORE will be updated and therefore if these production processes are re-analysed, they may result in different scores. Furthermore, it is possible to get different results by calculating the scores via different methods.

[11] During the pilot data from ENCORE tool were not linked together with the overall scoring noted in Figure 7 due to time constraints, but it is noted as a useful next step that should be considered when applying the full materiality assessment process.

Assess risks and opportunities – preliminary findings

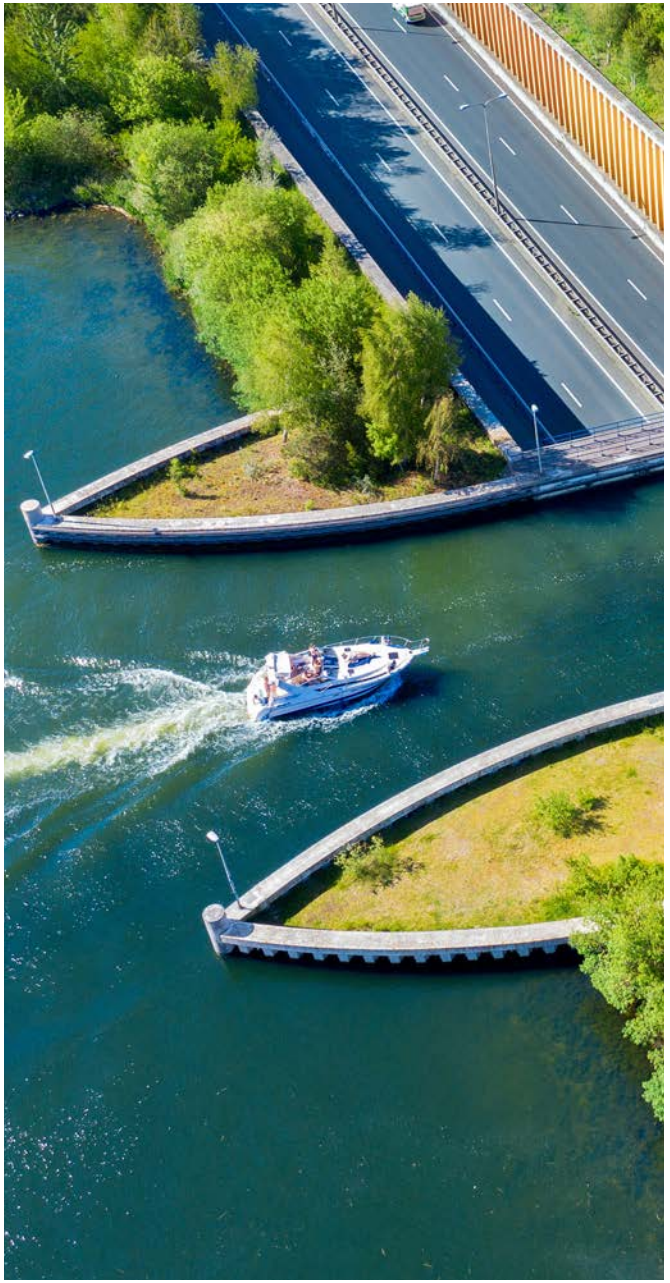
Applying elements of the TNFD LEAP approach has highlighted the wider nature-related risks to infrastructure construction (aside from the large industry focus on carbon), and the sector's critical dependencies on ecosystem services and natural capital assets. Water and terrestrial ecosystem use are both highly impacted by the sector's activities, which they are also highly dependent upon. The next development steps would include the integration of the geographical risks with sector specific information derived from ENCORE and the other tools.

By considering a diverse range of projects, the company found that the activities and supply chains associated with an infrastructure build are essential components of assessing **risks**. This allowed the company to develop the screening protocol to reflect more than just geographical features. For example:

- Shoreline restoration using dredged marine sediment or the construction of wind farms primarily risk impacting benthic marine ecosystems through seabed damage or increased turbidity.
- Conversely, the risks associated with power transmission line construction are more likely to increase forest fragmentation, as well as the impacts from copper or aluminium mining required to produce the raw materials.

This presents many **opportunities** to the sector:

- Overall, water and terrestrial ecosystem use were found as highly material impacts across infrastructure projects, presenting a strategic opportunity to **mainstream nature-based solutions into project design and construction**.
- Re-aligning its strategic focus to **include nature to the same extent as greenhouse gases**.
- Working **cross-industry** to support supply chain partners to align with nature and climate targets.
- Ensuring decision-makers consider the nature-related impacts and dependencies of different project solutions when deciding on infrastructure solutions to community needs.
- The incorporation of green and blue infrastructure and **nature-based solutions at project design**.
- Widening the breadth of traditional construction **educational courses to include sustainable design and construction** methods such as sustainable drainage systems as a standard part of the curriculum.



2.3. Strategic approach: Steps 2 & 3 – Commit and Transform

Having completed the Assess step, companies have identified **priority dependencies, impacts, risks and opportunities which then inform their commitments** (Commit step) and **associated actions** (Transform step). This section illustrates how the companies are setting commitments as part of their nature-related strategy and implementing practical actions or starting to work towards that.[xviii]

SBTN's Action Framework (AR3T) provides a key framework to inform an approach on nature by defining the hierarchy of actions that companies can put in place: *Actions to avoid future impacts, reduce current impacts, regenerate and restore ecosystems, and transform the systems in which companies are embedded.*[xix]

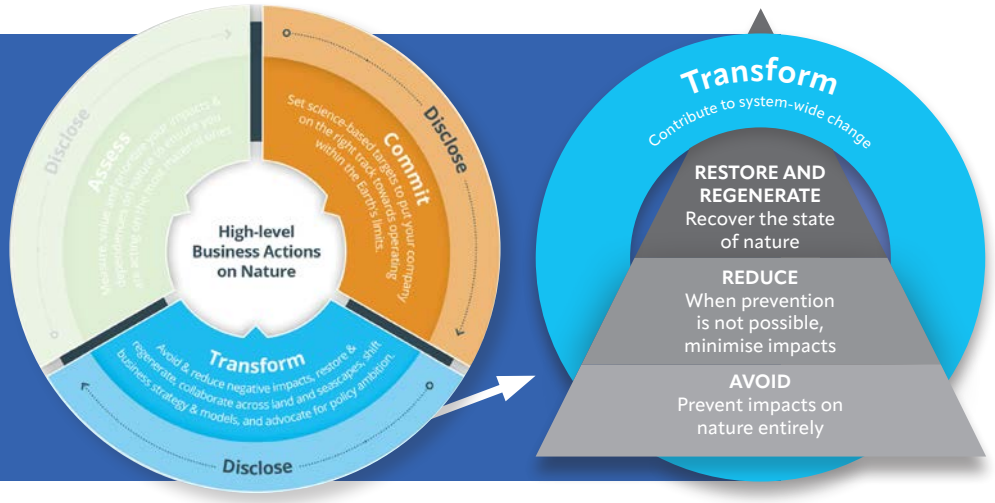


Figure 8: SBTN's Action Framework (AR3T) as part of the Transform stage of ACT-D.
Source: Business for Nature (2023)

Common insights from the case studies on Commit and Transform steps

Utilization of materiality assessments to guide strategy and actions: Companies rely on global datasets in combination with further materiality assessments to steer their strategies and actions for nature-related initiatives.

Policies on nature: Having robust nature policies and statements in place fosters alignment and accountability throughout the entire company, its operations, and projects, particularly when accompanied by clear objectives, guidelines, and performance metrics.

The mitigation hierarchy approach assists companies in concentrating efforts on avoiding impacts when possible, minimizing them through preventative measures, and restoring areas to compensate any unavoidable impacts.

Broader benefits of restoration: Working on restoration in a transformational manner, rather than just traditional, often presents an opportunity to establish new nature reserves that promote biodiversity and may even offer recreational facilities for the community.

Sacyr's approach on Commit and Transform

Commitments

The company has defined objectives and performance metrics for its activities to pave the way towards nature positive goal by 2030:

- 100% of new contracts will have biodiversity conservation objectives in place
- 10% reduction of own water consumption by 2025

Sacyr have key performance metrics aligned with what is established in the initial guidelines of Science-Based Targets for Nature *(on soil degradation, water consumption and availability, climate change (GHG), biodiversity)*. Additionally, the company has established a **Biodiversity** and **Water** policy.

Image source: Sacyr

Applying mitigation hierarchy

For the integral management of impacts, Sacyr uses the **mitigation hierarchy** as a framework for action, which allows them to estimate the impacts of their projects from an environmental and social standpoint, helping to avoid or minimize them, and performing restoration work to compensate for possible impacts or losses, generating a positive balance or a net gain.

Avoid:

Examples include avoiding rare habitats or key species' breeding grounds when deciding on road placement, or timing of seismic operations to avoid when aggregations of whales are present.

Minimize/reduce:

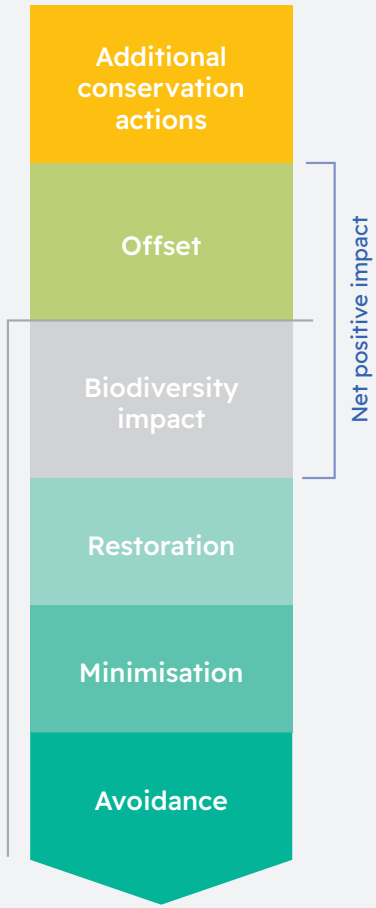
- **Biodiversity:** Within the Integrated Management System, inspections and preventive measures are implemented to prevent and reduce impacts on identified sensitive species and geographical areas, such as monitoring species status reports, wildlife surveys, rescue and relocation efforts, and flora transplanting. These interventions are outlined in environmental management plans tailored to the specific regulations and conditions of each region and country (**more details**, p. 159-160).
- **Water positive:** A 2021 water footprint analysis revealed that Sacyr has a significantly positive impact in regions with scarce freshwater resources, largely due to its management of desalination facilities through Sacyr Agua.

Now the company can confidently state that it is Water Positive, as their contribution of water resources in high water-stress areas exceeds the global water footprint of their activities (**more details**, p. 180-183).

Restore:

In all of Sacyr's projects, species conservation and recovery plans are given utmost priority. Through the company's developed methodology for assessing natural capital, Sacyr can identify the most environmentally beneficial measures during the planning stages, thus contributing to a positive net impact. This advanced approach allows for the implementation of measures tailored to the unique characteristics of each environment and the ecosystem services provided. When a restoration project is included in the contract, Sacyr adheres to established guidelines. In cases where such a project is not defined, they carefully analyze and advocate for specific restoration actions. These activities include a variety of environmental restoration activities, including integrating with the landscape, revegetating surfaces, and restoring areas temporarily used for construction.

Figure 9: Final step of mitigation hierarchy framework – mitigating impacts on biodiversity and achieving a net positive impact.



Source: Adapted from IUCN (2015) and Sacyr (2021)

Holcim's approach on Commit and Transform

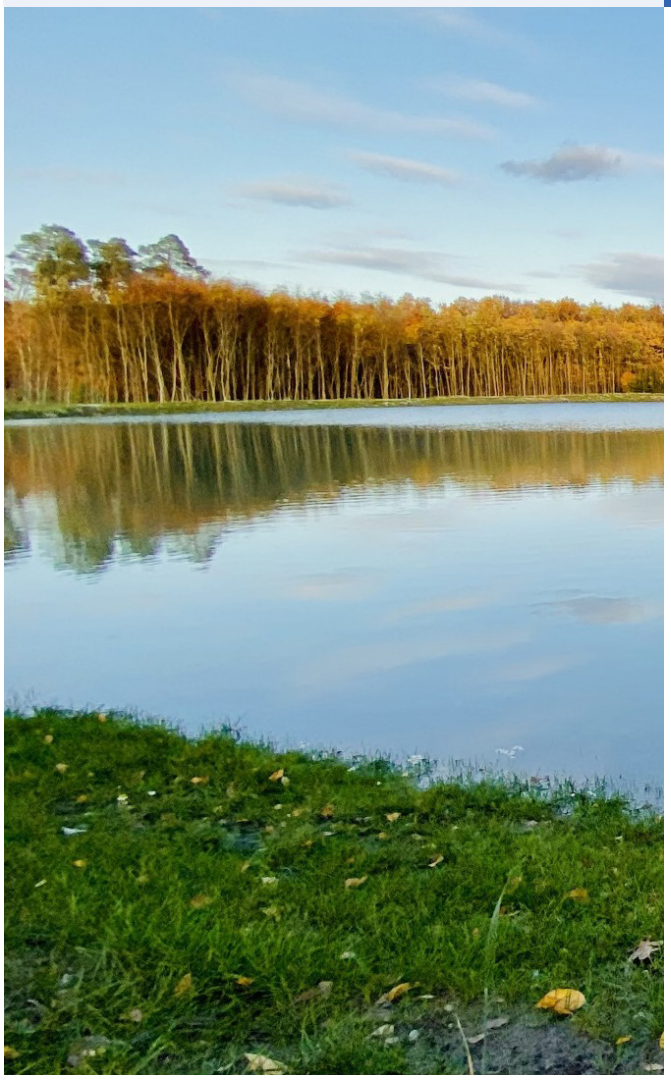


Image source: Holcim's wetlands revitalization project in Poland, Kujawy region

Commitments

Holcim's **Nature Policy** describes the company's approach to the efficient use of natural resources and the path to a nature-positive future and entails concrete directives with detailed guidance that supports actions. This Nature Policy has been valuable in aligning group sites with directives and standards. It ensures comparability across sites and countries and helps internal audits at site and at country levels. Additionally, Holcim also has a climate policy, circular economy policy and human rights policy.

Based on Holcim's materiality assessment and prioritization process, it has set commitments for the key material issues identified: *water use, land use including biodiversity, solid waste* and *greenhouse gas emissions*.

- **Biodiversity:** Implementing progressive and transformative rehabilitation plans as measured by a scientific methodology developed in partnership with IUCN:
  - Global Biodiversity Indicator and Reporting System (BIRS) baselines complete for all active and non-active quarries by 2024.
  - By 2030, a higher biodiversity index measured by BIRS.
- **Water:** Prioritizing actions in high water-risk areas, tailoring solutions to local conditions:
  - By 2030, commit to lowering water intensity across business lines, with a 33% reduction in cement, 20% in aggregates and 15% in ready-mix concrete.
  - By 2030, replenish freshwater in water-risk areas with 75% of sites water-positive and 100% of sites equipped with water recycling systems.
- **Circularity:** Applying the principles of "reduce, recycle and regenerate" throughout the business:
  - By 2030, increase recycled content in its cement to 30%.
  - By 2030, recycle 70 million metric tons of waste and by-products for alternative energy and raw materials.
- **Climate:** Aligning with the 1.5°C framework:
  - Upgrading the company combined scope 1 & 2 2030 targets to meet the latest SBTi validation criteria.
  - Extending the company 2050 target coverage to include all 15 categories of scope 3 emissions.

Applying mitigation hierarchy

Holcim applies the **mitigation hierarchy** for land-use change, including biodiversity, to prioritize and guide actions to enhance positive biodiversity impact. Additionally, it follows a mitigation hierarchy for **waste management** (circular economy).

The company translates its commitments into targets and clear actions to drive performance within and beyond operations. The company complies with local, state, federal and national regulations in all operations and advocates for collective actions with relevant stakeholders.

Avoid:

The company is not opening new sites or explorations within protected areas declared under World Heritage, IUCN I (strict nature reserve and wilderness area) and IUCN III (natural monument or feature).

Minimize/reduce:

- The company minimizes and reverses fragmentation of habitats, reducing damage of important habitats.
- The company reduces its freshwater footprint every year. For example, it is reducing freshwater withdrawals in cement to reach the target of 33% by 2030 (compared to 2018).
- Holcim is increasing recycling of construction demolition material (CDM) waste, with 8.4 million metric tons recycled in 2023 (+24% compared to 2022) and building capacity to recycle concrete-based CDM using the new proprietary circular technology platform **ECOCycle** that is accelerating urban mining and increasing recycling of construction demolition materials into new building solutions. Holcim aims to implement ECOCycle circular technology at 150 sites in Europe by 2030 to recycle 20 million metric tons of CDM yearly.

Figure 10: Rehabilitation processes

*Measured using the BIRS, developed in partnership with the IUCN

Source: Holcim

Rehabilitate/restore:

- The company rehabilitates/restores all quarries it operates by implementing progressive, transformative actions. As of 2022, 100% of the 256 quarries located in high biodiversity importance areas have a biodiversity management plan in place.
- Holcim aims to become a leading voice in landscape protection beyond its own sites, participating in or leading multi-stakeholder collaboration to enable a holistic and inclusive view, resulting in a more sustainable landscape for all.

Transform:

- Holcim is working to bring more **nature into cities**, while making cities more resilient. Its nature-friendly systems contribute to reducing urban heat island effects, improving air quality, improving water management and ultimately enabling more green public spaces for all to enjoy. The company's solutions include providing a home for ecosystems on green roofs with trees, plants and rainwater harvesting, and using permeable concrete to grow urban green spaces by recharging groundwater.
- It is also supporting **marine habitats**, which are equally affected by climate change and pollution. Its bioactive concrete can be used to build bioactive infrastructure for marine and coastal ecosystems, including artificial reefs.

Image source: Holcim

Holcim's bioactive concrete: preserving marine wildlife

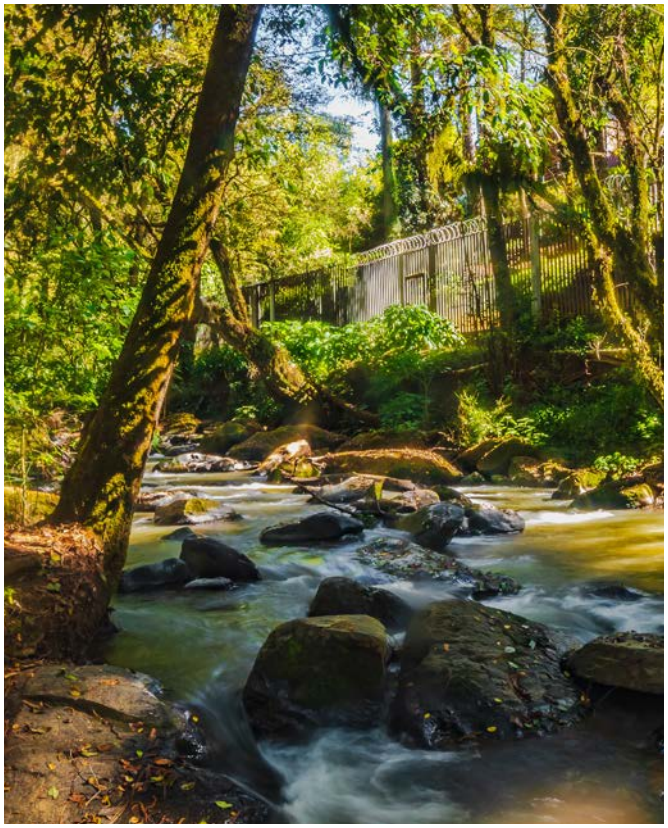
AECOM's approach on Commit and Transform

Commitments

AECOM has released its **biodiversity statement** in 2023 and supports the mission of the Global Biodiversity Framework to halt and reverse biodiversity loss by 2030 and commits to playing its part through the following actions:

- Supporting clients to follow the **mitigation hierarchy** of first aiming to avoid damage to biodiversity, then minimizing, restoring, compensating, or offsetting any unavoidable damage.
- Supporting clients to achieve nature positive outcomes in developing and implementing their projects, by promoting nature-positive infrastructure.
- Engaging with external organizations that are working to support biodiversity recovery in the industry and using recognized guidance and frameworks, including the TNFD.
- Developing an understanding of AECOM's relationship with nature, identifying opportunities that they can take to contribute to nature positive goal across their operations and reporting on their progress.

In practice AECOM's biodiversity statement will lead the organization to address nature related issues more credibly through more detailed assessments within projects in which they are involved and have sufficient influence.



Plans for further actions

- AECOM's next ambition is to **apply this approach to an active project** from initiation to completion in order to accurately understand the process, additional effort, data and collaboration between teams required to make a typical infrastructure project compliant with TNFD. This would involve finding a receptive collaborator in the shape of one of our clients who would be keen to understand the impacts, risks and dependencies facing the infrastructure and their wider businesses as a result of developing said infrastructure.
    - Such a pilot would provide invaluable advice that could be shared amongst the infrastructure industry to highlight how such assessments can be done and encourage further uptake of TNFD within infrastructure projects.
- AECOM will soon conduct **its own TNFD assessment** and establish specific objectives based on the results.
- AECOM intends to **enhance the skills of its staff** to ensure they understand the mitigation hierarchy and can ensure its application throughout project collaboration with clients.
- The company plans to provide **effective guidance to its clients** on implementing process of materiality assessment and mitigation hierarchy, emphasizing the advantages of this approach for long-term benefits and risk mitigation.

2.4. Strategic approach: Step 4 – Disclose

Nature-related disclosures help companies communicate about the actions they are taking and progress towards targets. The Disclose step of the ACT-D framework recommends that companies align reporting with major reporting standards and to seek out independent validation and verification to enhance credibility of actions. Disclosures will contribute to the achievement of **The Biodiversity Plan Target 15** and will increasingly be required by both voluntary and mandatory accountability mechanisms. This section highlights how the companies are currently disclosing and planning to disclose.

Common insights from the case studies on Disclose step

Companies align their work towards disclosing main impacts and dependencies on nature as well as commitments to and progress towards actions to halt and reverse nature loss, aligned with various **global frameworks** such as **SBTN (AR3T action framework) (SBTi)**, **Taskforce on Nature-related Finance Disclosures (TNFD)**, **Taskforce on Climate-Related Finance Disclosures (TCFD)**

Companies measure and report according to **global standards** like: **Global Reporting Initiative (GRI)**, **Sustainability Accounting Standards Board (SASB)**, **European Union's Corporate Sustainability Reporting Directive (CSRD)** and **European Sustainability Reporting Standards (ESRS)**, **International Integrated Reporting Council (IIRC)**, **European Union Taxonomy**, **Carbon Disclosure Project (CDP)**

Sacyr's approach on Disclose

Sacyr reports against GRI, IIRC, SASB, TCFD, TNFD, CSRD, IFRS, CDP (Climate and water), EU Taxonomy, Law 11/2018 on Non-Financial Information and Diversity

Additionally:

- The company has responded to the requirements derived from European Union Taxonomy Regulation 2020/852. During 2024 Sacyr will begin collecting data to adapt the report and the metrics disclosed to the requirements established by EFRAG in the ESRS.

Holcim's approach on Disclose

Holcim reports against: GRI, SASB, TCFD, TNFD, CSRD, CDP (Climate and water), EU Taxonomy and Article 964b of the Swiss Code of Obligations.

Additionally:

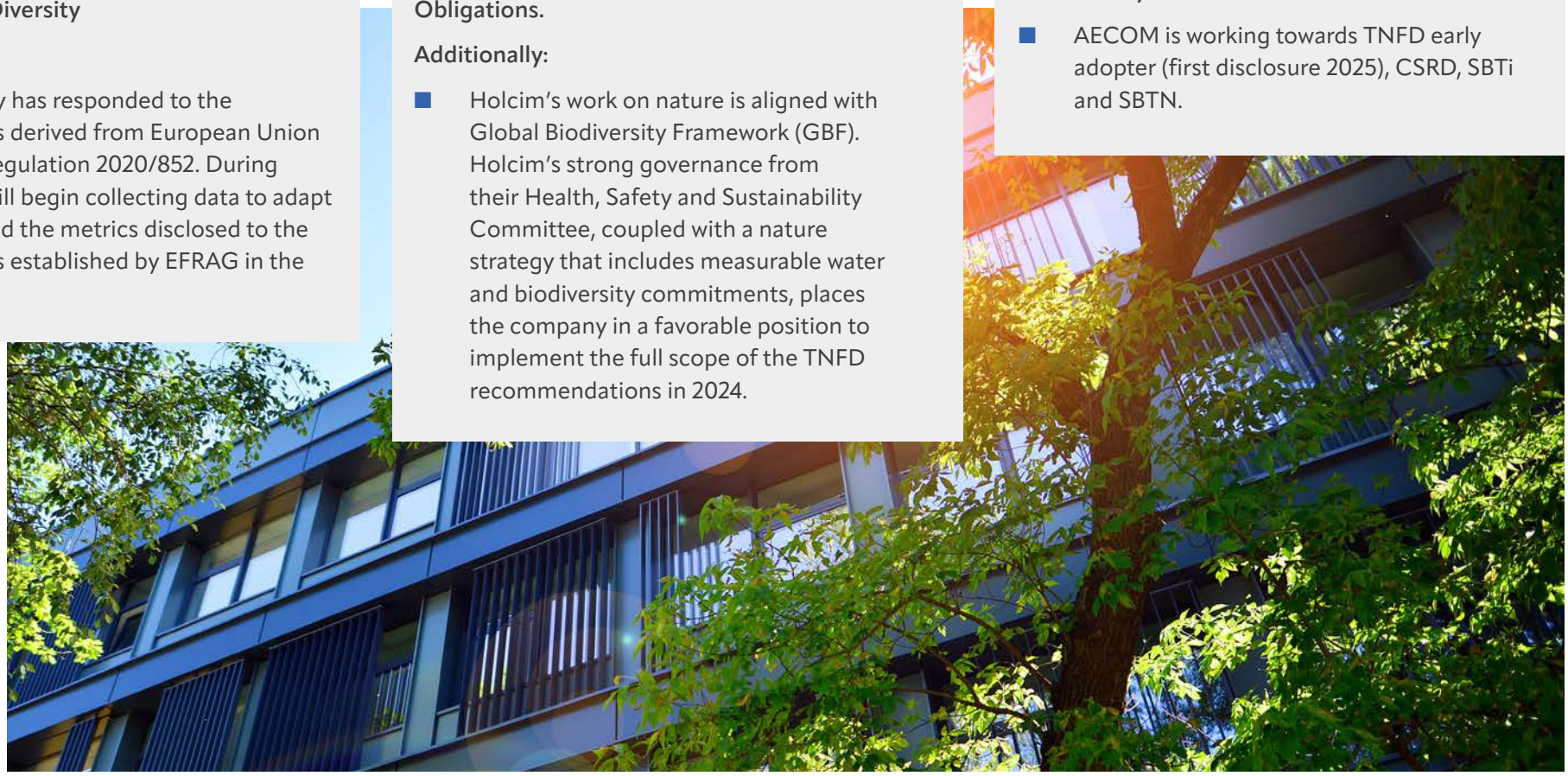
- Holcim's work on nature is aligned with Global Biodiversity Framework (GBF). Holcim's strong governance from their Health, Safety and Sustainability Committee, coupled with a nature strategy that includes measurable water and biodiversity commitments, places the company in a favorable position to implement the full scope of the TNFD recommendations in 2024.

AECOM's approach on Disclose

AECOM track and report on ESG performance targets in line with: SASB and TCFD

Additionally:

- AECOM is working towards TNFD early adopter (first disclosure 2025), CSRD, SBTi and SBTN.



2.5. Key challenges and lessons learned

Several key challenges arose as shared across the case studies, reflecting companies' common obstacles or barriers to assess and act upon nature-related issues. Likewise, several actions that could overall materially improve a company's approach are included below as lessons learned.

Data, tools and application

Challenges

Access to primary data: obtaining good quality primary data is still a challenge, especially if a company has thousands of suppliers and many of them are SMEs. Many suppliers still do not measure their consumption and impacts (like water consumption, etc.) or withhold this information due to confidentiality.

Understanding what combination of primary datasets and secondary datasets should be used on an active infrastructure project to provide the most useful outputs is challenging. The data inputs used for the prioritization process have a strong influence on the outcome, and some nature-related impacts and dependencies can be affected by positive or negative feedback loops.

Lessons learned

Satellite images allow a much faster analysis of the impact on ecosystem services, however, it must be ensured that the result is as exhaustive as field work.

The upstream value chains ENCORE's Biodiversity Module (regarding the mining sector) can be used by procurement teams working on infrastructure projects to identify opportunities to reduce the nature-related impacts and risks of supply chain partners, as well as highlighting specific questions that supplier assessments could consider in order to better address nature and climate risks.

Tailor the TNFD LEAP approach into the specific organizational context. It entails aligning metrics, terminologies, and internal frameworks according to the company's unique operations and value chain.

Synergies through simultaneous implementation of the TCFD and TNFD frameworks allow organizations to make integrated and better-informed decision-making as it allows companies to tackle climate and nature related risks and opportunities simultaneously and align their strategies accordingly.

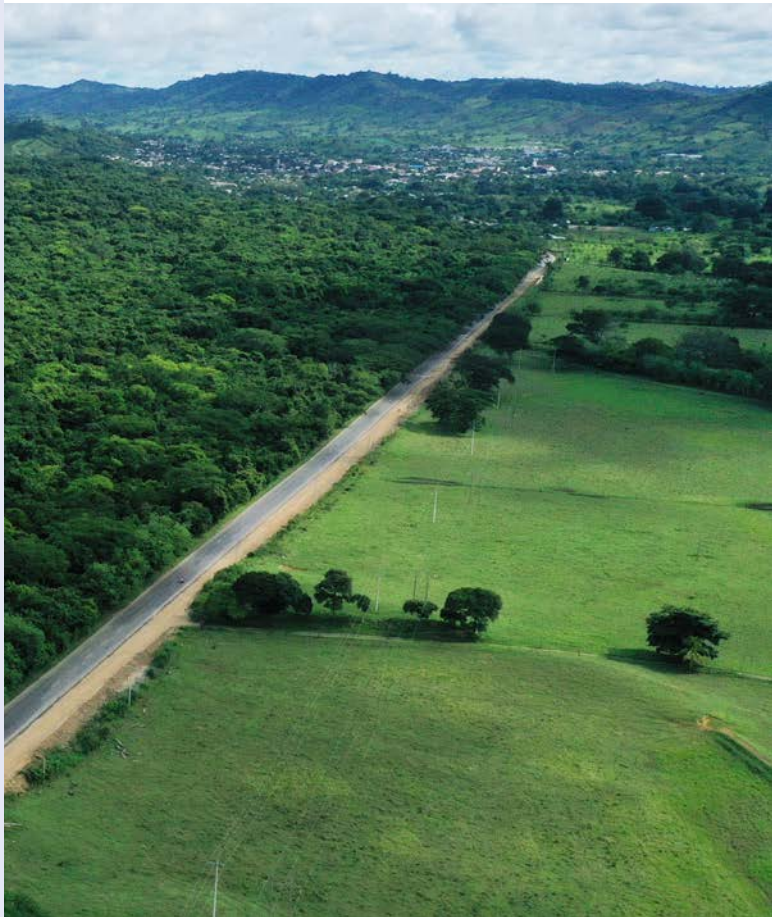


Image source: Sacyr

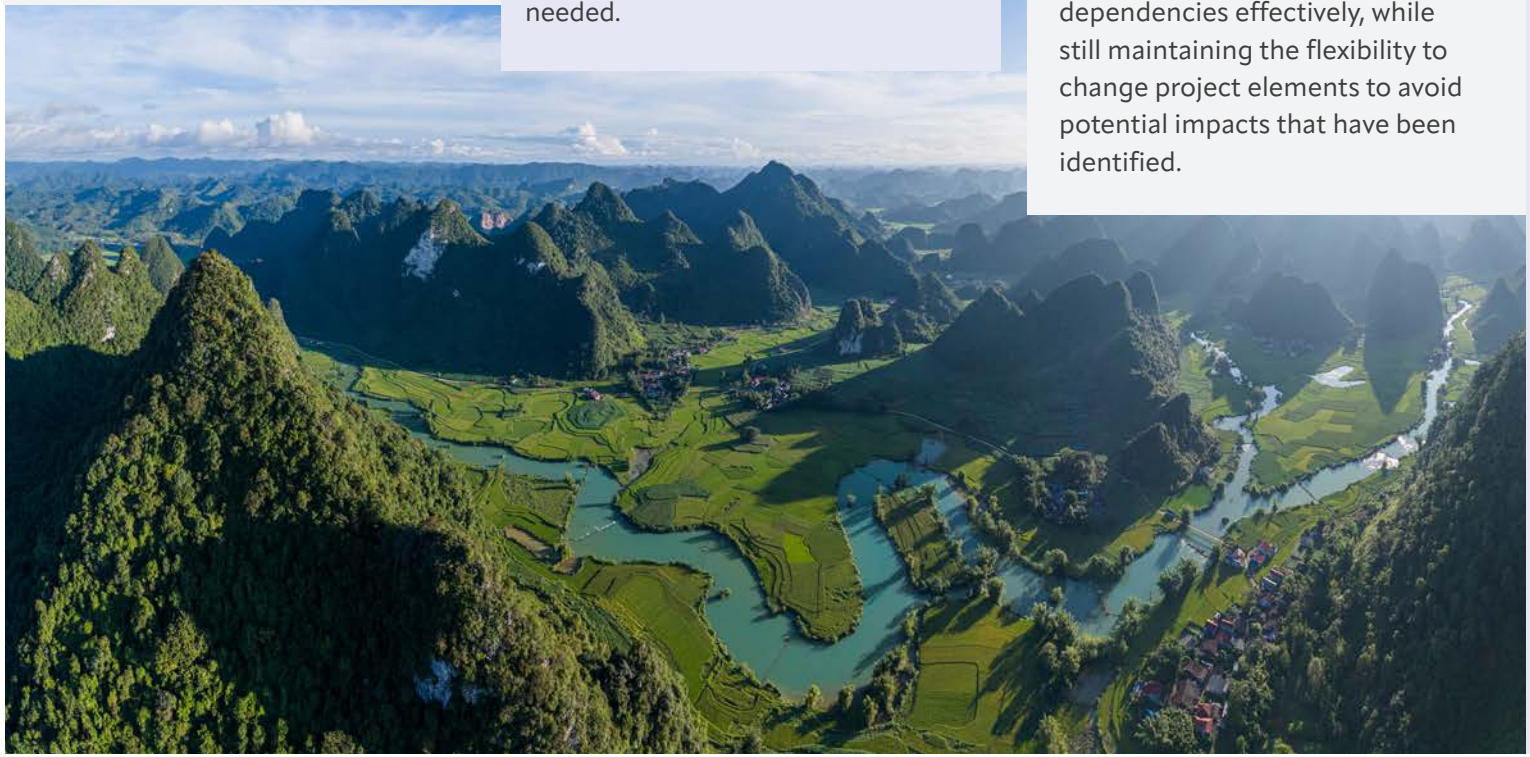
Lack of standardization

Challenges

Standardized methodology: The fact that there is no methodology or defined and standardized metrics for calculating the balance of natural capital makes it difficult to communicate the results and standardize the process.

Lessons learned

Global targets and science-based indicators are essential to provide the right direction for business. Development of a common framework to measure and monitor the impact of activities on biodiversity and freshwater to allow for better target-setting and the measurement of improvements are needed.



Involving stakeholders into the work on nature-related issues

Challenges

Timing: In the context of infrastructure projects, the challenge lies in identifying the best time within the project timeline to conduct the materiality assessment, since it requires adequate data and a sufficiently developed design to assess potential impacts, risks, and dependencies effectively, while still maintaining the flexibility to change project elements to avoid potential impacts that have been identified.

Lessons learned

Language: It is essential to use plain language, avoid technicalities and communicate direct links between natural capital and long-term business (how construction impacts nature and how the industry directly depends on its services). It is also critical to convey the financial benefits of protecting natural capital, using data to engage relevant internal business decision makers.

The endorsement and recognition of senior management in the context of nature can be a success factor across the business internally and externally.

Collaboration among departments within the organization and engagement with stakeholders across the value chain is crucial. Such collaboration enhances understanding of the nature-related risks and opportunities, ensuring a holistic assessment. Additionally, it enables companies to address conflicting internal visions that may impede progress. Similarly, the stakeholders engagement facilitates a sense of familiarity of and shared interest in the assessment results.

Integrating nature in the broader business focus and role of the government

Lessons learned

Providing insights at the project evaluation phase: Providing project level nature-related risks and dependencies analysis to decision makers at the 'alternatives evaluation' phases of infrastructure investment planning may improve decision-making at the siting and design stages of projects, which in turn will reduce cost and nature risk at the infrastructure design stage.

Adopting an integrated risk and opportunity approach in the company's risk management process allows the company to balance climate and nature risks against other material risks and opportunities, such as those related to strategic and operational topics, and to facilitate the prioritization of the main threats.

Nature policy as a guiding force for everyone in the company: it is helpful for a nature policy to describe the company's path to contributing to a nature-positive goal and setting out clear guidelines, including how employees should interact with business partners, suppliers, communities and other stakeholders. This brings alignment across the different countries and business functions.

Role of the governments: Businesses have an active role to play in providing solutions for nature, but nevertheless, public policies are key to accelerating actions in this decade to reverse nature loss.

- **For biodiversity**, mandating nature restoration requirements in all countries should be supported. Those requirements should encourage ecosystem restoration including: high-diversity fauna and flora, restoration based on endemic species, continuity with neighboring natural landscapes and spaces, and progressive rehabilitation, i.e. rehabilitation taking place simultaneously with extraction work. Incentives like subsidies, loans or grants can facilitate the protection of endangered species, particularly in biodiversity sensitive areas.
- For a greater impact on **freshwater reduction**, government mandates and incentives are necessary to promote investment in technologies for rain harvesting, optimization of water use in processes, and affordable low-carbon energy desalination.

Annex 1: Tools and databases

List of tools and databases recommended throughout the document and used by the case study companies.

Tools and databases	Description
Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE)	A high-level screening tool that companies can use to aggregate and identify typical impacts and dependencies across different sectors and sub-sectors.[12]
ENCORE Biodiversity Module	Module that helps to understand how organization can move towards potential portfolio alignment with global biodiversity goals (for agriculture and mining sectors).
SBTN Materiality Screening Tool	A tool that builds on ENCORE data to allow a more detailed assessment of impacts (but not as yet dependencies) across a combination of production processes.
SBTN High Impact Commodity List	A non-exhaustive list of the most common environmental impacts associated with the production of major commodities (i.e., the direct operations stage). The pressure categories included in the HICL are aligned with those used in ENCORE and in the SBTN target-setting guidance for Step 1 and Step 2.
World Database on Protected Areas (WDPA)	Comprehensive global database of marine and terrestrial protected areas.
Biodiversity Integrity Index (BII)	Novel methodology for ecosystem integrity accounting.
IUCN Global Ecosystem Typology data source	A classification framework for Earth's ecosystems that integrates their functional and compositional features. This new typology helps identify the ecosystems that are most critical for biodiversity conservation, research, management and human wellbeing into the future.
Integrated Biodiversity Assessment Tool (IBAT)	A web-based map and reporting tool that provides fast, easy and integration access to three of the world's most authoritative global biodiversity datasets: IUCN Red List of Threatened Species, World Database on Protected Areas, and World Database of Key Biodiversity Areas.
Biodiversity Indicator and Reporting System (BIRS)	BIRS guide companies in the cement and aggregates sector in adopting a standardized system for monitoring biodiversity at their extractive operations, and to encourage regular reporting on biodiversity attributes at the company level.
World Resources Institute (WRI) Aqueduct Water Risk Atlas	Open-source, peer reviewed data to map water risks such as floods, droughts and stress.
Global Land Governance Index (LandEx)	The index can support to assess the presence of indigenous groups or populations highly dependent on nature in the territories.
Swiss Re's Biodiversity and Ecosystem Services (BES) Index	The index assesses which economic sectors are most reliant on nature and evaluates the exposure each country has to BES decline. Can support to understand physical nature-related risks at a local level.

[12] Companies that are presented in this document have applied 2018-2023 version of the ENCORE knowledge

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Acknowledgements

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Nadine McCormick, *WBCSD*
Eve Gleeson, *ShareAction*

With thanks to:

Claudia Perez Casas, *Sacyr*
Renata Pollini, *Holcim*
Ashley Welch, *AECOM*
Francisco Amorim and Jill MacKeith, *Nature Based Insights*
Claudia Schweizer, *WBCSD*
Impact House by *Grant Thornton Netherlands*

Design:

deborahripley.com

Funding

Co-funded by the European Union

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of European Union, the European Commission. Neither the European Union nor the granting authority can be held responsible for them.

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs
Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

UK Research and Innovation

The SUSTAIN project is funded by European Union's Horizon Europe research and innovation program under grant agreement No 101060320, the Swiss State Secretariat for Education, Research and Innovation (SERI), and UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee 10075763, 10038461 and 10046192.

The project partner consortium is made up of the Capitals Coalition, UNEP-WCMC, Oxford Sustainable Finance Group, ETH Zürich, Fundación Biodiversidad, IUCN, IUCN Europe, PBL Netherlands Environmental Assessment Agency, ShareAction and WBCSD